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Book of selected abstracts

The authors alone are responsible for the views expressed in these abstracts and they do not necessarily represent the decisions, policy or views of the World Health Organization.

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Agenda

Monday, 24 March 2025 Session 1: Morning OPENING PRESENTATIONS **Chair:** Claire Fuller		
Time	**Subject**	**Presenting authors**
07:30–09:00	**Registration, welcome coffee and Zoom login by online participants**	**All participants**
09:00–09:20	Welcome remarks	Jérôme Salomon Assistant Director-General, WHO/UCN
	WHO Global NTD Programme – progress update	Ibrahima Socé Fall Director, WHO/NTD
09:20–09:35	NTDs and Primary Health Care	Shams Syed
09:35–09:45	Role of public–private partnerships and civil societies in promoting skin health for all	Henry Lim
09:45–09:55	WHO Academy: role in supporting capacity strengthening on NTDs and skin diseases	Bart Janssens*
09:55–10:05	Digital innovations including AI for skin diseases	José Antonio Ruiz Postigo
10:05–10:15	**Discussion**	**All**
10:15–10:30	**Coffee break**	
10:30–10:45	**Keynote presentation**: Skin diseases – past, current and future efforts	Roderick Hay
10:45–12:00	**Skin NTD working groups**	
	A brief overview of progress over past 2 years	1. Kingsley Asiedu
	1. Advocacy and communication	2. Anna Wickenden
	2. Basic research	3. Rachel Simmonds
	3. Capacity strengthening/training	4. Claire Fuller
	4. Diagnostics and laboratory support	5. Isra Cruz
	5. Drug development and access	6. Richard Philips
	6. Epidemiology and surveillance	7. Wim van Brakel
	7. Integration at country level	8. Rie Yotsu
	8. One Health in the context of skin NTDs	9. Sascha Knauf
	9. Operational research	10. Gail Davey
	10. Psychosocial aspects	11. Helen Price
	11. Skin health, wound care and rehabilitation	12. Michele Murdoch
	12. Transmission	13. Heather Jordan*
	13. WASH	14. Yael Velleman*

Monday, 24 March 2025 Session 2: Afternoon IMPLEMENTATION **Chair:** Daniel Argaw Dagne/Priya Pathak		
Time	**Subject**	**Presenting authors**
	10-minute presentation + 5-minute discussion each	
14:00–14:15	A personal journey of a noma survivor	Mulikat Okanlawon
	From recognition to action: positioning noma within the NTDs–update	Albis Gabrielli
14:15–14:30	The implementation of the road map for NTDs and the Skin-NTD framework through the lens of Anesvad Foundation: insights and main challenges	Iñigo Lasa Aitor Jiménez
14:30–14:45	Integrated skin NTD project: Addressing diagnosis, management, and surveillance in Papua New Guinea 2023–24	Abel Marome
14:45–15:00	Community-based active surveillance and diagnosis program for skin-related NTDs in rural areas from Paraguay	José Guillermo Pereira Brunelli
15:00–15:15	The Morges Strategy for yaws eradication: the first large-scale total community treatment with azithromycin against yaws in the Congo-Basin, using a novel model.	Earnest Njih Tabah
15:15–15:30	Evaluating health system integration of skin neglected tropical diseases in Liberia: Lessons for global implementation	Karsor Kollie
	WHO regional updates	
15:30–15:45	• Global Leprosy Programme	Vivek Lal*
15:45–16:00	• SEARO	Aya Yajima*
16:00–16:15	• EMRO	Mona Osman*
16:15–16:30	• WPRO	Kazim Sanikullah
16:30–16:45	• AFRO	Abate Beshah
16:45–17:00	• PAHO/AMRO	Ana Luciañez

*Online Presenting authors.

Monday, 24 March 2025 Side meetings (17:00–19:00)		
Time	**Title**	**Organizer**
17:00–19:00	WHO skin NTD working group on skin health, wound care and rehabilitation**	Hubert Vuagnat
	Skin patient support organizations as partners	Jennifer Austin
	OCEAC meeting**	Alphonse Um Boock
	WHO Skin NTDs App and artificial intelligence	José Antonio Ruiz Postigo

**Attendance by invitation only.

Tuesday, 25 March 2025

Session 3: Morning

IMPLEMENTATION

Chair: Esther Freeman/Christian Johnson

Time	Subject	Presenting author
08:00–09:00	**Welcome coffee and Zoom login by online participants**	**All participants**
	10-minute presentation + 5-minute discussion each	
09:00–09:15	Improving diagnosis of skin neglected tropical diseases: results from an integrated, decentralized skin health intervention in Atwima Mponua district, Ghana	Richard Akuffo* Richard Phillips
09:15–09:30	Expanding dermatological access: A prospective study of a digital health tool ("eSkinHealth App") for managing skin NTDs and other skin diseases in Côte d'Ivoire	Rie Yotsu
09:30–09:45	Exploring the accuracy and usability of the WHO skin NTD app power by AI in Kenya	Carme Carrion
09:45–10:00	The impact of teledermatology and direct microscopy on skin health in remote eastern Indonesia	Marlous Grijsen*
10:00–10:15	Integrated clinical and serological surveys for scabies and yaws in Vanuatu	Adam Bartlett*
10:15–10:30	Common skin diseases, another health concern in communities co-endemic for skin NTDs: results of integrated research into skin NTDs and other prevalent dermatoses in six districts in Côte d'Ivoire	Didier Yao Koffi
10:30–10:45	A novel geostatistical approach to estimate the burden of lymphatic filariasis clinical case estimates in endemic countries	Carrie Barrett
10:45–11:00	Insights into the concept, methodology, and initial findings of the global healthcare study on psoriasis (GHSP)	Julia-Tatjana Maul
11:00–11:15	Crowdsourced image-based morbidity hotspot surveillance for neglected tropical diseases (CIMS-NTDs): Development and pilot of a new surveillance method for neglected tropical diseases	Uchechukwu Chukwuocha
11:15–11:30	Finding the needle in the haystack: Best practices for early detection of leprosy in low epidemic areas from Shandong Province, China	Furen Zhang
11:30–11:45	Visualizing the elimination of leprosy using the new WHO surveillance tools	Wim van Brakel
11:45–12:00	Leprosy in children: on the 224 cases in the Republic of the Congo	Alphonse Um Boock Axel Aloumba

*Online Presenting authors.

Tuesday, 25 March 2025 Side meetings (12:00–14:00)		
Time	**Title**	**Organizer**
12:00–14:00	WHO skin NTD working group on One Health	Sascha Knauf
	WHO skin NTD working group on psychosocial effects	Helen Price
	Beyond the surface: a workshop on skin NTDs advocacy and communication to galvanize resources and momentum	Marianne Comparet

Tuesday, 25 March 2025

Session 4: Afternoon

RESEARCH

Chair: Gail Davey

Time	Subject	Presenting authors
	10-minute presentation + 5-minute discussion each	
14:00–14:15	Telacebec: a novel promising drug for improving the treatment of Buruli ulcer, leprosy and tuberculosis	Eugene Sun
14:15–14:30	A multicenter phase 2 trial of telacebec for adults with Buruli ulcer in Australia: the TREAT-BU trial.	Daniel O'Brien
14:30–14:45	Shortening Buruli ulcer treatment in West Africa: an update on the BLMs4BU trial	Roch Christian Johnson
14:45–15:00	Non-inferiority trial for Tungiasis Treatment in Kenya: dimeticone oils versus sodium carbonate solution	Kana Suzuki*
15:00–15:15	Genetic Variability in the qcrB Gene of *Mycobacterium ulcerans* and *Mycobacterium leprae*: Implications for Telacebec Resistance Monitoring	Sofie Braet Bouke de Jong
15:15–15:30	Dapsone hypersensitivity syndrome in leprosy – approach to diagnosis and prevention	Yonghu Sun
15:30–15:45	A rapid molecular identification scheme to identify the most common causative agents of mycetoma to the species level	Wendy van de Sande
15:45–16:00	Comparing qPCR Detection of *Mycobacterium leprae* in Human and Armadillo Samples	Charlotte Avanzi
16:00–16:15	The impact of climate change on neglected tropical diseases of the skin	Eva Parker
16:15–16:30	Canonical fact versus hypothesis testing to decipher transmission of cutaneous and non-cutaneous mycobacterial diseases: a comparative perspective	Jean-François Guégan*
16:30–16:45	Mosquitoes transmit Buruli ulcer in Victoria, Australia	Paul Johnson
16:45–17:00	Environmental pressures driving the distribution of *Mycobacterium ulcerans* (Buruli ulcer) and *Mycobacterium leprae* (leprosy): A disease ecology approach	Alisa Aliaga Samanez*

*Online Presenting authors.

Tuesday, 25 March 2025 Side meetings (17:00–19:00)		
Time	**Title**	**Organizer**
17:00–19:00	Telacebec in Buruli ulcer and leprosy**	Ymkje Stienstra
	Skin health policy in Côte d'Ivoire: One Health perspective**	Bassirou Bonfoh
	How to join efforts in the fight against noma	Valérie Elsig
	Achieving a WHA resolution on all skin diseases	Visnja Zaborski Breton

**Attendance by invitation only.

Wednesday, 26 March 2025

Session 5: Morning

IMPLEMENTATION

Chair: Michele Murdoch/Getnet Tadele

Time	Subject	Presenting authors
08:00–09:00	**Welcome coffee and Zoom login by online participants**	
	10-minute presentation + 5-minute discussion each	
09:00–09:15	Wound and ulcer care services provided by primary health facilities in low-resource-settings: an informal scoping survey	Cristina Galván-Casas
09:15–09:30	Socio-economic impact of the community-based wound management model in the HDSS of Taabo, Côte d'Ivoire	Bognan Valentin Koné
09:30– 09:45	A dream come true? The efficacy of treating Buruli ulcer, cutaneous leishmaniasis, leprosy and scabies with oxygen-ozone therapy	Antonella Bertolotti Tatiana Pedrazzi Luca Papetti
09:45–10:00	Integrating skin NTDs into primary health care units: The Ethiopian experience	Merga Akuma
10:00–10:15	Feasibility and potential of artificial intelligence-based mobile health screening tools for enhancing the detection of leprosy and other neglected tropical skin diseases at the community level in Senegal (West Africa)	Dominik Jockers
10:15–10:30	Improving access to skin health for refugees and displaced populations via a technology-integrated healthcare program model	Valeska Padovese
10:30–10:45	Transforming skin-NTD control in India: Lessons from the initial phase of the ASPIRE Pilot Study in Jamui district, India	Guillermo Robert
10:45–11:00	Inequities and factors associated with gender and disability in NTD-endemic communities in Benin and Côte d'Ivoire: An intersectional approach to interventions	Esaï Anagonou
11:00–11:15	Surgical management and long-term outcomes of noma sequelae: The Geneva experience	Ilias Petrou
11:15–11:30	Rehabilitation of noma sequelae in Africa: challenges and future prospects	Lauréna Rollet*
11:30–11:45	Women's access to and participation in a disease management intervention for podoconiosis in Rwanda: Challenges and recommendations	Corinna Thellmann
11:45–12:00	Discussion	All

*Online Presenting authors.

Wednesday, 26 March 2025 SIDE MEETINGS (12:00–14:00)		
Time	**Title**	**Organizer**
12:00	WHO skin NTD working group on epidemiology and surveillance	Wim van Brakel
13:00	WHO skin NTD working group on Drug Development and Access	Richard Phillips
	WHO skin NTD working group on NTD Discovery Research	Rachel Simmonds

Wednesday, 26 March 2025 Session 6: Afternoon RESEARCH **Chair:** Richard Phillips		
Time	**Subject**	**Presenting authors**
14:00–14:15	BAXERNA: next-generation mRNA vaccines for bacterial pathogens	Kia Ferrell
14:15–14:30	A multi-center collaboration analyzing the scabies associated microbiota demonstrates a decrease in diversity and a shift to opportunistic pathogenic bacteria	Katja Fischer
14:30–14:45	Can cutaneous leishmaniasis provoke a resurgence of kala-azar in the Indian subcontinent?	Tanyth de Gooyer
14:45–15:00	Bacterial clearance in Buruli ulcer lesions from patients in the BLMS4BU study	Emma Sáez-López
15:00–15:15	**Discussion**	
15:15–15:30	**Coffee break**	
15:30–16:30	Conclusions and closure	ADG/UCN Director/NTD Roderick Hay

Abstracts of presenting authors

Digital innovations including AI for skin diseases

Presenting and corresponding author: José Antonio Ruiz Postigo (postigoj@who.int)

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In October 2023, the World Health Organization (WHO) published an updated version of the skin neglected tropical diseases (NTDs) App, an educational tool freely available in Android and iOS. The new version, developed by UniversalDoctor and until no leprosy remains-NLR, included information on 13 skin NTDs and 24 common skin diseases. The common skin diseases selected represent over 95% of the skin lesions observed in most primary health care settings, in low- and middle-income countries.

Since 2022, WHO has been working on a beta version of the skin NTDs App powered by artificial intelligence (AI) to build an image classifier. Some 6000 images are in the WHO photo library. We have over 500 images of Buruli ulcer, cutaneous leishmaniasis, mycetoma and post-kala-azar dermal leishmaniasis each. Less than 100 images of chromoblastomycosis, onchocerciasis, sporotrichosis and tungiasis each, and 100 to 400 images of leprosy, lymphatic filariasis, scabies and yaws each.

The AI algorithm for the 24 common diseases is available through an agreement with Belle.ai.

In 2024, the preliminary results of a clinical assessment in Kenya in real-world conditions, showed an overall sensitivity of 78% and 80%, for skin NTDs and common conditions, respectively.

An external validation test with 300 new images of cutaneous leishmaniasis (Brazil), showed a sensitivity of 97%, with 381 images of leprosy (Brazil) showed a sensitivity of 87% and with 1564 images of scabies (Madagascar, Malawi, Guinea), a sensitivity of 90%.

On AI, the next steps are to assess the performance of the App in clinical settings in Brazil, Cameroon, Côte d'Ivoire, India and Indonesia.

We will continue gathering photos for additional external validations and to address at least five common skin diseases: atopic dermatitis, dermatophytosis, hidradenitis suppurativa, psoriasis and vitiligo.

Besides the app, WHO produced 21 online courses on skin NTDs and common skin diseases, most of them in the last two years. Over 80,000 learners enrolled from all over the world.

The WHO Academy provides a new environment for more courses and training activities to be implemented to address the pressing need of having over 1 billion people affected by skin conditions worldwide each year. Majority of those patients will never be consulted by a board-certified dermatologist.

Acknowledgements

All disease experts who voluntarily provided training material to create the online courses.

Thank you to the donors, Foundation Sanofi, Government of Canada and Tropical Disease Research Programme (TDR).

To the contributors of photographs, content and the researchers who made our mobile app a reality.

To our colleagues in the WHO Regional and Country offices, alongside the front-line health workers operating in most cases in very challenging scenarios.

Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Noma
- Onchocerciasis
- Podoconiosis
- Yaws

Skin NTDs and One Health: A scoping review

Presenting author: Sascha Knauf **/ Corresponding author:** Josefine Tecklenborg (tecklenborg@mailbox.org)

Author(s): Josefine Tecklenborg[1], Core Members of the Skin NTDs Working Group – One Health[2], Sascha Knauf[1,3]

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The challenges associated with controlling skin NTDs, coupled with increasing evidence for non-human disease reservoir systems in many skin NTDs – including Guinea worm and yaws – have recently led to the incorporation of the One Health (OH) approach to disease control. To identify and rank OH-related research and programmatic priorities supporting existing and future skin NTD programs, we aim to conduct a scoping review summarizing the current knowledge on environmental, animal and human aspects of skin NTDs.

We split the search into two parts. First, we focus on disease ecology and, second, we aim to investigate socio-economical aspects. For each skin NTD, excluding Noma, an expert-based naïve search string was built. Subsequently the search string was refined using R package litsearchr. Titles and abstracts from a naïve search were mined for common phrases and analyzed in a co-occurrence network to present the most important phrases, which, were used to expand the naïve search string. Resulting strings were used in PubMed, Scopus, Web of Science, and Global Index Medicus. Search results will be screened for eligibility by two authors independently assisted by AI tool ASReview Lab. Data will be extracted from papers available as full text and synthesized in a narrative review.

For the first review on disease ecology, the adjustment of naïve search strings added 47 hits on average in PubMed. The search across all four databases resulted in 12,444 hits, which entered the pre-selection process. The number of search results varied greatly between the different skin NTDs, ranging from 130 hits for Tungiasis to 3012 for Lymphatic Filariasis.

Although the need for integrated OH disease control is widely accepted, there are considerable knowledge gaps hindering system-based coordinated responses. Many examples exist of disease reservoir systems impeding the elimination or eradication of skin NTDs, but cross-sectoral collaboration remains limited, and skin NTD programs are rarely linked to other health programs. Our summary will help to identify and rank future research priorities to support ongoing skin NTD programs. Joined with resource mapping and stakeholder consultations, it is expected that our data will provide guidance for the integration of the OH approach into WHO's mission to achieve the 2030 targets. Furthermore, they will facilitate the identification of synergies between programs in the areas of human, animal, and ecosystem health.

Acknowledgements

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Skin NTD(s)

- Buruli ulcer
- Dracunculiasis (guinea-worm disease)
- Ectoparasites: scabies
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Onchocerciasis
- Yaws

From recognition to action: positioning noma within the skin NTDs

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Noma is a devastating oro-facial disease that affects the world's most vulnerable populations. Without timely treatment, noma results in high fatality rates, severe disfigurement and impairment, leading to disability, stigma and discrimination. In 2023, noma was officially recognized as the 21st neglected tropical disease (NTD), marking a major milestone in global health. The World Health Organization (WHO), alongside key stakeholders, has since mobilized efforts to address noma within the broader NTD framework, aiming for integrated and sustainable control.

This presentation will highlight the progress to date and outline opportunities and challenges for synergy with skin NTDs. Although noma has been traditionally dealt with by oral health programmes, the parallels between noma and skin NTDs open perspectives for joint advocacy, resource mobilization, and programmatic integration, particularly in addressing stigma and improving early detection and management.

Notable developments in the integration of noma into the NTD landscape comprise the inclusion of noma in global gap assessment for NTDs and the WHO Global NTD Annual Reporting Form (GNARF), enabling systematic monitoring and data collection by Member States. Several countries have also begun incorporating noma into their national NTD master plans, embedding noma control and surveillance into their broader health strategies. Finally, the Global Oral Health Action Plan 2023–2030 has identified noma as a priority area, emphasizing the critical need for multi-sectoral collaboration.

Research institutions have initiated a cross-sectoral coordination among all partners, such as noma survivors, government agencies, nongovernmental organizations and the private sector to jointly identify research priorities and address knowledge gaps about noma. In addition, action has been taken to include noma in the WHO NTD road map 2021–2030: this process entails, among others, the definition of core strategic interventions to address its burden and the development of programmatic endpoint targets aligned with those established for the other 20 NTDs.

By giving insights into these latest advancements and by pinpointing challenges and opportunities of a disease at the edge between skin health and oral health, this presentation aims to raise awareness of noma, mobilize and reinforce stakeholder commitment and foster collaborative action to address the public health burden of noma and support survivors with dignity and care.

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Skin NTD(s)

Noma

Integrated skin NTD project: addressing diagnosis, management, and surveillance in Papua New Guinea 2023-2024

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Background

Papua New Guinea (PNG), third largest island country in the world, has an estimated population of 10.93 million, over 80% of which live in rural villages. Skin diseases are a significant public health concern in Papua New Guinea (PNG), with over 15% of outpatient visits attributed to skin-related conditions in several provinces. Neglected Tropical Diseases (NTDs) with skin manifestations, such as Yaws, Leprosy, Lymphedema, Buruli Ulcer and Scabies, contribute to disability, stigmatization, and mental health issues. The lack of diagnostic resources, specialized expertise, and essential medicines exacerbates this burden. The Integrated Skin NTD Project was initiated in three provinces (East New Britain, AROB and East Sepik) in 2023-2024 to address these challenges and explore opportunities for integration in diagnosis, management and surveillance, aiming to strengthen the healthcare system serving about 2 million people covered by 114 Health Facilities.

1. Strengthen integrated Skin NTDs management and prevention by improvement in the diagnosis, treatment, prevention and management of skin diseases by capacity building and improving availability of consumables to address the burden.
2. Capacity building of health workers and community volunteers on Skin-NTDs detection and treatment.
3. Strengthen skin disease monitoring and surveillance by establishing an effective reporting system.

Output

Capacity Building - Improved capacity of 119 healthcare workers of provinces demonstrated by enhanced diagnostic accuracy and treatment adherence.

Availability of services in 114 Health Facilities- increased availability of essential skin NTD medications in targeted healthcare facilities.

Digital patient consultation platform connecting dermatologist with the health workers on ground.

Integrated surveillance system for real-time tracking and reporting of more than 8700 skin disease cases reporting on Scabies, Buruli Ulcer, Lymphedema, Hydrocele, Leprosy and Yaws,

Cost per case prevented to suffer from skin diseases is USD 1.6 per case.

Conclusion

Continue strengthening of health system to address skin NTDs by integrated approach to capacity building, improved case management and active surveillance.

Identify best practices and scale up of the Skin NTD project to other high endemic provinces.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Yaws

The Morges Strategy for yaws eradication: the first large-scale total community treatment with azithromycin against yaws in the Congo-Basin, using a novel model

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Context and Justification

Yaws is targeted for eradication by 2030. Total Community Treatment with azithromycin (TCT), a major component of the eradication strategy, has witnessed only three pilots since 2012. We implemented the first large-scale TCT in the Congo-Basin of Central Africa using a novel model.

Methodology

We implemented a novel 3-phase TCT model in 17 health districts of the Congo-Basin, spanning 3 countries. Two rounds were implemented in Cameroon, and one round each in Central African Republic (CAR) and the Republic of Congo; targeting 1,530,014 people (144,934(9.5%) Pygmies and 1,304,410(90.5%) Bantus). TCT was followed by post-campaign active surveillance, treatment of yaws cases and their contacts.

Results

All 17 health districts were confirmed for yaws endemicity. Overall, 1,456,691 (95.21%; 95%CI: 95.17%-95.24%) persons were treated in the first round of TCT, including 552,356/594411 (92.92%; 95%CI: 92.86%-92.99%) in Cameroon, 359,810/373,994 (96.21%; 95%CI: 96.15%-96.27%) in CAR, and 544,526/561,609 (96.96%; 95%CI: 96.91%-97.00%) in Congo. For the second round implemented only in Cameroon, 615,503/642,947 (95.73%; 95%CI: 95.68%-95.78%) were treated. There was a 3-percentage-point increase in therapeutic coverage between the first and second round (P-value<0.001), and from 89.2% to 93.1% (P-value<0.001) among the Pygmies. The prevalence of active yaws decreased from 6.5% to 0.4% (P-value<0.001) overall; and from 6.31% to 0.23% (P-value<0.001, OR=28.67, 95%CI (20.86-40.09) in Cameroon, from 2.4% to 0.8% (P-value=0.002, OR=3.19, 95% CI: 1.45-8.00) in CAR, and from 10.8% to 3.7% (P-value<0.001, OR=3.18, 95%CI: 2.09 – 5.01) in Congo.

Conclusion

A novel TCT model was successfully implemented at largescale in the Congo-Basin, achieving above recommended threshold of therapeutic coverages. The prevalence of active yaws dropped remarkably following the TCT, however complete interruption of yaws transmission was not achieved. In recommending the novel model of TCT to endemic countries, we suggest that at least three rounds, at six-monthly intervals, are implemented for complete interruption of yaws transmission.

Keywords: Novel model, TCT, yaws, prevalence, Congo-Basin, CEMAC.

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Skin NTD(s)

Yaws

Evaluating health system integration of skin neglected tropical diseases in Liberia: Lessons for global implementation

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Background

Neglected Tropical Diseases (NTDs) requiring case management (CM) disproportionately affect impoverished settings where fragmented programs challenge healthcare delivery. In line with the WHO NTD Roadmap 2021–2030, Liberia is among the first countries to implement an integrated approach to CM-NTD management within its health system to enhance accessibility, efficiency, and sustainability. Liberia pioneered the integration of CM-NTDs, including Buruli ulcer, leprosy, lymphoedema, hydrocele and yaws, into its health system. This study evaluates this integration's feasibility, impact, and challenges, offering insights for global scale-up.

Methods

A mixed-methods evaluation was conducted in three integrated CM-NTD counties, compared with matched non-integrated counties. The study examined six health system building blocks. Quantitative analysis incorporated routine health system data, comparing pre- and post-integration case detection, access, and service delivery outcomes. Qualitative data collected through focus group discussions, key informant and in-depth interviews, engaged stakeholders at all levels of the health system. Qualitative data were analyzed using the framework approach.

Results

Findings demonstrate that integration is feasible and enhances case detection, with a fourfold increase in CM-NTD identification ($p < 0.000$; CI 3.5–5.4). Accessibility improved, with health facilities providing CM-NTD services expanding from 3 in non-integrated to 71 in integrated areas. Integration into Liberia's national supply chain facilitated better medicine and commodity management and reduced reliance on paper-based reporting. Incorporating CM-NTDs into the national Health Management Information System (HMIS) strengthened data reporting but highlighted gaps in cross-cutting measurable indicators. Human resource integration faced challenges, including workload concerns, though collaborative approaches and systemic restructuring enabled progress. Governance was crucial in transitioning from vertical to integrated models, though donor reliance hindered government-led efforts.

Conclusion

Liberia's experience provides critical insights for integrating CM-NTD within health systems and scaling up CM-NTD integration globally. While integration improves service delivery and strengthens health systems, sustainability depends on sustained financial investment, the inclusion of cross-cutting indicators, robust supply chains, and strong governance.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Yaws

Integrated skin NTD approach - Experience and perspectives from the WHO South-East Asia Region

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Skin-related neglected tropical diseases (Skin NTDs) in the South-East Asia Region remain, a significant public health challenge, particularly among marginalized populations. Skin NTDs contribute to significant morbidity, stigma, and economic challenges, especially in communities with limited healthcare access. Aligned with the Global NTD Roadmap 2021-2030, the Regional Strategic Framework for sustaining, accelerating and innovating to end neglected tropical diseases in the South-East Asia Region 2024–2030 emphasizes integrated surveillance, treatment, and stigma-reduction strategies to address inequities, improve health outcomes, and accelerate progress towards elimination targets for skin NTDs. To promote integrated skin NTD approach, WHO SEARO has developed "An Integrated Approach to Skin-Related Neglected Tropical Diseases: A Booklet for Health Care Workers" as a regional adaptation of the "Ending the Neglect to Attain the Sustainable Development Goals: A Strategic Framework for Integrated Control and Management of Skin-Related Neglected Tropical Diseases." This booklet aims to provide a simple guide to healthcare professionals and workers at the primary healthcare (PHC) level to detect, diagnose, manage, and appropriately refer major skin diseases, not limited to skin NTDs, in the WHO South-East Asia Region. NTD Unit and Global Leprosy Programme at WHO SEARO also jointly supported an integrated programme review of skin NTDs focusing on leprosy, LF, and yaws in Indonesia from 19 to 26 August 2024. This review not only helped identify disease-specific strengths and challenges but also proved effective in identifying common challenges and integration opportunities across multiple disease programmes, enhancing cost-effectiveness and sustainability of disease elimination programmes through the PHC approach. Multiple countries and partners are piloting integrated skin camps or integrated active case detection of skin NTDs across the Region. The strategy is adapted to each country's specific context, considering factors such as co-endemic skin NTDs and the healthcare system. The presentation aims to provide an overview of the integrated skin NTD approach in the WHO South-East Asia Region, including pros and cons of integrated skin NTD approach experienced in countries and offer valuable insights and practical recommendations for improving public health outcomes for skin NTDs in the Region.

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Skin NTD(s)

- Ectoparasites: scabies
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Yaws

Improving diagnosis of skin neglected tropical diseases: results from an integrated, decentralised skin health intervention in Atwima Mponua district, Ghana

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Introduction

Skin neglected tropical diseases (skin NTDs) including leprosy, yaws and Buruli ulcer (BU) are of public health importance in Africa. Though treatable, they are associated with morbidity, disability and stigma. Diagnosing these conditions can be challenging due to variable clinical presentations, low incidence, and a lack of healthcare worker (HCW) knowledge and experience.

Methods

Between Oct 2023 - Sept 2024, we implemented and evaluated an integrated skin health intervention aimed at improving diagnosis and treatment outcomes for people with skin problems in Atwima Mponua District, Ghana. To improve the diagnosis of all skin conditions, we trained HCW across all 17 health facilities using a cascade approach, established a supportive supervision system, and provided facilities with diagnostic kits. We evaluated HCW performance using tests pre-training and immediately post-training, conducted HCW focus group discussions (FGDs), and conducted an objective structured clinical examination (OSCE) of HCW at ten months post-training. We used standardized facility visits to collect routine data on skin problem cases recorded during the intervention period.

Results

HCW knowledge improved from an average of 57% at the pre-test to 85% following training. HCW feedback obtained from FGDs suggested that training exceeded their expectations, but also felt overwhelming at times. Ten months after the training, 79% of HCW assessed via OSCE scored above the average cut-off mark for demonstrating acceptable skills in diagnosing skin NTDs. During the intervention period, 4338 individuals were diagnosed with skin conditions at the health facilities (excluding the district hospital). Total numbers of BU, leprosy, yaws, were low at 3 (0.1%), 2 (0.1%), and 5 (0.1%) respectively, whereas scabies was common 442 (10.2%). Other common skin conditions include chronic wounds (498, 11.5%), impetigo (530, 12.2%), ringworm (379, 8.7%) and acute wounds (1313, 30.3%).

Discussion/conclusions

Training front line HCW in the diagnosis and management of skin conditions was feasible in this setting, and appeared to result in sustained increases in knowledge and skills for most participants. The relative burden of skin NTDs was very low compared to other skin conditions. Our findings suggest that skin-health strategies should focus on a universal health coverage approach to strengthening diagnosis and management of all skin problems, instead of just skin NTDs.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leprosy
- Yaws

Expanding dermatological access: A prospective study of a digital health tool ("eSkinHealth App") for managing skin NTDs and other skin diseases in Côte d'Ivoire

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Skin-related neglected tropical diseases (skin NTDs) continue to affect people living in remote communities of endemic countries, particularly in regions with limited access to dermatological care. This operational research assesses the impact of the eSkinHealth app, a digital health tool designed to enhance case management of skin NTDs and other skin diseases in Côte d'Ivoire. The eSkinHealth app serves as a portable electronic medical record and a platform for teledermatology connecting frontline healthcare workers to remote specialists. The study was conducted across sixteen primary health centers in the Sinfra and Bouaflé districts, known for endemic skin NTDs in central Côte d'Ivoire. The primary objective was to evaluate changes in skin disease prevalence and diagnostic rates before and after the implementation of the app, while also assessing the usability, acceptability, and feasibility of the tool among healthcare workers.

A total of 954 patients were included in the analysis. Results showed a three-fold increase in skin NTD diagnoses during the intervention period, particularly in Buruli ulcer and scabies cases ($p<0.01$). The app facilitated better diagnosis and case documentation, though challenges such as synchronization (data upload) failure and poor image quality were noted. Usability was assessed using the System Usability Scale (SUS), which showed significant improvements, especially in Bouaflé, where the SUS score increased by 33.9 points ($p<0.01$). Interviews with healthcare workers, including nurses and community healthcare workers, highlighted improvements in diagnostic accuracy, patient engagement, and health system capacity.

The integration of the eSkinHealth app into skin NTD management proved effective in enhancing diagnostic capacity and case management in resource-limited settings. While the app demonstrated substantial benefits in improving diagnostic rates and healthcare worker satisfaction, challenges such as technical issues and patient concerns about privacy need to be addressed for future scalability. This study underscores the potential of digital health tools to bridge gaps in dermatological care, contributing to improved health outcomes for communities affected by skin NTDs.

Acknowledgements

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Yaws

Exploring the accuracy and usability of the WHO skin NTD app in Kenya

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Background

Skin Neglected Tropical Diseases (Skin NTDs) are prevalent in endemic areas and resources to manage them are limited. The WHO SkinNTDs App is designed to help Frontline Health Workers (FHWs) in diagnosing skin NTDs. Version 3.0 of the App is available. Its usability and user experience was previously tested in Kenya and Ghana. In the current study, a new beta version of the app which includes an Artificial Intelligence (AI) algorithm to facilitate identification of 13 sNTDs (Universal Doctor) and 24 common skin conditions (Belle AI) was assessed in real life conditions in Kenya. The usability, user experience and accuracy of the AI sNTD app (beta version) were evaluated.

Methods

A cross sectional study was conducted in Kenya. Forty HCWs from 5 counties were asked to use the app in their daily routine from June to October 2024. Two workshops were organized, one at the beginning of the study, to train participants on how to use the app, recruit patients and upload images of the skin lesions on the App, while the second was held at the end to perform the assessment study. Participants were asked to complete an online survey containing the user Mobile App Rating Scale (uMARS) questionnaire, followed by 4 focus groups and 16 semi structured interviews. In order to assess accuracy of the AI algorithms embedded in the App, a total of 605 images were uploaded by participants on the App. The diagnosis given by the AI algorithms of each skin lesion was then compared to the consensus diagnosis reached by three independent expert dermatologists.

Results

The overall accuracy of NTD AI algorithm was 78%, with higher accuracy for endemic diseases in Kenya, including Cutaneous Leishmaniasis, Lymphatic Filariasis, Scabies and Tungiasis. Accuracy of common skin conditions AI algorithm was 80%. SkinNTDs App received high scores on the uMARS questionnaire (App quality mean 3.82/5, Subjective quality 3.97/5, and perceived impact 4.1/5), similar to the ones of the previous version in Kenya and Ghana. Preliminary analysis of the qualitative study showed how the App was empowering healthcare professionals and increasing their self-esteem and trust from their colleagues and patients. It also was useful in saving time and reducing referring patients to specialists.

Conclusion

SkinNTDs App beta version shows commendable quality and holds potential for use as a capacity building tool for FHWs in Kenya.

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Skin NTD(s)

13 skin NTDs

The impact of teledermatology and direct microscopy on skin health in remote eastern Indonesia

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Introduction

Neglected tropical diseases (NTD) remain a public health challenge, disproportionally affecting underserved communities in (sub)tropical regions. Indonesia has a high burden of skin diseases, particularly in remote areas. With limited access to specialist care, frontline healthcare workers (HCWs) play a central role in providing medical services. However, they have often received minimal training in recognizing skin conditions, especially skin-NTD.

Methods

To address this gap, we launched a teledermatology program in 2020 in collaboration with local authorities, supporting five health clinics in Sumba, one of the poorest islands in eastern Indonesia. We aimed to improve care by enhancing the clinical and laboratory skills of HCWs through targeted training in both common and neglected skin diseases. As the region is malaria-endemic, the clinics already had on-site microscopes, and HCWs were skilled in microscopy. This expertise enabled the adoption of additional diagnostic techniques, eg skin scrapings for fungal infections and scabies, and slit-skin smears for leprosy. These methods reduce dependence on resource-intensive skin biopsies, which pose logistical challenges. Cases were submitted to an online platform and reviewed by local experts.

Results

From 2020-2024, we provided teledermatology support for >700 cases of common and neglected skin diseases. We identified 70 individuals with previously unrecognized leprosy and 8 with chromoblastomycosis (CBM). Most individuals had experienced symptoms for many years before detection, with a median of 42 months (IQR 12-96). Among those with leprosy, 22 (31%) had visible disabilities at diagnosis, illustrating severe diagnostic delays; five (7%) were children, emphasizing community transmission. One patient with longstanding CBM developed squamous cell carcinoma requiring leg amputation. 50 persons with leprosy (71,4%) had a positive bacteriological index; all CBM cases were confirmed through microscopy.

Discussion

This case study highlights how teledermatology and direct microscopy empowered HCWs and significantly improved case detection of skin-NTD. We emphasize the need for integrating targeted skin health training with simple, cost-effective diagnostic tools, like direct microscopy, into routine national health programs, specifically for underserved areas. Strengthening these efforts is key for improving the diagnosis of complex conditions like skin-NTD and achieving the WHO NTD Roadmap goals.

Skin NTD(s)

- Fungal infections (deep): chromoblastomycosis
- Leprosy

Integrated clinical and serological surveys for scabies and yaws in Vanuatu

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Background

Scabies and yaws are skin neglected tropical diseases (NTDs) that remain endemic in Vanuatu, with the Ministry of Health committed to reaching the 2030 control and elimination targets. Between 2021 and 2024, two rounds of integrated mass drug administration (MDA) campaigns for scabies, yaws and soil-transmitted helminths were conducted in the provinces of Tafea, Sanma and Shefa with the support of the Pacific Integrated NTD Elimination (PINE) project. Here we report the prevalence surveys integrated with the MDA campaigns, focusing on scabies prevalence and yaws sero-prevalence.

Methods

Cluster-adjusted prevalence estimates for clinically diagnosed scabies cases (with 95% confidence intervals, CIs) for each area council were calculated for pre-MDA (Tafea 2021, Sanma 2022 and Shefa 2023) and post-MDA (Tafea 2023 and Shefa 2024) community surveys. Relative prevalence reduction was calculated for scabies where pre- and post-MDA surveys were conducted. Dried blood spots collected from a random sample of 20% of survey participants were analysed for yaws antibodies using a multi-bead assay (anti-Rp17, indicative of recent or active infection; and TmpA, indicative of historic infection), with seroprevalence calculated for each province.

Results

Scabies prevalence in Tafea was 14.1% (95%CI 7.4, 25.3) pre-MDA and 11.9% (95%CI 7.6, 18.0) post-MDA. At follow-up there were four area councils in Tafea with a scabies prevalence >10%. In Shefa, scabies prevalence was 3.9% (95%CI 2.6, 6.0) pre-MDA and 4.4% (95%CI 1.8, 10.0) post-MDA. All area councils in Shefa that had a post-MDA survey had a scabies prevalence <10%. Baseline scabies prevalence in Sanma (2022) was 2.6% (95%CI 1.6, 4.2), with all area councils found to have a scabies prevalence <10%. In children aged 1-14 years, the anti-Rp17 and anti-TmpA seroprevalence in Tafea was 13.7% (32/233) and 5.2% (12/233) respectively, in Shefa 2.5% (4/163) and 2.5% (4/163) respectively, and in Sanma 0% for both antibodies (N=161). There were 11/233 (4.7%) children in Tafea and 2/163 (1.2%) children in Shefa who were positive for both antibodies.

Conclusion

Tafea province was found to have higher scabies cases and yaws seroprevalence requiring targeted interventions for these skin NTDs. Hotspot analyses are required for Sanma and Shefa provinces to inform subsequent control strategies and ensure progress towards control and elimination targets are met.

Acknowledgements

The authors would like to acknowledge all the field workers and participants involved in the MDA programs and community surveys.

Skin NTD(s)

- Ectoparasites: scabies
- Yaws

Common skin diseases, another health concern in communities co-endemic for skin NTDs: results of integrated research into skin NTDs and other prevalent dermatoses in six districts in Côte d'Ivoire

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Introduction

Fourteen of the 20 NTDs on the WHO list are endemic in Côte d'Ivoire, including leprosy, Buruli ulcer, yaws, and scabies. The country has adopted an integrated approach to the fight against these skin NTDs, with active case finding also targeting other common skin conditions prevalent in the same communities. This study reports the results of implementing integrated interventions against skin NTDs and other dermatoses in six districts. The objective is to describe, through epidemiological data, the extent of other dermatoses not listed as skin NTDs.

Method

This study was conducted in 60 villages co-endemic for Buruli ulcer and leprosy across six health districts, through integrated active case finding for skin NTDs. Active case finding was preceded by capacity-building for nurses in managing skin NTDs. Social mobilization targeted all individuals, both men and women, with skin lesions. Data collection was carried out using standardized forms BU 01, yaws 001, and the leprosy register. A data collection form for common dermatoses was also developed. Compilation and analysis of all data were carried out using DHIS2.

Results

A total of 12 585 individuals with skin lesions were examined, of whom 6.30% presented with cutaneous NTDs, distributed as follows: 0.1% leprosy cases, 0.19% Buruli ulcer cases, 0.1% yaws cases, and 5.9% scabies cases. The remaining 93.70% (n = 11 793) were common dermatoses. Among these, there were 2171 cases of ringworm, 142 cases of eczema, and 2947 cases of pityriasis versicolor. Of the total number of lesions examined, 6533 cases or 51.91%, did not receive a precise diagnosis or adequate care.

Conclusion

Common skin diseases in areas co-endemic for skin NTDs are the most prevalent. They present a health challenge due to their high prevalence and the insufficient capacity of health workers to make accurate diagnoses and provide adequate care within communities. Managing skin NTD cases alongside a higher number of other dermatoses is unethical and potentially leads to stigma and marginalization.
There is a need to plan efforts to control skin NTDs within a broader context that includes all dermatoses as part of global health efforts.

Acknowledgements

Partners: WHO, Anesvad Foundation, Raoul Follereau Foundation, health district stakeholders

Skin NTD(s)

- Buruli ulcer
- Ectoparasite: scabies
- Fungal infections (superficial): e.g. tinea capitis
- Leprosy
- Yaws

A novel geostatistical approach to estimate the burden of lymphatic filariasis clinical case estimates in endemic countries

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Background

In 2020 the World Health Organization (WHO) declared that Malawi had successfully eliminated lymphatic filariasis (LF) as a public health problem. Understanding clinical case distributions at a national and sub-national level is important, so essential care packages can be provided to individuals living with LF symptoms. This study aimed to develop a national database and map of LF clinical cases across Malawi using geostatistical modelling approaches, programme-identified clinical cases, antigenaemia prevalence and climate information.

Methodology

LF clinical cases identified through programme house-to-house surveys across 90 sub-district administrative boundaries (Traditional Authority (TA)) and antigenaemia prevalence from 57 sampled villages in Malawi were used in a two-step geostatistical modelling process to predict LF clinical cases across all TAs of the country. First, we modelled antigenaemia prevalence in relation to climate covariates to predict nationwide antigenaemia prevalence. Second, we modelled clinical cases for unmapped TAs based on our antigenaemia prevalence spatial estimates. Model simulations were performed to optimise the sampling strategy for house-to-house case finding for national LF programmes operational use.

Principle findings

The models estimated 20,938 (95% CrI 18,091 to 24,071) clinical cases in unmapped TAs (70.3%) in addition to the 8,856 (29.7%), programme-identified cases in mapped TAs. In total, the overall national number of LF clinical cases was estimated to be 29,794 (95% CrI 26,957 to 32,927). The antigenaemia prevalence and clinical case mapping and modelling found the highest burden of disease in Chikwawa and Nsanje districts in the Southern Region and Karonga district in the Northern Region of the country.

Conclusions

The models presented in this study have facilitated the development of the first national LF clinical case database and map in Malawi, the first endemic country in sub-Saharan Africa. It highlights the value of using existing LF antigenaemia prevalence and clinical case data together with modelling approaches to produce estimates that may be used for the WHO dossier requirements, to help target limited resources and implement long-term health strategies. Ongoing work is being conducted to further validate of this approach as a proof of concept before scaled-up in other endemic countries.

Acknowledgement

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Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Insights into the concept, methodology, and initial findings of the global healthcare study on psoriasis (GHSP)

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Background

Despite international psoriasis treatment guidelines, disparities persist in the availability and accessibility of adequate therapy in some countries. Additionally, international inequalities exist concerning comorbidities, disease presentation, and severity.

Objective

The Global Healthcare Study on Psoriasis (GHSP) aims to provide a comprehensive understanding of the disease's impact on patients' quality of life, treatment accessibility, and healthcare systems worldwide.

Methods

The GHSP cohort was established in 2018 and initiated in 2020. Data were collected using a standardized assessment questionnaire comprising 88 items, administered by trained experts. Study population characteristics were presented as median (interquartile rage [IQR]) for numeric variables and as frequencies (percentages) for categorical variables.

Results

By October 26, 2024, cross-sectional data had been collected from 3,950 psoriasis patients at 130 study centers in 22 countries on 6 continents. 44.3% of patients were female, with a median (IQR) BMI of 26.5 (23.7-30.1). The median (IQR) Psoriasis Area and Severity Index (PASI) was 5.0 (2.0-11.4), and median (IQR) Dermatology Life Quality Index (DLQI) was 7.0 (2.0–14.0). Psoriatic arthritis was present in 20.2% of the patients, and nail psoriasis in 36.7%. Additionally,16.5% of patients were currently smokers, and reported regular alcohol consumption.

Conclusion

These findings from the GHSP highlight the global burden of psoriasis regarding demographics, disease severity, and both physical and psychological comorbidities. By identifying inequalities, special patient populations, and country-specific differences, the GHSP can guide the development of strategies to enhance psoriasis care on a global level. In the future, additional countries and study centers will be included to investigate physical, social, economic, and psychological aspects of psoriasis in greater detail. Concurrently, the GHSP is transitioning into a long-term global registry to better understand disease progression over time to create a comprehensive global platform that will further enhance psoriasis research and care on an international scale.

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Collaboration

The cooperation with valuable organizations such as the Federation of Psoriasis Associations (IFPA) and Skin Inflammation & Psoriasis International Network (SPIN) has enriched the global significance and enhanced the impact of our research.

Skin NTD(s)

Other: Psoriasis and healthcare observation

Crowdsourced image-based morbidity hotspot surveillance for neglected tropical diseases (CIMS-NTDs): Development and pilot of a new surveillance method for neglected tropical diseases

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We developed and validated the Crowdsourced Image-based Morbidity Hotspot Surveillance (CIMS-NTDs) method for Neglected Tropical Diseases (NTDs) to address the limitations of conventional NTDs surveillance and accelerate progress toward the NTDs elimination agenda for 2030. This pilot study was conducted in 45 communities across three states in Nigeria, covering about 477,138 people. It involved sensitizing subjects and communities to self-report cases by ethically taking photographs of skin and eye manifestations upon notice using a smart phone and submit via WhatsApp and Telegram to a central database for expert analysis and identification as NTDs manifestations. A cross-sectional study to evaluate the user experience, acceptance, and satisfaction as well as key informant interviews with NTDs programme officers to gain insights into the method's potentials and challenges were also conducted. Over a four-month period, the study collected 512 morbidity images, of which 386 (75.4%) were confirmed as NTDs. The mean age of reporting subjects was 53±20.7 years, with 42.6% having experienced NTDs symptoms for 1 to 5 years before reporting through the CIMS-NTDs method. About 85% had not received any NTDs intervention. The CIMS-NTDs significantly outperformed traditional methods, with a mean monthly reporting rate of 54.3 cases compared to 6.8 in study states and 1.5 in control states (Kruskal-Wallis $H = 9.505$, $P = 0.0086$). These data were used to map NTDs morbidity hotspots in the study settings. Key informant interviews revealed that stakeholders valued the method for its efficiency, privacy, and ability to engage communities, although challenges such as funding constraints and reliance on smartphones in rural areas were noted. A cross-sectional survey of 1,294 respondents revealed high user satisfaction, with 65.3% rating the method as "easy to use" and 82.9% feeling involved in NTDs surveillance. The CIMS-NTDs method shows a lot of promise in enhancing NTDs surveillance through community involvement and technology. Its ability to detect emerging conditions and support post-elimination surveillance highlights its value. Scaling up this method and integrating it into existing NTDs elimination programmes are keys to maximizing its potential.

Acknowledgements

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We are deeply grateful to the Ministries of Health in Ondo, Enugu, and Cross River states, along with their NTD elimination offices, for providing logistical and human resources support that was crucial to our project's implementation. We also acknowledge the NTDs focal persons and social mobilization officers at the Local Government Areas (LGAs) where our project was carried out.

Finally, we express our heartfelt thanks to MITOSATH for funding the free hydrocele surgeries, which benefited approximately 27 hydrocele patients who were identified through the CIMS-NTDs method.

Skin NTDs

- Buruli ulcer
- Dracunculiasis (guinea-worm disease)
- Ectoparasites: scabies
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis

Finding the needle in the haystack: Best practices for early detection of leprosy in low epidemic areas from Shandong Province, China

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Shandong used to be one of the province with a heavy disease burden of leprosy. The total number of leprosy cases reported reached 54,147 since 1950's, ranked the forth in the country. The highest detection rate of leprosy cases (0.1%) appeared in 1950s and the highest prevalence rate (0.14%) appeared in 1960s in Shandong. The implementation of MDT in 1980s enhanced rapid elimination of leprosy. The detection rate and prevalence rate dramatically decreased to 0.0037%and 0.066%in 1990s. In 1994, Shandong became the first province to announce basic elimination of leprosy by county according to the appraisal standards issued by the Ministry of Health (prevalence less than 1/100,000). However, the side effects of announcing basic elimination of leprosy appeared. With the declining of political commitment by the governments, the integrity and efficiency of the leprosy control system were largely impaired due to limited resources, organizational reform and staff turnover. Meanwhile, leprosy in Shandong is far from actually eliminated. In the following decade, 20 cases on average were detected each year without evident decrease, and the deformity rate among newly reported cases kept as high as 30%. In recent decades, several key factors have underpinned the early detection of leprosy cases in Shandong Province. Firstly, political commitment has ensured the sustainability of leprosy control efforts. The Chinese government has robustly supported these initiatives through comprehensive policy frameworks, dedicated budget allocations, human resource investments, and widespread social mobilization. Secondly, the existence of a well-established leprosy control system, coupled with a highly skilled professional team, has been fundamental in the effective implementation of leprosy control measures and programs. Notably, a potent provincial institution for leprosy prevention and control has played a pivotal role in enforcing the early detection program with significant executive force. Thirdly, multidisciplinary collaborations, specialized support, and technical innovations at the provincial level have substantially enhanced the precision of leprosy case detection and management.

Skin NTD(s)

Leprosy

Visualising the elimination of leprosy using the new WHO surveillance tools

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Surveillance is critical in the quest for NTD control and elimination. In 2023, the WHO Global Leprosy Programme published Technical guidance for countries working to achieve the milestones of interruption of transmission and elimination of leprosy disease. This contained two key tools that can greatly facilitate the monitoring of progress towards achievement of these two milestones, the Leprosy Elimination Framework (LEF) and the Leprosy Elimination Monitoring Tool (LEMT). These can be applied using data that already exist in most national leprosy programmes. While they are leprosy specific, they might be adapted also for other skin NTDs.

The LEF comprises three 'phases of elimination' and one 'non-endemic state', with corresponding indicators and milestones, providing a way for national programmes to track their progress towards elimination of leprosy at sub-national level. An area or country transitions to the next phase when it achieves the corresponding milestone. Monitoring at the sub-national level allows national programmes to visualise the often substantial variation in progress between sub-national entities, e.g. districts, that are obscured when monitoring only high-level data.

The LEMT visually displays progress towards the milestones, using the traffic light-colouring scheme that corresponds to the LEF. The LEMT can be applied at any subnational level for which long-term data are available. These levels are automatically be added up to show progress at higher administrative levels. The results can be examined and interpreted using a spreadsheet format or as serial maps. The LEMT is great tool to visualise achievements of the national programme. At a national level, countries may seem far from achieving elimination, however, the situation may look much more favourable at district level. At the same time, areas shown to be in Phase 1 or 2 should be flagged as needing additional resources to help them achieve the milestones also. Once the milestone of elimination of leprosy disease has been reached at the national level, a country can request WHO for formal verification.

The presentation will demonstrate the LEF and the LEMT and present results from validation studies that have used both live and modelling data to test the performance of these new tools. The LEMT is available in Excel format but is now also part of a new set of surveillance tools using the DHIS2 platform.

Acknowledgements

We gratefully acknowledge ministries of health that have made data available to help develop and test these surveillance tools.

Skin NTD(s)

Leprosy

Leprosy in children: on the 224 cases in the Republic of the Congo

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Introduction

Leprosy is a contagious and chronic infection caused by *Mycobacterium leprae*, which has a neurocutaneous tropism. It remains endemic in several departments of the Republic of the Congo. Despite a very long incubation period, it is regularly observed in children under the age of 15, indicating significant human-to-human transmission in endemic pockets and justifying the use of appropriate control strategies.

Methodology

This was a retrospective, descriptive, cross-sectional study conducted over the period from 1 January 2016 to 31 December 2023. It was carried out in the departments of Sangha, Likouala, Kouilou, Niari, Pointe-Noire, Plateaux, and Brazzaville.

Results

A total of 1979 cases of leprosy were recorded during the study period, of which 224 cases (11.31%) were children under 15. Among these, 75 (33.48%) were under six years old, 124 (55.35%) were boys, 158 (70.53%) resided in the Likouala department, and 155 (69.19%) presented with the multibacillary form.

Conclusion

Leprosy endemicity constitutes a public health threat, with a higher prevalence in the Likouala department. Modelling studies should be conducted to investigate the factors contributing to the persistence of this disease in order to implement effective responses.

Keywords: Leprosy, child, Likouala, multibacillary

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WHO, Fairmed Foundation, Ralou Follereau Foundation

Skin NTD(s)

Leprosy

Telacebec development overview, update, and future plans

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Telacebec (Q203) is a drug candidate in development for Buruli ulcer (BU), leprosy, and tuberculosis (TB). It is a selective and potent inhibitor of the mycobacterial cytochrome bc1 complex, disabling energy production in *M. ulcerans*, *M. leprae*, *M. tuberculosis*. Against *M. ulcerans* and *M. leprae*, telacebec has particularly exquisite, nanomolar potency owing to the evolutionary loss of alternative energy pathways. Telacebec was discovered at Institut Pasteur Korea (IPK), advanced into clinical development by Qurient, Inc, and licensed to the TB Alliance in 2023. Against TB, telacebec has demonstrated single-agent activity in an early bactericidal activity (EBA) study. In a preclinical BU model, telacebec monotherapy demonstrates rapid and superior cure compared with standard of care combination therapy with clarithromycin plus rifampicin. Against M. leprae, telacebec demonstrates in vitro and in vivo potency that is superior to rifampicin and similar to multidrug therapy.

Current telacebec development activities (and funding sources) include

1) Development of low-cost manufacture of drug substance and product (ERA4TB)
2) Juvenile toxicology studies for pediatric safety (ERA4TB)
3) Buruli ulcer proof-of-concept clinical trial (Barwon Health, TB Alliance)
4) Preclinical leprosy studies to guide clinical dosing (ILEP)
5) TB in vitro microbiology and combination regimen characterization (ERA4TB)

Near-term plans include

1) Phase 2 multi-arm BU study (Australia)
2) Phase 3 BU study (Africa and Australia)
3) Expanded leprosy preclinical work
4) Leprosy proof-of-concept clinical trial
5) Phase 2 TB clinical study

Goals

1) Regulatory approvals for BU, leprosy, and TB
2) WHO prequalification and guideline incorporation
3) Universal access
4) Development of injectable formulation permitting single-dose cure (BU) or single monthly injection option with other drugs (leprosy, TB)

Summary

Telacebec is a highly promising agent for 3 neglected diseases of poverty. The realization of this promise will require the concerted and collaborative effort of multiple partners, including funders, governments, researchers and NGOs.

Acknowledgements

European Regimen Accelerator for Tuberculosis (ERA4TB), The International Federation of Leprosy Associations (ILEP), Barwon Health, Royal Melbourne Hospital

Skin NTD(s)

- Buruli ulcer
- Leprosy

A multicenter phase 2 trial of telacebec for adults with Buruli ulcer: the TREAT-BU trial.

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Aim

Current WHO recommended antibiotic treatment for *M. ulcerans*, the causative agent of Buruli ulcer (BU), is highly effective but requires a prolonged duration of broad-spectrum combination antibiotics that are often poorly tolerated with complex drug interactions, and is associated with prolonged wound healing. Telacebec is a novel, first-in-class antibiotic candidate that demonstrates rapid killing of *M. ulcerans* in vitro and in animal models, and has shown a favourable safety profile in early human studies. It provides the potential for single-drug treatment for BU with reduced duration, side-effects, drug interactions, pill burden and healing times. We aimed to evaluate the safety, tolerability, efficacy and pharmacokinetics of this novel treatment for BU.

Methods

This phase 2 multicenter open-label trial of oral telacebec 300 mg once daily for 28 days is being conducted at two tertiary referral centres with expertise in *M. ulcerans* management in Victoria, Australia; Barwon Health, Geelong and the Royal Melbourne Hospital, Melbourne. The study includes adults (≥18 years) weighing at least 45 kg with *M.ulcerans* PCR positive lesions (WHO category I or category II / III if ≤ 10cm cross-sectional diameter). The primary outcome is the complete BU lesion healing rate by 52 weeks after treatment initiation, without relapse and/or curative intent excision surgery.

Results

Forty participants were enrolled from July to December 2024; 25 at Barwon Health and 15 at the Royal Melbourne Hospital. The median age was 60 years (IQR 44 – 72 years) and 29 (73%) were male. Most participants had lesions that were WHO category I (n=32, 80%), with WHO category II in 4 (10%) and III in 4 participants (10%). Median weight was 85 kg (IQR 74 – 92kg). All patients completed treatment without interruption or discontinuation and there were no reported serious adverse events. Commonly reported treatment emergent adverse events included headache (18%), lethargy (10%), nausea (8%), diarrhea (8%) and dizziness (8%); all were mild. To date, swabs taken from lesions after 4 weeks of treatment are all (27/27) culture negative at 6 weeks incubation. All patients have completed at least 12 weeks follow-up, and none have been lost to follow-up. To date 30 (75%) patients have fully healed their lesions.

Conclusions

Preliminary findings suggest that 28 days of telacebec monotherapy safe, well-tolerated, effective and convenient treatment option for BU.

Skin NTD(s)

Buruli ulcer

Shortening Buruli ulcer treatment in western Africa: an update on the BLMs4BU trial

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The WHO Road Map for NTDs has prioritized shortening treatment duration and improving adherence for Buruli ulcer (BU). The WHO recommended antibiotic therapy for BU includes rifampicin (R) plus clarithromycin (C) for 8 weeks (RC8). Preclinical studies have demonstrated that combining amoxicillin/clavulanate (A) with RC shows high in vitro efficacy against *Mycobacterium ulcerans*. Amoxicillin/clavulanate is widely available, with a good safety profile, low toxicity and suitable for oral and paediatric use.

The BLMs4BU trial includes randomized, open-label, non-inferiority, multicenter Phase II (NCT05169554) and Phase III (PACTR202209521256638) studies. The aim is to evaluate the non-inferiority of a 4-week regimen of A combined with RC (RCA4) versus standard WHO recommended treatment (RC8) in achieving cure rates at month 12 post-treatment initiation. Patients are actively and passively recruited and included based on clinical diagnosis (Very Likely or Likely WHO BU score), IS2404 qPCR confirmed, stratified according to BU lesion category, and followed up for 12 months with standardized management. An external technical expert panel assess the need for major excision surgery at week 14 after treatment initiation. Primary efficacy outcome is the proportion of patients with complete healing of lesions without recurrence and without major surgical excision within 12 months of initiating treatment.

As of January 2025, the Phase II trial conducted in Benin has enrolled 122 participants. Female-male distribution is balanced, about 50% of the participants are ≤ 15 years old and more cases have a Very Likely clinical score. More than 90% of participants have a single lesion, and this is primarily in the lower limbs. Category III lesions are more prevalent (44%). Treatment allocation is balanced between the two arms. Ninety participants have completed the 12-month follow-up. To date, none of them required major excision surgery. Only mild and transient adverse events or secondary effects have been registered, with no serious adverse events related to the study medication. With more than 70% of the target recruited (80% power requirement), RCA4 shows safety.

Non-inferiority assessment of efficacy will be conducted on study completion. The Phase III trial is currently ongoing and has recruited 62 participants in Togo and Côte d'Ivoire.

In summary, our data suggest this shorter, all-oral, broadly suitable treatment, could establish a new paradigm in BU.

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Skin NTD(s)

Buruli ulcer

Non-inferiority trial for tungiasis treatment in Kenya: dimeticone oils versus sodium carbonate solution

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Background

Tungiasis is a cutaneous parasitic disease caused by the female flea Tunga penetrans. The World Health Organization (WHO) recommends two-component dimeticone (NYDA) as the sole treatment for tungiasis; however, this topical medication is not accessible in Kenya. In western Kenya, sodium carbonate has been adopted as a traditional treatment. A pilot study showed that the proportion of dead fleas on day 7 was higher with NYDA treatment compared to 5% sodium carbonate solution (87% vs. 64%, respectively). This study aimed to evaluate the 11-day cure rates of tungiasis by comparing the efficacy of sodium carbonate and NYDA treatments in Vihiga County, Kenya.

Methodology/Principal Findings

A randomized, observer-blinded, non-inferiority trial was conducted, with the non-inferiority margin set at 10%. A total of 160 eligible children with 941 flea infections were matched and randomized. Each participant received both treatments, with one treatment applied to each foot. Health conditions, including inflammation scores and adverse events, were recorded. Observations were conducted on days 3, 5, 7, 9, and 11 using a digital microscope to determine flea viability. Data from 157 children aged 4–15 years were analyzed. On day 11, the proportion of dead fleas was 88% for NYDA and 77% for 5% sodium carbonate solution ($p<0.05$). No significant differences were observed in inflammation scores or symptoms such as pain and itchiness between the two treatments.

Conclusions

This study demonstrated that 5% sodium carbonate did not meet the non-inferiority margin compared to NYDA for treating tungiasis. These results highlight the importance of ensuring the availability of NYDA or identifying effective alternative treatments for tungiasis in endemic regions.

Acknowledgements

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Skin NTD(s)

Ectoparasites: tungiasis

Genetic variability in the qcrB Gene of *Mycobacterium ulcerans* and *Mycobacterium leprae*: Implications for Telacebec resistance monitoring

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Introduction

Telacebec is a promising treatment for Buruli ulcer (*Mycobacterium ulcerans*) and leprosy (*Mycobacterium leprae*), as shown in in vitro and murine studies. It targets the cytochrome bcc:aa3 terminal oxidase, a key respiratory component, which *M. ulcerans* and *M. leprae* rely on due to the absence of cytochrome bd oxidase. This dependency enhances telacebec's efficacy, leading to complete *M. ulcerans* clearance in mice and strong activity against *M. leprae*. Phase 2 trials in tuberculosis patients confirm its safety and dose-dependent effects. Given its potential, assessing baseline mutations in the qcrB gene, which encodes the cytochrome bc1 complex, is crucial for resistance monitoring. This study explores qcrB variability in *M. ulcerans* and *M. leprae*.

Methods

Whole-genome sequences of 526 *M. ulcerans* strains (publically available) and 61 in-house sequenced *M. leprae* strains from the Comoros were analyzed. Quality control was performed using fastp, and variant calling was conducted with snippy. qcrB regions were extracted using bcftools, comparing variants to reference genomes (*M. ulcerans*: NZ_CP092429.2, *M. leprae*: NC_002677.1).

Results

None of the 61 *M. leprae* strains exhibited any variants in the qcrB gene compared to the reference genome.

All 526 *M. ulcerans* strains carried at least one variant, with a total of nine distinct variants identified. One variant (Thr472Ala) was present in all 526 strains, representing a fixed difference from the reference genome rather than an acquired mutation. Among the eight other variants, four were synonymous polymorphisms (His340His, Leu289Leu, Ala281Ala, and Ala179Ala). The remaining four were non-synonymous polymorphisms: Ala454Glu was found in two strains, Gly557Asp and Pro84Ser were each detected in three strains, and Asn36Ser was present in five strains. Notably, no strain carried more than one non-synonymous polymorphism.

Discussion

The absence of qcrB variants in *M. leprae* suggests no pre-existing telacebec resistance, but further global genome analysis is needed. In *M. ulcerans*, non-synonymous variants require further study using AlphaFold predictions. In addition, examining the position of the variants on the phylogenetic tree to determine whether these variants arose convergently. Further in silico characterization and MIC determination of the *M. ulcerans* qcrB variants will help to estimate their potential clinical impact.

Skin NTD(s)

- Buruli ulcer
- Leprosy

Dapsone Hypersensitivity Syndrome - Approach to diagnosis and prevention

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In China, the incidence of Dapsone Hypersensitivity Syndrome (DHS) was 1.0% and the mortality was 11.1% among all patients with DHS between 2006 and 2009, so preventing the occurrence of DHS was prioritized. In 2013, we performed a genomewide association study involving 872 participants who had received dapsone as part of multidrug therapy for leprosy. HLA-B*13:01 was confirmed to be a risk factor for the DHS. It has been verified in Taiwan district, Thai population, Indian population, Korean, and Indonesian population as well. To confirmed the culprit drug, we have developed Elispot and LTT assay to in vitro diagnosis the drug induced the adverse reaction.

We conducted a prospective cohort study from 2015 to 2018, in 21 provinces throughout China. A total of 1,539 patients with newly diagnosed leprosy were enrolled who had not received dapsone previously. After excluding patients who had a history of allergy to sulfones or glucose-6-phosphate dehydrogenase deficiency, 1,512 individuals underwent HLA-B*13:01 genotyping. All of the patients were followed up weekly for the first 8 weeks after treatment to monitor for adverse events. Among 1,512 patients, 261 were identified as carriers of the HLA-B*13:01 allele. Dapsone hypersensitivity syndrome did not develop in any of the 1251 patients who were HLA-B*13:01–negative who received dapsone.

Prospective HLA-B*13:01 screening and subsequent elimination of dapsone from MDT for patients with HLA-B*13:01–positive leprosy has significantly eliminated the onset of DHS in the Chinese population.

Skin NTD(s)

Leprosy

A rapid molecular identification scheme to identify the most common causative agents of mycetoma to the species level

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Introduction

Mycetoma is a Neglected Tropical Disease affecting the subcutaneous tissue and can be attributed to at least 80 different causative agents, of either fungal or bacterial origin. In endemic regions, most laboratories traditionally rely on culture and histopathology for the identification of these agents. However, misidentifications are common. Molecular identification was shown to be more rapid and reliable for accurate species-level identification. Proper species identification is essential to guide proper treatment.

Methods

Over recent years, we worked on a molecular identification scheme, which can identify the most common causative agents from mycetoma directly from the grain, eliminating the need for culture. To achieve this, we evaluated various (field-friendly) DNA isolation techniques and created several multiplex quantitative PCR (qPCR) assays and Recombinase Polymerase Amplification (RPA) reactions.

Results

We identified multiple DNA isolation techniques that successfully extract DNA from grains without requiring specialized equipment. For fungal mycetoma, both qPCR and RPA were developed which could identify the most common causative agents of fungal mycetoma to the species level. For bacterial mycetoma, a two-step multiplex qPCR was developed which could first detect the genus and subsequently the species of the causative agent. Depending on etiology of the region you are situated these multiplexes can easily be adapted. The time to identification by RPA was less than 20 minutes. With qPCR this was 1 hour.

Discussion

The molecular assays we developed are currently undergoing validation in endemic regions. These tools are versatile and can be implemented across various laboratory settings, including field and point-of-care, enhancing their accessibility and effectiveness.

Conclusions

Our molecular diagnostic tools demonstrate rapid turnaround times with high sensitivity and specificity, positioning them as the future of species identification for mycetoma

Acknowledgements

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Skin NTD(s)

Mycetoma

Comparing qPCR Detection of *Mycobacterium leprae* in human and Armadillo samples using a field-friendly qPCR system

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Diagnosing leprosy is based on three cardinal signs: skin lesions, nerve thickness, and identifying the causative agent, *Mycobacterium leprae*. A quantitative polymerase chain reaction (qPCR) targeting the 36x repeated region RLEP is currently the most sensitive method for pathogen detection. This qPCR requires a molecular laboratory setting and temperature-sensitive reagents. Moreover, leprosy is endemic in communities lacking immediate access to laboratories, leaving a need for rapid testing in the field. Biomeme has developed a portable, rechargeable battery-operated thermal cycler that is controlled by a smartphone and uses unrefrigerated, lyophilized reagents. This project aims to validate the qPCR assay using Biomeme materials with the same quality as the laboratory's gold standard. We optimized the qPCR assay with Biomeme reagents using positive control DNA, human clinical samples, and armadillo samples. Standard curves using a linearized RLEP plasmid showed 100% similarity between the Biomeme and the gold standard. We extracted DNA from skin biopsies using the Qiagen QIAmp prep kit, and used the CFX Biorad thermal cycler to perform the gold standard qPCR to compare with the Biomeme Franklin instrument. The standard curves using the two assays showed 100% similarity to each other. qPCR was performed on 50 human skin samples, and 10 armadillo ear/spleen samples. For the humans, both assays showed 5 negative samples, 39 positive samples, and 6 samples with discordant results. For the armadillos, both assays showed 1 negative sample, 8 positive samples, and one result was discordant. The linear regression showed a strong correlation between the two assays, suggesting that the Biomeme assay is as effective as the CFX Biorad.

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Skin NTD(s)

Leprosy

The impact of climate change on neglected tropical diseases of the skin

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Climate change is a global health crisis, disproportionally impacting vulnerable and marginalized populations in low- and middle-income countries. Many cutaneous diseases are climate-sensitive, and climate change has the potential to exacerbate neglected tropical diseases (NTDs) of the skin recognized by the World Health Organization (including Buruli ulcer, cutaneous leishmaniasis, leprosy, mycetoma, fungal infections, scabies, yaws, onchocerciasis, lymphatic filariasis, and noma. These are associated with substantial morbidity and disfigurement, affect 1 billion people globally, and result in stigmatization that reinforces socioeconomic barriers including discrimination and poverty. The effects of climate change influence the pathogenesis, incidence, and management of skin NTDs. Specifically, alterations in climatic variables increase the risk of cutaneous infections and expand the range and survival of vectors. Increasingly, internal displacement and mass migration of millions are attributed to extreme weather events, sea-level rise, and drought. Consequently, rising rates of skin NTDs among climate refugees are observed due to poor nutrition, lack of adequate water/sanitation/hygiene, overcrowding, and confinement in refugee settlements, which collectively enhance the transmission of highly communicable diseases such as scabies, yaws, and fungal infections. Severe climate events disrupt care in otherwise fragile health systems where community surveillance and mass drug administration programs may be suspended and damage to telecommunications infrastructure diminishes accessibility to remote digital healthcare services. Skin NTDs constitute an enormous public health burden and are underpinned by poverty. Climate change is a threat multiplier due to the multifactorial impacts on disease pathogenesis, incidence, and severity and amplification of poverty and disparities. The effects of climate change on skin NTD incidence must be emphasized. Lack of adaptation and mitigation risks serious setbacks to control. Thus, strategic frameworks to reduce/eliminate skin NTDs must incorporate robust strategies to anticipate and address climate change impacts on vulnerable populations.

Skin NTD(s)

- Buruli ulcer
- Dracunculiasis (guinea-worm disease)
- Ectoparasites: scabies
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Noma
- Onchocerciasis
- Yaws

Canonical fact versus hypothesis testing to decipher transmission of cutaneous and non-cutaneous mycobacterial diseases: a comparative perspective

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Despite the clinical relevance of major tuberculous pathogens to domestic animals and humans, the understanding of mycobacterial transmission modes, pathways and interactions in their natural habitats remain highly limited. The reason for this is primarily because ecological and evolutionary concepts have not yet been widely applied to the understanding of this important group of bacteria, investigating environmental, and pathogen strains and species together. Most existing research on mycobacterial transmission is not founded on hypothesis testing and tends to accept the most recent explanation and turn it into a canonical, widely accepted fact but not supported by scientific evidence. In this comparative research perspective, we discuss plausible alternative hypotheses against a null hypothesis of environmental origin, including both cutaneous (e.g., *M. ulcerans*, *M. leprae*) and non-cutaneous species (e.g., M. tuberculosis, M. bovis), and their capacity to emerge and spread in the context of global change. We highlight a major bias in our understanding of the transmission of mycobacterial infections overall, with most work concentrating only on the contagious stage of tuberculous resistant clones of the MTB complex, and suggest intensifying research on environmental non-tuberculous mycobacteria and their life-histories. A deeper understanding of mycobacterial infections, their ecology and evolution is more important now than ever, considering the vast diversity of known and unknown mycobacterial species in natural ecosystems, and adopting an ecosystem-based framework. Infection medicine and public health surveillance should take a more integrative disease ecology approach to enhance the development of new approaches for control of these important animal and human pathogens.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Other: other mycobacterial diseases, and the work can be extended to fungi diseases and parasitic diseases as well (work is an invited paper to Clinical Microbiology Reviews)

Mosquitoes transmit Buruli ulcer in Victoria, Australia

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In 1995, while investigating an outbreak of Buruli ulcer at Phillip Island in Victoria Australia, we detected *M. ulcerans* directly in environmental samples by PCR – the first time this had been achieved anywhere by any method. At the time we were investigating the hypothesis that Buruli ulcer may be transmitted to humans through aerosol from a nutrient enriched swampy environment. Subsequently, new outbreaks of Buruli ulcer in new locations in Victoria have caused us to refine our models and completely change our understanding of the environmental reservoir and mode of transmission. In 2007 we detected *M. ulcerans* in mosquitoes trapped at Point Lonsdale and went on to show that in human endemic areas local possums both excrete high concentrations of *M. ulcerans* in their faeces and suffer from Buruli ulcer themselves – 25% of 42 trapped animals had Buruli lesions in our initial study. In 2010 we published a completely new model proposing that Buruli ulcer is a zoonosis affecting local possums and *M. ulcerans* is transmitted to humans from possums indirectly, either through mosquito bites or from exposure to a possum-contaminated environment. This new model has now been repeatedly validated by two separate research groups and has become the accepted paradigm in Victoria. A practical outcome of this research is that we can employ possum excreta surveys both to accurately map and define human Buruli ulcer endemic areas and to predict new outbreaks of human disease. Further, by mapping the location of 649 human Buruli lesions on a human body map we found that targeting behaviour by biting insects rather than direct environmental contact better explains the anatomical location of lesions we observe in Victoria. Most recently we have demonstrated that the strains of *M. ulcerans* recovered from sick possums, their faeces and local mosquitoes are indistinguishable from the human outbreak strains. Finally, through analysis of notification data from the rapidly increasing number of human cases, we have established that in temperate Victoria where there is a distinct mosquito season, Buruli ulcer is transmitted to humans only in the mosquito season despite evidence that *M. ulcerans* is present in possums and the environment throughout the year. This new understanding – that at a public health level mosquitoes are the mode of transmission of Buruli ulcer to humans – will greatly enhance our ability to control Buruli ulcer in Victoria.

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Skin NTD(s)

Buruli ulcer

Environmental pressures driving the distribution of *Mycobacterium ulcerans* (Buruli ulcer) and *M. leprae* (leprosy): A disease ecology approach

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Neglected tropical diseases (NTDs), such as Buruli ulcer and leprosy, pose a significant challenge to global health, particularly in regions with limited access to diagnosis and treatment. Both diseases, caused by environmental mycobacteria (*Mycobacterium ulcerans* and *M. leprae*), exhibit transmission patterns and geographic distribution strongly linked to environmental, ecological factors.

In this study, we explore how environmental variables such as soil type, mineral and climatic composition, and the richness of animal and plant species, both native and introduced, may influence the distribution of these mycobacteria. Using pathogeography tools and predictive models, we analyzed environmental, ecological parameters to identify spatial patterns and associated risk factors. Our results indicate that the presence of *M. ulcerans* may be positively influenced by concentration of gold ores in the ground and soil diversity. Additionally, its distribution shows a relationship with Acrisols, i.e., clay-rich subsoil and associated with humid, tropical climates, and exposure to UV-B radiation. *M. ulcerans* may also be influenced by invasive species, which could play an important role in the ecological dynamics of its spread. On the other hand, *M. leprae* is associated with the presence of Vertisols, i.e., high content of expansive clay minerals, and forest is uncommon, as well as with the concentration of certain soil elements, including sulfur and phosphorus. Beyond environmental factors, the transmission of *M. leprae* is influenced by interactions between humans and animal reservoirs. We detected that armadillo hunting could potentially contribute to 25% of human leprosy cases in Brazil. This highlights the importance of considering both ecological factors and human practices that facilitate zoonotic transmission.

These findings underscore the need for an interdisciplinary approach to better understand the mechanisms regulating the distribution of such pathogens. Since much of the research on mycobacterial infections has focused on their contagious phase in humans or in livestock, it is crucial to expand our understanding of mycobacterial ecology. Understanding the environmental dynamics of mycobacteria affecting animals and humans is essential for developing more effective control strategies. In this context, collaboration among ecologists, epidemiologists, and public health specialists is key to mitigating the impact of these NTDs in the face of global changes.

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Skin NTD(s)

- Buruli ulcer
- Leprosy

Wound and ulcer care services provided by primary health facilities in low-resource-settings: an informal scoping survey

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In low-resource settings, wounds cause high morbidity, are often associated with skin neglected tropical diseases (NTDs), and lead to complications such as disfigurement, function loss, and socio-economic burden. Data on the availability of wound and ulcer care services in low-income and skin NTD-endemic settings are limited. As wound management is a potential area for integration of skin NTDs, such data will be essential for guiding interventions.

This study aimed to a) explore the availability of primary care services for people with wounds and ulcers in skin NTD-endemic settings and b) identify any service gaps to guide necessary interventions to improve the early management of lesions and reduce their complications.

A questionnaire on wound care and surgical services available at primary healthcare level was prepared in four languages. After pre-testing of the form, the questionnaire was sent to the WHO AFRO Office, requesting that each National NTD Programme Manager forward it to 20 primary health centres. In addition, the questionnaire was sent to the Extended Members of the WHO 'Integration at Country Level' Working Group, requesting National NTD Programme Managers similarly forward the questionnaires. Simple quantitative and qualitative data were collected.

Replies[1] were obtained from a total of 389 healthcare facilities in 14 countries (African region 12, Americas 1, Asia 1 and Oceania 1). The levels of care of the facility were: health centre 328/389 (84.3%); district hospital 30/389 (7.7%) and referral disease-specific centre 31/389 (8%). Most facilities were publicly-run, 339/389 (87.1%), others were private 29/389 (7.5%) or non-profit 21/389 (5.4%). Nearly all centres provided wound cleaning and simple dressing (98.9%), but teaching patient self-care of wounds was reported in only 53%. Compression bandaging was provided in 95.5% of centres. Vascular ultrasound services were available in only 17.4% of centres. Wound repair with suture was available in 91.7 %, and surgical debridement of wound in 45.5% of centres.

[1]Data is preliminary

Full-thickness skin grafting, was available in 20.3% of centres. Free text responses highlighted the lack of necessary materials to manage wounds/ulcers, plus the need to improve wound and ulcer care training of primary healthcare workers.

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Skin NTD(s)

- Buruli ulcer
- Dracunculiasis (guinea-worm disease)
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Onchocerciasis No
- Podoconiosis
- Yaws
- Other: Snakebites

Socio-economic impact of the community-based wound management model in the HDSS of Taabo, Côte d'Ivoire

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Background

Skin wounds affect millions of people in Africa. In rural communities, wounds are very common health issues affecting households while prevention and access to healthcare services are limited due to health system, environmental, cultural, and economic factors.

Methodology

An analysis was conducted to assess the societal costs of wound care as part of the "Identify and Treat Wounds Early" project within the Taabo Health and Demographic Surveillance System (HDSS). This model adheres to WHO standard procedure.

Economic data were collected via questionnaires administered to patients with wounds receiving care at three levels of the health system: community (C), health centers (HC), and the district hospital (WMU). A total of 193 patients were recruited, including 129 from the community, 30 from the health center, and 34 from the wound management unit. The economic analysis included patient (indirect), community, and health system (direct) costs to assess the societal cost of wounds, analyzed using descriptive statistics in R. Data on the social impact of wounds were gathered through 12 in-depth interviews with purposively sampled patients and analyzed via deductive thematic content analysis.

Results

The average cost of wounds from the household/patient's perspective was 0.41 € (95% CI: 0.36–0.47 €) at the community level, 2.40 € (95% CI: 1.97–2.83 €) at the health center (HC) level, and 53.70 € (95% CI: 37.12–70.28 €) at the Wound Management Unit (WMU). From the health system's perspective, direct costs related to diagnostics and drugs amounted to 0.35 € (95% CI: 0.32–0.38 €) in the community, 1.43 € (95% CI: 0.90–1.96 €) at the HC, and 35.23 € (95% CI: 15.67–54.80 €) at the WMU.

Care costs for patients in the community and at the health center represented 0.36% and 2% of the minimum wage (SMIG), respectively, while district hospital care accounted for nearly 47% of the SMIG. From the healthcare system perspective, expenditures were highest at the district hospital, nearing 30% of the SMIG, compared to 1.2% at the health center and 0.36% in the community.

Conclusion

The findings underscore the substantial socioeconomic burden of chronic wounds on both households and the healthcare system. Early intervention at the community level emerges as the most cost-effective strategy, markedly reducing expenses for patients and the health system while mitigating severe social impacts.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leprosy

A dream come true? The efficacy of treating Buruli ulcer, leishmaniasis, leprosy and scabies with oxygen-ozone therapy

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In this pilot study, we document the effectiveness of different oxygen-ozone therapy protocols in the treatment of Buruli ulcer, leprosy, leishmaniasis and scabies in low-income countries (Burkina Faso, Togo, Syria, Madagascar). Oxygen-ozone therapy is a simple and inexpensive method that could be a supportive therapy to other treatments currently in use. The oxygen-ozone mixture can be administered locally, using a technique involving a bag placed around the lesion and insufflated with the mixture, or by subcutaneous injections.

We present the protocols applied in the different pathologies, for each of which 10 patients were enrolled.

Buruli ulcer

- diagnosis of *Mycobacterium ulcerans* infection by PCR;
- disinfection of the ulcer with ozonated H20;
- application of ozone through a bag (30 μg/ml for 20 minutes);
- dressing with 15% ozone cream;
- three times a week until the wound heals.

Leprosy

- diagnosis by visual imaging techniques with SkinNTDsApp;
- same protocol used for Buruli ulcer.

Scabies

- diagnosis by visual imaging techniques with SkinNTDsApp;
- disinfection with ozonated H20;
- treatment with 15% ozone cream;
- once daily for 3 days.

Leishmaniasis

- diagnosis by rapid serological test
- cleaning of the papular skin lesion with ozonated H20;
- treatment with 15% ozone cream;
- subcutaneous injections on the edge of the papular skin lesion;
- one single session of injections and application of the remaining protocol until the lesion has healed completely.

We observed an improvement by monitoring the following parameters: reduction in the size of the wound; appearance of granulation tissue from the second application; and evident improvement in microcirculation. Round tables with patients were also organised with the aim of offering psychological support and reducing associated stigma.

In conclusion, the described protocol above could represent an effective application of the 'One Health' approach in settings where neglected diseases prevail. The protocol is characterised by the use of inexpensive therapies, the ability to cope with antibiotic resistance, and the ease with which it can be learned and applied by healthcare professionals. The aim of our project is therefore to offer an effective, inexpensive and easy-to-administer treatment that could support any protocols currently in use. A further aim of the project is to teach and encourage the production of ozone-based creams in local areas in order to promote community empowerment.

Acknowledgements

Daughters of St. Camillus

Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leishmaniasis: cutaneous
- Leprosy

Integrating skin NTDs into primary health care units: the Ethiopian experience

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Ethiopia is grappling with more than 13 Neglected Tropical Diseases (NTDs). Among these, several Skin NTDs are particularly prevalent, including cutaneous leishmaniasis, scabies, Podoconiosis, Lymphatic filariasis, and Onchocerciasis. Every year, the country witnesses over 20,000 cases of cutaneous leishmaniasis (CL) and about 3,000 cases of leprosy. Furthermore, Ethiopia faces a significant burden of Lymphedema, with approximately 1.5 million cases reported. Podoconiosis is endemic in 345 districts, Lymphatic filariasis in 131 districts, and Onchocerciasis in 264 districts. The prevalence of scabies across the nation is notably high, at 14.5%.

To address these challenges, the Ministry of Health, Ethiopia, has developed a comprehensive strategy aimed at expanding and integrating services for co-endemic NTDs that manifest in the skin. A key aspect of this strategy involves the full integration of Leprosy and Cutaneous leishmaniasis into general health services. These conditions are managed at a limited number of specialized treatment centers. Additionally, the management of Lymphedema caused by Podoconiosis and Lymphatic filariasis has been integrated into the primary health care units, ensuring that patients receive comprehensive treatment at health centers.

Health extension workers play a crucial role in this strategy. They operate at health posts and are responsible for detecting cases during outreach services. Their duties also include raising awareness among the community and following up on post-lymphedema management. This multifaceted approach ensures that patients have equitable access to healthcare, addressing both their immediate medical needs and long-term care requirements.

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Ministry of Health, Ethiopia.

Skin NTD(s)

- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Podoconiosis

Feasibility and potential of artificial intelligence-based mobile health screening tools for enhancing the detection of leprosy and other neglected tropical skin diseases at the community level in Senegal (West Africa)

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Introduction

Neglected tropical diseases (NTDs) with dermatological manifestations remain a significant public health problem in Senegal. Early and accurate detection at the community level is crucial for effective disease control. Mobile health (mHealth) technologies, such as the World Health Organization's (WHO) Skin NTDs mobile application (WHO Skin NTDs App®), present innovative opportunities to enhance diagnostic accuracy and facilitate early intervention.

Objectives

This study aims to evaluate the feasibility and diagnostic performance of the WHO Skin NTDs App® (beta version), an artificial intelligence (AI)-based screening tool, for detecting skin NTDs in community settings.

Methods

A mixed-methods approach is employed. The first phase involves assessing the technical performance of the WHO Skin NTDs App® by comparing AI-generated diagnoses with those made by dermatologists in a hospital setting in Senegal. A dataset of 800 dermatological images was collected for statistical validation. The second phase consists of a qualitative exploration of the app's usability and potential use-cases through key-informant interviews with policymakers, healthcare professionals, and other stakeholders involved in NTD management.

Results

A total of 800 dermatological patients were included. The performance of the AI-based WHO Skin NTDs App® algorithm will be evaluated the ability to detect categories of skin NTDs and 24 common skin conditions. Accuracy, Sensitivity, Specificity, and Area Under the Curve (AUC) will be used as metrics.

Qualitative analysis is ongoing; first insights suggest high openness and anticipation for application access, but also conflicting views regarding potential use-cases, risks, and training needs. Identified facilitators include high established trust, the WHO label and ministry endorsement, and interest to engage with technological innovation. Barriers identified in this first analytic stage include accuracy concerns, preexisting challenges to confirm suspected cases, and an already high workload across all stakeholders expected to further increase amid training, case confirmation, and tool implementation tasks.

Results are expected by the time of the conference.

Conclusion

Our study assesses the performance and potential use of the WHO Skin NTDs App to detect skin NTDs and common skin conditions in Senegal, outlining its potential role in supporting early diagnoses and enhancing public health responses.

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Skin NTD(s)

All skin NTDs

Improving access to skin health for refugees and displaced populations via a technology-integrated healthcare program model

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Background

Refugees and Internally Displaced Populations (IDPs) face a heightened prevalence of skin diseases due to overcrowding, poor hygiene, environmental exposure and restricted access to healthcare. Addressing their dermatological needs is complex due to scarcity of trained healthcare workers and limited resources. The Migrant Health Working Group (MHWG) of the International League of Dermatological Society (ILDS) has developed a technology-integrated healthcare model to improve dermatological care in displaced population settings.

Methods

The program was implemented in three humanitarian settings with a high prevalence of skin diseases.

The Kutupalong camp in Cox's Bazar, Bangladesh, hosts 1.54 million Rohingya refugees and Bangladeshi nationals. Outbreaks of scabies and fungal infections are registered in the camp due to the challenging living conditions.

Since 2011, the Bekaa valley in Lebanon hosts over 1.5 million Syrian refugees, and skin conditions accounted for 41% of their health complaints, highlighting the need for dermatology clinical and educational support.

The Kigoma region in Tanzania has long served as a host for refugees, primarily from Burundi and the Democratic Republic of Congo (DRC). Nyarugusu camp hosts 134,000 refugees from the DRC, Burundi, and Rwanda; Nduta camp is the second-largest camp in the country hosting 77,000 Burundians.

The intervention model includes a) Needs assessment; b) Local capacity building; c) Teledermatology-based support and Integration with local health system.

Results

Among the program-model outcomes we can list:

Increased access to dermatological care for refugees and local populations, ensuring an inclusive and sustainable model.

Improved clinical skills of local healthcare providers, reducing unnecessary referrals and enhancing community-based management of skin diseases.

Teledermatology services facilitating timely consultations and continuing education in resource-limited settings.

Strengthened partnerships with local dermatological societies for sustained integration into national health systems.

Conclusion

This initiative highlights a scalable and sustainable model for improving skin health among displaced populations by leveraging teledermatology, capacity building, and local partnerships. Future efforts should focus on policy integration, sustainable financing, and expanding teledermatology networks to enhance access to dermatological care in humanitarian settings.

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Skin NTD(s)

- Ectoparasites: scabies
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous

Transforming skin-NTD control in India: Lessons from the initial phase of the ASPIRE Pilot Study in Jamui district, India

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Skin Neglected Tropical Diseases (skin-NTDs) such as leprosy, lymphatic filariasis (LF), post-kala-azar dermal leishmaniasis (PKDL), cutaneous leishmaniasis (CL) and scabies remain public health problems in India. These diseases cause severe morbidities, stigma and socioeconomic inequities. In India, integrated skin-NTD strategies have not yet been operationalized, with current efforts fragmented due to human resource limitations and weak community participation. The lack of reliable baseline data further hinders resource allocation and endemic district prioritization. Addressing these gaps is crucial to achieving WHO 2030 NTD goals. The ASPIRE study, piloted in Jamui district of Bihar state, in collaboration with the government of Bihar, aims to provide reliable burden estimates, strengthen health systems and empower communities through a holistic and integrated skin-NTD model to accelerate WHO 2030 targets.

ASPIRE initial phase has shown transformative progress. Over 90% of the households of Jamui district were screened, identifying 742 new leprosy cases (4% G2D), 2,662 LF cases, and 2,798 scabies cases, with diagnosis and treatment enhanced at primary healthcare level. Leprosy case detection rates rose from 7.2 per 100,000 population in 2022 to 47.4 in 2024, whilst LF cases doubled from 2022 to 2024. Specialized MMDP units were established in secondary care, enabling effective complication management and improving referral pathways. Community empowerment is driven by peer-support groups, involving people affected by skin-NTDs. These groups were initiated through an evidence-based harmonization process in consultation with people affected and global technical experts. This process includes governance mechanisms to advocate for their rights, fostering enhanced community participation and sustainability.

The ASPIRE model has significantly improved case detection, health system capacity and community empowerment, providing a strong foundation for sustaining effective surveillance systems. This innovative and integrated skin-NTD approach provides with an effective framework for high endemic states of India, addressing both health system gaps and community needs. Ongoing efforts in partnership with the government of Bihar will investigate the sustainability and replicability of enhanced surveillance systems and community models, defining the long-term impact of the model at scale.

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Skin NTD(s)

- Ectoparasites: scabies
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Inequities and factors associated with gender and disability in NTD-endemic communities in Benin and Côte d'Ivoire: An intersectional approach to interventions

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Gender inequity among people with disabilities (PWD) is a complex issue influenced by a combination of socioeconomic, cultural, political, and institutional factors. Women with disabilities often experience double discrimination, increasing their vulnerability. These exacerbate their already difficult health and living conditions. This study aimed to explore the factors associated with gender inequities among PWD in Benin and Côte d'Ivoire, and to design and implement tailored interventions to address these inequities.

This intervention-oriented operational research, employing a mixed-methods approach (quantitative and qualitative), targeted 841 PWD and 90 community members. Initially, records from various centers managing Neglected Tropical Diseases (NTDs) in the study areas were reviewed. All PWD listed in the registers and residing in the community, as well as other community members, were included. Data on socio-demographic and socioeconomic and clinical factors were collected using an interview guide and an observation grid. Quantitative data were analyzed using SPSS version 25 (alpha = 5%), while qualitative data were processed through triangulation, categorized, cross-tabulated, and synthesized by theme, hypothesis, and indicator. A subset of PWD facing barriers to accessing education, training, income-generating activities, or healthcare was selected for intervention.

The median age was 38 years (IQR = 22-52). Among the 841 PWD, 497 were men and 344 were women (sex ratio = 1.45). Univariate analysis revealed significant associations ($p = 0.000$) between gender disparities and marital status, monthly income education level and occupation type. Multivariable analysis identified three factors strongly associated with gender disparities ($p = 0.000$): marital status, monthly income, and profession. Interventions were designed to address these factors and included vocational training, medical care, and educational or professional scholarships.These measures collectively improved the living conditions of PWD and helped raise awareness among those in their immediate environment, fostering social integration and reducing self-stigmatization.

This study provides a deeper understanding of the inequalities that PWDs face in Benin and Côte d'Ivoire. It highlights the need to adopt intersectional approaches in policies and practices to effectively address the multiple forms of discrimination faced by women and girls with disabilities

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Skin NTD(s)

- Buruli ulcer
- Leprosy

Surgical management and long-term outcomes of noma sequelae : The geneva experience

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Noma is a gangrenous disease causing severe facial destruction, primarily affecting malnourished young children in developing countries, with high mortality. Survivors face debilitating sequelae leading to social exclusion. The Plastic and Reconstructive Surgery Department of Geneva University Hospitals has 40 years of experience in Noma reconstruction. Alongside this, our department has also worked to elucidate Noma's etiology. Surgical advancements have evolved to address key challenges: (1) large free flaps (latissimus dorsi, serratus anterior) to prevent recurrent mandibular constriction; (2) vascularized bone flaps (prevascularized calvarium) for osseous defects; (3) strategic donor site preservation for staged reconstructions, particularly in nasal reconstruction. Inadequate techniques often lead to unacceptable scarring and poor outcomes. Beyond surgical innovation, a multidisciplinary and compassionate approach remains essential to restoring dignity and improving the lives of Noma patients.

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Skin NTD(s)

Noma

Rehabilitation of noma sequelae in Africa: challenges and future prospects

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Physionoma

Physionoma is an association supported by speech therapists and physiotherapists, founded in 2003 following a speech therapy thesis highlighting the need for rehabilitation of noma sequelae. The primary objective is to train healthcare teams caring for individuals with sequelae such as permanent jaw constriction, which leads to limited or even impossible mouth opening in more severe cases, thus affecting many oro-myo-facial functions such as breathing, chewing, and speech articulation.

We provide three key elements: an assessment tool to learn how to observe and standardize the sequelae and their impact on daily life, a rehabilitation protocol consisting of mobility exercises and massages, and a fun workshop to work on oral expression and self-confidence with patients who may have never experienced the pleasure of expressing themselves.

We have carried out 27 missions since 2003, primarily in Burkina Faso, the Niger, and Nigeria. These field experiences have enabled us to enrich our practices both before and after the surgeries offered by the centre, while observing their benefits. We have seen improvements in noma sequelae, particularly in oral mobility and scar flexibility, leading to rapid functional comfort gains. We have also observed a reduction in the stigma surrounding the disease for both patients and families by creating spaces for validation, acceptance, and cohesion. Strengthening the healthcare professionals' sense of legitimacy and enriching their training with both theoretical and practical input also facilitates the implementation of comprehensive, efficient, and effective care. Finally, patient and family therapeutic education makes them active participants in their rehabilitation and long-term progress, with continued self-care on returning home.

The challenge, but also the benefit, of these trainings lies in the fact that they take place in regions where rehabilitative practices are new and uncommon. Raising awareness about the importance of repeating these exercises is a significant issue for us, as is the management of pain. We now wish to objectify these observations from our experiential clinical practice with a research protocol to demonstrate the value of rehabilitative intervention for noma sequelae both before and after surgery.

Acknowledgements

We would like to thank the Physionoma team for their contribution to this summary and the missions.

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Skin NTD(s)

Noma

Women's access to and participation in a disease management intervention for podoconiosis in Rwanda: Challenges and recommendations

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Introduction

Evidence shows that podoconiosis affects women significantly more than men in Rwanda and that current disease management interventions for podoconiosis are less effective for women. However, not much is known about why this difference exists. Thus, this research study centred on women who have podoconiosis in the Northern Province of Rwanda. Through qualitative research, women's access to and participation in a specific disease management intervention for podoconiosis were examined.

Findings

Access

Findings revealed that it took the women up to three decades of experiencing podoconiosis symptoms and seeking treatment before finally accessing the disease management intervention in focus. This was because none of the healthcare providers who were accessed were able to diagnose nor adequately treat podoconiosis.

Participation

However, despite the disease management intervention providing significant benefits, such as profound symptom and stigma reduction, and women being eager to take part in it, major challenges affected their regular engagement with the intervention.

Among these, geographical conditions, resource challenges, and intervention implementation flaws emerged as the most challenging.

Family support transpired to be a crucial component not only in ensuring continuous engagement with the intervention and symptom improvement but also in ameliorating the economic impact of the illness.

Recommendations

These findings call for disease management intervention providers to consider the context and everyday life experiences of women suffering from podoconiosis to sustainably and holistically improve their health and well-being. Furthermore, podoconiosis research and interventions should expand their focus from the affected individual to the family. Family members serving as informal caretakers of people suffering from podoconiosis need to be included in disease management intervention design and delivery and provided support as well.

Acknowledgements

We would like to thank and acknowledge the patients, peers, and the NGO who participated in this research study.

Skin NTD(s)

Podoconiosis

BAXERNA: next-generation mRNA vaccines for bacterial pathogens

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There is an unmet need for prophylactic strategies such as vaccination to reduce the global impact of neglected tropical diseases such as Buruli ulcer, caused by *Mycobacterium ulcerans*. Development of novel vaccines is nevertheless hindered by an incomplete knowledge of immune correlates of protection and a limited repertoire of known protective antigens. The BAXERNA consortium aims to leverage immunopeptidomics-based identification of bacterial antigens to develop new mRNA vaccines for M. tuberculosis and *M. ulcerans*. To identify new antigenic targets, human macrophage cell lines are infected and cells collected for immunopeptidomics analysis. HLA-antigen complexes are then retrieved by antibody capture and presented antigens identified by LC/MS-MS. Over 100 bacterial proteins were identified for M. tuberculosis, and 16 of these were selected for inclusion in mRNA lipid nanoparticle vaccines to test their protective efficacy against aerosol M. tuberculosis infection in a mouse model. We identified one vaccine candidate that afforded significant protection in the lungs at 4 weeks post infection, and four additional candidates showing a trend towards protective efficacy. We will use the same approach to identify epitopes presented by *M. ulcerans*-infected cells and evaluate candidate mRNA vaccines for immunogenicity and protective efficacy in mouse models of infection. With this work, we hope to establish the potential of this innovative pipeline for the development of mRNA vaccines against intracellular bacteria. By targeting mycobacterial pathogens of global and (sub)tropical importance that are prone to antibiotic resistance, the project may thus deliver a blueprint for next-generation bacterial vaccine development.

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Skin NTD(s)

Buruli ulcer

A multi-center collaboration analyzing the scabies associated microbiota demonstrates a decrease in diversity and a shift to opportunistic pathogenic bacteria

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With an estimated prevalence of 400 million cases annually, scabies is one of the most common dermatological diseases globally, resulting in a substantial socioeconomic burden. Scabies impacts most in resource-poor communities and has been designated a Neglected Tropical Disease in 2017.

The causative agent *Sarcoptes scabei* is an obligate parasitic mite that burrows into the superficial layers of the host skin. This action combined with a complex interaction between mite excretory proteins and the host's immune system leave patients susceptible to secondary bacterial infections. Mainly in tropical climates, these can cause multiple additional and potentially severe health complications, including sepsis, renal damage and rheumatic heart disease. Epidemiological studies have indicated a link between scabies and infections with opportunistic pathogens, however the molecular data to underpin this relationship was lacking.

We proposed that scabies mites alter the healthy skin microbiota, interfere with host defenses in the skin and enable opportunistic bacterial infections. In this project, we explore the scabies-associated microbiota in geographically distinct locations with differing climatic and socioeconomic contexts. We examine the microbial profiles of scabies samples at a range of disease severity. We analyze samples from patients with acute scabies infection, through treatment and post cure, to determine which scabies treatments restore healthy skin microbiota. We investigate the internal microbiome of scabies mites.

Our results demonstrate significant decrease in microbial diversity, decrease of commensal skin bacteria and increase of pathogenic bacteria in scabies infected lesions, regardless of disease severity. We found differences in the dominating pathogenic bacteria across geographic locations. In particular, S. pyogenes was greatly increased in samples from northern Australia and India. This may be highly relevant, as these communities experience extreme rates of rheumatic heart disease. Our multinational consortium is expanding to further locations.

This study is the first to quantify the scabies associated microbiome and analyze how it might differ globally. It delivers critical molecular data underpinning the relationships between mites and bacterial pathogens. The research will inform effective intervention and management strategies for scabies and associated sequelae and may lead globally to policy changes.

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Skin NTD(s)

- Ectoparasites: scabies
- Other: Secondary skin infections

Can cutaneous leishmaniasis provoke a resurgence of kala-azar in the Indian subcontinent?

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Background

The ongoing kala-azar (visceral leishmaniasis; VL) elimination program in Nepal is based on the assumption of anthroponotic transmission of the protozoan parasite Leishmania donovani. A shift in foci of reported VL cases to hilly regions in western Nepal and the recent emergence of cutaneous leishmaniasis (CL) in patients from similar areas present new challenges to VL elimination. Furthermore, L donovani was recently identified in lesions of CL cases in Nepal. The question of whether CL-causing L. donovani can also contribute to VL is crucial to understand if the success of the VL elimination initiative in the Indian subcontinent is to be sustained, although evidence on sub-species level genomic differences between CL and VL causing L. donovani is currently lacking. This study aims to provide a genomic comparison of L. donovani parasites currently causing CL in Nepal with previously described L. donovani sequences from CL and VL patients in the region.

Methods

A case series study was carried out in sentinel dermatological sites in western Nepal. Skin punch biopsies were collected from 45 patients with clinically suspected CL lesions. Molecular tests based on the internal transcribed spacer 1 of the ribosomal RNA gene array (rDNA-ITS1) were used to detect and characterize the Leishmania parasites, with Sanger sequencing. Dendrograms were constructed and sequences from our study were compared (based on pairwise similarity) with over 500 available GenBank sequences of the L. donovani species complex.

Results

Leishmania parasites were detected in 26 CL patients, and all were identified as L. donovani. Importantly, the rDNA-ITS1sequences analysed in this study were identical, and shared with those previously documented from both cutaneous and visceral disease-causing parasites in Nepal, India (Himachal Pradesh) and Bhutan (Fig 1 and 2). Additionally, our analysis describes CL- and VL-causing L. donovani parasites with an rDNA-ITS1 sequence which is different from the previously reported VL-causing “core” sequences from the Indian sub-continent (Fig 1).

Conclusions

Our study suggests that CL and VL in Nepal are caused by similar if not identical L. donovani parasite strains, though additional sequencing is required to corroborate this finding and examine other non-sequenced genomic loci. If confirmed, cutaneous lesions could act as a kala-azar parasite reservoir, which would have important implications for the kala-azar elimination program.

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Skin NTD(s)

Leishmaniasis: cutaneous

Bacterial clearance in Buruli ulcer lesions from patients in the BLMS4BU study

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Treating Buruli ulcer (BU) requires 8 weeks of daily rifampicin and clarithromycin (RC8) alongside wound care. The BLMs4BU clinical trial (NCT05169554; https://blms4bu.org/) is investigating a 4-week treatment regimen combining amoxicillin/clavulanate, rifampicin and clarithromycin (RCA4). This approach is based on the hypothesis that the addition of amoxicillin/clavulanate could enhance bactericidal activity, potentially leading to a reduction in the median healing time for BU lesions.

The aim of this study was to assess the rate of bacterial clearance in BU lesions from patients participating in the BLMs4BU study.

Fine-needle aspirates and swab samples were taken from participant's lesions at the time of diagnosis and during follow-up visits until week 14 at the Pobè treatment center in Benin (December 2021-September 2024). Five samples were taken at each visit: three were used for *Mycobacterium ulcerans* viability assessment (combined 16S rRNA RT/IS2404 qPCR assay), and two for *M. ulcerans* DNA detection by IS2404 qPCR.

Up to September 2024, 44 participants were included in the study (lesion Categories I-III), 48% of them under the investigational treatment RCA4. All patients had a positive IS2404 PCR result. At any visit 16S rRNA was detected in lesions of 72.73% (16/22) Category III patients, 68.75% (11/16) Category II patients and 33.33% (2/6) Category I patients. Time to healing was inversely associated with 16S rRNA detection in lesions at any visit (healing before or at week 14: 45.00% (9/20) 16S rRNA positive; healing after week 14: 90.91% (20/22) 16S rRNA positive; p-value=0.0022). The bacterial load was variable along the follow-up period, suggesting that the sampling method and the heterogeneous distribution of bacteria in the lesions could play a critical role in the detection of *M. ulcerans* DNA or 16S rRNA. However, a decreasing trend on the bacterial load was observed in all lesions, especially in Category II lesions. For larger unhealed lesions, a higher follow-up period may be needed to entirely capture bacterial clearance dynamics.

In summary, *M. ulcerans* clearance was observed in both treatments arms, with no viable bacteria (undetectable 16S rRNA) after day 28 in most of participant's lesions.

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Skin NTD(s)

Buruli ulcer

Other abstracts

Advocacy and Communication

Skin patient support organizations as partners in care

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Patient Centricity is a widely accepted principle focused on designing services around the needs of patients. It follows that organizations supporting individuals with dermatological conditions should leverage broad patient perspectives to inform national health policy, programs, and interventions. The NTD Roadmap emphasizes that involving patient groups in program design can empower patients and ensure interventions meet their needs.

GlobalSkin is a not-for-profit network of 300 patient organizations from over 72 countries, representing 58 dermatological diseases. Its mission is to amplify the voice of the global dermatology community, advocate for common interests, and unite stakeholders to bring transformative change. Through collaboration with its network, GlobalSkin has documented successful practices for patient groups and other community health organizations to work effectively with key stakeholders, including governments, to optimize health services.

Collaboration with patient organizations offers several benefits at the national level:

- Identifying patient and community needs
- Leveraging patient networks and organizational energy
- Reducing time, costs, and resources
- Increasing patient participation
- Addressing education, support, and research gaps
- Supporting health promotion, capacity building, and awareness
- Creating accessible patient education materials and events

This collaborative approach yields key outcomes:

- Increased trust with patients
- Tailored programs that meet patient needs
- Improved health outcomes and satisfaction within health systems
- Enhanced community trust and participation
- Higher patient adherence and engagement

Best practices for successful collaboration include:

- Creating frameworks for meaningful dialogue
- Ensuring patient organizations are equal partners
- Facilitating the global exchange of best practices, with GlobalSkin serving as a repository for lessons and case studies

Supporting people with neglected tropical diseases (NTDs) should not be the sole responsibility of governments. Patient organizations must be engaged and empowered as vital partners in gathering insights and fostering connections with patients. This collaboration is crucial for meeting the goals of the NTD Roadmap.

Acknowledgements

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Skin NTD(s)

All skin diseases

Skin diseases as a global public health priority: Member States propose a resolution

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An estimated 4.69 billion cases of skin diseases occurred globally in 2021, ranking them among the top ten causes of disability worldwide. Despite their widespread impact, skin diseases are often not prioritised due to their primarily non-fatal nature, resulting in their serious health and economic consequences being neglected. Skin diseases are increasingly influenced and exacerbated by climate change, affecting the most vulnerable in society.

Previous initiatives have targeted individual conditions. It is now time to combine these efforts. An integrated strategy will improve health outcomes, access to care, and treatment, particularly for vulnerable populations. Stimulated by the Universal Health Coverage framework (SDG indicator 3.8.1), a coalition of civil society organisations, including patient groups, healthcare professionals, academia, and philanthropists, is advocating to focus on reducing the burden of skin diseases globally.

Côte d'Ivoire, supported by Nigeria, Togo, and Micronesia, proposed a resolution in response to the global burden of skin diseases, in relation to an agenda item that has been accepted by the WHO Executive Board Secretariat. A zero draft is now under consultation with member states. It proposes a framework emphasizing prevention, early detection, effective treatment, and research. The draft targets all skin conditions, including communicable diseases, allergies, autoimmune diseases, genetic disorders, cancers, infections, and rare autoinflammatory conditions. It encourages a multisectoral collaboration to develop policies and deliver interventions that align with established global health priorities.

Improving global skin health requires integrated care models that include dermatological management, wound care, prevention of loss of function, and mental health support. Investments in training healthcare workers, particularly on the frontline, and research into social determinants of skin diseases are essential. Advocacy and funding should enhance research capacity, develop diagnostic tools and treatments, and expand global skin health databases to optimise resource allocation and evaluate interventions. Addressing the impact of climate change on skin health through tailored research and healthcare provider training is also critical.

These efforts aim to achieve "Skin Health for All," improving health outcomes and economic productivity by addressing the medical and socioeconomic impacts of skin diseases worldwide.

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Skin NTD(s)

All skin diseases

Integrated skin NTD approach – Journey of the NNN skin cross-cutting group and future directions

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Non-governmental organizations (NGOs) play a crucial role in the fight against neglected tropical diseases (NTDs), contributing to global control, elimination, and management efforts in line with the World Health Organization (WHO) NTD Roadmap. The NTD NGO Network (NNN), a global forum for NGOs, seeks to enhance this contribution by promoting collaboration, knowledge sharing, and engagement within the NTD community. Within this framework, the NNN Skin Cross-Cutting Group (Skin CCG) focuses on advancing integrated approaches to control skin-related NTDs. These diseases, often characterized by skin lesions as initial signs of infection, present unique challenges in prevention, control, and management due to the individualized nature of their treatment and care.

The NNN Skin CCG was formed in 2019, following the publication of a position paper on skin NTD integration in 2017. Through a collaborative effort with the WHO and other partners, the NNN Skin CCG aims to raise the profile of skin NTDs within global health priorities and secure the necessary financial and infrastructural support for their control and eventual elimination. The group has played a pioneering role in advocating for the integration of skin NTDs into broader public health initiatives, organizing webinars and virtual events to foster dialogue and collaboration, especially during the COVID-19 pandemic when in-person interactions were limited. These efforts have supported the formation of the WHO strategic framework for integrated control and management of skin NTDs and the initiation of 12 WHO Working Groups dedicated to skin NTDs.

Looking ahead, the NNN Skin CCG aims to continue its advocacy work by identifying and addressing gaps not covered by existing working groups, particularly in areas where skin NTDs intersect with other skin diseases that burden endemic communities. The group's vision is a world free of skin NTDs, with a focus on achieving "Skin Health for All." By ensuring that skin NTDs receive the attention they deserve and integrating their management with other skin diseases, the NNN Skin CCG hopes to enhance the overall health infrastructure and improve the quality of care for affected populations.

As the NNN Skin CCG continues its journey, it remains committed to working collaboratively with all stakeholders to achieve the goals outlined in the NTD Roadmap and contribute to a world where skin NTDs are no longer a significant public health concern.

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Skin NTD(s)

All skin NTDs

Basic research

The microbiome of Buruli ulcers and its impact on intervention outcomes

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Buruli ulcer (BU) is a skin necrotizing disease caused by *Mycobacterium ulcerans*. It is characterised by painless open wounds and treatment is by antimycobacterial agents. The presence of secondary bacteria in these lesions may lead to pain, treatment inefficacy, delays in wound healing, increase in cost of treatment for patients and reduced quality of life. Culture-dependent techniques have been relied on to depict the microbial diversity of Buruli ulcer lesions. However, this is inadequate as unculturable bacteria are unaccounted for. Some studies have addressed this by using culture independent tools such as targeted 16s rRNA amplification and sequencing. However, the small sample sizes and inadequate controls requires additional work which this study achieves by using metagenomic sequencing on a larger sample size and controls from BU-endemic communities in Ghana.

Prospective swab samples were collected from BU-like lesions in endemic areas in the southern and middle belt of Ghana. Real time polymerase chain reaction targeting the IS2404 gene was performed for BU confirmation. By employing Metagenomic sequencing, the microbiome profile of the lesions was determined and associations made with the patient's socio-demographic characteristics.

A total of sixty-one samples were collected from fifty-seven participants included in this study. Majority (>60 %) were between the ages of 15-59, farmers (50 %) and experienced pain in their lesions which indicates the presence of secondary bacteria in the lesions. Samples from ten participants tested positive for Buruli ulcer. This made up approximately 18 % of the study population.

Forty-two out of the sixty-one samples have been successfully sequenced and the data analyzed. Generally, E. coli, L. iners, B. cereus and S. aureus were highly abundant and dominant in certain samples while others like T. forsythia and C. yushuensis were rare across all samples. The data suggested that the bacterial diversity within these individual samples is relatively low, likely because of highly selective conditions like mycolactone toxin. In, addition, the microbial population in the lesions also showed that the samples are very similar in composition (species present) when subjected to a pair-wise comparison.

This study has shown thus far that there is varying bacterial diversity in BU-lesions and normal skin commensals and some can transition into opportunistic bacteria thereby causing pain and delaying wound healing.

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Skin NTD(s)

Buruli ulcer

Effects of imiquimod on treatment of cutaneous leishmaniasis and expression of TLRs and inflammatory cytokines in macrophages infected with Leishmania major

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Leishmania is an obligate intracellular pathogen and macrophages as a main cell host for Leishmania that are necessary for the survival and proliferation of the parasite. Imiquimod stimulates macrophages and monocytes and Th1 cells to secrete different cytokines. In this study the effect of imiquimod on leishmanial lesion size and survival rate were evaluated. The macrophages as the most suitable cellular host for Leishmania parasite was investigated and the effect of this drug on Toll-like receptors (TLRs) in macrophages and also the expression of inflammatory, proinflammatory and regulatory cytokines by macrophages were investigated. TLRs play an important role in enhancing the proceeding of phagocytosis and killing parasites. Also, the cytokines such as TNFα, IL6, and IL1, are often identified in inflammatory conditions as interfering targets in treatment. Healthy macrophages and macrophages infected with Leishmania major parasites were affected by different concentrations of imiquimod, after that the expression of TLR genes (TLR1, TLR2, TLR3, TLR4, TLR7 and TLR9) and cytokines were evaluated by real time RT-PCR. For experiments in laboratory animals, infected BALB/c mice were exposed to imiquimod and then isolated peritoneal macrophages. The results in this study showed that reduction percent in lesion after 12th week relative to control was for imiquimod and glucantime 70.83% and 62.5% respectively. The percentage of survival rate of mice ten weeks after the treatment for mice treated with imiquimod, glucantime and control groups was 80%, 60% and 20% respectively. The expression of TLR2 decreased in non-contaminated macrophages that were affected by the imiquimod. The expression level of TLR7 in healthy macrophages, decreased and the difference with control group was significant. According to the results, imiquimod increases the expression of inflammatory cytokines and IL12 in mouse macrophages and also decrease the expression of IL10. This suggests that imiquimod may improve the therapeutic effects in infected mice with Leishmania major. Imiquimod causes that TLR2 decreased expression but TLR7 and TLR9 increased expression. Imiquimod as TLR7 agonist, enhance the recovery of leishmaniasis.

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Skin NTD(s)

Cutaneous leishmaniasis

Current state-of-the-art and future directions on vaccines in skin neglected tropical diseases

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Neglected tropical diseases (NTDs) affecting the skin, including Buruli ulcer, leprosy, and cutaneous leishmaniasis, pose a substantial global burden, particularly in resource-scarce regions. These diseases collectively impact over one billion people, leading not only to chronic health complications but also profound social and economic repercussions. The stigma surrounding disfigurement and disability often results in the isolation of those affected, limiting their access to much-needed care, while physical impairments impede their economic mobility. Recognising the urgent need to tackle these issues, the WHO NTD Roadmap 2021–2030 has set targets to control or eradicate these diseases. However, the intricate epidemiology of skin NTDs—many of which are transmitted by vectors and have animal reservoirs—renders public health control a Herculean task. Among the various public health strategies, vaccination has been identified as a potentially powerful tool in curbing the transmission or severity of these diseases. This review seeks to assess the current state of vaccine development for skin NTDs and to discuss future strategies to enhance prevention efforts.

A comprehensive literature review was conducted to analyse existing vaccine candidates and recent advancements. Our findings indicate that the efficacy of vaccines varied considerably. The protective effects of the BCG vaccine against Buruli ulcer remain inconclusive; some studies suggest it confers partial, transient protection or limits disease progression, while others found no correlation. In protecting against leprosy, the effectiveness of the BCG vaccine was reported to range between 20% and 90%. Leishmaniasis vaccine development has progressed through three generations, and emerging platforms continue to face hurdles related to efficacy, durability of immunity, adverse effects, and the feasibility of large-scale deployment.

This review reiterates the need for increased efforts to propel vaccine development for skin NTDs. Despite ongoing initiatives, effective vaccines are still lacking due to insufficient investment and scientific challenges. Given the slow progress made thus far, it is imperative to address regulatory obstacles and bolster research funding. Furthermore, to close the gap between scientific progress and the implementation of vaccines in broader NTD control programs, strengthening collaborations between academia, industry, government, and global health organisations will be vital.

Skin NTD(s)

- Buruli ulcer
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Capacity strengthening and training, including digital tools and artificial intelligence

Integrating neglected tropical diasese (NTD) control into the training curriculum of the National Health Worker Training Institute (INFAS)

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Ivory Coast is endemic to fourteen neglected tropical diseases (NTDs). These diseases are managed by five health programmes.

The initial and ongoing training of health workers does not sufficiently address the fight against NTDs. INFAS is the institution responsible for training health workers.

The NTD Programmes, INFAS, and technical and financial partners initiated this project to pool their efforts to improve the spectrum and quality of care provided to people affected by NTDs. The beneficiaries of the project are INFAS students, health workers in post, NTD focal points in health districts, and populations in endemic areas.

The results achieved are the revision/development of 39 modules on NTDs that cover the 14 endemic NTDs in the country, the training of trainers, the design of an integrated health worker supervision grid for use at the central level (INFAS, PS) and by leprosy focal points in health districts. The creation of the e-learning platform for initial and ongoing training of stakeholders is under way.

Successes

- Strengthened interinstitutional collaboration with ownership of the project by health system stakeholders.
- Use of modern communication tools including artificial intelligence.
- A good example of resource pooling. 14 NTDs covered.

Challenges

- Coordination in managing funding from different sources.
- Harmonization of implementation calendars.

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National Guinea Worm Eradication/Water and Sanitation Programme (PNEVG/EA)
National African Trypanosomiasis Elimination Programme (PENTHA)
National Health Worker Training Institute (INFAS)
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E-Learning Studio

Skin NTDs

- Buruli ulcer
- Dracunculiasis (guinea-worm disease)
- Ectoparasites: scabies
- Ectoparasites: tungiasis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Onchocerciasis
- Yaws

Building capacity for skin NTDs: A global training resource analysis

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Introduction: Several recent initiatives have focused on developing training materials to help frontline healthcare workers recognize and manage skin NTDs. However, the content and quality of existing resources have not been assessed, leaving gaps unclear. This study identifies and evaluates training materials on Buruli ulcer, chromoblastomycosis, cutaneous leishmaniasis, post-kala-azar dermal leishmaniasis, leprosy, lymphatic filariasis, mycetoma, onchocerciasis, podoconiosis, scabies, sporotrichosis, tungiasis, and yaws to pinpoint critical gaps and priorities for resource development.

Methods: Skin NTD training materials for frontline healthcare workers available on the InfoNTD, OpenWHO, and Centers for Disease Control and Prevention workers platforms were reviewed for content, year of development, target audience, geographic area of focus, languages available, format, and quality. Grey literature search was also performed to incorporate materials not included in the above platforms.

Results: Of 372 resources identified, 114 met inclusion criteria. The majority of resources (71%) were available only in English. Most resources were text manuals (31%), online courses (29%), and web pages (26%). Remaining resources consisted of videos, books, phone apps, podcasts, games, slides, and databases. Diagnosis, treatment, complications, and follow-up were covered in 78%, 90%, 57%, and 30% of resources respectively. Discussions of complications and follow-up often lacked detail, and no materials included follow-up for tungiasis. Approximately one third of materials (32%) lacked any images.

Conclusion: We highlight substantial gaps in skin NTDs training materials for healthcare workers. There is a pressing need for resources that provide detailed guidance on complications and follow-up care, high-quality images, and translation to strengthen capacity building efforts and improve patient outcomes.

Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Onchocerciasis
- Podoconiosis
- Yaws

Prioritizing skin histopathology training for diagnostic accuracy of leprosy and other skin -NTDs

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Background

Histopathology is essential for diagnosing leprosy and other skin diseases. However histopathology is most of the time depends on clinical context. At Anandaban Hospital, The Leprosy Mission Nepal, 38 cases were either over or underdiagnosed as leprosy over five years and these also included many skin-NTDs. These misdiagnoses led to inappropriate treatments and delayed care, emphasized the need for enhanced training for pathologists.

Methods

To address this, The Leprosy Mission Nepal organized two workshops, one in 2017 and another in 2024, aimed at improving pathologists' diagnostic skills. The first workshop included 15 pathologists and one dermatologist, while the second included 15 pathologists. Facilitated by experts from institutions like the National Hansen's Disease Program (USA), Schieffelin Institute (India), Institute for Specialized Services in Leprosy Nireekshana (India), AIIMS (India) and Anandaban Hospital (Nepal), the workshops combined theoretical lectures with hands-on practical sessions. Topics included diagnosis of leprosy, leprosy reactions, relapse, and differentiating leprosy from other granulomatous skin condition which included ski-NTDS like leishmaniasis and deep mycosis, and cutaneous tuberculosis.

Results

Participant feedback showed significant improvements in diagnostic confidence not only for leprosy but also for other granulomatous skin conditions especially skin-NTDS . Pathologists gained better insight into clinicopathological correlations and the importance of integrating lab results with clinical presentations. Facilitators noted the success of the workshops in addressing training gaps and emphasized their value in ensuring accurate diagnoses in leprosy-endemic regions.

Discussion/Conclusion

There are different training programs at different levels for clinical diagnosis of leprosy but there are no such advanced programs for pathologist and we all know that how important is the role of pathologist in diagnosing leprosy and skin-NTDs. This workshop highlights that specialized training programs like this are crucial for enhancing leprosy diagnosis and preventing misdiagnoses in endemic areas. While focused on leprosy histopathology, the workshop also addressed other granulomatous skin-NTDs common in Nepal, providing valuable cross-training. These workshops emphasize the need for development of robust trainings for pathologist in leprosy and skin-NTDS endemic countries.

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Dr. Ram Chandra Adhikari (Maharajgunj Medical Campus, Institute of Medicine, Nepal)

Skin NTD(s)

- Leprosy
- Other: Granulomatous skin-NTDs

Illustrating skin-related neglected tropical diseases: resources for the WHO's open training platform and skinNTDs app

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Front-line healthcare workers (HCWs) require clear visual guidance to identify and refer potential cases of skin NTDs. Resources like the WHO's open training platform and the Skin NTDs App assist in diagnosis, currently covering 13 skin NTDs and 23 common skin conditions through photographic documentation. However, photos present challenges such as copyright, patient anonymity, and difficulties in capturing disease presentations. Clinically approved medical illustrations offer a promising solution to accompany photographs, ensuring standardised, accurate depictions across different skin tones to enhance training and detection among diseases.

This project aims to integrate these illustrations into WHO training materials and the Skin NTDs App. The goal is to develop illustrations depicting skin changes for early disease detection. In previous work, published in (Open Surrey) and [1] Buruli ulcer and Yaws were illustrated. The project is currently working on illustrations for 4-6 additional skin NTDs including Onchocerciasis, Guinea worm (dracunculiasis), and Cutaneous leishmaniasis, prioritised based on prevalence and training needs.

Medical illustrations enhance clarity, ethical compliance, and highlight key features, with the aim to include additional disease symptoms when they are involved as well as skin such as blindness.. Findings will guide future developments , supporting WHO's mission to provide visual communications for skin NTD education, management and treatment worldwide.

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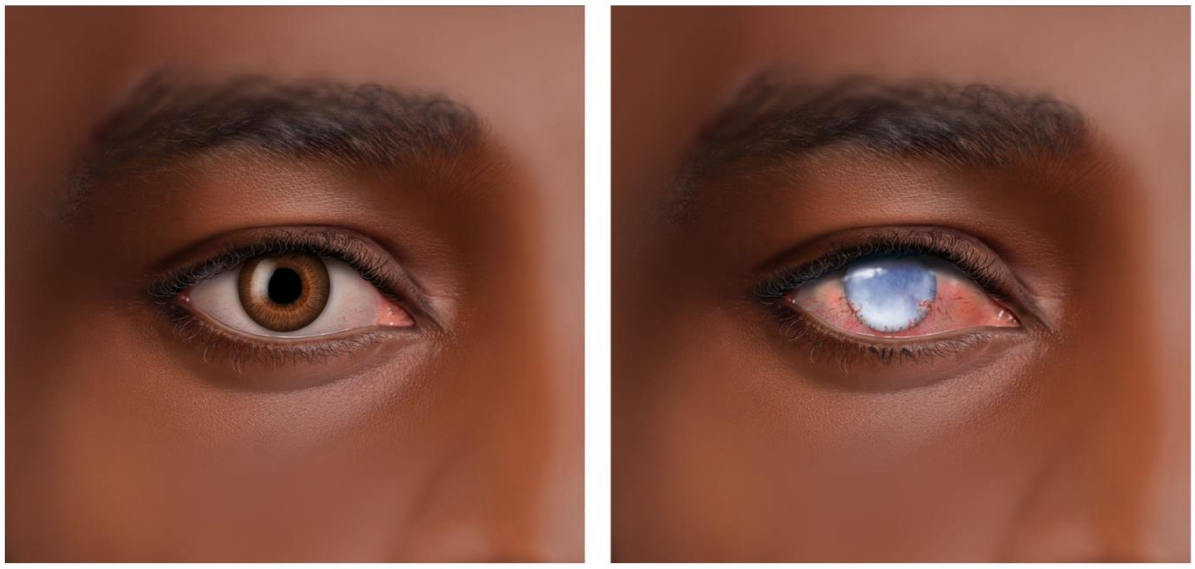
Figure 1: Onchocerciasis - punctate keratitis



Skin NTD(s)

- Buruli ulcer
- Dracunculiasis (guinea-worm disease)
- Leishmaniasis: cutaneous
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws

Impact of a virtual training program of Nigerian health workers on wkin NTDs – An ILDS DermLink project

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Background

Nigeria bears the largest burden of Neglected Tropical Diseases (NTDs) in Africa, accounting for an estimated 25% of all cases on the continent. Ten WHO-recognized NTDs are characterized mainly by skin manifestations (Skin NTDs); most are endemic in Nigeria. However, limitations in the diagnostic abilities of frontline health workers lead to them being undiagnosed, untreated, and underreported. This study aimed to document and evaluate the impact of a Skin NTDs virtual training program for Nigerian health workers.

Methods

We conducted a retrospective analysis of a 6-month bimonthly Skin NTD virtual training of Nigerian health workers coordinated by members of the Nigerian Association of Dermatologists and supported by the International League of Dermatological Societies. Registration data and pre- and post-training evaluation results were analyzed.

Results

A total of 871 health workers participated in the program, of which 52.7% were female. Medical doctors comprised 54% of the cohort, while 46% represented other health worker categories. Post-training evaluations demonstrated a 36% increase in knowledge of Skin NTDs, and 87% of participants expressed interest in further e-learning on Skin NTDs and common dermatological conditions.

Conclusions

Continuous virtual dermatology training programs can enhance the capacity of frontline health workers, addressing the knowledge gaps caused by the shortage of dermatologists in Nigeria and Africa. These programs are crucial in improving the diagnosis and management of Skin NTDs, ultimately contributing to their control and elimination.

Keywords: SkinNTDs; Dermatology training; Virtual training

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Noma
- Onchocerciasis
- Podoconiosis
- Yaws
- Other: Mpox

Florence: a smartphone copilot based on large AI multimodal models for patients with suspected skin neglected tropical diseases

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Large Multimodal Models (LMMs) present an innovative approach in healthcare leveraging the integration of heterogeneous data types to improve and optimize patient diagnosis and management. This approach shows particular promise for diseases in which combining data is crucial for accurate diagnosis, or when expert personnel are scarce, and the differential diagnosis is complex. Neglected Tropical Diseases (NTDs), particularly skin NTDs such as Buruli ulcer, leprosy, yaws or scabies, represent an optimal scenario in which to apply this methodology, given the need for an early diagnosis, the complex differential diagnosis and the scarcity of dermatologists in rural areas. We developed and tested two assistants for the diagnosis, management and follow-up of patients with suspected skin NTDs in Côte d'Ivoire: i) "Florence," an expert in Skin NTDs; and ii) "Florence Pro," an augmented version of Florence equipped with a guide from World Health Organization on skin NTDs tailored for front-line health workers and the ePilly Trop book on tropical infectious diseases. The configuration of these two assistants has adhered to the CO-STAR framework augmented with one-shot learning. Afterward, these were deployed into a mobile App, MultiSpot, facilitating the combination of clinical data and images of skin lesions. This system was tested at the Divo Regional Hospital in Côte d'Ivoire, where clinicians evaluated its effectiveness in diagnosing simulated cases of patients with skin conditions. Following testing, a performance survey was conducted, measuring system usability and accuracy metrics, reaching promising results. Preliminary findings underscore the potential of this tool in diagnosing and managing patients with suspected skin NTDs, being particularly useful for health workers and individuals with limited expertise in dermatology. Subsequent steps entail implementing a user journey in the assistants, and conducting this study on a larger scale, encompassing a broader spectrum of cases and diverse personnel.

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Skin NTD(s)

All skin NTDs

The intelligent microscope: An AI platform for multiplex diagnosis at the Point of Care

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A new generation of diagnostic systems available at the point of care (POC) could save lives and reduce the spread of infectious diseases worldwide through early detection and treatment. Optical microscopy remains the gold standard for the diagnosis of many diseases; however, its accuracy is dependent on the availability and expertise of the analyst at the POC. This limitation is increased by the dependence on labor-intensive examination processes, lack of standardization, high interobserver variability, insufficient precision in sample quantification and, as a consequence, a high misdiagnosis rate. One promising solution is the use of artificial intelligence algorithms to aid diagnosis, though these systems often require large datasets, which are not always accessible. In our project we propose a data-efficient AI-based methodology for disease diagnosis that focuses on the sample rather than the targeted disease, enabling the identification of multiple diseases, including skin Neglected Tropical Diseases. By leveraging a methodology for classifying multiple species using self-supervised learning (SSL), model performance can be significantly improved with limited annotated data. As a result, we developed a foundational model based on over 100K microscope images (10x, 40x and 100x magnification, from four study sites) acquired from 332 patients. From this database, more than 89K images were used for SSL pretraining, while the remaining images were labeled by experts and used for fine tuning with an 80%-20% patient-level split. Using ViT as a transformer based model with DINO as the SSL strategy, we achieved 95% accuracy (F1 Score) across the different species with just 100 labels per new class. This shows that further species can be included with a very limited number of labels. Our work presents a generalized AI framework for detecting and classifying multiple diseases within a single model, that can be extended to other sample types and deployed into an autonomous microscope. This solution can be integrated into smartphones, facilitating real-time diagnosis and universal monitoring of skin neglected tropical diseases.

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Skin NTD(s)

- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Other: Other skin NTDs and infectious diseases

Strengthening health workforce capacity for skin NTDs through co-created blended digital and in-person training

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Background

Limited training solutions have led to persistent knowledge gaps in diagnosing, treating, and preventing cases of NTDs, hindering global elimination of (skin) NTD s. To bridge this gap, a consortium of International Federation of Anti-Leprosy Associations (ILEP) members, Health[e]Foundation (HeF), and InfoNTD have collaboratively developed an innovative e-learning platform and e-curriculum on relevant skin-NTD and common skin disease topics with the aim of equipping community health workers, nurses, primary care doctors, and persons affected with essential knowledge to reduce the burden of NTDs.

Training delivery through a blended learning format (combining e-learning with in-person training) allows learners to complete online modules at their own pace, while in-person training provides hands-on skill development. E-courses were developed using Moodle and Articulate Rise, creating an interactive user experience with both online and offline functionality. Between September 2023 and January 2025, five e-courses were co-created with experts from endemic countries to ensure relevance based on identified needs; courses include, Reactions in Leprosy, Post-Exposure Chemoprophylaxis for Leprosy, Scientific Writing for Dissemination of Research, Stigma and Mental Wellbeing, and Eye Care in Leprosy. Each course underwent rigorous review and refinement, including pilot testing with experts, health workers, and researchers working with NTDs.

Impact

Between November 2023 and January 2025, 335 participants were reached across 16 countries, including Indonesia, Nepal, Nigeria, Ethiopia, Sierra Leone, Sri Lanka, Brazil, Ghana, Niger, Malaysia, Bangladesh, Peru, India, Spain, UK, and Germany, and had an overall completion rate of 70%. The courses averaged a recommendation score of 9/10, with 95% of participants finding the courses useful for their daily practice. Moreover, participants scored the courses a 4.5/5 when asked if this course had increased their knowledge, indicating that the content was well-targeted.

Insights

The collaboration has demonstrated the power of leveraging partners' complementary strengths to successfully co-create quality course materials, thereby improving knowledge and capacity of collaborators and participants. Moving forward, we aim to expand this collaboration with local training institutions, develop more integrated courses on NTDs, and seek additional partnerships to ensure the platform's long-term sustainability.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Decentralizing nodulectomy for podoconiosis to the primary health care: Improving access and outcomes in Southern Ethiopia

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Introduction

Podoconiosis, a debilitating condition caused by prolonged exposure to irritant soil, leads to lymphedema and the formation of painful, disfiguring nodules. In Ethiopia, where podoconiosis is endemic, a significant gap in treatment access exists, particularly in rural regions. The decentralization of nodulectomy (surgical removal of the nodules) to primary healthcare facilities aims to improve service delivery and patient outcomes. This report explores the progress of the decentralization of nodulectomy for podoconiosis patients in Southern Ethiopia, highlighting the implementation, challenges, and lessons learned.

Methods

The project was launched in January 2024 with theoretical and practical training sessions for healthcare workers in the Gamo Zone of Southern Ethiopia. A total of 12 mid-level healthcare workers from three health centers participated in the training. The trained healthcare workers performed nodulectomies on 36 podoconiosis patients, guided by expert mentors. Data on patient demographics, treatment outcomes, and the challenges faced were collected and analyzed.

Results

A total of 60 patients, with a median age of 45 years, underwent nodulectomy procedures at two health centers. The majority of patients were men (55.6%) with a median duration of lymphedema of 11 years. The average healing time for the wound was 21 days. The primary concerns for patients before surgery included difficulty walking (72.2%) and social stigma (63.9%). Post-procedure, patients experienced improved mobility and a significant reduction in stigma, with many able to wear shoes and return to work. However, challenges such as a lack of surgical supplies and the financial burden on patients, particularly for travel and footwear, were identified.

Conclusion

The decentralization of nodulectomy for podoconiosis in primary healthcare facilities has proven successful in improving access to care and enhancing patient outcomes in Southern Ethiopia. However, continued efforts are needed to address logistical challenges, including the availability of surgical supplies and financial support for patients. The collaboration between local health authorities, universities, and NGOs was crucial to the success of the program. Recommendations include increasing funding, reducing travel costs for patients, and raising awareness to further reduce the stigma associated with podoconiosis.

Acknowledgements

L’Oreal skin beauty, National Podoconiosis Action Network (NaPAN), Southern Region Health Bureau, Ethiopia

Skin NTD(s)

Podoconiosis

Mycetoma management and the leverage of artificial intelligence

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Mycetoma is a considerable public health challenge due to its prolonged treatment duration and potential for severe morbidity. The complexity of mycetoma management is compounded by the variability in causative agents, clinical manifestations, and patient responses to treatment. Traditional management strategies have relied on surgical intervention, antifungal or antibacterial therapy, and supportive care. However, these approaches are often hindered by late diagnosis, misidentification of the causative organism, and variable treatment responses, leading to suboptimal outcomes.

Recent advancements in artificial intelligence (AI) present a transformative opportunity for enhancing the management of mycetoma. AI algorithms, particularly those utilising machine learning and deep learning techniques, have shown promise in improving diagnostic accuracy, predicting treatment outcomes, and personalising therapeutic approaches. By analysing large datasets, including clinical records, imaging studies, and laboratory results, AI can assist healthcare providers in identifying mycetoma at early stages, which is crucial for effective intervention. Furthermore, AI-driven tools can facilitate the classification of mycetoma types, guiding clinicians in selecting appropriate antifungal or antibacterial therapy based on the specific aetiological agents.

The integration of AI in mycetoma management not only holds the potential to streamline diagnostic processes but also to enhance surveillance and epidemiological studies. Predictive modeling can aid in identifying at-risk populations and regions, thereby informing public health strategies and resource allocation. Additionally, AI can support ongoing research into novel therapeutic agents and treatment regimens, ultimately contributing to improved patient outcomes and reduced healthcare costs.

The leverage of AI in mycetoma management represents a significant advancement in addressing this neglected tropical disease. By harnessing the power of AI, healthcare providers can enhance diagnostic accuracy, optimise treatment strategies, and improve overall management of mycetoma, ultimately reducing the burden of this debilitating condition on affected populations. As research continues to evolve, further exploration of AI applications in mycetoma will be essential in fostering innovative solutions and improving global health outcomes.

Skin NTD(s)

Mycetoma

Integration of tungiasis control into regular school activities in Napak District, Northeast Uganda

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Tungiasis remains a public health threat for impoverished communities in many sub-Saharan countries. School-aged children bear the highest disease burden. Among pupils, tungiasis is associated with mobility impairment, stigma, poor school performance and increased absenteeism leading to school dropouts. In a hyperendemic area in Northeast Uganda, characterized by a semi-nomadic population and the absence of efficient Primary Health Care Delivery, integration of tungiasis control into regular school activities seemed to be a promising possibility. A comprehensive intervention strategy was developed and implemented in six primary schools. In each school, 10 to 24 teachers and elder pupils were trained to diagnose, treat and prevent tungiasis and became focal tungiasis teachers/pupils for the respective school. Treatment was done with the dimeticone-oil formula NYDA®, and prevention was based on WASH principles. A tungiasis curriculum was developed and educational material was provided. Systematic diagnosis and treatment were performed once a week; WASH activity every day before pupils entered the classroom. Prevalence and severity of tungiasis was assessed at the beginning and end of every school term. Knowledge, Attitudes, and Practices were assessed among teachers and pupils at baseline and after one year. After one year of intervention, the point prevalence in pupils was reduced from 47.1% to 13.9%. The median number of viable and non-viable lesions in pupils with tungiasis decreased from 10 to 4. No case of severe tungiasis/tungiasis-associated mobility impairment was observed after one year of intervention. School enrolment increased by 31% from 1,306 to 1,892 pupils. Teachers reported an increase in school attendance and performance.

Integration of tungiasis control into regular school activities is an alternative approach to tungiasis management at the community level in settings with deficient Primary Health Care Delivery. However, reinfections at the household level prevented the complete elimination of tungiasis in school-aged children, underscoring the need for integrated community-based interventions alongside with school programs.

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Skin NTD(s)

Ectoparasites: tungiasis

Addressing research gaps in assessing the impact of capacity strengthening strategies for neglected tropical diseases

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Capacity strengthening/training is essential for improving the prevention, diagnosis, and management of Neglected Tropical Diseases (NTDs), particularly in resource-limited settings. Various strategies, including e-learning, have been implemented to enhance the skills of frontline health workers and those at other levels in the health system. There remains a significant gap in research assessing the effectiveness and long-term impact of these efforts. Understanding the impact is crucial for optimizing resource allocation, implementation, and scaling, to ensure strengthened workforce capacity and effective implementation of the WHO NTD roadmap. Identifying and addressing research gaps will help strengthen evidence-based decision-making, ultimately contributing to more efficient and impactful NTD control and elimination programs.

A literature review was conducted to identify research gaps and develop a research agenda with priorities, guiding “impact assessment studies” to build further evidence on the impact of capacity-strengthening strategies, in particular on e-learning or blended learning (e-learning and in-person training combined). Detected were studies and systematic reviews (2010-2024) focusing on evaluation and assessment methods used to measure e-learning effectiveness and impact in resource-limited settings. The search was conducted in PubMed and Google. In total 20 publications were identified.

Results indicate that e-learning and blended learning approaches can effectively enhance the knowledge and skills required for managing health conditions, particularly in remote and resource-limited settings. Limited literature was found addressing the impact on Skin NTDs. The most common evaluation method involved assessing student knowledge through multiple-choice questions in pre- and post-tests. Few studies measured practical skills using hands-on assignments (Barteit et al., 2020). In low-resource settings, many technology-enhanced interventions, such as e-learning, often do not progress beyond the pilot stage. Moreover, most studies did not report on key factors such as technology use, pedagogy, learning context, organizational development, health outcomes, or costs—elements crucial for a holistic evaluation.

Identified main research gaps:

1. Impact on Patient Care
2. Technological Barriers
3. Blended Learning Integration.
4. Cost Effectiveness
5. Scalability & Sustainability
6. Contextual Adaptation

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Skin NTD(s)

All skin NTDs

Building evidence on e-learning and blended learning for strengthening health worker capacity in managing skin Neglected Tropical Diseases (NTDs) in low- and middle-income countries (LMICs)

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The limited training of community health workers is a key factor behind the persistence of Neglected Tropical Diseases (NTDs), which disproportionately affect more than one billion people globally, predominantly in low- and middle-income countries (LMICs). This study explores the utility of e-learning and blended learning approaches as scalable solutions for capacity building in LMICs. A scoping review of PubMed and OpenWHO databases (Jan 2010 to Jun 2024) identified 24 top- and high-priority articles, selected based on the World Health Organization's Five Levels of Training Impact and Evaluation criteria. These articles reported substantial positive outcomes across reaction, learning, behaviour, and healthcare results, with all top-priority articles (n=10) demonstrating a return on investment (ROI) through achievement of public health programme objectives.

With most NTDs presenting cutaneously, training materials tailored to reflect local skin tones and regional healthcare needs are critical to reducing diagnostic inaccuracies. Infrastructure limitations, including poor digital access, remain significant barriers to the successful implementation of e-learning programs. Moreover, the lack of follow-up courses and long-term monitoring of patient outcomes limits the sustained impact of these training initiatives. To address these challenges, tools such as the WHO SkinNTDs app can be utilised to enhance the capacity of frontline health workers managing skin NTDs. Structured mentorship programs, such as the International Alliance of Global Health Dermatology to enable learners to become teachers and drive community-wide changes.

Moreover, additional efforts are needed to expand the geographical scope of studies to include under-represented regions, such as remote and forested areas, which are often excluded from current research. Proper course scaffolding, combined with refresher sessions, can help ensure that knowledge and skills are retained and built upon over time. Finally, the adoption of innovative evaluation methods, such as video-based workplace assessments, can facilitate the assessment of skill application and behaviour changes in real-world settings.

By addressing these gaps, e-learning and blended learning approaches offer a scalable and effective strategy for improving NTD education, equipping healthcare workers in LMICs with the skills and knowledge needed to drive community-wide improvements in healthcare outcomes.

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Skin NTD(s)

All skin NTDs

Bridging dermatological training gaps: The role of tele-education and virtual patients simulations in resource-limited settings

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Access to a dermatology specialist is not guaranteed for the vast majority of the world's population. In developing countries, this is simply due to the near absence of specialists. In industrialized countries, these specialists often shift their focus to aesthetic medicine. Primary care physicians are often poorly trained to diagnose and treat dermatological conditions. The combination of this lack of training and the unavailability of specialists constitutes a global public health issue.

Telemedicine can help address this challenge in two ways. The Delta network in Geneva offers the possibility of sending images and information to a dermatologist who can resolve the clinical issue in the vast majority of cases. In Mali, a telemedicine project link has also been implemented. These services depend on the availability of specialists and internet access.

To complement these efforts, it is also essential to better train physicians or nurses receiving patients. The VIPS4HEALTH project, supported by the Geneva University Hospitals (HUG), offers a tele-education tool, the VIPS, based on exposure to clinical scenarios under standardized supervision. The HUG brings expertise through their Dermatology and Venereology Department, which has been instrumental in developing and adapting the training modules for global contexts. The VIPS simulator, accredited for pre- and post-graduate medical training in Switzerland, combines interactive and immersive learning experiences.

This project will initially be deployed in Mali and Niger, leveraging the foundational work of the TelederMali project, and will also be integrated into the universities of these countries, paving the way for a scalable and sustainable solution to address dermatological training gaps globally.

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We are honored to count on such dedicated and visionary partners to advance this shared mission in favor of global health.

Skin NTD(s)

All skin NTDs

Digital tools and artificial intelligence for trachoma management and capacity building

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Background

Trachoma causes vision impairment in 1.9 million people, primarily in resource-limited settings. 137 million people are at risk for Trachoma, therefore, strengthening capacity for diagnosis, follow-up, and treatment is essential for achieving global elimination targets. Digital tools, including machine learning (ML)-based image recognition and large language models (LLMs), offer innovative approaches to enhance diagnostic accuracy, treatment decision-making, and patient follow-up even as a self-monitoring solution.

Methods

AI-driven image recognition can support trachoma diagnosis by analysing conjunctival photographs taken via smartphone-based applications, allowing for remote screening and early detection. Decision-aid software powered by LLMs can assist healthcare workers in interpreting findings, recommending treatment protocols, and providing educational guidance to patients. Home-based self-monitoring tools, including AI-powered mobile applications, can enable individuals to self-assess their symptoms and receive tailored recommendations on hygiene practices, medication adherence and when to consult for surgery.

Results

Pilot studies demonstrate that AI-assisted image recognition achieves high sensitivity and specificity in detecting trachoma-related conjunctival inflammation. LLM-based decision-support tools improve clinical decision-making by offering step-by-step treatment guidance aligned with WHO protocols. Self-monitoring applications enhance engagement, adherence and reduce healthcare burden.

Implementation Challenges and WHO's Role

The integration of these digital tools requires addressing challenges such as data privacy, AI model validation, and equitable access to technology. The WHO can facilitate implementation by establishing standardised AI diagnostic protocols, and supporting the integration of these technologies into national trachoma control programs. Capacity-building efforts, including multilingual AI support, cloud-based diagnostic platforms, and interoperability with existing health systems, will further enhance the scalability and impact of these tools.

Conclusion

The synergy of AI-driven image recognition, LLM-based decision-aid software, and self-monitoring applications represents a transformative approach to trachoma control. WHO-led training, policy and infrastructure efforts will drive digital adoption in endemic regions, ultimately advancing progress toward global trachoma elimination.

Skin NTD(s)

Other: Trachoma

Awa and the WHO Skin NTD application: An innovation for frontline healthcare workers for the diagnosis skin NTDs and other neglected skin conditions

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In the remote health district of Roua, Far North Cameroon, Awa, a dedicated nurse, faced daily challenges diagnosing skin-related neglected tropical diseases (Skin NTDs). One morning, a patient arrived with troubling skin lesions—papules, pustules, and vesicles on both hands. Awa had seen similar cases but struggled to pinpoint the cause. Was it leprosy, scabies, or a fungal infection? In this resource-limited setting, specialized training was scarce and access to dermatologists was a luxury, diagnosing skin diseases was never straightforward.

Awa remembered participating in a study conducted in Cameroon (April-September 2024) assessing the dissemination and quality of the WHO Skin NTD app. It was through this study that she first heard about the app. The study employed a multifaceted dissemination strategy, including video presentations, WhatsApp, download links, and introductions by district management officers. These efforts proved effective, with app downloads increasing during major dissemination activities. Health workers, including Awa, began sharing suspected skin NTD cases via WhatsApp groups, fostering continuous surveillance. Awa opened the app. It wasn't powered by complex AI but by a step-by-step guide for frontline health workers. She entered the symptoms, and the app presented a shortlist of potential diseases with clear images. Gradually, the diagnosis became clear: a severe form of scabies, a skin NTD that could be managed effectively. Awa sighed with relief—she could now diagnose and treat her patient without waiting for a distant specialist.

Awa and her colleagues also provided feedback on the app's usability and quality. The study involved 180 participants from five regions who completed online questionnaires and 214 participants in focus groups. Results showed the app moderately met users' quality requirements (mean score: 3.6/5). Awa and her colleagues appreciated its ability to improve diagnostic efficiency. They suggested incorporating reminders, data collection features, and prioritizing integration into health system. They also emphasized the need for localized epidemiological data and images to make the app more context-specific. Awa's story highlights the transformative potential of the WHO Skin NTD app. It's not just an app—it's a tool empowering health workers to deliver better care for Skin NTDs, improving lives in vulnerable communities. As we gather at this WHO meeting on skin NTDs, let us commit to scaling up this app.

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Skin NTD(s)

20 common skin diseases including all skin NTDs

Strengthening diagnostic capacity of the rural health facilities for leprosy diagnosis

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Background

The goal of National Leprosy Elimination Program is Elimination of leprosy (interruption of transmission of leprosy) at the subnational level. Nepal achieved elimination of leprosy as a public health problem in December 2009 and officially declared it eliminated in 2010. Since then, the country has maintained the elimination threshold. The National Leprosy Strategy (2021-2025), aligned with global guidelines and national plans, aims to further reduce the prevalence rate to below 1 per 10,000 people and minimize disabilities caused by leprosy, focusing on district-level interventions and community awareness.

The Leprosy Control and Disability Management Section (LCDMS) under the Ministry of Health and Population at the federal level leads the program, providing policy environment and implementation guidance and essential drugs and supplies. The local government is responsible for service delivery with technical support and collaboration with the Province for early case detection, record validation, and capacity building of health workers. Despite significant progress, challenges remain, including inadequate resources, low program priority at local levels, limited rehabilitation services, insufficient capacity building of health workers, and gaps in quality of data and contact examination coverage.

FAIRMED collaborated with the Gandaki Province government (one of the 7 provinces), Nepal for strengthening the lab capacity of rural health facilities at the subnational level for diagnosis of Leprosy.

Objective of the initiative

The objective of this initiative was to strengthen the diagnostic capacity of the medical lab across rural health facilities for Leprosy diagnosis. Which will eventually support timely diagnosis and enroll into the treatment and prevent local transmission in the community.

Methodology

In order to develop a concrete plan, FAIRMED organized meetings with the Provincial Public Health Laboratory to identify areas of support for strengthening the capacity of medical labs at the rural health facilities for the diagnosis of Leprosy so that the cases don’t need to travel a long distance and added cost for diagnosis and to start the treatment on time.

The following process followed to meet the objective;

- Provincial Public Health Laboratory (PPHL) lead the initiative with technical and financial support from FAIRMED
- PPHL liaison with the Mini

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Skin NTD(s)

Leprosy

Integrating artificial intelligence into community-level surveillance of skin Neglected Tropical Diseases (NTDs): A novel framework for early diagnosis and treatment

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Skin NTDs remain a burden to the underserved populace with diagnosis and access to treatment still big problems. The enhancements of artificial intelligence (AI) in community-level surveillance systems present a radical solution to these problems. This research works toward developing a new framework for integrating diagnostic AI applications with CHW networks for early identification of skin NTDs including Buruli ulcer, scabies, cutaneous leishmaniasis, and mycetoma.

The type of research that is proposed in the context of the present project includes the creation of a mobile application based on AI image recognition algorithms that can identify other clinical manifestations of NTDs on patient photographs. The app shall link with a cloud-based database for the timely exchange of data and epidemiological reports. The training will cover modular concepts of improving the usage of the developed app by the CHWs that is user-friendly and culturally appropriate.

A pilot study will be carried out in two EDTZs, with the newly developed AI-supported strategy being systematically compared to traditional diagnostic procedures. They plan on measuring the diagnostic accuracy of this new consultation method, the time it takes to initiate treatment, and how satisfied patients are with the new method. Based on initially developed models, this framework should facilitate a reduction of diagnostic time by 40% and enhance the outcomes for patients.

This research seeks to determine an efficient and cheap solution that will meet the WHO's vision of enhancing the healthcare systems in resource-poor settings. By arming CHWs with the support of AI we can close gaps that need to be filled in order to get closer to the elimination of NTDs.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leishmaniasis: cutaneous
- Mycetoma

Unlocking massive opportunistic case finding (OCF) through deployment of the ORMCET and WHO Skin NTD App during PC NTD MDA coordination

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The cutaneous manifestation of NTDs is a major cause of morbidity and stigmatization; may lead to reduced quality of life, and affect psychological wellbeing due to the appearance, functional impairment, and discrimination of the individuals' experience. Knowledge gaps and myths about Skin NTDs often make persons with these conditions experience reluctance to seek healthcare.

To bridge the "delay to seek care" gap, case finding is important in NTD programs helping to identify cases early, promote early treatment and prevent permanent disabilities, while reducing transmission. There are global and country-led strategies for addressing several areas of Skin NTDs, including to promote early case detection by the application of Active Case Finding (ACF); a principle that also benefits all other NTDs.

The cost of ACF can be quite a factor to consider in NTD programs, especially given the more than twenty different conditions and the very limited knowledge of their symptoms and diagnosis in many endemic nations' [primary] healthcare systems. Yet, Opportunistic Case Finding (OCF) is being leveraged in general healthcare practice, with successes.

For NTDs, activities that reach the grassroots can be leveraged for coordinating case finding, as communities often point out any peculiar cases to field teams. NTD MDA Monitoring and Coverage Evaluation Surveys involve program managers making visits to NTD endemic locales to ensure protocol adherence [during monitoring] and determine geographic and therapeutic coverages [during CES].

DevAxle developed an omnibus tool for anchoring PC NTDs MDA coordination. The ORMCET is a simple inclusive e-questionnaire [based in KoBoToolBox] with indicators for multiple MDA coordination exercises: MDA Reporting, MDA Monitoring and MDA Coverage Evaluation Surveys. It has modules for OCF that leverages resources invested by national/district NTD programs into field exercises for identifying/recording any cases of PC/IDM/Skin NTDs encountered by personnel in the field. This data [derived across hundreds to thousands of communities and households] is a valuable resource to NTD programs.

With the ORMCET's current build having the capacity to support any of 48 African Countries; when combined with the WHO Skin NTDs mobile app for on-the-spot diagnosis, NTD Programs can unlock massive Opportunistic Case Finding. There is however a need to broaden use and strengthen knowledge and practice on how OCF data is generated, shared, and used.

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Skin NTD(s)

All skin NTDs

AI-powered melanoma detection: Advancing early diagnosis and promoting health equity in people of color

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Melanoma, the deadliest form of skin cancer, often goes unnoticed in its early stages particularly in individuals with darker skin tones due to disparities in access to dermatological care and limited awareness. To address this gap in healthcare, we have developed an Artificial Intelligence powered melanoma detection tool designed to enhance diagnostic accuracy and accessibility. The model employs deep convolutional neural networks to identify skin cancer by utilizing the Stanford Diverse Dermatology Images Dataset of benign vs malignant skin cancer lesion images.

The tool integrates key features including automated image preprocessing, lesion segmentation, and real-time analysis. The system is developed with particular attention to variations in skin tones, promoting equitable detection and fostering advancements in understanding demographic disparities in dermatological research.

Preliminary findings, based on the research, suggest the model's potential to improve early detection rates and reduce diagnostic inaccuracies. This project highlights the transformative potential of artificial intelligence in advancing healthcare research. It aims to provide insights that could eventually support broader efforts to address healthcare inequities, particularly in underserved communities.

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Natasha Parikh, Assistant Professor at University of North Carolina at Chapel Hill

Skin NTD(s)

Other: skin cancer (BCC, SCC, melanoma)

Qualitative insights from the WHO skin NTD app assessment study, Kenya

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Background

Skin Neglected Tropical Diseases (NTDs) pose a major health challenge in resource-limited settings, where dermatological expertise, frontline health worker (FHW) training and diagnostic resources are limited. Artificial Intelligence-infused applications could enable workflow efficiencies and facilitate professional development. The WHO Skin NTD mobile app utilises convolutional neural networks to support FHWs in diagnosing and managing skin conditions. This study qualitatively examines its impact on healthcare workflows, diagnostic practices, and FHW–patient interactions.

Method

This study involved 4 focus groups (1–1.5 hours) and 15 semi-structured interviews with FHWs from five counties in Kenya, representing health services from community to tertiary levels. Participants integrated the app into daily workflows from June-October 2024. Interviews explored individual experiences with the app, while focus groups examined collective perspectives on its utility, knowledge acquisition, and implementation challenges. Data were transcribed verbatim and thematically analysed using NVivo 14, employing a bottom-up inductive coding approach.

Results

Preliminary findings suggest the app's impact extends beyond diagnostic assistance, influencing healthcare delivery, professional development, patient confidence and community engagement. By enhancing FHW knowledge and confidence, the app contributed to a shift from habitual referrals to proactive management, particularly in primary health centres. Many FHWs reported a growing sense of ownership, positioning themselves as local experts. FHWs reported that patients responded positively, reinforcing confidence in their abilities, encouraging care-seeking, and contributing to the destigmatisation of skin NTDs. However, barriers such as internet dependency and camera quality remain, alongside requests for improved diagnostic accuracy, expanded disease coverage, and integrated management guidance.

Conclusion

FHWs highlighted the app's broad impact on both clinical practices and patient-provider relationships in dermatological care. By equipping FHWs—especially in lower-level facilities—the app has potential to strengthen community-level healthcare capacity, supporting WHO's strategy to decentralise NTD management and empower primary care providers. Future ethnographic research will explore its implementation across diverse healthcare settings, with a focus on patient experiences.

Acknowledgements

The authors thank all frontline health workers who participated in the study, integrated the app into their daily practice, and shared valuable insights on its use. We also appreciate the individuals with lived experience of skin NTDs and common skin conditions who consented to having photos taken of their skin lesions and allowed the app to be part of their diagnostic journey.

Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Noma
- Onchocerciasis
- Podoconiosis
- Yaws

Advancing healthcare capacity through an online training module on skin neglected tropical diseases for medical and healthcare providers

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The global challenge posed by Neglected Tropical Diseases (NTDs) affecting the skin presents a significant health burden, contributing to delayed diagnoses, suboptimal management, morbidities, societal stigma, and increased poverty levels. Recognizing the urgency of addressing this critical issue, the research proposes the creation of an innovative online training module. This pioneering module is designed to augment the knowledge and awareness of medical and healthcare providers, aiming to facilitate early detection and effective management of skin NTDs. By employing diverse media formats, the initiative seeks to bridge current knowledge gaps, enhancing the overall healthcare response to these diseases. The envisioned impact will materialize through the meticulous development and evaluation of an inventive online training module that utilizes various media formats to deliver a comprehensive and immersive learning experience. Positioned at the forefront of advancing medical education, the initiative aims to significantly enhance the understanding of skin NTDs among healthcare professionals. The ultimate objective is to cultivate an environment conducive to early case detection and improved management of skin NTDs, thereby bolstering the overall healthcare capacity to effectively address these intricate and challenging diseases. The research aspires to contribute substantially to global efforts in combating the impact of skin NTDs, promoting a healthier, more informed, and responsive healthcare landscape.

In essence, the comprehensive approach to the development, assessment, and implementation of the online training module involves collaborative creation, meticulous assessment strategies, user-friendly accessibility, qualitative feedback mechanisms, and rigorous statistical analysis. Together, these elements contribute to the creation of an effective, adaptable, and impactful training program for medical and healthcare providers. The incorporation of video lectures, interactive quizzes, case studies, and downloadable resources enhances participant engagement, caters to various learning preferences, and promotes a thorough understanding of Skin Neglected Tropical Diseases.

Acknowledgements

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Skin NTD(s)

- Buruli ulcer
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Onchocerciasis
- Yaws

Evaluating the impact of blended learning on integrated capacity building in NTDs: The CapaBLe Study

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The decline in expertise in neglected tropical diseases (NTDs), including leprosy, poses a critical challenge to achieving the goals outlined in the NTD Roadmap. This expertise gap is exacerbated by the retirement of experienced professionals and limited replacement of skilled personnel. Current capacity-strengthening approaches are often insufficient, inconsistent, and not sustainable, partly because their cost-effectiveness is unknown, highlighting the need for robust, evidence-based strategies aligned with national and global priorities.

The CapaBLe (Capacity Building for Leprosy) study evaluates the effectiveness of blended training packages developed through the Lift Leprosy Learning (LLL) project. These packages combine online and in-person training and they address the learning needs of health workers in the community, health services, and supervisory levels, and are being piloted in Nigeria and India. A total of 90 participants from two regions in each country engage with these needs assessments and interventions. The study adopted the Kirkpatrick framework to study outcomes across four levels: satisfaction, knowledge acquisition, behaviour change, and service impact. Data collection includes pre- and post-test results, interviews, observations, work document reviews, and intervention costs, with follow-up at 3–6 months post-intervention.

The study aims to generate actionable insights for policymakers and health professionals to refine capacity-building strategies, bridging the expertise gap and supporting the global goal of the NTD roadmap, including zero leprosy by 2030.

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Skin NTD(s)

- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Strengthening dermatology capacity in resource-limited settings: community skin health, a teaching journal for frontline healthcare workers

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Affiliation(s):

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Frontline healthcare workers in resource-limited settings often face significant challenges in delivering dermatological care due to limited access to specialized training, diagnostic tools, and treatments. This poster highlights a structured approach to capacity strengthening, developed by the Skin NTD Core Working Group in collaboration with global partners. The framework is built on three essential principles: Correct Target Audience, Correct Technique, and Correct Tools. The poster uses the Community Skin Health (CSH) Journal as an example for dissemination of capacity strengthening materials.

Published by the International League of Dermatological Societies (ILDS), the CSH journal is an educational resource available in six languages (English, French, Spanish, Portuguese, Simplified Chinese, and Arabic), in print, online, and as a free downloadable app. It provides clear, accessible dermatological information tailored for healthcare providers with limited dermatology training, equipping them to manage common skin conditions despite resource constraints. Since its launch in 2004, with two editions per year distributed free of charge, CSH has contributed to building dermatological capacity among frontline workers. By November 2024, the CSH app had 401 active users with an average engagement time of 56 minutes, 96% of whom accessed it in English, alongside over 35,000 website users worldwide.

This poster emphasises the importance of an effective dissemination strategy framework; the importance of ensuring that educational resources reach the right audience, employ effective teaching methods, and utilize appropriate dissemination tools. CSH serves as a case study for the successful application of this framework, demonstrating how well-designed and widely accessible learning materials can empower healthcare workers, facilitate earlier diagnoses, improve patient outcomes, and strive towards 'Skin Health for All'. By advocating for the expansion of such initiatives using a context-sensitive strategy, this work highlights the critical role of collaborative efforts among healthcare providers, educational institutions, and policymakers in strengthening dermatological care in underserved regions.

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Skin NTD(s)

All skin NTDs

Expanding dermatological access: A prospective study of a digital health tool ("eSkinHealth App") for managing skin NTDs and other skin diseases in Côte d'Ivoire

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Skin-related neglected tropical diseases (skin NTDs) continue to affect people living in remote communities of endemic countries, particularly in regions with limited access to dermatological care. This operational research assesses the impact of the eSkinHealth app, a digital health tool designed to enhance case management of skin NTDs and other skin diseases in Côte d'Ivoire. The eSkinHealth app serves as a portable electronic medical record and a platform for teledermatology connecting frontline healthcare workers to remote specialists. The study was conducted across sixteen primary health centers in the Sinfra and Bouaflé districts, known for endemic skin NTDs in central Côte d'Ivoire. The primary objective was to evaluate changes in skin disease prevalence and diagnostic rates before and after the implementation of the app, while also assessing the usability, acceptability, and feasibility of the tool among healthcare workers.

A total of 954 patients were included in the analysis. Results showed a three-fold increase in skin NTD diagnoses during the intervention period, particularly in Buruli ulcer and scabies cases ($p<0.01$). The app facilitated better diagnosis and case documentation, though challenges such as synchronization (data upload) failure and poor image quality were noted. Usability was assessed using the System Usability Scale (SUS), which showed significant improvements, especially in Bouaflé, where the SUS score increased by 33.9 points ($p<0.01$). Interviews with healthcare workers, including nurses and community healthcare workers, highlighted improvements in diagnostic accuracy, patient engagement, and health system capacity.

The integration of the eSkinHealth app into skin NTD management proved effective in enhancing diagnostic capacity and case management in resource-limited settings. While the app demonstrated substantial benefits in improving diagnostic rates and healthcare worker satisfaction, challenges such as technical issues and patient concerns about privacy need to be addressed for future scalability. This study underscores the potential of digital health tools to bridge gaps in dermatological care, contributing to improved health outcomes for communities affected by skin NTDs.

Acknowledgements

We would like to express our gratitude to all the healthcare workers and patients from the Sinfra and Bouaflé districts of Côte d'Ivoire who participated in this study.

Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Yaws

Diagnostics and laboratory support

Molecular surveillance of leprosy in Côte d'Ivoire: achievements, difficulties and challenges in the laboratory

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Leprosy, Buruli ulcer and yaws are neglected tropical skin diseases (NTDs) that are endemic in Côte d'Ivoire. To combat cutaneous NTDs, we have set up a leprosy unit within the national reference laboratory for BU at the Institut Pasteur in Côte d'Ivoire.

In 2021, we introduced molecular diagnosis of leprosy to confirm clinical cases in support of the national leprosy elimination program. The aim was to confirm at least 70% of leprosy cases, as recommended by the WHO for BU. We also contributed to the monitoring of antibiotic resistance associated with circulating genotypes, which enabled us to highlight the circulation of multi-resistant clinical strains.

Despite its limited resources to improve its operations, its technical capabilities and its skilled human resources, the laboratory is faced with a number of difficulties; the first of these is pre-analytical, involving the quality and type of samples taken, the solution to which lies in building the capacity of health and care workers.

In the same vein, we can talk about difficulties in transferring skills and sharing research expertise between North and South. Some countries in the South have high-performance technical platforms that are willing to welcome researchers from the North for their expertise, which would reduce the costs and ethics involved in transferring biological material. Unfortunately, most North-South collaboration seems to be motivated by the biological resources of southern countries.

One of the laboratory's priority challenges remains research into vaccine development and accreditation to international standard ISO 15189:2022.

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ANESVAD
Fondation Raoul Follereau

Skin NTD(s)

Leprosy

From BU-LABNET to SKIN NTD LABNET: Lessons learned and perspectives on an integrated laboratory network for skin neglected tropical fiseases

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Background

Neglected Tropical Diseases (NTDs) continue to pose a substantial public health burden, particularly in endemic regions where access to reliable diagnostic infrastructure is limited. Laboratory-based diagnosis is critical for disease surveillance, patient management, and guiding elimination strategies. The Buruli Ulcer Laboratory Network (BU-LABNET) was established to standardize diagnostic workflows, harmonize reagent usage, and implement external quality assurance (EQA) programs across participating laboratories, thereby ensuring the accuracy and reliability of Buruli ulcer (BU) diagnostics.

Implementation and lessons learned

BU-LABNET successfully introduced a unified diagnostic framework, enabling improved comparability of laboratory data and reinforcing confidence in test outcomes. The standardization of reagents and protocols facilitated consistency across laboratories and strengthened quality control measures. Additionally, the establishment of an EQA program further enhanced diagnostic accuracy and reproducibility. Building on this success, the network was expanded to form the SKIN NTD LABNET, integrating diagnostics for other skin NTDs, including yaws, leprosy, cutaneous leishmaniasis, and mycetoma. This integrated approach aligns with the World Health Organization (WHO) NTD Roadmap, which advocates for cross-disease diagnostic platforms to optimize resources, improve efficiency, and enhance disease control strategies..

Perspectives

The successful harmonization and integration achieved within SKIN NTD LABNET underscore the feasibility and advantages of a broader NTD laboratory network. Expanding this model to encompass additional NTDs could strengthen global surveillance, enhance diagnostic capacities, and foster collaborative networks among laboratories working on multiple diseases. Future efforts should prioritize leveraging existing laboratory infrastructures, securing sustainable funding mechanisms, and reinforcing technical capacity to ensure the long-term viability and scalability of integrated diagnostic networks for NTDs.

Conclusion

The transition from BU-LABNET to SKIN NTD LABNET exemplifies the transformative potential of standardized diagnostic frameworks in enhancing laboratory data quality and reliability. Establishing a comprehensive NTD laboratory network could further accelerate global efforts to combat NTDs, ensuring equitable access to high-quality diagnostic services across multiple diseases and endemic regions.

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Skin NTD LABNET (former BU-LABNET) Advisory Group

Skin NTD(s)

- Buruli ulcer
- Leishmaniasis: cutaneous
- Leprosy
- Mycetoma
- Yaws

A point of care diagnostic test for scabies

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Scabies is a common, debilitating, neglected infectious skin disease affecting overcrowded populations worldwide. Concomitant secondary bacterial infections can cause sepsis, glomerulonephritis and rheumatic fever, often leading to death. Therefore, early and accurate disease diagnosis is crucial. Current scabies diagnostic tests are restricted to visualisation of mites. Microscopic observation of skin scraping is the most widely used confirmatory diagnosis. Advanced and non-invasive techniques of microscopy includes dermatoscopy, videomicroscopy and reflectance confocal microscopy. There are no molecular diagnostic tests for scabies to-date. The International Alliance for Scabies introduced standardised consensus criteria to improve routine scabies diagnosis. However, a critical problem is the lack of practical diagnostic tools that facilitate convenient, immediate near-patient assessment. This results in persistence or exacerbation of disease. Clinicians and WHO have called for accurate Point-of-Care diagnostics. Assisted by proteomics, we will produce antibodies that detect native scabies proteins in scrapings. We aim to develop a risk-free sampling tool, a robust multi-site sampling protocol and a compatible field-based rapid antigen test (RAT) for simple, rapid and accurate diagnosis of scabies. Based on our extensive preliminary work, we hypothesise that faecal proteins of the scabies mite are unique antigenic biomarkers for the specific, sensitive and rapid diagnosis of scabies using our RAT assay. Our pipeline of developing a scabies RAT includes; production and purification of recombinant scabies proteins, monoclonal antibody and Nano-body generation, development of ELISA and RAT diagnostic assays, preclinical work using the pig-scabies model, and multicentre clinical studies in a partnership with an industry partner and our clinical collaborators.

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Skin NTD(s)

Ectoparasites: scabies

Skin diseases in older subjects seen at the dermatology unit in Kolwezi, from a population in the vicinity of a mining settlement in the Democratic Republic of the Congo: study of 110 cases

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Introduction

Skin diseases in older individuals exhibit clinical manifestations that differ from those in younger people. The aim of this study was to identify the skin conditions prompting dermatology consultations among older patients in Kolwezi (Democratic Republic of the Congo).

Method

This was a descriptive cross-sectional study focusing on new diagnoses of skin diseases recorded between 1 January 2019 and 31 December 2021, in patients aged 45 years and above at the dermatology unit in Kolwezi.

Results

During the study period, 110 patients aged 45 years and above (2.4%) were examined out of a total of 1345 patients who consulted the dermatology unit. These 110 patients accounted for 175 new diagnoses. The average age of the patients was 72.8 and the sex ratio (M/F) was 0.8. Fungal infections were the leading reason for consultation (18.7%), followed by eczema (17.9%), pruritus (13.1%), tumours (9.0%)—of which 76.5% were benign—and keratinization disorders (5.1%). Leg ulcers were observed in 2.1% of patients. The fungal infections were mainly intertrigo (52.9%) and dermatophytosis of glabrous skin (25.7%). Kaposi's sarcoma and keloids were the most frequent malignant and benign tumours, respectively.

Conclusion

This study highlights a high prevalence of fungal infections, eczema, and pruritus among older individuals in Kolwezi. The high frequency of fungal infections could be explained by the climatic conditions of the mining district (heat and humidity), while the high prevalence of pruritus may be associated with exposure of the skin to the natural radioactivity in excavated uranium-bearing rocks.

Skin NTD(s)

Fungal infections (deep): sporotrichosis

Keywords: Skin disease, elderly subject, Kolwezi, mining district

Development of a random access assay for the diagnosis of *Mycobacterium ulcerans* during an epidemic of Buruli ulcer in Victoria, Australia

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Introduction

The state of Victoria in southeastern Australia has seen a sustained increase in Buruli ulcer disease over the past decade. Laboratory diagnosis of almost all cases is performed at one site: the Victorian Infectious Diseases Reference Laboratory (VIDRL). The number of samples referred to VIDRL for detection of *Mycobacterium ulcerans* continues to rise, necessitating a high throughput assay to meet demand for testing. The aim of this study was to adapt the longstanding real-time *M. ulcerans* PCR assay developed at VIDRL (Fyfe et al. 2007) to become an random access Laboratory Developed Test (LDT) to run on the Hologic Panther Fusion Plus system.

Methods

The Panther Fusion assay was optimised and then assessed against three acceptance criteria: (1) Limit of detection: Panther Fusion assay equivalent to the existing test. (2) Precision: Panther Fusion coefficient of variation (CV) less than or equal to 10%. (3) Accuracy: sensitivity, specificity, PPV and NPV greater than or equal to 95%. Also assessed was the onboard stability of reagents and the effect of sample matrix (dry swab, gel swab, liquid Amies swab, and fresh tissue/biopsy).

Results

The Panther Fusion assay met or exceeded all acceptance criteria: (1) LOD: Panther Fusion was equivalent to the existing test. (2) Precision: Panther Fusion CV was <2.5% for both repeatability and reproducibility. (3) Accuracy: sensitivity, specificity, PPV and NPV were all 100%. A small number of samples (2.7%) were invalid in the Panther Fusion assay (all bloody tissues samples), but generally the assay performed well on all sample matrices tested. The mastermix could remain onboard for 5 days without affecting testing.

Conclusion

We have developed a random access assay for high throughput detection of *M. ulcerans* in clinical samples that is as sensitive and specific as the existing test. To our knowledge, this is the first assay of its kind. Not only is the Panther Fusion assay fit for purpose, but it will also substantially increase testing capacity for *M. ulcerans* at VIDRL while simultaneously decreasing turnaround time.

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Skin NTD(s)

Buruli ulcer

Medical journey through time: The history of diagnosing a neurological form of and the challenges of early screening in the case of a patient

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Introduction

Despite its elimination as a public health problem, Madagascar still reports over 1000 new cases of leprosy each year. 37 health districts remain hyper-endemic with delayed diagnoses, compounded by limited access to healthcare, thus hindering passive screening. In this context, one patient had to wait 33 years before the signs presented were diagnosed as a neurological form of leprosy. This clinical case, whose story we share, highlights the challenges associated with the early diagnosis of this disease and underscores the importance of leprosy statistics.

Atypical Journey of a Leprosy Case Reported by the Patient

This is the case reported by Mr X, a 61-year-old physician who, in 1991, presented with isolated right-sided facial paralysis, with normal paraclinical tests. A corticosteroid treatment was initiated, which resolved the facial paralysis.

For 14 years, no specific signs were observed in the patient. In 2005, an isolated hypoesthesia of the right cheek appeared suddenly, and clinical and paraclinical investigation revealed no signs that could inform the diagnosis. Therapy was initiated again, which once more resolved the loss of sensation.

A 5-year period of clinical silence followed until 2019 when a new right-sided facial paralysis reappeared, accompanied by persistent right blepharospasm. The patient consulted neurology at the university hospital, where he was treated as a case of Parkinson's disease and prescribed Tropatepine (Lepticure) together with physiotherapy sessions, without any improvement. In 2023, hypoesthesia of the soles of the feet appeared, worsening in 2024 with a complete loss of sensitivity in the left big toe and second toe.

The patient consulted a leprosy specialist, who confirmed the diagnosis after analysing his sensory disturbances and the presence of an insensate patch on the skin.

A leprosy treatment regimen based on PCT and self-physiotherapy was initiated, and after three treatment cycles, the patient gradually observed the return of sensitivity in both toes and the soles of his feet. This improvement was further enhanced after the fifth cycle, with a reduction in the intensity and frequency of the blepharospasms.

Discussion and Lessons Learned

The testimony of this patient, himself a physican, provides valuable insight into the diagnosis of leprosy. It draws attention to this rare clinical form of the disease. This case is part of the 1% of rare leprosy manifestations in pure neurological form, highlighting the importance of PCR on nerve biopsy. Furthermore, ultrasound plays a crucial role in showing subclinical involvement of multiple nerves and guiding nerve biopsy [1].

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Skin NTD(s)

Leprosy

Multicentric external quality assessment program for the molecular detection of *Mycobacterium ulcerans* in clinical samples: The BU-LABNET experience

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The Buruli Ulcer Laboratory Network for Africa (BU-LABNET) was established by the World Health Organization (WHO) in 2019. The network's primary objective then was to implement standardized molecular testing using harmonized procedures across 11 member laboratories in 9 African countries. Additionally, BU-LABNET aimed to introduce a novel external quality assessment (EQA) program to enhance molecular diagnostic performance.

This study evaluated the molecular diagnostic capabilities of BU-LABNET member laboratories in detecting *Mycobacterium ulcerans* in clinical samples.

Four successive multicentric EQA programs were implemented between 2021 and 2024. Blinded proficiency testing samples were prepared, quality control was performed, and results were analyzed.

The EQA results demonstrated a significant improvement in laboratory performance, increasing from 89.1% in 2021 to 98.1% in 2023. Although a slight decline to 94.5% was observed in 2024, 75% of laboratories maintained a 100% accuracy rate. Notably, 17% of laboratories scored 90%, and only one laboratory scored below the acceptable threshold of 80%.

To ensure quality assurance, three laboratories that scored below 80% in the initial round received online troubleshooting and mentoring from network experts. These laboratories demonstrated a remarkable 100% improvement in performance after retesting with newly prepared samples.

The study's findings indicate that ongoing participation in the EQA program significantly enhanced the diagnostic performance of BU-LABNET member laboratories. Laboratories are strongly encouraged to continue participating in future rounds, since this ensures the delivery of high-quality results for patients and accurate data reporting to WHO.

Building on the success of our intervention, we envision expanding the program to address other skin-related Neglected Tropical Diseases (NTDs), including cutaneous leishmaniasis, leprosy, mycetoma, and yaws. The integrated EQA approach is expected to be cost-effective and facilitate expansion. In addition, collective participation in EQA programs will fosters a culture of quality assurance, collaboration, and excellence, ultimately accelerating progress against these skin NTDs.

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Skin NTD(s)

Buruli ulcer

Harmonization of molecular diagnostic of yaws to support eradication effort in the World Health Organization roadmap 2021-2030 for skin neglected tropical diseases

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Skin Neglected Tropical Diseases (NTDs) are targeted for eradication, elimination and control in the WHO road map 2021-2030, and the integrated approach is the backbone of these goals. Considering the success of the BU-LABNET network for the improvement of Buruli ulcer diagnosis, one of the perspectives after the first WHO meeting on skin NTDs in March 2023 was to harmonize the molecular diagnosis of other skin NTDs. To support this, we aimed to strengthen diagnostic testing capacity for yaws.

An inventory was carried out to evaluate the capacity laboratories within BU-LABNET network now known as WHO Skin NTD LABNET performing yaws diagnosis. We selected standardized targets for qPCR based on existing data, Hd16SV8 and polA genes for detection of Haemophilus ducreyi and Treponema pallidum in yaws like lesions. As part of our harmonizing work, we evaluated DNA extraction testing by comparing three extraction techniques and master mixes for qPCR.

Assay optimization and validation allowed us to harmonize all laboratory based procedures for molecular testing of yaws like lesions through detection of polA gene for yaws, and Hd16SV8 gene for H. ducreyi. Alongside laboratory testing, we embedded activities focused on evaluation of the quality of samples collected in the fields by validating RNAse P detection with the reagents used in the BU-LABNET network. Biological samples can be handled now in compliance with the good clinical laboratory practice requirements.

The newly establishing enhanced capacity of molecular assays for diagnosis of yaws like lesions is a major step forward in the fight against skin NTDs. The currents tests could be expanded into other endemic countries for implementation to support NTD national programmes.

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Skin NTD(s)

Yaws

Technical validation of simplified, commercial DNA extraction methods useful for the point-of-care molecular detection of *Mycobacterium ulcerans*

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Background

For the molecular detection of *Mycobacterium ulcerans*, qPCR-based methods are well established. In addition, dry-reagent-based (DRB) nucleic acid amplification techniques (NAAT) such as IS2404 DRB loop-mediated isothermal amplification (LAMP), suitable for point-of-care (POC) testing, are available. However, these techniques require equally field-friendly, rapid and cost-effective DNA extraction methods. This study aims on the technical validation of simplified, commercially available DNA extraction methods (Genolyse® [Hain Life Science]; SwiftX™ DNA and Parabact [Xpedite Diagnostics]) compared to a standardized reference method (Gentra® Puregene® protocol [Qiagen]).

Methods

Bacterial suspensions were prepared from 10 different *M. ulcerans* cultures (bacterial load ranging from 2,000 to 6,000 bacteria per 200 µl suspension) and aliquoted 20 times each. Each bacterial suspension was then extracted in duplicate using Gentra® Puregene®, Genolyse® and 8 different SwiftX™ modifications. The extracts were subjected to quantitative IS2404 qPCR and IS2404 DRB LAMP.

Results

The simplified extraction protocols in combination with qPCR and LAMP detected *M. ulcerans* DNA with high efficiency. All extraction protocols achieved a 100 % positivity rate. The semi-quantitative LAMP results fully correlated with the qPCR results. While the Gentra® Puregene® method requires equipment (thermoblock, centrifuge, ice machine, vortex) and takes approx. 12 h, the rapid methods were carried out in 20 - 60 min with reduced equipment (Genolyse®: thermoblock, centrifuge; SwiftX™: thermoblock, magnetic rack).

The data suggest a comparable sensitivity of simplified and conventional DNA extraction methods but significantly shorter processing times, less equipment requirements and lower costs of the simplified methods. In particular, SwiftX™ DNA does not require centrifugation due to the magnetic particle-based cell enrichment, which renders the method suitable for POC testing. In addition, SwiftX™ also allows for extraction and detection of DNA of other skin pathogens (e.g. M. leprae, Leishmania spp.), thus supports broad-based diagnostics in resource-limited environments. The full accordance of qPCR and LAMP results supports the reliability of the simplified rapid extraction procedures for use with POC-NAAT-tests.

Skin NTD(s)

Buruli ulcer

Drug development and access

Mycetoma: Treatment challenges in Ethiopia

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Mycetoma is a chronic, granulomatous, neglected tropical disease characterised by painless swellings, draining sinuses, and the presence of grains. If left untreated, it can lead to severe tissue and bone destruction, resulting in deformity, disability, and potentially amputation. Despite being acknowledged as a public health issue in Ethiopia, comprehensive data regarding the disease remains scarce. This study aims to delineate the clinical presentation, treatment modalities, and outcomes for mycetoma patients attending a dermatology center in Ethiopia.

This retrospective longitudinal study was conducted at Boru Meda Hospital, Ethiopia. All the medical records of mycetoma patients who sought treatment between June 2022 and May 2024 at the hospital were carefully reviewed.

A total of 17 patients were included in the study, comprising 11 males and six females, with a mean age of 40.11 years. The majority of participants (64.71%) were farmers, and the foot was the most frequently affected site (64.71%). The primary clinical features observed included swelling, sinus tracts, and the presence of grains. After two years of treatment, 52.94% of patients had treatment failure, 29.41% showed partial improvement, and only 17.65% achieved a complete cure. Two patients suffered multiple recurrences, necessitating amputation.

This study highlights that mycetoma continues to pose a significant public health challenge in Ethiopia, with most cases showing unsatisfactory responses to current treatment strategies. Further research is essential to enhance understanding of the disease's epidemiology, pathogenesis, and long-term effects, as well as to investigate innovative prevention and control measures.

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Study participants, Boru Meda Hospital, Mycetoma Research Center

Skin NTD(s)

Mycetoma

Treating scabies in atopic patients under topical therapy: a case series of 23 patients with scabies incognito

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Atopic dermatitis is a dermatological condition often treated in mild and moderate cases with topical corticosteroids and topical calcineurin inhibitors. They are really effective to extinguish the cutaneous inflammation derived from pre-existent barrier dysfunction as well as to inhibit residential immune system functions making patients more vulnerable to infections (i.e. scabies). In fact, the use of cutaneous immunosuppressants is considered a risk factor for scabies that may present in atypically, namely nodular, urticarial or incognita. Scabies incognita is a rare and challenging generalized rash that may mimic atopic dermatitis, eczema or even drug-reaction. This particular form of ectoparassitosis remains under reported and under studied due to the difficulty in diagnosis. The final diagnosis is established only by skin scrapings and the amount of sarcoptes is usually low.

In this single center, case series we retrived 23 cases (19 males) of scabies incognita and concurrent atopic dermatitis with an average age of 32.0 ± 8.3 yoa. All 23 patients were under high power corticosteroids (i.e. clobetasone or betamethasone) used daily during an atopic dermatitis recurrence. Feet, hands and buttocks were the areas more interested. The rash was erroneously treated with systemic corticosteroids (N=19), UVA-1 phototherapy (N=7), cyclosporin (N=7), subcutaneous depo corticosteroids (N=4), oral azotioprin (N=3). The pruritus was continuous and resistant to first and second generations anti-histamines. Skin scrapings was performed only when caregivers manifested the classical popular phenotype of scabies.

Due to the concurrent atopic dermatitis all patients were treated with benzoilbezoate 25% 1 application per day in the evening per 5 days, 2 days of pause and a 5 days retreatment. No recurrences were registered.

Atopic dermatitis patients during a recurrence treated with steroids may develop concurrent scabies that manifest with scabies incognito, so negative dermatoscopy is not rulling put the scabies in this cluster of patients.

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Skin NTD(s)

Ectoparasites: scabies

Topical strategies to treat permethrin-resistant scabies: a 5 years retrospective study

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Scabies is an ectoparasitosis that yearly affect >200 milion people worldwide and although is only by human transmission no progresses were made to extinguish the aethiological agent, Sarcoptes scabiei var. hominis. The first line treatment for adults remains permethrin 5% cream to apply on the whole body excluded face and scalp, if you are not HIV or even immunocompromised. This effective therapy start to to loose efficacies in the last decades and several studies demonstrated that scabies mites start to be resistant to permethrin. Previously, treatment failure has generally been attributed to various causes, including incorrect application of the cream, failure to simultaneously treat coinhabitants, and insufficient disinfection of the environment. Permethrin resisten patients have a prevalence of 6-8% in Italy and their management is challenging due to high cost of oral ivermectin and shortages of non-galenic benzyl benzoate 25%.

Thus, we performed a 5-years, single center, retrospective observational study collecting information on permethrin resistant patients. We enrolled 211 patients (142 males, 67.3%) with an average age of 24.1 ± 10.3 yoa. They declared together with caregivers and close contacts to have performed the permethrin cream once a day per 3 days and repeat it after 7 days. None of them used previously topical corticosteroids or had mobility problems. All patients displayed classical phenotype of scabies and none had HIV or immunosuppression. Surprisingly, oral ivermectin was prescribed in only 5 cases with success and the other ones underwent topical treatments. The other cases were treated with benzyl benzoate 25% in 125 cases(100 galenic and 75 non galenic), Crotamiton 10% cream in 45 patients, precipitated sulfur 10% in 41 cases. No recurrence was registered. Remarkably, benzyl benzoate was preferred in patients with history of atopy.

In conclusion, permethrin-resistent cases of scabies should be treated with benzyl benzoate and precipitated sulfur in case of atopy otherwise also crotamiton is an option.

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Skin NTD(s)

Ectoparasites: scabies

Bedaquiline is active and efficacious against leprosy

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Background

Current multidrug therapy for leprosy would benefit from more potent, better-tolerated drugs to reduce treatment duration and to improve outcome. Bedaquiline, efficacious against tuberculosis, is such a drug.

Methods

In the single site, open-label clinical trial reported here, the safety, tolerability and bactericidal activity of bedaquiline were monitored in 30 previously untreated multibacillary leprosy patients in Mali. Patients were hospitalized for 56 days during which the response to bedaquiline monotherapy was monitored clinically. One month later, a full course of WHO multidrug therapy was administered. Skin biopsies were taken from all patients before treatment, at day 56 and, in 17 cases, at the end of multidrug therapy to quantify bacterial viability. The response to treatment was determined by inoculation into mice, and also by monitoring four other microbiologic and molecular biomarkers.

Results

Bedaquiline monotherapy was safe and well-tolerated by all subjects, 28 of whom showed a marked improvement in their skin lesions by day 56. With a single exception, bedaquiline appeared to have sterilized the lesions of all patients by day 56, as revealed by the mouse footpad assay findings. This was supported by results of the mRNA-based molecular viability assay and, to a lesser extent, by reductions in mycobacterial DNA levels and changes in the morphological index. At the end of treatment with multidrug therapy no viable bacteria could be detected.

Conclusions

All patients receiving bedaquiline had favorable disease outcomes and the drug clearly has the potential to reduce the duration of treatment significantly.

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Skin NTD(s)

Leprosy

Efficacy of jigger lotion against tungiasis in Kenya: randomized controlled trial

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Background

Tungiasis, caused by the sand flea Tunga penetrans, leads to itching, pain, and superinfection, affecting the patients' quality of life. Jigger Lotion, containing phenothrin, has shown safety and efficacy in Phase 1 and 2 trials.

Objectives

This study aimed to evaluate Jigger Lotion's efficacy and safety compared to 0.05% potassium permanganate (KMnO4) in western Kenya.

Methods

The study was a parallel-group, three-arm, non-blinded randomized comparative trial, conducted in Vihiga County from March to April in 2024. Participants aged two and above, each with at least one viable flea on both feet, were allocated in a 2:1:1 ratio to KMnO4, single-dose, and two-dose Jigger Lotion groups. They were monitored on the first, 4th, 7th, 10th and 14th day over a period pf 14 days. For analysis of the primary outcome, the per-protocol set was used. Only fleas in the study participants who adhered the treatments and followed up until the 14th day were analyzed. Instances of flea removal were excluded, ensuring no missing flea data for any participant. A chi-squared test was applied to detect differences in the proportion of cure or dead fleas between Jigger Lotions and KMnO4 groups. Relative risk with corresponding 95% confidence intervals was calculated to compare the incidence of adverse effects in Jigger Lotion and KMnO4 treatment group. For all tests, 2-sided p-values with alpha less than 0.05 level of significance were applied. Statistical analyses were performed using EZR software. Ethical approval was obtained in Kenya and Japan, with informed consent from all participants or their guardians.

Results

Totally, 415 fleas in 79 participants were followed up to death of fleas or the 14th day: 213 fleas in KMnO4 group, 129 in single-dose Jigger Lotion group, and 73 in two-dose Jigger Lotion group. The cure rates in the three groups were calculated on the 4th, 7th, 10th, and 14th day. They are compared with chi-squared test, which showed single-dose Jigger Lotion had significantly higher cure rates (11.6% and 21.7%) compared to KMnO4 (0.9% and 11.7%) on 4th. and 7th. day, respectively. The cure rates increased by 10th. and 14th. day, but differences between groups diminished due to spontaneous flea deaths. No serious adverse events were reported. The relative risk ratio of itching and pain against KMnO4 was calculated as 0.34 and 0.31 in single-dose and two-dose Jigger Lotion, respectively. Thus, the Jigger Lotion groups tended to experience infrequent

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Skin NTD(s)

Ectoparasites: tungiasis

Improving mass drug administration for lymphatic filariasis: Insights from healthcare workers, community drug distributors, and community nembers in the Ellembelle District of Ghana

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Lymphatic filariasis (LF) is one of the neglected tropical diseases (NTDs) targeted for elimination by the World Health organization (WHO) as a public health concern. Mass drug administration is a universally accepted strategy for the prevention of LF. The study evaluated the process of providing treatment to community members who missed treatment during the initial Mass Drug Administration (MDA) for lymphatic filariasis in the Ellembelle District of Ghana. It aimed at understanding the effectiveness and challenges of delivering treatment to defaulters through follow-up interventions. The research employed a qualitative approach involving in-depth interview with healthcare workers (n = 12), community drug distributors (n = 11), and community members (n = 100). The methodology allowed for a comprehensive exploration of experiences related to treating those who missed MDA. Thematic analysis was performed using the 2020 version of MAXQDA . The thematic analysis revealed that personalized home visits improved treatment acceptance, with nurses playing a key role in educating individuals and addressing misconceptions about the drug. Testing for LF before offering the drugs has influenced the decision to take the drug, regardless of infection status. Education, and community involvement emerged as key elements in breaking lymphatic filariasis transmission. These findings underscore the importance of clear communication and correcting misunderstandings about MDA. The value of strategic tool for communication to persuade hesitant individuals in addition to testing before treating, regardless of infection status, have empowered health workers to carryout effective community engagement to enhance MDA acceptance among defaulters. In conclusion, this study underscores the necessity for continual evaluation and adaptation of innovative ways for delivering MDA.

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Skin NTD(s)

Lymphatic filariasis: lymphoedema

Noma on the WHO list of neglected tropical diseases: study of noma awareness and access to oral and dental care in the Niger

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Context

- Noma is a neglected tropical disease (NTD) and a global health issue.
- Analysis of awareness of noma and access to oral and dental care in the Niger.

Objectives

The objectives of the project were to establish the epidemiology of noma and its global burden, to promote efforts to prevent, detect and treat the disease in the Niger, and to address human rights violations experienced by individuals exposed to noma and by survivors.

Methods Used

A mixed-methods approach was adopted, including:

- A systematic literature review: PubMed, ISI Web of Science, and Scopus.
- An epidemiological analysis of patient records from Sentinelles care centres in the Niger: Sentinelles Foundation (access to its archives of 1206 socio-medical surveys for the Niger).
- A cross-sectional survey of households in the Niger to determine the prevalence and incidence of noma in the country (30 households in 15 different health districts).

Results

Around 30 000 to 40 000 cases are recorded annually, with varying incidence rates across African countries such as Nigeria, Burkina Faso, Ethiopia, the Niger, and Chad. Our article will focus on the study of noma in the Niger, where the incidence ranges from 0.6 to 3300 per 100 000 inhabitants, and the mortality rate is approximately 8.5%.

Risk factors include malnutrition (an omnipresent factor), often associated with concomitant diseases such as measles, malaria, and the Human Immunodeficiency Virus (HIV), as well as poor oral hygiene, inadequate sanitation, gingival lesions, and low socioeconomic status.

Conclusion

The recent addition of noma to the WHO list of neglected tropical diseases represents a major advancement in recognising the importance of prevention and early intervention to improve oral health outcomes in Niger. The authors support the adoption of resolution 19/7 by the United Nations Human Rights Council on 22 March 2012, entitled "The Right to Food," which aims to promote better medical and institutional management of this infectious gangrene, which can be fatal or severely mutilating.

Keywords: Noma, necrotising stomatitis, neglected tropical diseases (NTDs), public health, malnutrition, extreme poverty.

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Skin NTD(s)

Noma

Ethnopharmacological traditional treatements of Noma: A complement to modern pharmacotherapy

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In environments where Noma disease is present patients often seek for help in traditional medicine and in ethnopharmacology. Ethnopharmacology is often based in the use of plants and different parts of plants such as roots, leafs, flowers, crust, powder, etc. More than 85% of population in rural areas have more trust in ethnopharmacology and traditional medicine then in modern pharmacotherapy. In non rural area we are talking about 65 % of population that seeks first help in ethnopharmacology rather than modern medicine.In the disease of noma different plants are used as first aid in different pharmaceutical forms and doses and often can change the aspect or/and camuflate the first signs of the disease which can make the early diagnosis very challenging and by consequence they can change the course of the disease. Our research is based on different ethnopharmacopeas of 8 different countries in sub-saharian Africa. Our findings suggest that plants can be used as complement to modern pharmacological treatments. Knowledge about Noma disease between health care givers is very poor and knowledge about ethnopharmacology and its use for skin diseases even poorer knowledge about ethnopharmacology, doses, interactions and how the can change the aspect or the course of the disease is crucial for early diagnose and improving the success of treatments of noma and noma disease mortality.

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Skin NTD(s)

Noma

Cryotherapy in treating sporotrichosis in Nepal

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Sporotrichosis is a subcutaneous mycosis caused by various sporothrix fungus species. This ubiquitous fungal infection is more commonly seen in field/ farm workers in tropical and subtropical region. This prevalence could largely be attributed to the climatic condition favorable for harboring fungi in these regions. Cutaneous infection often occurs via inoculation of fungus into the intact skin due to traumatic skin injuries. Clinically apparent lesions can occur anywhere in exposed part of the body and mostly these occur over upper extremities, which are prone to trauma during field, farm, agricultural works and pet handling. Other sites of involvement are lower extremities, face, eYes and mucous membrane rarely. Onset of clinical feature is usually seen in 2-4 weeks after inoculation of the dimorphic fungus. Various cutaneous manifestations of sporotrichosis can occur ranging from those limited to skin with ulcero-nodular lesions along lymphatics to systemic dissemination to lungs and meninges rarely. Localized form of cutaneous sporotrichosis occur in those with high degree of immunity, whereas the systemic disseminated forms occur in immunocompromised individuals. Treatment of sporotrichosis is done with oral antifungal for months until clinical recovery and in recalcitrant cases with systemic dissemination-intravenous infusion of Amphotericin-B can be used. However, this prolonged dosing until clinical recovery can be hazardous to those with hepato-cardiac comorbidity and also in pregnant females. Given the systemic side-effects that can underly the use of antifungals for prolonged duration, treatment should be sought towards adjuvant physical modality along with oral antifungal which decreases the risks of systemic side effects.

Acknowledgements

Dr Sushil Paudel

Skin NTD(s)

Fungal infections (deep): sporotrichosis

Comparative antifungal activities of leaf extract of pawpaw and neem on tinea capitis

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The repeated resistance of fungi to various conventional antifungal/antimicrobial agent has been a major challenge to providing curative effect to fungal infection, and this has led to use of the combination of drugs that either possesses antagonistic or sometimes adverse effect on the patient. Ringworm is a type of infection caused by fungi Trichophyton spp.. It is common among children in rural area and emerging town occasioned by various factors. This continuous resistance led to the search of an alternate drug with better efficacy against the isolate. Test isolate of Trichophyton spp. was obtained from the laboratory, while the ethanolic and aqueous leaf extracts of Carica papaya and Azadirachta indica were prepared and reconstituted to 25mg, 50mg, 75mg, 100mg, and 150mg/mL respectively using dimethyl sulfoxide. The sub-cultured isolate was plated on ten different plates which were labelled accordingly with the concentration of the extracts (i.e. 25mg/mL of both ethanolic extracts of C. papaya and A. indica on plate, while same was repeated for aqueous extracts and other concentrations of 50mg/mL, etc to evaluate the efficacy of the extracts as an antifungal agent using agar well diffusion method. 100ug of fluconazole solution was used as control. After 24 hours of incubation, 25mg/mL, 50mg/mL of both ethanolic and aqueous extracts had no inhibition zone; while inhibition zone of diameter size 11mm and 13mm; 17mm and 21mm were recorded for 75mg/mL and 100mg/mL of aqueous and ethanolic extract of C. papaya while 8mm and 12mm; 15mm and 18mm were recorded for aqueous and ethanolic extract of A. indica respectively. However, it was observed that 150mg/mL of C. papaya aqueous and ethanolic extracts had 25mm and 30mm inhibition zone while same concentration of A. indica had 19mm and 21mm respectively. Trichophyton spp. was observed to be resistance to 100ug/mL of fluconazole. The minimum inhibitory concentration (MIC) was also observed to be 100mg/mL for ethanolic extract of C. papaya while the minimum fungicidal concentration was observed to be 150mg/mL, but the aqueous extract had MIC at 150mg/mL. The ethanolic extract of A. indica only had MIC at 150mg/mL.

Acknowledgements

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Ogun State Institute of Technology Igbesa

Skin NTD(s)

Fungal infections (superficial): e.g. tinea capitis

Test-and-treat with doxycycline as an alternative strategy for the elimination of onchocerciasis: evidence from large-scale implementation trials in Cameroon

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Phase II randomised clinical trials have demonstrated significant long-term sterilising effects and macrofilaricidal activity of doxycycline against the skin NTDs: lymphatic filariasis and onchocerciasis, via targeting of the filarial endosymbiotic bacteria, Wolbachia. This has provided the evidence base to trial doxycycline as a test-and-treat community based alternative strategy for onchocerciasis in areas where long-term ivermectin-based mass drug administration has not delivered interruption of transmission. Here we summarise results of the UK Foreign and Commonwealth Development Office (FCDO) COUNTDOWN Consortium implementation trial. A treatment / follow-up study was conducted in 20 high-transmission onchocerciasis communities in a co-endemic loiasis area of South-West Cameroon. Testing was undertaken by direct diagnosis of mf by skin snipping. Directly observed treatment with 100mg doxycycline was administered to mf positive community members aged ≥9years including non-pregnant women of childbearing age. Wolbachia clearance, followed by treatment impact on skin microfiladermia and subcutaneous palpable nodules were assessed 6- and 30-months post treatment, respectively. Factors associated with skin microfilaria level post-treatment, including adherence to treatment, were assessed. Over 92% of eligible participants (2835/3080) took 35 days of 100mg doxycycline over a total 6-week duration. Wolbachia depletion was observed in 92% of skin samples surveyed at 6 months post-treatment. This regimen achieved a 62.8% skin infection reduction and 99% palpable nodule prevalence reduction in 720 participants included at 30-month follow-up. The most important factor associated with persistent infection was having missed at least seven consecutive doxycycline doses (OR 3.11, 95%CI: 1.17-8.26). The COUNTDOWN Consortium test-and-treat with doxycycline study protocol was independently adopted by Sightsavers and implemented in a distinct region of West Cameroon with highly similar outcomes (a reduction in community skin mf prevalence of 65.6%). These large-scale implementations advocate doxycycline as deployable as an effective treatment for onchocerciasis in line with WHO Roadmap use as “a cure in appropriate circumstances”. With the increased evidence available, we propose onchocerciasis should be added to the list of doxycycline indications on the WHO Essential Medicines List to further support country-owned adoption as a safe curative elimination strategy.

Acknowledgements

The authors wish to thank The Ministry of Public Health, Cameroon, South-West regional delegation of health, the district medical officers of Kumba and Konie, the chiefs of various health centres within the two health districts for their assistance and support during this field exercise. They would also like to thank the community heads and community health implementers for their support and inputs. Thanks also go to the populations of the study villages who willingly participated in this study. This work was generously funded by the British Tax Payer and the UK government via The Foreign Commonwealth and Development Office

Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis

MycetOS: an open source drug discovery project for Mycetoma

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Introduction

Mycetoma is a Neglected Tropical Disease of the subcutaneous tissue. It can be caused by at least 80 different causative agents of either fungal or bacterial nature. Especially fungal mycetoma is difficult to treat as it needs a combination of antifungal therapy and surgery. Without surgery, the lesion cannot be cured. To identify novel drugs which could cure mycetoma, preferably without the need of surgery, in 2018 the Open Source Drug discovery project MycetOS was established. Since then we have screened >10000 compounds. From 6 of the hits we identified, chemical hit series were made in which chemical derivatives were created to determine which properties a molecule needs to be able to penetrate the mycetoma grain.

Methods

Using an open source approach several drug libraries were screened in vitro and in vivo using Galleria mellonella larvae models. From the hits obtained chemical hit series were created which were rescreened in vitro and in vivo. With structural activity relationship analysis and comparing the different chemical properties insights could be obtained on which properties were important for penetrating the mycetoma grain.

Results

In this open source drug discovery program, we had chemists, biologists and even high schools students collaborating to find a new drug for mycetoma. From our first hit series, the fenarimols, we found that lipophilicity of the drug was important for grain penetration. However, the target of the compound was the same from the azoles currently in use. We therefore also used additional screenings and transcriptomic analysis to identify novel drug targets, which were unique and not explored before. Several hits were obtained and which will be explored during the upcoming years.

Discussion

In the past years we demonstrated that open source drug discovery for mycetoma will lead to novel compounds of interest. By collaborating freely together more insight has been obtained on the properties a molecule needs to penetrate the mycetoma grain. By reusing data we also identified novel drug targets

Conclusions

Open source drug discovery for Neglected Tropical Diseases such as mycetoma is a promising way to identify novel drugs.

Acknowledgements

This abstract was based on the work performed by the MycetOS community since 2018

Skin NTD(s)

Mycetoma

Predicting treatment duration in the clinic: a model-informed approach for the development of antimicrobial combinations in Buruli Ulcer

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Introduction

The standard-of-care for Buruli ulcer (BU) is an 8-week oral antimicrobial regimen of rifampicin (RIF) and clarithromycin (CLA). Inclusion of amoxicillin-clavulanate (AMV) is currently being investigated for treatment shortening [1]. A previous in silico investigation suggested that this triple beta-lactam regimen with a 10 mg/kg bid RIF (instead of current 10 mg/kg qd RIF) provides the highest probability of pharmacological target attainment [2]. Still, it remains challenging to predict the optimal duration of investigational BU treatments.

Aims

To evaluate the probability of success and predict optimal treatment duration of BU antimicrobial regimens in a clinical setting, taking into account translational PKPD principles.

Methods

In vitro time-kill assays (TKA) with clinical isolates of M. ulcerans from different geographical provenance were available for this analysis [3]. The contribution of each drug on the antibacterial activity of the combination was quantified with a nonlinear mixed effect model [4]. In silico clinical trials were then implemented using estimated PKPD relationships from TKA protocols in conjunction with PK models describing drug disposition and penetration into the skin in humans. Simulation scenarios including two different regimens in a virtual cohort of BU patients were evaluated: RIF (qd,10 mg/kg) + CLA (bid, 7.5 mg/kg); RIF (bid,10 mg/kg) + CLA (bid, 7.5 mg/kg) + AMV (bid, 1000/125 mg/kg). Additional scenarios investigated the impact of initial bacterial burden and varying susceptibility in clinical isolates.

Results

Accounting for an initial bacterial burden of 103 CFU/ml [5], the triple beta-lactam regimen was predicted to achieve faster bacterial eradication in lesions (median and 10th – 90th prediction intervals [days]: RIF+CLA= 24 (21-43), RIF+CLA+AMV= 20.5 (17-34.55)). The probability of biological eradication following the RIF+CLA regimen for 8 weeks and RIF+CLA+AMV for 4 weeks was 93% and 86%, respectively.

Conclusions

Our results support the rationale of ongoing trials [1]. The proposed approach provides a robust basis to optimise prospective BU clinical trials for novel drug combinations and regimens, taking into account the susceptibility of different strains.

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Skin NTD(s)

Buruli ulcer

A new paradigm in skin NTDS treatment SRM1 and life transformation

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This paper presents 12 clinical cases of Skin NTDs treated with SRM1 in Africa, along with cases of skin disease treatments using SRM1 in Korea. Through these findings, it aims to propose a new direction for addressing skin diseases that affect many people worldwide.

For a long time, medicine has focused on combating diseases of the human body. While external treatment methods are essential in disease management, internal factors that enhance the body's innate healing mechanisms are equally important. In other words, combining external treatment with empowering the body's intrinsic healing capacity enables fundamental recovery and broader applicability to various diseases.

SRM1 is an herbal medicine that embodies this concept, and the physiological responses observed when using SRM1 are referred to as the "SAEHIM System."

(Reference: SRM1 & SAEHIM System www.mrsg.kr/srm1).

SRM1 offers several key therapeutic functions, including (1) Block & Reduction, (2) Natural Antibiotics, (3) Disease Emission, (4) Separated Emissions, (5) Renaturation & Homeostasis, (6) Autotherapy, and (7) Disease Prevention. This paper includes cases of atopic dermatitis, psoriasis, eczema, pressure ulcer, and burns treated with SRM1 in Korea.

Furthermore, in 2015, an MOU was signed with the Ministry of Health of Benin for the eradication of Buruli ulcer, followed by the establishment of Senara Hospital Benin (SMC) in 2016. In 2017, SRM1 was officially registered as an herbal medicine in Benin, with its registration renewed in 2023. In 2018, an MOU was signed with the Ministry of Health of Côte d'Ivoire for Buruli ulcer treatment. In 2022, a clinical trial for Buruli ulcer treatment was conducted after receiving approval from the National Ethics Committee of Côte d'Ivoire, and the results were presented at the First WHO Global Meeting on Skin NTDs in 2023.

This paper examines the conditions before treatment, the treatment process, and the post-recovery changes in patients' lives. The clinical trial results have reported no drug resistance. The benefits and anticipated effects of SRM1 treatment for Skin NTDs include (1) No drug resistance, (2) ease of oral administration, (3) minimized need for surgical intervention, (4) effectiveness in regions with limited healthcare access, (5) an innovative solution for large Skin NTDs treatment, and (6) broad-spectrum applicability to Skin NTDs and other inflammatory skin diseases.

(PowerPoint link: https://mrsg.kr/srm1life)

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Skin NTD(s)

Buruli ulcer

A review of the effect of medicinal plant extracts on Leishmania major in vitro and in vivo conditions in Iran

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Introduction

Leishmania is one of the most common parasitic diseases in tropical and subtropical regions of the world and is considered a threat to public health. Iran is also one of the endemic areas of cutaneous leishmaniasis in the world. The causative of cutaneous leishmaniasis is a protozoan from the Kinetoplastida order, which in Iran is Leishmania major (rural type) and Leishmania tropica (urban type). More than 70% of leishmaniasis in Iran is Leishmania major. The reservoir of the disease in humans in the urban type and field rodents in the rural type, and the vector is the female mosquito of the genus Phlebotomus.

Materials and methods

This study presents a systematic review focusing on cutaneous leishmaniasis, Leishmania major, and plant-based treatments effective against leishmaniasis in Iran. The analysis draws from scientific-research articles identified through Google Scholar, Pubmed, and Science Direct databases, supplemented by relevant field literature.

Results

5-valent antimoan compounds are used for the treatment of cutaneous leishmaniasis. Of course, not all patients need treatment because in a large number of people, the lesion heals by itself, and due to the side effects of antimoan compounds, it is better to use fewer of these drugs. Therefore, the desire of patients and therapists to use herbal compounds has increased.

Discussion and conclusion

Although cutaneous leishmaniasis is not usually associated with high mortality, the rate of infection is very high and causes malformed skin lesions that remain for more than a year in some cases, and even with standard treatment, scars remain. It remains forever and causes emotional pain to the patient. Therefore, domestic researchers have provided research on herbal treatments against Leishmania, considering the history of traditional treatments in Iran and the scattered vegetation in the country.

Keywords: Leishmania major, cutaneous leishmaniasis, plants affecting Leishmania

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Skin NTD(s)

Cutaneous leishmaniasis

Epidemiology and surveillance

Establishing a sentinel surveillance program for mycetoma in Ethiopia: A multifaceted approach towards improved diagnosis, treatment, and global burden estimation

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Background

In 2016, the WHO recognized mycetoma as a neglected tropical disease. This chronic inflammatory condition, caused by fungi or bacteria, enters through wounds, leading to granulomatous swellings and possible bone invasion, often requiring amputation. It mainly affects laborers and farmers, causing high morbidity and stigma. Despite its endemic presence in tropical and subtropical areas, the burden remains unknown due to the absence of surveillance programs.

Methods

A pilot sentinel surveillance program was integrated with community health outreach and utilized clinics and hospitals as surveillance sites. Training modules were developed for Healthcare Providers and Health Extension Workers to enhance diagnostics, early identification, and referral pathways. Program effectiveness was measured through pre- and post-training tests, referral tracking, diagnoses, and community awareness through Knowledge, Attitude, and Practice (KAP) surveys.

Results

Screening of 4,368 participants (median age:18) showed the highest proportion of identified cases was among individuals with only primary education (1.01%), followed by those with no formal education and literacy training (0.53%) and underage participants (0.16%). In contrast, no cases were detected among individuals with college-level education, those with informal education without literacy training, or those who completed secondary school. Screening results for mycetoma identification varied across occupations. The highest proportion of identified cases was among students, with 0.84% testing positive for mycetoma. Farmers and housewives also had small percentages of identified cases, at 0.61% and 0.22%, respectively.

In contrast, no cases were detected among daily laborers, fishers, housemaids, merchants, or those in weaving occupations. Among individuals without jobs who were financially dependent, 0.34% were identified with mycetoma. Additionally, the KAP survey of 12 adults revealed strong mental health awareness but varying perspectives on treatment and cultural factors.

Conclusions

The data suggests mycetoma is rare and more common among farmers and those with limited education, while the KAP survey shows strong mental health awareness in young Insofar, we will develop ArcGIS mapping of mycetoma cases and analyze labeled histology datasets. We aim to enhance classification accuracy and evaluate supervised learning performance by integrating these datasets with our results using AI techniques.

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Dr. Ahmed Fahal, Mycetoma Research Center, University of Khartoum; Centers for Disease Control and Prevention: Mycotic Diseases Branch; Dr Wendy van de Sande, Erasmus University, Ethiopian Ministry of Health, Arba Minch University, Arba Minch General Hospital

Skin NTD(s)

Mycetoma

Prevalance of onchocerciasis in selected communities of Olamaboro local government area, Kogi State, Nigeria

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Onchocerciasis, a vector-borne disease caused by Onchocerca volvulus, remains a public health challenge in endemic regions. This study assessed the prevalence and clinical manifestations of onchocerciasis across three communities: Ogoh-Iyele, Ubalu, and Uloko in Kogi State, Nigeria, in July, 2024. A total of 628 individuals were examined using Ov16 antigen tests, and data on age, gender, and clinical signs were analyzed. The overall prevalence was (4.93%), with Ogoh-Iyele exhibiting the highest prevalence (5.67%), followed by Uloko (4.54%) and Ubalu (4.46%). Prevalence increased significantly with age, peaking in the 50+ age group across all communities (33.33% in Ogoh Iyele, 16.67% in Ubalu, and 13.04% in Uloko). Males in Ogoh Iyele were more affected (8/13 cases), whereas females had higher prevalence in Ubalu and Uloko. Clinical manifestations included pruritus (6.22%), poor vision (1.91%), nodules (0.31%), leopard skin (0.15%), and blindness (0.15%). Pruritus was most prevalent in Ubalu (3.35%), while nodules and leopard skin were confined to Ogoh-Iyele and Ubalu, respectively. The absence of infection in younger age groups (5–9 years) in Ubalu and Uloko suggests some progress in vector control. These findings indicate ongoing transmission, particularly in older age groups. There is need for intensified vector control and mass drug administration (MDA) and community-specific strategies, such as health education and targeted interventions.

Keywords: prevalence, clinical manifestation, Onchocerciasis volvulus, Olamaboro, Kogi State Nigeria.

Acknowledgements

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Skin NTD(s)

Onchocerciasis

Survey of onchocerciasis in some communities in three local government areas, Gombe State, Nigeria

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Onchocerciasis, caused by Onchocerca volvulus, remains a public health challenge in endemic regions. This study evaluates the prevalence of clinical symptoms associated with onchocerciasis and pruritus-related onchodermatitis across five communities in three Local Government Areas of Gombe State, Nigeria. A total of 790 individuals were screened for Ov16 antigenemia and clinical signs such as pruritus, poor vision, nodules, pruritus onchodermatitis, and blindness. Additionally, the prevalence of pruritus and pruritus onchodermatitis was analyzed by sex and age group. No cases of Ov16 antigen positivity were detected, indicating the absence of active onchocerciasis infection. However, clinical symptoms varied across communities, with pruritus being the most prevalent (10.1%), followed by poor vision (15.8%). Nodules and blindness were rare, reported in 0.38% and 0.13% of participants, respectively. Hinna and Makera communities had the highest rates of pruritus (16.6%) and pruritus onchodermatitis (83.3% of total cases). Prevalence of pruritus increased with age, peaking in the 40–49 age group (35.2%) and was significantly higher among males (25.7%) compared to females (2.8%). The lack of Ov16 positivity indicates no ongoing O.volvulus transmission; however, the high prevalence of clinical symptoms highlights residual morbidity or other etiologies. These findings emphasize the need for targeted public health interventions, improved surveillance, and differential diagnosis to address specific health challenges in these communities.

Keywords: Prevalence, clinical manifestation, Onchocerciasis volvulus, Hinna, Makera, Gombe State Nigeria.

Acknowledgements

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Skin NTD(s)

Onchocerciasis

Impact of azithromycin mass treatment strategy on incidence of yaws: experience of Republic of the Congo in 2024

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Introduction

Yaws is a chronic, contagious bacterial infection caused by *Treponema pertenue*, with skin, cartilage, and bone tropism. It is endemic in Africa, particularly in the Congo Basin subregion, and has been targeted for eradication by 2030. To achieve this, the WHO recommended the implementation of the Morges strategy, which involves conducting regular mass treatment campaigns for populations in endemic areas using azithromycin until reports of the disease cease. In the Republic of the Congo, this strategy has been in place since 2022; the aim of this study is to present the impact of this strategy in country.

Methodology

This was a descriptive, cross-sectional, retrospective study conducted from 1 January 2021 to 31 December 2024. It was carried out in the departments of Sangha and Likouala. Data was collected from individual screening forms and the integrated registers for the notification of neglected tropical diseases at healthcare facilities.

Results

During our study, 3364 cases of yaws were recorded. Of these, 1871 (55.61%) occurred in 2021, 476 (14.14%) in 2022, 625 (18.57%) in 2023, and 392 (11.65%) in 2024. In the Likouala department, which has the highest level of endemicity, incidence has fallen from 1310 cases in 2021 to 274 cases in 2024 since the start of the implementation of the Morges strategy.

Conclusion

The implementation of the Morges strategy in the Republic of the Congo has led to a significant reduction in the annual incidence of the disease, thereby promoting a decrease in transmission.

Keywords: Yaws, *Treponema pertenue*, endemic disease, mass treatment, incidence

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Skin NTD(s)

Yaws

Assessment of Buruli ulcer in Upper Denkyira East Municipality, Ghana: a 10-year data analysis and qualitative exploration of lived experiences

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Objective

It is estimated that about 7000 Buruli ulcer cases are reported annually worldwide, of which 4000 cases occurred in Sub-Saharan Africa. This study aimed to determine BU trends from 2013-2023 and explore the lived experiences of BU cases in the Upper.

Methods

Quantitative data was taken from the BU registry for the municipality and analysed to determine the trends of BU. A phenomenological study design was used to explore the lived experiences of BU cases. Fourteen (14) in-depth interviews were conducted. A thematic analysis was performed with ATLAS-ti version 7.5.7.

Results

The trends of BU from 2013 to 2023 showed an overall decline, with peaks in 2015 (13 cases) and 2018 (13 cases), followed by a gradual decrease from 2018 to 2023 (0 cases). Key themes that emerged from the data included Support, where participants reported minimal family support but received help from friends and health institutions. Financial burden as a theme showcased severe hardships, treatment costs, and also relief from some medical cost. Stigma related to peer exclusion, and the psychocultural dimension revealed distress, fear of limb loss, and cultural attributions of the disease, though many expressed a preference for modern medical treatments over traditional methods.

Conclusion

The study revealed a declining trend in BU cases from 2013 to 2023, with peaks in 2015 and 2018. Participants faced peer stigma, insufficient support, emotional distress, and fear of limb loss. Many participants attributed the disease to spiritual causes. However, most patients preferred modern medical treatments over traditional remedies.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Yaws

Passive and active surveillance of yaws in Vanuatu

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Background

Yaws, a disabling and disfiguring skin neglected tropical disease (NTD), remains endemic in Vanuatu where it is targeted for elimination by 2030. Mass drug administration (MDA) with azithromycin is the cornerstone to elimination efforts but requires surveillance data to inform delivery. From 2021 to 2024, two rounds of integrated mass drug administration (MDA) campaigns for yaws, scabies and soil-transmitted helminths were conducted in Tafea, Sanma and Shefa provinces supported by the Pacific Integrated NTD Elimination (PINE) project. This analysis compares passive and active surveillance yaws data collated throughout the project and discusses their relative roles in identifying endemic communities.

Methods

Passive yaws data (January 2021 – June 2024) was collated from health facility reporting across all six provinces. MDA campaigns in Tafea (2021), Sanma (2022) and Shefa (2023) provinces included self-reporting and screening of yaws cases. Both passive and active surveillance suspected cases were confirmed using the Dual Path Platform (DPP) rapid test. Cases found during the MDA were also analysed using a multi-bead assay to detect anti-Rp17 and anti-TmpA antibodies.

Results

There were 1,134 DPP-confirmed yaws cases reported by health facilities and 58 cases detected through MDA campaigns. Of the total 1,201 cases, 77.0% (925/1,201) were detected in Tafea, 15.7% (188/1,201) in Shefa and 7.2% (86/1,201) in Sanma. There was one case each detected in Malampa and Penama, and no cases in Torba. Trends in monthly reporting demonstrated a relatively low number of cases in Tafea throughout 2021 followed by a large increase in late 2022 and 2023. Monthly reporting in Sanma and Shefa remained stable throughout the study period. Of the 12 DPP-positive children that had serology, there were 9 (75.0%) who were positive for anti-Rp17 and anti-TmpA antibodies, 2 (16.7%) who were anti-Rp17 antibody positive only, and 1 (8.3%) with no detectable antibodies. There were 19 DPP-negative children, all of which were negative on serology; while there was one DPP-equivocal child who was positive for both serological markers.

Conclusion

Passive surveillance is an integral component of monitoring and evaluation for yaws in Vanuatu by providing longitudinal data on cases and their location. This can inform MDA programs integrated with active surveillance to further enhance evaluation of endemic communities and targeted interventions to achieve yaws elimination.

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Skin NTD(s)

Yaws

Epidemiological and clinical profile of new cases of leprosy treated in Guinea-Bissau, 2020–2024

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Objective outline epidemiological and clinical descriptive profile of new cases of leprosy reported in Guinea-Bissau, from 2020-2024. Is a descriptive, epidemiological and clinical retrospective analysis of new cases treated in the country during the mentioned period. All cases confirmed through epidemiological criteria, anamnesis, dermatoneurological examination and biopsy were included. Data were collected from the registry book in Hospital Mal de Hansen.

Result 52 new cases of leprosy were diagnosed, 58% are men, predominant clinical form`s MB, and the most affected age group is ≥ 45 years representing 50% of all. Additionally, 13% of the patients presented with grade 2 deformity. 3% of new admissions were immigrants who spent last 7 years outside endemic areas; 15% of all new cases are from neighboring countries.

NTDs continue to represent a significant burden on the country's public health system. Guinea-Bissau has already reported cases of leprosy and other 7 NTDs. Although the country has maintained an average detection rate of 0.05% per 10.000 inhabitants, this indicator maybe influenced by the phenomenon of inter-regional migration, as well as from non-endemic areas. It`s Necessary continuous surveillance in non-endemic areas; integrated coordination in cross-border surveillance, evaluation among endemic regions.

Acknowledgements

Hospital do Mal de Hansen, without their historical contributions, our users would be poorly supported, thus increasing stigmatization.
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Skin NTD(s)

Leprosy

Mycobacterium ulcerans in the Northern Territory

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Background

Buruli ulcer, caused by *Mycobacterium ulcerans*, is one of four Neglected Tropical Diseases with skin manifestations (skin-NTDs) in Australia. The incidence of *M .ulcerans* in the Northern Territory (NT) has not previously been reported and is unknown in Aboriginal and Torres Strait Islander populations. Recent cases of Buruli ulcer in the NT have required complex management from multidisciplinary teams with important public health and equity considerations. Currently, BU surveillance and treatment programs are not integrated with other NTDs endemic in the NT (leprosy, scabies). This case series reports all known cases of *M. ulcerans* reported in the NT since atypical mycobacteria became notifiable to the NT Centre for Disease Control (CDC) in 1994.

Methods

The NT Notifiable Diseases System database in the NT-CDC was reviewed from 1994 to 31st December 2024 for core data on *M. ulcerans*, which was conducted alongside a specimen search at Territory Pathology. Hard-copy medical records from Royal Darwin Hospital were reviewed to complete demographic and clinical information. The comparison of genomic diversity of isolates for NT patients was compared to isolates from other Australian states and Papua New Guinea when possible.

Results

194 cases of non-tuberculous mycobacterium have been reported to the NT-CDC as a notifiable disease since 1994; with eight confirmed cases of *M. ulcerans*. This retrospective review examines patient demographics and clinical presentation (including residence, travel and transmission), diagnosis, and treatment (including adverse effects/paradoxical reaction) for Buruli ulcer in the NT. The impact of the disease and challenges for management for First Nations people in Australia will be discussed.

Conclusion

This case series reviews the historic variation in presentation, diagnosis and management pathways for all known cases of Buruli ulcer in the NT. This provides an opportunity to educate practitioners about local transmission of *M. ulcerans* and presentation in Aboriginal and Torres Strait Islander people with an ongoing need for suspicion in non-endemic regions. It is important to discuss the potential benefit of integrating *M. ulcerans* surveillance and treatment programs with other endemic skin NTDs in northern Australia.

Acknowledgements

We acknowledge the Aboriginal peoples whose lands we have worked on to develop this paper and understand scabies and its treatments. We pay our respects to the Elders of these respective lands that we've worked on and travelled to, and thank all Aboriginal and Torres Strait Islander people involved in this project for sharing knowledge and providing guidance.
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Skin NTD(s)

Buruli ulcer

Nodular scabies, a common clinical phenotype in autoimmune patients

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Scabies is an ectoparasitic dermatosis that often manifests with papules pruritic especially in the evening. Beyond papules (classical type), scabies may appear also with nodules, wheals, crusts or rarely with rash (incognita) depending from the cutaneous immune system and immunosuppressive treatments (topical and systemic ones). Non classical manifestations of scabies remain a great challenge for clinicians in term of clinical and dermatoscopic diagnosis, often resulting in a treatment delay and disease spread to caregivers. At the moment, no data toward scabies clinical phenotypes in autoimmune patients are present in literature.

Thus, we performed a 10 years retrospective observational study in our cohort of autoimmune patients undergoing systemic (biological or conventional) immunosuppression. We enrolled 278 (174 males) patients that developed scabies with a mean age of 43.7 ± 14.1 yoa. In particular, 87 had severe plaque psoriasis, 35 scleroderma, 31 systemic lupus erythematosus, 17 dermatomyositis and 4 generalized annular granulomas. From a pharmacological perspective, 59 underwent Tumor necrosis factor (TNF)-alpha inhibitors, 15 Interleukin (IL)-17/23 inhibitors, and the other methotrexate. Interestingly, 242 (87.1%) had a classical popular phenotype, but 12.9% of the patients displayed atypical phenotypes, namely 29 nodular, 4 urticarial, 3 crusty and 1 incognita phenotypes.

Remarkably, atypical phenotypes had an average time of diagnosis of 3.6 ± 2.1 months, mainly due to non-classical manifestation and absence of pruritus or even non-nocturnal pruritus. Nodular phenotype was, among the atypical ones, the most frequent and appear almost exclusively in patients under TNF-alpha inhibitors without pruritus. Dermoscopy did not reveal the 'delta wing jet' or 'mini triangle' sign, but only skin scrapings established the diagnosis. Patients with atypical scabies experienced postscabetic itch for 73.5 ± 17.7 days.

In conclusion, non-pruritic nodules in autoimmune patients may hide atypical scabies.

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Skin NTD(s)

Ectoparasites: scabies

Childhood leprosy: A retrospective descriptive study from West Bengal, India over 10 years

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Background

Despite consolidated global efforts, leprosy has remained endemic in many regional pockets, including India. In this regard, childhood affliction draws special epidemiological attention as it spotlights disease transmission. Children are particularly susceptible to this disease due to their nascent immunity and possible intra-familial contact sources, hence they also indicate success in leprosy control in a community. Leprosy in children harbours the potential to cause progressive physical deformity, with consequent psychosocial impact of on both the child and the care-giver family.

Method

A retrospective analysis of 10 year records of leprosy patients aged less than 15 years in a tertiary care hospital of Kolkata, West Bengal, India was performed (2014-2024). Statistical software Medcalc® version 10.2.0.0 for Windows Vista was used.

Result

A total of 108 cases of childhood leprosy were reported during the 15 year period from 2014-2024. Of the patients, 58% were multibacillary cases and 42% were paucibacillary. Male:female ratio was 3:1. Evidence of reaction was present in 18% cases, and deformity was seen in 28% cases. Borderline tuberculoid leprosy was the commonest clinical presentation followed by borderline lepromatous leprosy. Thickened peripheral nerve trunks were detected in 65% cases, commonest being ulnar.

Conclusion

Childhood leprosy serves as the marker of ongoing transmission of the disease in the community. Contact surveys in leprosy should be not only focused on household contacts but also extended to neighbours and relatives.

Limitations

As it is a hospital-based retrospective study, the findings may not be truly representative of the trends in the community.

Acknowledgements

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Skin NTD(s)

Leprosy

Complications of leprosy and their determinants among Filipino patients of a tertiary hospital in the Philippines: A 6-year retrospective study

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Background

Leprosy is a chronic infectious condition caused by Mycobacterium leprae and Mycobacterium lepromatosis. Despite its established treatment with multi-drug therapy (MDT), the complications that arise from it bring both physical and psychosocial burden to the patients and their families.

Objective

To determine factors that are associated with leprosy-related complications among diagnosed patients at a tertiary hospital in Metro Manila. Specifically, to be able to determine the demographic profile and clinical characteristics of leprosy patients who developed complications, and be able to identify the presentation and possible co-occurrence of these complications.

Methodology

A retrospective chart review used data from both physical and online charts of the Philippine General Hospital (PGH). The list of leprosy patients was retrieved from the 2018-2023 biopsy logbooks, correlated with the registry used for dispensing MDT blister packs. All available records from 2018-2023 were targeted for retrieval and were reviewed if they meet the selection criteria.

Results

Out of the 166 patient charts identified for retrieval, 85% or 141 were reviewed while the other charts were tagged as non-retrievable. Ninety out of the 141 patients (64%) developed complications from leprosy. Those who developed complications were mostly 21-30 years old, male, unskilled laborers, and those residing in urban areas. Sixty percent had a Ridley-Jopling classification of lepromatous leprosy while 81.1% had multibacillary classification. Erythema nodosum leprosum or type 2 lepra reaction was the most commonly documented complication (61.1%) followed by deformity and disability (37.8%), type 1 lepra (reversal) reaction (30%), and neuropathic pain (20%). No ophthalmologic, dental, psychiatric and other drug-related adverse events were documented.

Conclusion

Erythema nodosum leprosum, deformities and disabilities, reversal reactions, and neuropathic pain were the complications noted from the reviewed charts from 2018-2023. No association was found between the patient's residence, occupation, and exposure to a known leprosy case, with the occurrence of the abovementioned complications. However, those who had neuropathic pain were 3.6 times more likely among those 30 years old and above than those who did not have neuropathic pain. In terms of clinical characteristics, patients with ENL were 5 times more likely to have a Ridley-Jopling classification of BL-LL, than those without ENL.

Skin NTD(s)

Leprosy

Rapid assessment of Noma: Reporting on forgotten and neglected disease in Ethiopia

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Background

Noma is a rapidly progressing, invasive, and debilitating orofacial disease that affects the most vulnerable and marginalised populations worldwide. The people most at risk of noma are pre-school children, exposed to other risk factors, such as malnutrition and diseases of poverty.

Ethiopia is one of the countries with higher reported cases of noma since 2010 and those are only from medical missions. Evidence on the Burden of the disease or epidemiological data are important for planning and prioritizing service delivery, as well as for formulating disease prevention strategies. In this endeavour to document the presence of noma in Ethiopia, and assess the health system capacity for noma care, we have performed a rapid assessment.

Methodology

We performed a rapid assessment using a desk and literature review, health sector capacity assessment and a retrospective assessment to identify all confirmed cases of noma cases based on 2015-2022 data from NGOs and health facility records.

Result

From the desk review it was found that there is no standalone national policy on noma or NTDs in Ethiopia. However, the health policy of the country emphasizes the prevention and control of diseases of poverty. And no written oral health program for primary healthcare except the availability of dental care in limited regional/referral hospitals and private sector. The retrospective assessment has extracted 69 noma cases record reported from January 2015 to December 2020 and 97% of the record came from two NGO's who are supporting the surgical mission. Cases are from almost every corner of the country with strong focality in Amhara region, the trend of cases being cared has decreased from 2015 to 2020. No record is found for acute cases of noma.

Conclusion

This rapid surveillance has identified a striking scarcity of research and surveillance programmes considering noma. Intensify efforts in terms of public awareness and education of community workers and health professionals at existing health centres on identification of Noma and subsequent referral of patients to referral hospitals. The assessment emphasizes that a first step to noma elimination should be the inclusion of noma in the national list of neglected tropical diseases, followed by broad-based integrated control programmes using the existing health extension system in expanding oral health.

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Skin NTD(s)

Noma

The cost of scabies inpatient treatment in the Philippines: a secondary data analysis of the Philippine health insurance corporation database

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Bacground

While outpatient management for classic scabies is the standard, severe cases, such as secondarily infected scabies or crusted scabies in immunocompromised individuals, may require inpatient care, increasing the financial burden on healthcare systems. We aimed to determine the cost of scabies inpatient cases in the Philippines to provide valuable insights for policy-making and resource allocation.

Methods

This retrospective secondary data analysis used the PhilHealth claims database. We included in patient claims for scabies (ICD-10: B86) from inception of database to 2013, which was the last year of scabies coverage. Inclusion criteria were hospitalized patients with scabies as a primary or secondary diagnosis. Exclusion criteria included claims with missing cost data. Extracted variables include demographics, facility name, province, date of admission, date of discharge, hospital stay length, total claim amount, and total paid amount. Descriptive statistics, comparative analysis, time trend analysis, and regression analysis were used to assess cost differences, trends, and predictors of higher hospitalization costs.

Results

There were 877 claims for scabies in the PhilHealth database from 2002 to 2013, 858 (97.83%) of which were paid to the hospitals. The bulk of the patients were pediatric age (n=699, 68.65%), most of whom belong to 1-5 years age group (n=323, 36.83%). The region with the highest number of patients with scabies who filed for claims was Region X (n=107, 12.20%). The months with the highest number of claims were during the 3rd quarter of the year. Majority of the cases had less than 3 days of hospital stay (584, 67%). The median amount for actual claims for scabies was 4992 Php (IQR 6635.90), while the median amount of paid claims was 3504.01 Php (IQR 3122.00). The median percent paid claims by PhilHealth was 75.24% (IQR, 50.09].

Conclusion

This study highlights the epidemiological and economic burden of inpatient scabies treatment in the Philippines based on insurance claims data from 2002 to 2017. The majority of affected individuals were children aged 1–5 years, with a slightly higher prevalence among males. Region X had the highest number of claims, suggesting a regional disparity in disease burden or healthcare access. These findings emphasize the need for targeted interventions to improve scabies management and financial protection for affected patients.

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Skin NTD(s)

Ectoparasite: scabies

Is transmission of *M. leprae* in Pakistan on the verge of elimination?

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Background

In Pakistan prevalence of leprosy has greatly declined since multidrug therapy (MDT) was introduced in the 1980s and the disease was declared eliminated as a public health problem in 1996. We explored available records to assess whether incidence has also decreased at national and sub-national levels and to identify areas with ongoing transmission.

Methods

For the period 1980-2000, records on incidence and prevalence of leprosy at national level were available, we overlaid these with population data. For the period since 2001 individual patient records have been entered into an electronic database in Excel, including age, gender, type of disease, level of disability, and location at sub-district (tehsil) level. We explored trends in incidence in absolute numbers as well as trends in proportions of age groups and disability grading of incident cases at provincial level. At tehsil level we compiled the new WHO Leprosy Elimination Monitoring Tool (LEMT) over four periods and we conducted a SaTScan analysis over the past 5-year period to identify current high incidence clusters.

Results

Both incidence and prevalence have significantly decreased since the 1980s and continue to do so. The main driver in the decrease in incidence is the province of Sindh, whereas in Punjab, the most populous province, there has been no real decrease since 2001. Decreases in trends in proportions of children among new patients are either small or non-significant. The proportion of new patients with visible deformities is fairly high and doesn't appear to decrease. The LEMT identified certain tehsils with ongoing transmission, most of which overlapped with current high incidence clusters identified by SaTScan. Within these clusters incidence levels have always been much higher, with no further decline since 2010.

Discussion

Leprosy incidence in Pakistan has greatly reduced since MDT was introduced and further over the past 20 years. Yet certain areas of high incidence persist and may require a more intensified approach. Trends in child proportion among new cases are stable, indicative of ongoing transmission. New technologies such as geospatial mapping and phylogenetic analysis may be of use to identify areas that require a more intensified approach to reach elimination.

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Skin NTDs

Leprosy

Mapping lymphatic filariasis morbidities in 24 endemic districts of Ethiopia through the health extension program

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Background

Morbidity management and disability prevention (MMDP) is the key strategy for achieving the second goal of the Global Program to Eliminate Lymphatic Filariasis (GPELF), aimed at alleviating suffering. A major challenge in LF-endemic areas is registering and identifying individuals with LF, which is essential for planning and ensuring access to MMDP services. This study mapped the geographical distribution of LF-related morbidities across 24 endemic districts in Ethiopia.

Methods

A community-based cross-sectional study was conducted in 24 districts using primary health care units (PHCUs). A total of 946 trained health extension workers (HEWs) conducted house-to-house visits to identify and register cases of lymphedema and hydrocele. This effort was supported by 77 supervisors and 87 team leaders. Certified surgeons validated diagnoses through clinical assessments on a sample of cases. Data analysis, including the severity of lymphedema and acute attacks, was performed using STATA 17.

Results

The study included 300,000 households (1.2 million individuals) and identified 15,527 LF cases—14,946 (96.3%) with lymphedema and 581 (3.7%) with hydrocele. Among lymphedema cases, 54.1% were women, and 88.4% resided in rural areas. Acute attacks were reported in 73.4% of cases within the past six months, with a higher prevalence among males (74.5%). Attack prevalence increased with lymphedema severity: 64% of mild, 68% of moderate, and 70% of severe cases.

Conclusion

This study mapped LF morbidities across 24 districts, identifying significant lymphedema and hydrocele cases, particularly in rural areas with limited healthcare access. The findings highlight Ethiopia's health extension program's capacity to identify and support affected individuals, informing targeted interventions and improving access to MMDP services. This contributes to Ethiopia's goal of LF elimination by 2027.

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Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Seroprevalence of Treponema pallidum antibodies and community knowledge, attitudes, and practices related to yaws in the middle belt of Ghana: A quantitative cross-sectional study

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Background

The paucity of epidemiological data on yaws in Ghana hampers national eradication efforts. This study aimed to investigate the seroprevalence of T. pallidum antibodies and community knowledge, attitudes, and practices toward yaws in the middle belt of Ghana.

Methods

A cross-sectional, quantitative study was performed between June 2021 and October 2021. A total of 138 participants—63.8% (88) female, with a median age of 32.7 years—were recruited from five study communities. Blood samples were taken to test for antibodies against T. pallidum, and a questionnaire on knowledge, attitudes and practices toward yaws was administered.

Results

The overall seroprevalence of antibodies against T. pallidum was 38% (52/137) [95% CI: 30.3 –46.3], the highest of which was 63.3% (19/30) 19/30 [95% CI: 45.5 –78.1] in State Farms, followed by 46.8% (22/47) [95% CI: 33.3 –60.8] in Branam and 38.5% (10/26) [95% CI: 22.4 –57.5] in Abekwai 3. Only 54.3% (75/138) had a good level of knowledge, 40.6% (56/138) had a high level of positive attitudes, and 58.7% (81/138) had a high level of good practices toward yaws. Having a formal education significantly increased the odds of having a high level of knowledge on yaws (OR = 2.299, P = 0.045, 95% CI = 1.020–5.180). The participants with a high level of knowledge were 8 times more likely to have a high level of positive attitudes (OR = 8.407, P < .001, 95% CI = 3.702–19.090), whereas a high level of good attitudes also significantly increased the odds of having a high level of positive practices (OR = 2.870, P = .005, 95% CI = 1.379–5.970). Being ≥30 years old significantly increased the odds of having a high level of positive attitudes and positive practices.

Conclusions

Despite high seropositivity of T. pallidum antibodies, there was an inadequate level of knowledge, good attitudes, and good practices toward yaws in our study communities. We highlight the need for sustained, targeted educational and sociobehavioral change campaigns by the Ghana Yaws Eradication Program to improve community knowledge, attitudes and practices and help reduce the transmission of the disease in communities

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Skin NTD(s)

Yaws

Assessing the burden and diagnostic challenges of leishmaniasis in rural communities of Southwestern Nigeria: A seroprevalence study

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Leishmaniasis, a neglected tropical disease (NTD), remains underdiagnosed and underreported in Nigeria, particularly in rural and semi-urban communities. This study aimed to assess the seroprevalence of Leishmaniasis and identify diagnostic challenges in Delta, Ondo, and Bayelsa states, where limited surveillance and healthcare infrastructure exacerbate disease burden.

Using a dataset of 112 patient samples, we conducted serological testing for Leishmaniasis antigens and analyzed demographic and geographic data to identify patterns of transmission. Results revealed a low overall prevalence of Leishmaniasis, with only one positive case (0.9%) detected in a 38-year-old male from Bayelsa state (Sample 285). This finding highlights the potential for localized transmission in areas with favorable environmental conditions for sandfly vectors.

Demographic analysis showed that the majority of sampled individuals were males (68%) aged 17–48 years, reflecting potential occupational or environmental exposure risks. Geographic clustering indicated that Leishmaniasis cases may be concentrated in rural areas with limited access to healthcare, where diagnostic capabilities are often inadequate.

The study underscores significant diagnostic challenges: (1) Symptoms of Leishmaniasis overlap with other febrile illnesses, such as malaria and Dengue, leading to frequent misdiagnosis; (2) Limited access to specialized diagnostic tools, such as molecular assays, in rural healthcare facilities hampers accurate detection; (3) Low awareness among healthcare providers and communities contributes to underreporting and delayed treatment.

These findings emphasize the urgent need for enhanced surveillance, capacity-building, and public health interventions in Nigeria's rural communities. Strengthening diagnostic infrastructure, training healthcare workers, and raising community awareness are critical steps toward reducing the burden of Leishmaniasis. Additionally, integrating Leishmaniasis screening into existing NTD programs could improve early detection and treatment outcomes.

This study provides a foundation for future research on Leishmaniasis epidemiology in Nigeria and advocates for targeted interventions to address this neglected disease. By bridging diagnostic gaps and improving healthcare access, we can mitigate the impact of Leishmanias

Acknowledgements

Institute of Biomedical Scientists

Skin NT D(s)

- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy

Shedding light on noma in Mozambique

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Noma is a rapidly progressing, disfiguring orofacial infection that primarily affects children living in poverty. Despite being preventable and treatable with readily accessible medicines, 90% of patients are estimated to die due to lack of access to prompt and appropriate care. To date, there is no primary data reporting noma in Mozambique. Our aim was to collect empirical evidence on the ongoing presence of noma in Zambezia Province, Mozambique, for the first time. In addition, we assessed the knowledge, attitudes and practices towards noma of health practitioners working at primary, secondary and quaternary health facilities.

To identify acute noma patients we used a passive case search approach at the maxillofacial and paediatric wards of the reference hospital. To find noma survivors, we conducted a community-based active case search, showing posters of noma sequelae to crowds of potential informants. Demographic and clinical data were collected from confirmed noma cases. Harnessing the community-based search, we visited health facilities on a convenience-sampling basis. Health professionals were invited to participate on a quota-sampling basis, and were administered a questionnaire including open and close-ended questions.

Over a five-week period in 2024, two acute noma cases and 21 survivors having had noma between 1971 and 2015 were identified. Using a cohort-estimated healthcare-seeking proportion of 18·75% and assuming a survival rate of 10%, the annual incidence in rural areas of Zambezia was estimated at 13·7 per 100,000 children under the age of nine, suggesting that at least 213 noma cases occur yearly in the region.

Forty-one health professionals were interviewed. Of these, 59% were aware of noma, and 26.8% reported having personally attended an acute noma patient. However, their knowledge of noma's clinical characteristics or management was poor, especially in its early stages. Only 12% correctly diagnosed noma stage 1, and 5% stage 2. University-level professionals had a significantly better understanding of the disease than nurses and technicians. All participants were keen on receiving specific noma training.

In conclusion, the total lack of data does not mean noma is non-existent. This study provides a simple methodology to rapidly identify noma cases in high-risk areas. Increased investment, awareness and management capacity by health professionals are urgently needed to stop the consequences of this preventable and treatable disease.

Acknowledgements

We would like to thank the patients and their families, who selflessly shared their stories with us; and the health professionals, for dedicating time to answer our questionnaire and share their thoughts. We thank Elysium, the noma survivors' association, who kindly reviewed our case questionnaire; and Elise Farley, who reviewed the KAP questionnaire. We would also like to thank the heads of the hospitals visited and the elders and leaders of the communities that allowed the work to take place successfully. Finally, we would like to thank all contributors to the crowdfunding that partially funded this project.

Skin NTD(s)

Noma

Protocol for a cross-sectional study evaluating knowledge and identification of cases of noma, a neglected tropical disease (NTD), among health professionals in Latin America

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Noma (cancrum oris) is a rapidly progressing orofacial gangrene that mainly affects children living in poverty and immunocompromised adults. Although it can be readily treated in early stages with antibiotics, nutritional support, and wound debridement, noma often goes undiagnosed, thus untreated, resulting in an estimated 90% mortality rate within just two weeks. Most noma cases are currently identified in low-income countries, particularly in West Africa. However, there remains a lack of reliable data on the prevalence, incidence, mortality, and resulting disabilities associated with noma.

In Latin America, sporadic noma case reports have been published since 1955, with countries such as Argentina, Brazil, Colombia, and Mexico documenting occurrences of noma or acute necrotizing gingivitis. In 1998, Delphi expert consultations referenced cases in Paraguay, the Dominican Republic, and Uruguay, but no specific data were provided. The 2003 World Oral Health Report added Guyana, Suriname, and Jamaica to the countries with reported cases, again without quantification. From the early 2000s onwards, Bolivia, Brazil, Colombia, Mexico, and Peru have continued to report cases.

Given the critical importance of early diagnosis and treatment, this observational cross-sectional study aims to assess the level of knowledge about noma among health professionals in Peru, Bolivia, Brazil, Colombia, and Mexico, as well as the frequency with which they identify cases. An online questionnaire will analyze aspects such as clinical presentation, risk factors, diagnosis, and barriers to treatment. Conducting this research in Latin America, where noma remains under-researched compared to sub-Saharan Africa, will help identify knowledge gaps and provide information to inform training programs, enhance early detection, and ultimately determine the burden of noma in the region.

Acknowledgements

I would like to express my deepest gratitude to Marta Ribes and Carlos Chaccour for their invaluable guidance and support throughout the development of this protocol. A special acknowledgment goes to the survivors of noma, whose resilience and perseverance in the face of adversity serve as a powerful motivation for this work. Their stories highlight the urgent need for increased awareness and action against this devastating disease.

Skin NTD(s)

Noma

Human scabies in rural school settings: epidemiology, clinical aspects and associated factors in the Democratic Republic of the Congo

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Introduction
Scabies is an ectoparasitic infestation that affects all social classes of the population, regardless of age or sex, but is often underdiagnosed. The aim of this study was to describe its epidemioclinical profile and determine its associated factors in children.

Methods
This was a cross-sectional and analytical study, conducted over two months (May to June 2023), in three randomly selected schools in rural Congo. Children aged 3 to 15 years who clinically presented with scabies were included.

Results
The prevalence of scabies was 24.9%, with a mean age of 2.16±0.59 years and a sex ratio of 1.22. The majority of children were aged between 6-12 years (67.1%); the socioeconomic index of the head of the family was medium (49%). The number of children who scratched themselves and those who slept on the same bed were related (p=0.004); similarly, atopy and BMI were related to age in the case of scabies (p=0.001; p=0.000). The intensity and frequency of pruritus were associated (p=0.000). Scratching streaks (35.7%) were predominant and localized in the intergluteal folds (31.3%). Associated factors included age (p=0.038), sex (p=0.041), pruritus characteristics (p=0.038), source of contamination (p=0.026), communal living (p=0.007), number of people per bed (p=0.01), frequency of bathing (p=0.008), frequency of changing clothes (p=0.011), atopy (p=0.044), and BMI (p=0.026).

Discussion
The factors associated with scabies in Congolese children are consistent with those described in the literature. The high prevalence suggests a diagnostic delay and late medical consultation.

Conclusion
Scabies is common and underestimated. Re-training healthcare workers and raising public awareness would facilitate its early diagnosis and appropriate management, taking into account the associated factors.

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We express our gratitude to Dr Lukuma Antoine and Dr Makanzu Raphael for their collaboration during data collection and statistical analysis, and to the school authorities and parents of the children who made this study possible on the front line.

Skin NTD

Ectoparasite: scabies

Strenghening integrated surveillance of leprosy and skin neglected tropical diseases in the Republic of Guinea: examination of leprosy MB contact cases integrated with skin NTD screening in the departments of Forest Guinea

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Introduction

The Republic of Guinea has reached the threshold of leprosy elimination. However, the proportion of grade 2 disability remains high (14%). This situation is associated with inadequate screening in endemic communities.

The country has therefore organised screening activities for contacts of MB leprosy cases in the forest region of Guinea.

Given the scarcity of financial and logistical resources, we opted for an integrated approach to interventions in this region.

Objective

The main objective of these interventions is to strengthen the integrated surveillance of skin NTDs by screening contacts of MB leprosy cases and detecting cases of yaws, BU, scabies and other skin NTDs.

Methodology

The activity was implemented in several phases. An initial preparation phase during which leprosy data for the last five (05) years were analysed to identify the localities to be targeted. This phase was followed by the training of health workers. Training was provided using simplified World Health Organisation (WHO) modules on leprosy, Buruli ulcer, yaws, scabies, as well as the methodology for case-finding within communities.

After the preparatory phase, the teams of trained agents, supervised by supervisors and deployed in the field, carried out an integrated search for cases of Neglected Tropical Diseases of the skin, at the same time as looking for family, neighbouring and social contacts of MB leprosy cases. Children with skin lesions suspicious of yaws were tested using the rapid serological screening test for this disease.

Data from the screening was collected using an integrated form designed and validated by all those involved. The summary tome and the BU 01 and yaws 003 forms were also available. These data were processed and analysed using free Excel software.

Results

Thirteen agents were trained to carry out screening and dermatological examination of 1053 contacts. These were the contacts of 98 index cases, or approximately 8 contacts per index case.

Among the 1053 contacts examined, five new cases of leprosy were identified, including 2 children, 06 cases of chronic ulcers were examined and 03 cases were swabbed for PCR. None of these cases were confirmed by Buruli Ulcer PCR.

Skin lesions: 54, tested with RDT 45, RDT positive 1, DPP =0, cases treated 15

Other: Scabies 11, mycetoma 1 and pre-sampled, fungal infections 34, erysipelas 6, eczema 6, panaris 1, cyst 1, diabetic wound, vitiligo 2.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leprosy
- Mycetoma
- Yaws

Morogoro Leprosy Elimination Program (MoLEP): Accelerating leprosy transmission interruption in Tanzania

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Background

Zero leprosy is the goal of the global efforts to control this neglected tropical disease. Tanzania's updated leprosy strategy emphasizes early detection, contact tracing, post-exposure prophylaxis (PEP) with single-dose rifampicin (SDR), and integration. However, the feasibility of accelerating Mycobacterium leprae transmission interruption in high-burden areas with this strategy has yet to be demonstrated.

Process

The Morogoro Leprosy Elimination Program (MoLEP) was launched in 2024. The region, with a population of 3 million people, shows the highest transmission rates in the country. A collaborative co-creation process involving stakeholders at all levels guided protocol development, aligning global best practices and local needs. A robust governance structure was created to coordinate and sustain efforts over time.

Protocol

Key interventions include training of health professionals and community health workers, routine contact tracing with SDR administration expanded from household contacts to additional categories, and intensified efforts including retrospective contact tracing, a focus on hotspots, and special attention to communities with child patients. The need for drug supply chain strengthening is also being addressed. Strong governance structures and annual protocol revision and planning based on high-quality evidence ensure adaptability and sustainable implementation.

Relevance

MoLEP will provide insight into the feasibility of leprosy elimination activities through health system strengthening. The co-creation process fostered shared ownership, while robust monitoring frameworks ensure data-driven decision-making. A costing analysis will be conducted to inform scaling of the approach and replication in other high-burden regions. Findings and lessons from MoLEP are thus anticipated to provide guidance for other leprosy endemic regions while advancing global leprosy elimination.

Acknowledgements

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Skin NTD(s)

Leprosy

Geographical distribution of yaws in the CEMAC sub-region, particularly in Cameroon, Congo and Central African Republic (CAR)

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Introduction

Yaws is one of a group of chronic bacterial infections commonly referred to as "endemic treponematosis." It is caused by Treponema pallidum subspecies pertenue.

It is classified among the skin Neglected Tropical Diseases (NTDs) targeted for eradication in the WHO 2021-2030 roadmap.

During the period 1952 – 1964, mass therapeutic campaigns organized by the WHO and UNICEF made it possible to reduce the number of cases by 95%. But due to a weakness of surveillance, the disease resurfaced around the 1970s (1).

Existing data indicate that Yaws is present in several African countries, notably Cameroon, Congo and the CAR, but its extent is still unknown.

The objective of this presentation is to update the mapping of this disease in the three CEMAC countries which are also considered among the most endemic in Africa.

Material and method

Our approach has been structured around the implementation of integrated disease surveillance.

The data was collected in the period from 2020 to 2023.

We used new diagnostic methods at historic sites to confirm their endemicity, particularly in CAR, Congo and Cameroon where 32 districts were also put under surveillance

Results

- 40 endemics districts in Cameroon
- 5 districts in Congo
- 3 districts in Central African Republic

Conclusion

The geographic coverage of NTD surveillance and yaws still remains insufficient. The experience of Cameroon shows that an extension of surveillance makes it possible to identify new endemic districts that are still ignored.

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OCEAC and WHO

Skin NTD(s)

Yaws

Tracing leprosy trends in Pakistan: A two-decade analysis of geographic and demographic shifts (2001–2023)

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Background

Leprosy, or Hansen's Disease, is caused by Mycobacterium leprae and can lead to severe disabilities, social marginalisation and reduced quality of life. The disease remains a public health challenge in many low- and middle-income countries, including Pakistan. This study aimed to examine trends in leprosy cases diagnosed in Pakistan from 2001 to 2023, focusing on key epidemiological indicators such as sex, leprosy subtype, age, child cases, disability proportion and geographic distribution to reveal insights into the current situation and to inform strategies for improving case detection.

Methods

This retrospective study analysed data from the Marie Adelaide Leprosy Centre (MALC), which operates 205 treatment centres across Pakistan. Leprosy cases diagnosed between 2001 and 2023 were examined for sociodemographic and clinical characteristics, including sex, age, and leprosy subtype. Descriptive statistics were presented for leprosy cases diagnosed during this period, and maps were created to illustrate geographic trends in leprosy incidence over four five-year intervals between 2003 and 2022. The number of leprosy cases per 100,000 population were calculated at the district level using 2017 Pakistan Bureau of Statistics data.

Results

A total of 10,337 new leprosy cases were recorded with a median age of 36 years. A majority of cases (64.4%) were MB leprosy and mostly male, although the proportion of females is virtually 50% in recent years. The highest incidence was observed in Karachi, Sindh, and northern regions, including Khyber Pakhtunkhwa and Gilgit-Baltistan. The overall incidence of new cases declined steadily from 971 in 2001 to 236 in 2023, with notable reductions in child cases and grade 2 disability proportions over time. However, a substantial increase in MB cases was observed in 2023.

Conclusions

These findings indicate significant progress in leprosy control in Pakistan, but also highlight persistent transmission in specific regions. Targeted interventions in high-burden areas, along with sustained community-based case-finding and early diagnosis efforts, are essential for continued progress toward leprosy elimination in Pakistan.

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Skin NTD(s)

Leprosy

Post-kala-azar dermal leishmaniasis (PKDL)

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We report novel findings and recommendations from the 7th PKDL Consortium meeting (28-29 November 2024, Kolkata, India).

Epidemiology

The number of PKDL cases have decreased in India, fluctuating in Nepal and even rising in Bangladesh. The PKDL rate after VL in ISC is around 10% vs 26% in Sudan. Xenodiagnosis confirmed that patients with VL, PKDL and HIV-VL co-infection as also dogs can infect sand flies.

Risk factors

Risk factors for PKDL include drug treatment for VL, intercurrent infections, environmental exposure, as well as parasite and vector related factors, and may differ between the ISC and Eastern Africa (EA).

Immunology

The balance of IL-10 and IFN-γ as found in the skin may also be demonstrated in the peripheral blood, making the latter a surrogate marker. A check point target (LAG-3) has been identified. The centrin gene deficient L. donovani (LdCen -/-) vaccine is being developed in parallel with a new Leishmanin Skin Test (LST) antigen serving as a marker for protection.

Parasitology

Potential hybridization in the sand fly vector between L. donovani, L. major and L. tropica may account for the occurrence of L. donovani viscerotropic vs. dermatotropic strains.

Clinical

While differential diagnosis of PKDL is extensive, co-infection with leprosy has now been demonstrated, re-emphasizing the need for an integrated approach to skin NTDs.

Diagnosis

qPCR can be used for diagnosis and test of cure; Recombinase Polymerase Amplification (qRPA) may be performed within a field-laboratory suitcase.

Treatment

Recent randomised trials using AmBisome (± miltefosine), miltefosine (± paromomycin) will be considered in the new WHO Guidelines. New compounds include LXE408, and CpG-D35 as an immune modifier. Novel monitoring biomarkers may include 3-D scanning and AI technology.

Recommendations

1. ISC: can we continue the same strategy in the post-elimination phase?
2. Research priorities for PKDL

   To better understand

   a. differences between PKDL in ISC vs. EA
   b. optimizing VL treatment to reduce PKDL rate
      i. multidrug approach ±
      ii. immune modifier drug and/or vaccine
   c. role of intercurrent infections as a risk factor
   d. checkpoint target inhibition as treatment target
   e. evidence for an animal reservoir

   To translate

   a. strategies to context-adapted interventions

   To develop

   a. POC tools for diagnosis and biomarkers
   b. concomitant monitoring for other hypopigmentary skin diseases
   c. better (oral) treatment for PKDL

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All contributors to the 7th PKDL Consortium meeting

Skin NTD(s)

Post-kala-azar dermal leishmaniasis

Integration at country level

Integrated screening and management of neglected tropical diseases with cutaneous manifestations: results of a pilot study conducted in the health districts of Gagnoa I and II in Côte d'Ivoire

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Since 1997, the World Health Organization has recommended integrated control strategies for the fight against Neglected Tropical Diseases (NTD) with cutaneous manifestations. We report the implementation of an integrated screening and management campaign of NTD with cutaneous manifestations in the health districts of Gagnoa 1 and II in Côte d'Ivoire.

This intervention oriented operational research was conducted from 2022 to 2024. All index cases of leprosy detected over the last 10 years in these two districts were listed and their communities selected. Health workers in the health areas where the index cases live were trained in the integrated approach to combat Buruli ulcer, leprosy, scabies, yaws and other common skin diseases. In each selected village, a community health education committee was set up and trained for the social mobilization. Theses committees conducted a population census in all the communities of the index cases. A team composed of leprosy specialist nurses was also set up to support integrated screening of skin diseases. Ethical clearance was obtained before the interventions.

A total of 185,749 people were registered in the targeted communities. Of the population registered, 173,498 (93.40%) people benefited from a dermatological examination, Among the population examined, at least 4,277 (02.46%) patients were affected by NTDs with cutaneous manifestations, including six patients (0.14%) suffering from Buruli ulcer, 136 (3.18%) cases of yaws, 3,965 (92.70%) cases of scabies and 170 (3.97%) cases of leprosy, including 61 multibacillary cases. 74,130 other skin conditions were also diagnosed. All cases of NTDs with cutaneous manifestations were managed according to WHO standards. The other skin conditions either received treatment or were referred to health facilities for their management. In addition, 5,490 contacts of the 61 cases of multibacillary leprosy cases received single-dose rifampicin for chemoprophylaxis.

These results confirm the feasibility and effectiveness of integrated screening for dermatological diseases as strategies for combating neglected tropical diseases with cutaneous manifestations. Scaling up this strategy will require taking into account integrated training, mapping of co-endemic villages, but also basic knowledge in dermatology to treat common skin conditions that constitute the majority of diagnosed conditions.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Fungal infections (superficial): e.g. tinea capitis
- Leprosy
- Yaws
- Other: Skin conditions

Roadmap towards zero leprosy in Pakistan: 2025–2030

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Leprosy continues to present challenges in achieving its global elimination, particularly in countries with low endemicity like Pakistan. Despite significant progress in Pakistan, marked by a 73% reduction in adult cases and an 80% reduction in child cases since 2001, the persistence of delayed diagnosis, stigma, and disability highlights the need for robust and innovative interventions. This paper details the "Roadmap to Zero Leprosy in Pakistan (2025–2030)," a strategic plan designed to interrupt transmission and eliminate leprosy in Pakistan.

The roadmap emphasizes comprehensive interventions, starting with active case finding to identify undiagnosed cases early, particularly in transmission hotspots. Post-exposure prophylaxis (PEP) with single-dose rifampicin (SDR-PEP) is a cornerstone of the strategy, targeting close contacts of all the new and old leprosy cases from last 10 years. Enhanced mapping using tools like the Leprosy Elimination Monitoring Tool (LEMT) and GIS-based analysis informs geographically tailored approaches, enabling the identification of high-risk areas and optimizing resource allocation.

Integration with other skin-related neglected tropical diseases (NTDs), such as cutaneous leishmaniasis and scabies, is proposed to maximize efficiency and coverage of screening and prevention campaigns. Additionally, the roadmap incorporates training programs for general practitioners and dermatologists to strengthen early detection and referral pathways, particularly in under-resourced and remote areas. Quality assurance mechanisms, including PCR-based diagnostics and sequencing, are prioritized to improve accuracy in detecting multibacillary cases and monitoring transmission dynamics.

Data management enhancements, such as transitioning to the DHIS2 platform, aim to improve monitoring, reporting, and evaluation of program outcomes. This system will support sustained surveillance efforts, ensuring early detection even in low-endemic regions. Moreover, the strategy highlights research-driven innovation and exploring self-screening tools and mobile applications to facilitate case detection in very low-endemic areas. In conclusion, the roadmap provides a multifaceted approach to leprosy elimination, combining early diagnosis, targeted prophylaxis and integration with other health initiatives. These interventions, grounded in WHO's Leprosy Elimination Framework, aim to achieve sustainable outcomes for leprosy elimination in Pakistan.

Acknowledgements

This roadmap was developed in collaboration with many stakeholders, especially the staff of MALC and ALP. It builds on the Evaluation Report of June 2022, and the concept of a “Roadmap to zero leprosy” developed by GPZL. The national authorities in Pakistan have been informed of the proposed activities and policy recommendations for leprosy elimination.

Skin NTD(s)

Leprosy

Active case finding for yaws in three endemic districts in Togo in 2023

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Introduction

Yaws is a contagious and debilitating neglected tropical disease caused by *Treponema pallidum* subspecies *pertenue*. Primarily affecting children under the age of 15, transmission occurs through interpersonal contact. In Togo, prevalence decreased from 11.67% in 1950 to 15 cases in 2010. Between 2012 and 2019, no cases were reported, but 24 cases were confirmed in 2020 and 30 in 2021. The Togo National Neglected Tropical Diseases Programme aims to eliminate yaws by 2030.

I. Methodology

I.1 Type and study period

Between May and June 2023, an active screening campaign was conducted in the endemic districts of Wawa, Mô, and Tône.

I.2 Implementation framework

The campaign targeted 96 schools and 84 villages, starting with villages that reported cases in 2020 and 2021.

I.3 Target population

Screening focused on children aged 5 to 14 years in schools within the selected villages.

I.4 Techniques and tools used

The intervention included social mobilization, awareness-raising, medical consultations, rapid tests, confirmatory tests, PCR testing, and the administration of azithromycin.

I.5 Data analysis

Data were analysed using Excel and Power BI.

II. Results

2.1

A total of 12 228 individuals were examined, including 11 406 children under 15. Seventy cases tested positive with the rapid test, and seven cases were confirmed using the DPP test.

2.2 Number of positive cases by district (rapid test)

70 positive cases were distributed across Wawa, Mô, and Tône districts.

2.3 Distribution of DPP-confirmed cases by district

7 cases were confirmed by DPP, all in the districts of Tône and Mô.

2.4 Distribution of DPP-positive cases by sex and age group

All confirmed cases were children under 15, with a distribution of 3 boys and 4 girls.

2.5 Distribution of DPP-positive cases by type of lesion

Clinical signs included pruritic ulceration, oedema, and dry lesions.

2.6 Geographical distribution of DPP-confirmed cases

Hotspots were identified in the districts of Tône and Mô.

Discussion

The campaign confirmed the presence of yaws in Togo, with a prevalence of 0.17% among children under 15. The DPP confirmation rate compared to the rapid diagnostic test (RDT) was 10%, and the proportion of PCR-positive cases was 14.30%.

Conclusion

Yaws remains endemic in Togo, necessitating intensified research and active surveillance to achieve eradication.

Acknowledgements

WHO, DAHW, Anesvad, Probitas

Skin NTD(s)

Yaws

Involving persons affected in knowledge production to promote person-centred health systems reform to drive participation and inclusion for neglected tropical diseases of the skin

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Skin neglected tropical diseases (NTDs) cause social exclusion, lifelong disfigurement, and psychosocial impacts, partially due to stigma. Liberia is among the first countries to launch an integrated skin NTD programme; and through REDRESS, has developed and evaluated a person-centred programme to enhance participation and inclusion across the care continuum. Formative research highlighted high rates of stigma and violence, including from health workers (HWs) and friends/family, impacting physical and mental health (MH).

Using a participatory action approach, REDRESS actively engaged persons affected and local stakeholders throughout the research cycle, including co-production workshops, hiring persons affected as co-researchers and forming thematic working groups with local representatives. The intervention included establishing community advisory boards (CABs); peer support groups (PSGs); integrating MH and stigma reduction in NTD care pathway and community awareness activities. Participatory approaches were embedded throughout, and mixed method evaluative methods were conducted at baseline, midline and endline. Thematic framework analysis was employed, and regression models assessed changes in the SARI stigma scale as reported in persons affected and HWs surveys, to assess participation and inclusion.

Significant declines in HW stigma (SARI 6.30 to 5.50, p=0.0004) has improved referrals and transformed their relationship with persons affected, with long-term follow-ups and relationship building prioritised, strengthening quality of care. Through community sensitisation, PSGs and CABs, attitudes and behaviours have shifted, with communities and families providing support. Persons affected are accessing holistic community-level care where they are treated with empathy and counselled to seek treatment, improving their condition, and strengthening trust and engagement with the community and health system. Additionally, participation in PSGs, participatory activities and CABs strengthened MH and self-perception. These changes, combined with reduced community stigma, are supporting persons affected to re-join society and contribute to community development and livelihoods, with some becoming advocates. The intervention reduced stigma, supporting participation and inclusion in society and health systems, positively impacting health outcomes and further driving acceptance. The intervention illustrates the value of integrated, person-centred health systems.

Acknowledgements

Thank you to each participant who trusted us to tell their stories and to my REDRESS colleagues.

Skin NTD(s)

- Buruli ulcer
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Podoconiosis
- Yaws

Integrated MDA: Addressing prevention, management and surveillance of multiple NTDs (LF, yaws, scabies, STH etc) in Papua New Guinea in 2023-24

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Background

Papua New Guinea (PNG), third largest island country in the world, has an estimated population of 10.93 million, over 80% of which live in rural villages. Estimated 60% of population require preventive chemotherapy against NTDs. West New Britain Province with a population of 324,000 has large burden of Lymphatic Filariasis, Soil Transmitted Helminths, Yaws, Scabies and Trachoma. Various disease prevalence surveys conducted in year 2013, 2015 and 2021 by NDoH, WHO and PNG IMR in WNBP indicate:

- LF antigen has been recorded in 66% of the surveyed population indicating high transmission rates.
- Scabies was prevalent in 8.5% of the surveyed population.
- Soil Transmitted Helminths are prevalent in more than 40% of surveyed children between 5-14 years of age.
- 12974 cases of clinical Yaws reported from health facilities with high burden of other skin ailments in 2022.
- Trachoma (TF) has been found to be prevalent in 11.4% of children (aged 1-9 years) in 2015.

After receiving interim guidance from WHO for usage of four drugs coadministration (DEC+ Albendazole+ Ivermectin+ Azithromycin), first integrated MDA was implemented in 2023 and 2024 conducting LF Mass Drug Administration (MDA) and Yaws MDA followed by active skin screening for Skin NTDs and providing targeted treatment for scabies.

Objectives

- To eliminate LF as a public health problem in WNBP by conducting the two rounds of MDA campaigns using triple drugs.
- To eliminate Yaws in WNBP by conducting MDA campaigns using Azithromycin.
- Strengthening surveillance through skin screening and case management for LF lymphedema, Yaws, Scabies and Leprosy.

Implementation- MDA 1 was conducted from 27th November-18th December 2023 and MDA 2 was conducted from 11th November- 30th November 2024. The target population was 324,000 people living in three districts.

- The treatment strategy was based on WHO MDA recommendations for LF,Yaws and STH.
- Integrated MDA= LF MDA+ Yaws MDA+ Skin Screening
- The local MDA Teams consisting of 615 Health Staffs and Community Volunteers were formed and trained on MDA and Skin screening.
- The MDA was carried out by ‘booth’ approach followed by house to house activities at village.

Outcome and output-

1. Coverage 63.08% and 77.43% - MDA1 and MDA2. Skin NTD cases 6500 and 25000 in MDA 1 and MDA2.
2. Decrease in Yaws cases reporting by 29.5% and Skin diseases by 40% in annual OPD report since 2022.
3. The integrated MDA saved 40% implementation cost.

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- EISAI
- MDP
- World Health Organization
- Australian Doctors International
- New Britain Palm Oil
- Hargy Palm Oil
- People of West New Britain

Skin NTD(s)

- Ectoparasites: scabies
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Yaws

Combatting the surge of cutaneous nanifestation of NTDs: A collaborative effort for prevention, control, and eradication in Ghana

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- Ghana Health Service (GHS)
- Department of Social Welfare (DSW)
- Awoin Municipal Assembly
- Aowin Traditional Council
- Traditional and Religious leaders
- Awoin Susu Enterprise
- CSOs in Aowin Municipal Assembly
- Right-holders

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Neglected Tropical Diseases (NTDs)1[2] affect over a billion people globally, particularly in impoverished tropical regions. In response, the World Health Organization (WHO) developed the 2021-2030 roadmap to End NTDs, urging countries to intensify efforts through increased funding and integrating NTDs into broader health strategies. The goal is to prevent, control, eliminate, and eradicate NTDs by 2030.

In support of these efforts, RECFAM, in collaboration with the Ghana Health Service (GHS), is implementing a project aimed at the prevention, control, and eradication of selected Skin-NTDs in the Aowin Municipality of the Western North Region, Ghana. The project is funded by the Spanish Foundation ANESVAD. In this area, the prevalence of NTDs has been rising: 96 suspected cases in 2017, 273 in 2018, 372 in 2019, 1,567 in 2022 (276 tested with RDT, 150 confirmed & 386 treated), 521 in 2023 (152 confirmed), and 1,787 suspected cases in 2024 out of which 122 confirmed and 1766 treated according to DHIMS2[3] . The limited availability or lack of RDTs has resulted in fewer tests of suspected cases. The municipality is among several districts declared as Yaws endemic by the National Buruli Ulcer Control and Yaws Eradication Program (NBUCYEP), which recommended universal treatment for the municipality. However, treatment was halted due to an inadequate supply of medication. Additionally, 69 cases of Lymphatic Filariasis (41 LF and 28 Hydrocele) pending validation by GHS, along with the prevalence of Soil-Transmitted Helminthiasis, Onchocerciasis and Buruli Ulcer in the area.

RECFAM is a steadfast advocate for affected individuals, who are often stigmatized with shame associated with the diseases. Contributing factors to the high prevalence in both communities include poverty, superstition beliefs, low awareness/education, political/policy barriers, limited primary healthcare, inconsistent programs, inadequate supplies, and limited access to clean water and sanitation - challenges exacerbated by illegal gold mining. These barriers pose a significant threat to the attainment of WHO's goal on eliminating NTDs by 2030.

[2] NTDs: Buruli ulcer; Chagas disease; dengue and chikungunya; dracunculiasis; echinococcosis; foodborne trematodiases; human African trypanosomiasis; leishmaniasis; leprosy; lymphatic filariasis; mycetoma, chromoblastomycosis and other deep mycoses; noma; onchocerciasis; rabies; scabies and other ectoparasitoses; schistosomiasis; soil-transmitted helminthiases; snakebite envenoming; taeniasis/cysticercosis; trachoma; and yaws.
[3] The National Buruli Ulcer Control and Yaws Eradication Program (NBUCYEP) of GHS

RECFAM has also been working to secure a license for the first community health radio station in Enchi, and in fact, the first of its kind in Ghana, aimed at promoting accurate health information and challenging harmful beliefs. However, this initiative has faced setbacks.

Contributing factors to high prevalence include poverty, stigma, superstition, low education, political barriers, poor healthcare, inconsistent programs, inadequate supplies, and lack of clean water and sanitation. Illegal gold mining exacerbates these challenges, worsening health and environmental conditions.

These challenges hinder the attainment t of WHO's 2030 NTD elimination goal. To overcome them, a coordinated effort is needed from health practitioners, focusing on improving water and sanitation, strengthening healthcare systems, promoting community empowerment, and researching the link between illegal gold mining and NTDs.

Keywords: Neglected Tropical Diseases (NTDs), Yaws, Lymphatic Filariasis, Hydrocele, Skin-NTDs, Eradication, Elimination, WHO 2030 Goals, Healthcare Access, Community Empowerment, Illegal Gold Mining, Public Health, Water and Sanitation, NTD Prevention & Control, RECFAM, Ghana, and Côte d'Ivoire.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws
- Other: scabies, soil-transmitted helminthiases, trachoma and dermatophytie

Leprosy case detection through integrated survey of skin-related geglected tropical diseases in Panvel taluka in Maharashtra state in India - A pilot study

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Introduction

Since 10 of the 21 Neglected Tropical Diseases (NTDs) are listed by the WHO, present at the onset as skin lesions, they are sub-listed as skin-related NTDs including leprosy. To accelerate control/elimination activities to reach the targets by 2030 as per the WHO NTD roadmap (2030), it may be beneficial to integrate case detection and management of these skin-related NTDs within primary health care systems as well cross-cutting areas such as One health, WASH etc.

The Hind Kustha Nivaran Sangh Maharashtra with the support of Kusht Rog Nivaran samiti, Shantivan leprosy center, Acworth Leprosy hospital research society Mumbai along with Alok dermatology Clinic planned integrated active case detection of skin-related NTDs including leprosy in 40 villages within the jurisdiction of the Apta primary health center (PHC) in Panvel taluka, Maharashtra State, India.

Methodology

A team of Leprosy workers and community volunteers were trained by the dermatologist and leprosy field experts to suspect skin NTDs (Lymphatic filariasis/lymphoedema), scabies, and mycetoma along with leprosy. After receiving the task-oriented training, the field teams conducted an integrated house to house survey to detect/suspect skin related NTDs in 40 villages. All the suspected cases were examined by the dermatologist and leprosy/NTD experts in a camp.

Results

A total of 29 228 (90%) out of 32 651 people were screened for leprosy and other skin NTDs and other common skin diseases. 310 people were suspected of skin NTDs including other common skin diseases. Of them, 294 suspected cases were examined by the skin and NTD specialists and confirmed 19 cases of leprosy, 61 scabies,10 psoriasis,77 fungal diseases and 24 cases of eczema. All were treated accordingly. No other skin-related NTDs were detected.

Conclusion

This pilot study showed that the integrated active case detection surveys are feasible and can be organized to detect undetected/hidden new leprosy cases and other skin related NTDs and common skin diseases with the help of trained field workers and dermatologists. Such surveys promote enhanced participation of community members without any fear of social stigma and discrimination for leprosy and other skin -related NTDs and receive appropriate treatment from the dermatologists. Lessons learned from this pilot project would be useful to plan and implement integrated skin related NTDs including leprosy and other skin diseases detection and treatment.

Acknowledgements

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Skin NTD(s)

- Ectoparasites: scabies
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Mycetoma

Participatory planning as a critical pathway to health systems integration of skin NTDs: Learnings from Liberia

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Introduction

In 2023, Liberia's Ministry of Health NTD Program scaled up its health systems based approach to Skin NTDs. Initially, planning was led by national policymakers and technical experts. However, in 2024, the process was adapted to actively include voices from all levels of the health system. This participatory approach enabled identification of challenges, opportunities, and priorities by ensuring stakeholders actively contributed to the evaluation, planning and prioritisation.

Methods

A four-stage participatory process focused on the three core objectives of the integrated Skin NTD program. Participants examined challenges, strategic questions, opportunities and priorities. Stakeholders included international partners, the National NTD Program, various Ministry of Health departments (e.g., Supply Chain, Mental Health, Health Management Information System), national NGOs, county, district and clinic personnel, and community members, including individuals affected by Skin NTDs. The insights gathered were compiled and directly informed the prioritisation, planning, and budgeting for the subsequent year.

Results

- International and National Level (including the NTD Program) highlighted technical and strategic elements of program implementation, emphasising that feedback from county and district levels was critical. The process helped build consensus on key gaps and guided formulation of mitigation strategies.
- County and District Level priorities diverged from those identified at global and national levels, with a strong emphasis on securing essential capital items. Participants valued their active role in evaluation and planning, which fostered a shared sense of responsibility despite limited resources.
- Community Level (Including clinic, community, traditional and faith healers and people affected by NTDs) highlighted the need for enhanced community engagement and reliable access to critical supplies. Their perspectives reinforced the importance of incorporating grassroots feedback into program planning and implementation.

Discussion and Conclusion

The participatory process provided actionable insights that allowed the program to adapt and prioritise. Beyond generating valuable data, this approach built trust, increased stakeholder buy-in, and promoted shared ownership, which are essential for advancing integrated strategies for addressing Skin NTDs and sustainable health systems strengthening.

Acknowledgements

With thanks to everyone who took part in the participatory planning.

Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws

Synergy between travel medicine and tropical medicine: a survey on preventive practices for neglected tropical skin diseases among Moroccan travellers.

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Introduction

Neglected tropical skin diseases, such as leishmaniasis and Buruli ulcer, represent a public health challenge for travellers in endemic areas. These conditions, often overlooked, affect quality of life and require prevention based on awareness and appropriate prophylactic measures.

Objective

This study evaluates the knowledge and preventive practices of Moroccan travellers regarding tropical health risks, including neglected tropical skin diseases (skin NTDs).

Methodology

This is a prospective, descriptive, and analytical study conducted in collaboration with the parasitology unit of the Mohammed V Military Hospital in Rabat (HMIMV) between May 2024 and January 2025. An online questionnaire via Google Forms was distributed to Moroccan travellers, regardless of whether they had visited endemic tropical areas.

Results

The study collected 110 responses, predominantly from females (64.2%) and young adults (64.8% between 18 and 25 years). Only 18.3% of participants had travelled to a tropical zone, and pre-travel consultations with healthcare professionals were limited (7.9%), mostly involving general practitioners (51.1%) and pharmacists (44.4%). 71.4% were unaware of neglected tropical skin diseases, although there was awareness of general infectious risks, particularly those related to vector insects (55.4%). Preventive measures remained insufficient: 48% used repellents, but only 17% used insecticide-treated bed nets. 9.2% reported skin lesions from insect bites, and 5.4% reported possible dermatological symptoms associated with skin NTDs. Although 84.6% carried a medical kit, it mainly contained antipyretics (83.7%), antiseptics (66.3%), and antibiotics (75%), with few treatments for tropical dermatological conditions.

Discussion

The results of our study reveal a concerning knowledge gap regarding neglected tropical skin diseases (skin NTDs) among travellers. This lack of information is alarming, as these diseases affect millions of people and can lead to severe complications.

Conclusion

These results highlight the need to improve health education programmes and to integrate specific recommendations for skin NTDs into travel medicine.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasite: scabies
- Ectoparasite: tungiasis
- Fungal infections (superficial): e.g. tinea capitis
- Cutaneous leishmaniasis
- Post-kala-azar dermal leishmaniasis
- Leprosy

Atopic dermatitis and allergies as neglected non-communicable diseases: current ISAD (International Society of Atopic Dermatitis) - WHO Collaboration

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The 4th Davos Global Allergy Forum focused on atopic dermatitis (AD), the most prevalent skin chronic inflammatory condition in children worldwide and a major gateway to allergies due to its association with a compromised skin barrier. While AD itself is not a leading cause of mortality, its severe and sometimes fatal consequences, particularly in relation to infectious diseases and allergies, underscore its importance as a candidate for inclusion on the WHO Non-Communicable Disease (NCD) list from a preventive health perspective.

A recent ISAD symposium examined AD and allergies through the lens of the One Health framework, emphasizing the significant impact of climate change on human health, including skin diseases. Extreme weather events, rising temperatures, and pollen surges not only exacerbate AD but also result in substantial economic losses, highlighting the urgency for

action. The skin barrier, influenced by the microbiome, chemical barrier, physical barrier, and immune responses, is central to understanding how environmental factors such as climate change and airborne pollutants affect AD. Climate change has specific effects on pollen, including an extended pollen season, increased daily pollen production, heightened allergenicity of pollen, and the emergence of pollen types like ambrosia spreading wider.

Since 2019, ISAD has collaborated with WHO to enhance capacity-building efforts for managing AD in low-resource settings, where the WHO primary focus remains on eradicating neglected tropical diseases (NTDs), including several skin conditions, some of them such as scabies being a differential diagnosis to AD. As part of this initiative, ISAD has developed an AD course tailored for primary care workers, with content specific to black skin. This course is now accessible in English, French, Spanish, and Portuguese on the Open WHO platform, with over 3,000 enrolled participants. Additionally, ISAD has applied for the inclusion of high-quality moisturizers on the WHO Essential Medicines List (EML) for the 2025 revision. This step aims to address the challenge of affordability in low-resource settings, where the cost of a single vial of moisturizer may equate to a month’s salary.

Another key ISAD priority is combating AD-related misinformation on social media, a global health challenge that spans all settings. This effort aligns with the ISAD broader mission to improve awareness, education, and evidence-based care for AD on a global scale.

Skin NTD(s)

Other: NCD skin disease

"We cannot keep it in our palm": A framework for transformative policy-making to accelerate progress towards the 2030 NTD roadmap targets for skin NTDs

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This study investigates the development and translation process of a novel policy to integrate the case management of Neglected Tropical Diseases (NTDs) into Liberia's health system. In alignment with the WHO NTD Roadmap, this policy aimed to address inequitable access and resource fragmentation by embedding NTD care within broader health system structures. By examining Liberia's approach, this study provides a framework for transformative policy-making to accelerate progress toward sustainable and integrated NTD programming and the achievement of the WHO NTD Roadmap targets for 2030.

A qualitative case study method was employed, analysing stakeholder experiences at multiple levels of the health system through several key analytical frameworks, including the Policy Analysis Triangle, the Power Cube, and Network Analysis. Data triangulation led to the development of a conceptual framework highlighting five critical and interdependent domains—people, place, process, politics, and power—which are essential for translating complex health policies into practice. These domains reflect the dynamic interplay between leadership, governance, health systems capacity, and external influences in shaping policy outcomes.

The findings underscore that the integration of disease specific vertical programmes into the broader health system is not a linear process but requires adaptability, political commitment, and cross-sector collaboration. Key enablers of Liberia's integration success included strong national ownership, multi-stakeholder engagement, and the ability to navigate power dynamics multiple stakeholders. However, persistent challenges—such as financing constraints, health workforce capacity, and competing policy priorities—highlight the need for continued investment and strategic alignment to sustain integration efforts.

Liberia's experience offers valuable insights for policymakers seeking to implement integrated approaches that align with global NTD targets for the integration of Skin NTDs, strengthen health systems, and promote equity in access to NTD care. By applying a structured policy framework that acknowledges the complexities of integration, other countries can accelerate progress toward achieving the WHO NTD Roadmap targets while fostering more resilient and inclusive health systems.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws

Buruli ulcer: from disease to cure and community involvement in Cameroon

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Buruli Ulcer, or "Atomb" in many local languages, is a disease that affects populations living around the Nyong River. Although the bacterium – *Mycobacterium ulcerans* – responsible for this disease is known, its transmission remains unclear. A recent study has helped to shed light on the perceptions, representations, and therapeutic pathways of individuals affected by the disease. The research focused on the healing and prevention processes carried out by the local populations. This qualitative study was conducted as part of the One Health Water Africa (OHWA) international field school through observations and interviews with men and women in 10 villages in the Nyong-et-Mfoumou department of Cameroon from 14 to 22 November 2022. Additionally, the data were analysed through simple content analysis and Atlas-ti. At the end of our study, we observed that the populations continue to develop numerous endogenous methods. To treat Buruli ulcer, they use products from their pharmacopoeia and remain divided between local knowledge and conventional medicine. Furthermore, prevention remains weak due to non-adherence to certain cultural practices, a lack of knowledge about the infection, and the precarious living conditions of these populations. This research serves as a warning to the community about the destructive effects of a silent disease.

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Skin NTD(s)

Buruli ulcer

From co-existence to collaboration: The need to move towards an inclusive pluricultural approach to scabies control in Debre Elias, Ethiopia

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Several large scabies outbreaks have occurred in the Amhara region of Ethiopia since 2015, and biomedical interventions focused on mass drug administration are often deployed to contain the disease. However, there is a persistent scabies incidence in different districts of the Amhara region and this research explores how people living in Debre Elias understand and seeks to manage scabies.

We collected data via ethnographic approach. Fieldwork was conducted from February to July 2022 and included 57 semi-structured interviews with people with and at risk of having scabies, local health workers, traditional healers, and government officials. It also included participant and non-participant observations and document analysis.

The health-seeking itineraries of people with scabies have been shaped by the prevailing pluricultural scabies management system. Most people with scabies initiate their treatment by visiting traditional treatment centres and finally end up in the biomedical setting. There are mainly two traditional healing practices available for the treatment of scabies in Debre Elias: holy water and traditional herbal medicine. The cultural competence and affordability of traditional medicine, the perceived cause of scabies, and the lack of access to biomedical health services influenced people to seek treatment from traditional sources. People manage health issues, including scabies, by commonly navigating biomedical and traditional healing systems, but this is done informally, as traditional health practices are seen with disdain by government officials and healthcare workers.

Showing how current biomedical interventions are not sufficient to prevent and mitigate scabies in Debre Elias, we demonstrate that the existence of pluralistic scabies treatments should be seen as an opportunity instead of a liability for scabies control.

Acknowledgements

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Skin NTD(s)

Ectoparasites: scabies

One Health

Podoconiosis, tungiasis, and hunger: a case study of a debilitating syndemic from Uganda

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Introduction: Podoconiosis (non-filarial elephantiasis) and tungiasis (sand flea disease) are neglected tropical diseases (NTDs) that affect the feet and legs, causing pain and itching, walking difficulties, stigmatisation and social exclusion. Both diseases occur in communities where hunger is common. Podoconiosis, tungiasis, and hunger thus constitute a debilitating syndemic triad with each condition interacting with the others.

Objectives: To present a case study of co-morbidity of podoconiosis and tungiasis and to elucidate the interactions between them and hunger, as well as highlight the effects of treatment on this dynamic.

Methods: In 2023, a patient was diagnosed with both diseases in Karamoja, Uganda, and started treatment. At baseline and one year later, interviews were conducted, clinical data obtained, and lower leg morbidity documented by photography.

Results: The 28-year-old patient lived in very poor conditions, sleeping on earthen floor in a small hut with his family. The direct contact with the ground facilitated repeated tungiasis infection. The lymphoedema, hyperkeratosis, and skin nodules on his feet created an ideal environment for sand fleas to penetrate, complicating their removal and promoting superinfections. The podoconiosis-related pain, itching and walking difficulties were worsened by tungiasis. This caused reduced ability to work, resulting in days without food for the whole family. Following daily washing of the feet and application of dimeticone oil (NYDA) for one year, lymphoedema and skin pathology remarkedly regressed. He was free from sand fleas, able to walk and work, and the family had daily meals.

Conclusion: Understanding podoconiosis, tungiasis, and hunger as a syndemic rather than three separate conditions revealed a vicious cycle of poverty and disability that can be mitigated by consistent treatment and prevention.

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Skin NTD(s)

- Ectoparasites: tungiasis
- Podoconiosis

One health approach in the elimination of parasitic neglected tropical diseases (NTDs): Challenges and prospects in the South-South States of Nigeria

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Neglected Tropical Diseases (NTDs) are significant public health concerns developing in countries including Nigeria, with parasitic infections being prominent in the South-South region. The NTDs affect the vulnerable populations and often arise from interactions between humans, animals and the environment. The One Health approach integrates these domains, offering a multidisciplinary strategy to combat NTDs effectively. The study aims to assess the challenges, benefits and prospects of using the One Health approach for the elimination of parasitic NTDs in the South-South States of Nigeria. The focus is on Lymphatic filariasis and Onchocerciasis. A Cross-sectional, mixed-methods, Stratified random sampling across South-South States are employed in the study. The study population include healthcare professionals, veterinarians, environmentalists, academics/researchers, policymakers and community members. After Informed consent from all participants, data were collected using structured questionnaires, focus group discussions and key informant interviews. Quantitative data were analyzed with descriptive and inferential statistics using SPSS. Thematic analysis with NVivo software was used for qualitative data. Preliminary results show that 90 % stakeholders believe that their critical roles in a multi-sectoral approach to managing Hydrocele, Lymphoedema and Onchocerciasis will ultimately improve public health outcomes. However 90% of stakeholders agree that challenges that may hinder the one health approach include, lack of funding, poor intersectoral collaboration, limited awareness and education, socio-cultural beliefs and practices and weak healthcare infrastructure. One health approach in the elimination of NTDs seem promising in the South- South region of Nigeria, but the implementation requires overcoming the challenges through synergy of all stakeholders, increased funding and technological integration of real-time disease surveillance.

Keywords: One Health, Neglected Tropical Parasitic diseases, South-South.

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Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis

Operational research

Awareness-raising and early detection of skin-related NTDs and common skin diseases: A case study of the DEDIKASI-App m-Health in Indonesia

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Background

Neglected tropical diseases (NTDs) like leprosy remain a major public health issue in Indonesia. Delayed detection caused by stigma, limited awareness, and inadequate tools leads to disability and social exclusion. The DEDIKASI-App, a mobile health (mHealth) tool, was developed to raise awareness and promote early detection of skin diseases, including leprosy.

Objective

This study aimed to evaluate the acceptability and effectiveness of the DEDIKASI-App in improving community awareness, self-detection practices, and health-seeking behaviors in Pamekasan District, East Java Province, Indonesia.

Methods

The study followed a four-phase process: app development, questionnaire validation, acceptability testing, and an effectiveness trial. A cluster-randomized controlled trial was conducted with 630 participants from 21 healthcare centers, divided into intervention (n=300) and control (n=330) groups. Pre- and post-intervention awareness scores were collected using a validated questionnaire. Improvements in awareness, skin check practices, and health-seeking behavior were analyzed.

Results

Acceptability testing showed strong user satisfaction: 90% of community members and 86% of healthcare workers intended to use the app. Awareness of leprosy increased from 44.6% to 62.9% (+18.3%), regular skin checks from 31.8% to 50.5% (+18.7%), and health-seeking behavior from 40.2% to 54.2% (+14%). The app facilitated the reporting of cases diagnosed by healthcare workers, including eczema, scabies, and suspected leprosy cases and reactions.

Conclusion

The DEDIKASI-App shows strong potential as an innovative tool for combating skin NTDs in underserved areas. It enhances awareness, promotes early detection, and reduces stigma, offering a scalable public health solution. Future efforts will focus on expanding the app's reach, refining its features, and improving user engagement to maximize its impact.

Keywords: m-Health, skin-NTDs, leprosy, early detection, awareness-raising

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Skin NTD(s)

- Ectoparasites: scabies
- Fungal infections (superficial): e.g. tinea capitis
- Leprosy

Acknowledging the role of love in skin NTDs policy and advocacy: Lessons learnt from an ethnographic study of global Skin-NTDs policymaking and advocacy practices, 2020-2024.

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Background

Recent discourse around global health policy has highlighted the awful side of humanity: the ways policy practices can lead to condemnation of whole segments of populations to half-lives, known as necropolitics. Further, when the public imagine how policy gets made, they tend to think about bureaucracy and bureaucrats - the 'rule of desks,' documents, and faceless people who make them. However, an anthropological study (2020-2024) of global health policymaking and advocacy practices related to three skin NTDs: podoconiosis, mycetoma, scabies, offers more hopeful counter-narratives to these outlooks, by providing insight into the human side of policy and advocacy work.

Methods

Participants were drawn from the global health networks ('webs of individuals and organizations linked by shared concern for a health condition' (Shiffman, 2016) that originally converged around lobbying for these three skin NTDs to gain official recognition by WHO as NTDs. Participants included researchers, NGO staff, politicians, Ministries of Health staff. Methods included in-depth interviews (29 interviews, majorly with people from Sudan, Ethiopia, Rwanda, UK); informal conversations; and ethnographic observation of online and in-person events, such as workshops and seminars, including in-person observation at 4 major events related to policy, advocacy and agenda setting, including WHO's first global meeting on skin NTDs in 2023.

Results

Findings revealed multiple ways that love operates as a central driving force, quietly at work, helping both individuals and groups find ways to keep going when confronted with overwhelming feelings of impossibility of how to fix awful problems. Love here is defined as first-hand or second-hand moments of empathy with people affected by NTDs. Findings demonstrate how such love quietly but significantly enters policy discussions, technical meetings, fieldtrips and key moments in the biographies of the myriad of researchers, technicians, politicians, healthcare and NGO workers actively involved in policymaking and advocacy practices. Findings show the power of these incursions of love to reenergize people, and provide greater understanding of the conditions for how, why and when this happens.

Conclusions

Findings call for a clear need to better acknowledge the existing role of love, and possibilities for making more space for evoking it, as a potentially powerful political force for change within Skin-NTD policymaking and advocacy.

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Skin NTD(s)

- Ectoparasites: scabies
- Mycetoma
- Podoconiosis
- Other: Skin NTDs in genera

Acceptability and feasibility of chemoprophylaxis with single-dose rifampicin in four leprosy-endemic districts in Benin

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Background

Chemoprophylaxis with single-dose rifampicin (SDR) is a preventive measure recommended by the World Health Organization to limit leprosy transmission. This study was carried out to assess the acceptability and feasibility of this measure in Benin.

Methods

This intervention-oriented study, conducted from September 2019 to August 2020 included contacts of people affected by leprosy (PALs). First, we assessed contacts' knowledge of leprosy and perceptions of SDR, and identified reasons for refusal. Interviews were then conducted with PALs contacts who provided informed consent, and their knowledge of leprosy. Their perceptions of chemoprophylaxis with SDR were assessed. In second phase, contacts' awareness of the importance of SDR was raised, and then administered. After the interviews and awareness, all eligible contacts were clinically examined and new leprosy patients were treated with multidrug therapy while consented contacts received the SDR.

Results

9,941 contacts were registered around 197 PALs. After interviewing 394 contacts, the majority (88.8%) had insufficient leprosy knowledge. Of these contacts, 58.6% agreed to receive chemoprophylaxis. They were willing to take the necessary time for treatment (74.5%), travel long distances (83.1%) and take the drug as often as possible (90.0%). Marital status (p=0.008), education level (p=0.000) and knowledge of leprosy (p=0.000) were statistically linked to chemoprophylaxis acceptance. Contacts who lived alone, who weren't educated and had little knowledge of leprosy were respectively 2.18, 2.75 and 43.13 times more likely to refuse chemoprophylaxis.

Of the 9,941 sensitized contacts, 6,798 were clinically examined, and 6,416 received SDR. The average age of contacts who received chemoprophylaxis was 27.3 years (±19.8), with a predominance of women (52.7%). Eight (8) new patients were identified and treated with multidrug therapy.

Conclusion

It is important to increase awareness to improve knowledge of leprosy to contribute to chemoprophylaxis acceptance.

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Skin NTD(s)

Leprosy

Shifting from competition to collaboration: Insights from community-based leprosy care in Sierra Leone

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Leprosy is a chronic infectious disease caused by Mycobacterium leprae, that can lead to severe deformities and disabilities if not diagnosed and treated promptly. In Sierra Leone, a significant proportion of newly diagnosed patients present with grade-2 disabilities, indicating delayed diagnosis and treatment. Timely intervention is critical to prevent deformities, economic hardship and mental health challenges. However, access to healthcare services in Sierra Leone remains limited. The resulting gaps in care are often filled by traditional healers, community health workers, and local communities, who play vital roles in providing care for people affected by leprosy.

Despite their importance, little is known about the collaboration among these stakeholders and its impact on leprosy care. Thus, this study explored their experiences in collaborating and suggestions for improvement of collaboration between traditional healers, community health workers and community members. Eighteen semi-structured interviews have been conducted in May and June 2024 in Sierra Leone.

The findings highlighted that collaboration, or its absence, influences healthcare-seeking behavior. Although traditional healers and community health workers often make up forefront care in communities, collaboration is lacking. Financial motives frequently overshadow cooperation, creating competition between traditional healers and conventional healthcare. This rivalry delays referrals and treatment, even when leprosy is correctly diagnosed. Moreover, limited awareness of treatment boundaries, as well as the lack of financial aid and technical support obstruct effective collaboration and timely referrals. Strengthening collaboration among these first-line healthcare providers is essential to deliver easily accessible and affordable leprosy care in the communities, facilitate diagnosis and referral. Fostering the integration of traditional healers through provision of education, technical and financial support can improve referrals to healthcare facilities. Education and training can increase the availability of essential services, while raising community awareness is equally important to reduce stigmatization and promote timely treatment-seeking behavior.

By shifting from competition to collaboration, strengths of traditional and conventional medicine and the communities can come together to care of those affected by leprosy, to prevent disability and to eliminate leprosy in Sierra Leone.

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Skin NTD(s)

Leprosy

The burden of dermatological diseases is global but unequal across the globe: Comparative analyses of Patient-Reported Impact of Dermatological Diseases (PRIDD) across socio-demographic groups

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Introduction & objectives

The Global Research on the Impact of Dermatological Diseases (GRIDD) project is the first patient-initiated project using a ground-breaking patient-led methodology (1) to develop a unique measure of the impact of dermatological diseases on patients' lives – the Patient-Reported Impact of Dermatological Diseases (PRIDD) tool; and (2) to collect global data on the patients' perspectives of disease burden in multiple skin diseases. Using the newly developed PRIDD questionnaire, this study aimed to compare the burden of dermatological diseases across different socio-demographic groups (sexes, age groups, WHO regions of living, country income levels, ethnicities, and skin types).

Materials & methods

A global online cross-sectional survey was conducted between June 2023 and January 2024. Adults (≥18 years) with a self-reported dermatological condition were recruited through the International Alliance of Dermatology Patient Organizations' membership network. Participants completed the PRIDD questionnaire (16 items assessing physical impact, life responsibilities, psychological impact and social impact; total score ranging from 0 – no impact to 63 – very severe impact) and a socio-demographic questionnaire, in one of the 17 languages in which the survey was available. Data were analyzed descriptively and group comparisons were conducted.

Results

After excluding 327 participants who did not meet the inclusion criteria or had missing data in core variables, the sample was composed of 3811 patients (76.6% female, mean age 48.49±15.74, range 18-98), from 90 different countries and representing more than 100 dermatological conditions (12.6% Lichen sclerosus, 12.4% Psoriasis, 8.2% Hidradenitis suppurativa, 7.5% Vitiligo, 6.9% Eczema, 48.2% other diagnoses). Group comparison analyses showed that higher overall impact of dermatological diseases was reported by women, by participants younger than 65 years, by inhabitants of the Eastern Mediterranean and African regions, by residents in low income countries, by participants with Oceania, Black, Latino or mixed ethnic origins, and by participants with darker skin types (Fitzpatrick skin types V and VI) but also for those with very sensitive skin type I (Table 1). Similar results were observed for the four PRIDD dimensions of physical, life responsibilities, psychological and social impact.

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Skin NTD(s)

All skin diseases

First impact data from the Global Research on the Impact of Dermatological Diseases (GRIDD) study: Diagnoses, clinical features and disease burden

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Introduction & objectives

The Patient-Reported Impact of Dermatological Diseases (PRIDD) is a new and unique measure of the burden of dermatological diseases that was developed using a ground-breaking patient-led methodology. Subsequently, the present study aimed to collect global data on the patients' perspectives of disease burden in multiple skin diseases. In this work, we describe the clinical profiles of participants in the Global Research on the Impact of Dermatological Diseases (GRIDD) study and analyze first impact data comparatively across clinical groups.

Materials & methods

A global cross-sectional survey, available online in 17 different languages, was conducted between June 2023 and January 2024. Adults (≥18 years) with a self-reported dermatological condition were recruited through the International Alliance of Dermatology Patient Organizations' network and via social media. Participants completed the PRIDD questionnaire (16 items assessing physical impact, life responsibilities, psychological impact and social impact; total score ranging from 0 – no impact to 63 – very severe impact). Clinical information was reported by the patients (e.g., Patient Global Assessment [PGA] of severity and impact, body map of areas affected by the disease, comorbidities). Self-reported diagnoses were categorized à posteriori by a specialized dermatologist. Data were analyzed descriptively, and group comparisons were conducted with analysis of variance.

Results

After excluding 327 participants who did not meet the inclusion criteria or had missing data in core variables, the sample was composed of 3811 patients from 90 different countries (76.6% female, mean age 48.49±15.74, range 18-98) and representing 114 different dermatological conditions. The most common self-reported diagnoses were Lichen Sclerosus, Psoriasis, Hidradenitis Suppurativa, Atopic dermatitis, Vitiligo and Eczema, which together accounted for more than 50% of the sample. Comparison analyses across disease categories showed higher overall disease burden among those with dermatological conditions related to wounds, scars or trauma, allergic diseases and geno-dermatosis, and lower disease burden among patients with tumors (Table 1). In addition, higher disease burden was reported by patients with rare diseases, affected in visible or sexually-sensitive body areas, with severe diseases, and with dermatological or other comorbidities.

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Skin NTD(s)

All skin diseases

Exploring the factors affecting quality implementation of mass drug administration for Lymphatic Filariasis in eastern part of Nepal

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Background

Lymphatic Filariasis is a debilitating and a painful neglected tropical disease and is one of the leading causes of permanent disability. In 2017, WHO recommended an alternate strategy to accelerate Lymphatic Filariasis elimination using a triple drug regimen for mass drug administration. Nepal introduced triple drug regimen in eleven out of fifteen endemic districts in 2023 to achieve the target of eliminating Lymphatic Filariasis by 2030 in Nepal. Jhapa is highly endemic district for lymphatic filariasis, and in subsequent rounds of mass drug administration, suboptimal coverage and incompliance to drug has been observed.

Methodology

This study used mixed method approach using a concurrent embedded design with 310 semi structured question interviewed in the community household with six focus group discussion and six in depth interviews among different service providers such as district health officer, public health officer community leaders and female community health volunteer in Jhapa District of Nepal. The findings emphasized cultural, social, geographic, and policy-related elements that influence engagement, providing critical insights for improving program efficacy and community involvement in disease prevention initiatives.

Results

The major findings related to the barriers were inadequate knowledge of the filariasis transmission and drugs among community people; negative perception of mass drug administration; limited readiness from the community due to overfatigue of multiple rounds in the past; extreme weather conditions; limited and delayed budget due to catchup measles campaign and migration of risk population through open borders of India during the campaign. Similarly, enablers were community-based awareness and engagement programs through self-help groups, mother and child groups, school teachers and youth clubs; strong coordination and partnerships with local and international government organization; training and capacity building of the mobilizers; directly observed treatment for effective coverage; use of drug card; measurement of height and vitals during the campaign; digital utilization of mass drug administration consumption to effectively implement the mass drug campaign in Jhapa.

Conclusion

These findings highlighted the importance of focused interventions that address both barriers and facilitators to support long-term control of Lymphatic Filariasis in Jhapa District in different contexts.

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Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Barriers and utilization of morbidity management and disability prevention services for lymphatic filariasis in Jharkhand, India: A mixed-nethods study

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Background

Lymphatic Filariasis (LF) remained a significant public health issue, causing chronic disability and economic burden. India aimed to eliminate LF by 2027, emphasizing Morbidity Management and Disability Prevention (MMDP) services. Deoghar district, Jharkhand, had a high LF burden, necessitating an assessment of MMDP service delivery, utilization, and barriers from provider and community perspectives, along with its impact on patients' quality of life (QoL).

Methods

A mixed-methods study was conducted in Deoghar, Jharkhand. The qualitative component included 15 Focus Group Discussions (FGDs) with healthcare providers and 116 in-depth interviews (IDIs) with LF patients. The quantitative component assessed MMDP awareness and practices among 102 primary healthcare workers and 116 LF patients and evaluated their QoL. Quantitative data were analyzed using JAMOVI, while qualitative data underwent thematic analysis using NVIVO.

Results

The mean age of LF patients was 57.7 ± 13.7 years. Among them, 81.9% were unaware that LF was mosquito-borne, and 72.4% had received annual MDA in the previous year. However, 35.3% had never received an MMDP kit, and 65.5% sought treatment from quacks during acute attacks. Key barriers to government healthcare utilization included distance to facilities, lack of round-the-clock services, and unavailability of medicines. The median expenditure per acute attack was 4.6 USD. Healthcare administrators reported that patients underutilized MMDP clinics despite available resources, while 77.4% of frontline workers who had received training had limited MMDP knowledge. QoL assessment showed a significant negative correlation between years since diagnosis and QoL scores ($r = 0.535$, $p < 0.001$), indicating worsening QoL over time.

Conclusion

The study highlighted gaps in MMDP service utilization due to limited awareness, logistical barriers, and reliance on informal care. Despite training, frontline workers lacked adequate MMDP knowledge. Distance, service unavailability, and medicine shortages deterred care-seeking, impacting QoL. Strengthening awareness, improving service access, and leveraging teleconsultation could enhance MMDP delivery.

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Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Demographic and clinical profile of leprosy patients in Lagos, Nigeria: a 17-year retrospective study

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Background

Leprosy remains a significant neglected tropical disease in Nigeria despite declines in prevalence due to effective multidrug therapy (MDT). This study aimed to evaluate the demographic, clinical, and therapeutic profile of leprosy patients in Lagos, Nigeria, over 17 years.

Methods

A retrospective observational study was conducted on patients diagnosed with leprosy from 2006 and 2023 at a Teaching Hospital (TH) and a Leprosy Treatment Referral Centre (LTRC) in Lagos, Southwest Nigeria. Patient records were reviewed to extract demographic data, clinical presentations, leprosy classification (using WHO and Ridley-Jopling systems) and therapeutic profiles. Descriptive statistics summarized the findings.

Results

At the TH, 96 patients were diagnosed (mean age 37.3 ± 16.6 years; 63.5% male), with 72.9% presenting with multibacillary disease. Notably, 84.4% had skin lesions for over three years. Common clinical features included hypopigmented skin lesions (35.4%), multiple lesions (macules, plaques, and nodules; 32.3%), hypoaesthesia (27.1%), nerve thickening (20.8%), erythematous lesions (17.7%), ulcerations (9.3%), and digital amputations (8.3%). At the LTRC, 354 patients (65% male) were registered, and 98.6% had multibacillary disease. Disability (Grades 1–2) was documented in 20% of patients, and 10% were lost to follow-up.

Conclusion

Despite overall declines in leprosy prevalence, late-stage disease remains prevalent in Lagos and is associated with delayed presentation, insufficient diagnostic ability and weak referral systems. Enhancing leprosy recognition among health workers, expanding diagnostic services, and strengthening referral systems are essential to interrupt transmission, reduce disability and improve leprosy control.

Keywords: Leprosy, Nigeria, Multibacillary.

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Skin NTD(s)

Leprosy

Evaluating a practical person-centred health systems intervention to advance justice and inclusion for persons affected by skin NTDs in Liberia

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For persons affected by skin NTDs, lack of access to effective service provision results in significant physical and psycho-social consequences, complex treatment journeys, and catastrophic socio-economic impacts. Person-centred approaches have been proposed as a key solution to these challenges and Liberia is one of the first countries to develop a national integrated approach. However, evidence on the quality of services, and how to implement at scale to ensure equitable delivery, is limited. Using a person-centred participatory action research approach we: 1) identified effective strategies to detect, refer, treat and support people living with skin NTDs; 2) brought health systems stakeholders and persons affected together to co-design and test innovative health systems interventions that cross-cut all levels of the service delivery pyramid; and 3) conducted a quasi-experimental mixed-methods evaluation of impact guided by the RE-AIM framework. We were able to reach (through training and associated human resource management practices) 3,245 health system actors including persons affected, community health workers, traditional healers, faith healers, and health workers to enhance skills and capabilities in the holistic management (biomedical and psychosocial) of NTDs. Increase the effectiveness of integrated case detection interventions across all endemic skin NTDs; significantly decrease experiences of depression, anxiety and suicidal ideation amongst persons affected by NTDs; and reduce out of pocket expenditure by 30USD (50% of national average). Due to high levels of stakeholder buy-in, facilitated by a Ministry of Health Technical Advisory Board established at programme inception, the intervention(s) have now been adopted within national health policy (Community Health Strategy and NTD Masterplan). Key operating mechanisms such as mid-term reviews and supportive supervision enabled appropriate implementation of the interventions, through local adaptation. An investment case has lobbied funds to ensure ongoing maintenance through evidence-based allocation of donor funding and ongoing collaboration within core-health systems functions. By taking a systems wide approach to reforming service delivery for skin NTDs, that centred community engagement and the inclusion of persons with lived experience, we were able to catalyse and sustain meaningful person-centred improvements in service coverage.

Acknowledgements

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws

Developing principles of inclusion for operational research: A partnership with persons affected by neglected tropical diseases

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Persons affected by NTDs are often the subject of research studies, with limited consideration of their capabilities to be actively involved within the research process. There have been increasing calls to redress this power imbalance, and a significant need to enhance the participation of persons affected throughout all stages of the research process. However, there has been minimal dialogue with persons affected about how they wish to be included in NTD related operational research and the best practices through which to achieve their meaningful inclusion. Following a prioritisation exercise within the WHO Skin NTD working group on operational research, we decided to develop best practice principles for the inclusion of persons affected by NTDs within research. A task force was formed to conduct a global consultation with persons affected and researchers with extensive experience in participatory and operational research practices. To date (February 2025), 19 individual discussions, 2 online workshops and 1 in person workshop have been facilitated with persons affected from across 10 countries to collaboratively develop these principles, with further consultations and dissemination activities planned in 2025. Emerging principles include: 1) Discuss with persons affected the motivations of participation, critically what empowerment may look like to them and how research can engage with their existing networks; 2) Ensure ethical participation that considers unintended consequences, specifically the competing demands many people with lived experience face, how the intensity of prolonged engagement with research may impact the management of chronic conditions; 3) Manage expectations of collaborators, ensuring that persons affected have adequate understanding of research parameters; 4) Establish systems of support to enable persons affected to utilise participation in research to advance their aspirations, for example, further education; and 5) Ensure appropriate and equitable remuneration, including recognition within the team that knowledge from lived experience is not ‘grey knowledge’, has equal weight as academic qualification and should be valued in decision making. To move from tokenistic inclusion of persons affected in research, to a culture where persons affected by NTDs are valued contributors to scientific advancements we will share practical examples to operationalise these principles, soliciting further feedback from persons affected.

Acknowledgements

We would like to acknowledge all members of the WHO Skin NTD Operational Research Working Group who have contributed to this work, particularly persons affected who have given valuable time to shape these principles.

Skin NTD(s)

All skin NTDs

Addressing knowledge gaps, perceptions, and stigmatizing attitude about cutaneous leishmaniasis through community dialogue in Kalu District, Ethiopia

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Background

Cutaneous Leishmaniasis (CL), a skin neglected tropical disease, is a significant public health challenge in Ethiopia. Misconceptions, limited awareness, knowledge gaps, delayed careseeking, and associated stigma hinder effective CL management.

Objective

To assess the effects of community dialogue (CD) interventions on participants' knowledge, perceptions, and stigmatizing attitudes towards CL in Kalu district.

Methods

A convergent parallel mixed-methods design was used. Residents of three CL endemic clusters in Kalu district participated in five weekly moderated CD sessions aimed at raising awareness and improvi understanding of CL. About 85% participants completed both the pre- (n = 128) and post-CD (n = 109) structured questionnaires. In-depth interviews (n = 6) and focus group discussions (n = 10; 6-12 individuals/group) were conducted after the final CD session. Paired t-tests were used to assess changes in knowledge and stigmatizing attitudes, with significance set at $p < 0.05$, and OR with 95% CI were reported. Qualitative data were thematically analyzed.

Results

Female participants constituted 39% before and 38% after CD. The median age was 35 years (range 18-66); 30% were unable to read/write, and 71% were farmers. Knowledge scores significantly increased post-CD (mean difference = 0.20, $p < 0.001$), with good knowledge rising from 54% to 73%. Nearly all participants knew the vernacular name of CL ('kunchir' or 'konchir'), but only 16% had heard of sandflies before CD. Misconceptions about CL's cause decreased: 88% attributed the cause to "germs/parasites" post-CD, compared to 79% to bats pre-CD. Belief changes included reduced self-isolation for prevention or healing (61% to 8%) and abstinence from sex to promote healing (72% to 8%). The belief that CL is a serious health issue (91.9%) and perceived risk of CL (76.5%) remained unchanged post-CD. Participants identified potential infection prevention measures post-CD: bed nets (89%), meshing doors/windows (76.1%), and indoor insecticidal spraying (63.3%). Mean stigmatizing attitudes slightly decreased from 5.63 to 5.44, with no significant correlation to knowledge scores.

Post-CD, all participants agreed CL is preventable, treatable, and requires community engagement. CD increased awareness and understanding, resonated in the community. Participants recognized no need to stigmatize or isolate individuals with CL and promoted timely treatment. Engagement fostered ownership and created

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Skin NTD(s)

Cutaneous leishmaniasis

A clinical and patient-reported outcome of cutaneous leishmaniasis in Ethiopia: A Prospective observational cohort study in two referral hospitals

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Background

Cutaneous leishmaniasis (CL) is a significant public health concern, with an estimated 40,000 new cases occurring annually in Ethiopia. The disease, predominantly caused by Leishmania aethiopica, presents in various clinical forms including localized CL (LCL), mucocutaneous leishmaniasis (MCL), and diffuse CL (DCL). Despite the high disease burden, treatment options remain limited, and there is a lack of high-quality data on treatment outcomes. We aimed to evaluate the effectiveness of standard treatments in Ethiopia to inform future clinical trials.

Methods

We conducted an observational, multi-center cohort study at ALERT Comprehensive Specialized Hospital and Boru Meda General Hospital. Individuals with parasitologically confirmed CL received care determined by the treating physician in accordance with Ethiopian national guidelines. Clinical and patient-reported outcomes were assessed at baseline and at standardized times during follow-up. The clinical outcome measure was complete re-epithelialization or flattening of the index lesion at day 90. Patient reported outcome measures were measured using DLQI, CLIQ, SF36 and EQ-5D-5L.

Results

A total of 674 participants were enrolled between April 2022 and October 2023. Overall, 61% were male and and the median age was 20 years (IQR: 14-35). Nearly half (51%) reported a history of traditional treatment. A small proportion (2%) of individuals were living with HIV. The majority had LCL (58.%) or MCL (39%) with only a small number of cases of DCL (2%). Most (84%) had lesions for 12 months at baseline. Sodium stibogluconate (SSG) 20mg/kg/day intramuscular was the most commonly used systemic therapy, either alone or in combination with local therapy (cryotherapy or intralesional SSG). Overall, 536 (79.5%) completed the primary outcome assessment at day 90. At day 90 the cure rate was 32% for LCL, 22% for MCL and 8% for DCL.

For patients with LCL and MCL skin-related quality of life scores improved by day 90 but similar trends were not seen for DCL. At least one clinical adverse event was reported in 511 (76%) participants and one laboratory adverse event was reported in 46 participants (7%).

Conclusions: This study provides evidence that current treatment strategies based on systemic and/or intralesional SSG have low cure rate treatment outcomes of CL in Ethiopia. There is an urgent need for well-designed randomized controlled trials (RCT) to optimize CL management, particularly for L. aethiopica

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Skin NTD(s)

Cutaneous leishmaniasis

The role of NGOs in mainstreaming services for podoconiosis into healthcare facilities: The case of two NGOs in Ethiopia

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Non-Governmental Organizations (NGOs) have played important roles in supporting progress towards the goals of the WHO Neglected Tropical Diseases (NTDs) Roadmap 2021-30. Many NGOs have shifted from directly delivering NTD services to supporting mainstreaming into existing health systems. However, there is little evidence of the NGOs' influence in mainstreaming NTD services. We employed the Context and Implementation of Complex Intervention (CICI) framework to evaluate an intervention against the NTD podoconiosis, jointly implemented by two NGOs in Ethiopia to reveal factors that influence the effectiveness of such interventions and propose ways of improving mainstreaming programs.

Employing mixed methods, we administered surveys to 369 randomly selected rural residents, including 42 patients and conducted 4 focus group discussions, 31 in-depth interviews and 20 key informant interviews. Focused ethnography at the NGOs' precincts and document analysis supplemented the data collection.

The intervention provided training for health professionals and distributed supplies to patients. The intervention reached 63% of patients who participated in the survey, and 88% of these adhered to treatment activities. However, shortage of overseas funding affected the NGOs' capacity as there is little interest from donors to fund drugless diseases. The intervention only covered few of the affected population and did not engage community organizations. The program activities were not also sustained at healthcare facilities and community level. The NGOs relied too much on individual-level outcomes which overshadowed their efforts to evaluate success in mainstreaming activities.

Successful mainstreaming of NTD programs requires improving local healthcare systems, engaging community assets, and holding governments accountable to act on commitments and own NTD interventions. Achieving these goals demands sufficient resources and advocacy work, meaning that NGOs need to diversify their funding, presenting NTDs as global health phenomena and crosscutting issues; and strengthen collaboration with stakeholders. As there has been a significant change in the global health funding landscape, NGOs shall consider domestic funding. The shift from direct to mainstreaming approaches must be backed by suitable national programs. Evaluating such programmes requires going beyond measuring immediate individual-level outcomes to registering improvements in health systems and community assets.

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Skin NTD(s)

Podoconiosis

Scrutinising delay in leprosy diagnosis in Colombia: perceptions and experiences by leprosy health professionals

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Leprosy is an infectious neglected tropical disease, which can causeirreversible disabilities if not diagnosed in time. Colombia continues to show high rates of leprosy-related disability, mainly due to a delay indiagnosis. Limited knowledge is available that explains this delay,therefore our study aimed to explore the perceptions and experiencesof leprosy health professionals with the delay in leprosy diagnosis inthe Cesar and Valle del Cauca departments, Colombia. Nine semi-structured expert interviews with leprosy health professionals wereconducted in May-June 2023 in Colombia. Thematic analysis wasperformed to analyse the interview results. Our analysis highlighted thatthe main reasons for delay at the health system-level includedaccessibility issues to obtain a diagnosis, lack of expertise by healthstaff, and barriers related to the organisation of the care pathway.Individual – and community-level factors included a lack of leprosyawareness among the general population and leprosy-related stigma.Diagnostic delay consists of a fluid interplay of various factors.Structural changes within the health system, such as organising integralleprosy care centres and highlighting leprosy in the medical curriculum,as well as awareness-related interventions among the generalpopulation, might help reducing diagnostic delays.

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Skin NTD(s)

Leprosy

Barriers to seeking healthcare services and contributing factors to grade 2 disability among women affected by leprosy in Telangana, India – A qualitative study

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Background

Leprosy, a neglected tropical disease, remains a significant global health issue, with India accounting for nearly 60% of cases in 2022. Untreated leprosy can result in irreversible disabilities and lead to social stigma, significantly affecting the lives of patients and their families. This study explores the barriers faced by women with leprosy in accessing healthcare and other factors that contributed to the development of Grade 2 disability in India.

Methods

Qualitative data were gathered through 20 interviews with women affected by leprosy at the Sivananda Rehabilitation Home, a leprosy clinic located in Hyderabad, India. An interview guide was developed to conduct semi-structured interviews, specifically regarding the time between the onset of symptoms, diagnosis, and treatment start. An inductive analysis was then undertaken to identify themes and patterns in the participants' experiences with the disease and treatment, including the time until diagnosis.

Results

Six key themes were identified. The social environment plays a pivotal role in disease progression, with participants often prioritizing societal expectations over their own health, such as being good wives and mothers. Stigmatization led to social isolation, as many women avoided contact outside their families to hide their deformities. Most participants visited several healthcare facilities before receiving a diagnosis, facing financial and emotional burdens. Communication gaps were evident both within healthcare facilities - where companions were sometimes informed before the patient – as well as in their social environments. Finally, individual factors such as lack of knowledge, awareness, and trust in medical advice also contributed to care-seeking delays.

Conclusions

The findings of this study highlight significant gaps in healthcare access for women with leprosy in India. Social stigma, delayed help-seeking behaviors, and communication issues exacerbate disease progression and disability. Addressing these barriers is crucial for effective implementation of policies and programs aimed at reducing the burden of leprosy among women in India.

Acknowledgements

We would like to express our heartfelt gratitude to Sivananda Rehabilitation Home (SRH) in Hyderabad in India for hosting and supporting us throughout the data collection process. Special thanks to Mr. Purushottam for his assistance with translation during the interviews, which was crucial to the success of this study. We are deeply thankful to all the women who participated in this research; their willingness to share their experiences made this study possible.

Skin NTD(s)

Leprosy

Spectrum and asymmetry of podoconiosis-associated skin pathology in the Karamoja Region, Northeast Uganda

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Podoconiosis and tungiasis are frequent around Mount Moroto and Mount Napak, two extinct volcanoes in the Karamoja subregion, Uganda. The area is inhabited by the semi-nomadic Karamojong, people with a Nilotic ethnic background. During a project aimed at mapping the spatial occurrence of podoconiosis, 165 patients with podoconiosis were identified in Iriiri, Nabwal, and Ngoleriet subcounties. Data on socioeconomic status of patients was collected, and mobility impairment was assessed semi-quantitatively. Lower legs and feet were photographed in a standardized manner, and thermography was performed. Patients were examined clinically, and mid-calf and mid-foot circumference were measured. Lymphatic filariasis was excluded by antigen test. A broad spectrum of skin pathology features was observed including i) single hyperkeratotic nodules, ii) mossy and velvet-like arrangement of papules, contrasting with iii) densely packed nodules with a non-keratotic, but shiny surface, iv) marked papillomatosis with hyperkeratotic nodules and plaques, sometime v) combined with fusion of the toes. Thermography revealed a below normal temperature of the skin and subcutaneous tissue in the majority of the patients. In 86.0 % of the patients the skin pathology features differed between the left and the right foot, the right foot being significantly more often affected than the left foot. There was a significant association between age and the degree of asymmetry. The study shows that in this group of podoconiosis patients, there is a broad spectrum of skin pathology features which frequently are asymmetrical. Whether this is related to the genetic background of the patients needs to be investigated.

Skin NTD(s)

Podoconiosis

Factors associated with the management of people affected by disabilities in communities endemic to Skin Neglected Tropical Diseases in Benin and Côte d'Ivoire

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Healthcare systems and social services in developing countries are often ill-equipped to provide comprehensive care for people with disabilities (PWD). As a result, the quality of life for people with disabilities frequently deteriorates. Comprehensive health care includes five key components: access to diagnosis, treatment, rehabilitation, psychosocial support, and prevention with follow-up. This study aimed to document those segments of the disabled population and factors most associated with inadequate care in regions of Benin and Côte d'Ivoire endemic to neglected tropical diseases (NTDs).

An exploratory cross-sectional study of PWD was conducted in 2022 in Benin and Côte d'Ivoire, using a combination of quantitative and qualitative approaches. Sample included 841 PWD, 29 caregivers, and 51 family members. Disability management was evaluated using a scoring system ranging from 0 to 5, classifying management into three categories: good management (score4-5), inadequate management(score1-3), and no management (score0). Quantitative data were analyzed using SPSS version 25.5, with a p-value of <5% considered statistically significant. Open-ended interviews were carried out with a subsample of PWD, family members, and caretakers to provide further insights into what forms of care were and were not being provided.

Among PWD, 98 (11.6%) experienced disability associated with Skin neglected tropical diseases (Skin-NTD). Of the total, 158 (18.8%) received good management, 532 (63.3%) inadequate management, and 151 (18.0%) no management at all. The median age of the sample was 38 years (22; 52), and the male-to-female sex ratio was 1.45. The key factors associated with the quality of disability management (expressed as odds ratios [OR] with 95% confidence intervals [CI] and p-values) were: age 30 to 44 years (OR 0.29 [0.16−0.54], p<0.000), occupation—saleswoman/housewife (OR 0.32 [0.12−0.81], p=0.017), farmer (OR 0.30 [0.16−0.59], p=0.000), other occupations (OR 0.42 [0.18−0.96]), monthly income over 76 euros (OR 0.41 [0.23−0.74], p=0.003), and cause of disability, specifically Skin-NTD (OR 2.15 [1.13−4.09], p=0.000). The interviews highlighted the need for medical interventions, social and economic support.

Comprehensive and sustainable interventions are needed to improve the well-being of people affected by disabilities. These need to be built into public health programs for neglected tropical skin diseases.

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Skin NTD(s)

- Buruli ulcer
- Leprosy

Costs of cutaneous leishmaniasis in Ethiopia: a prospective cohort study in two Ethiopian hospitals

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Background

Cutaneous leishmaniasis (CL) is a neglected tropical skin disease that affects individuals and communities around the world and is a major public health challenge in Ethiopia. Evidence on the cost of CL is needed to inform policies, programmes, and interventions. We estimate and examine the costs of CL to households, health services, and society and quantify catastrophic and impoverishing expenditure due to CL in Ethiopia.

Methods

A prospective cohort study of standard care for parasitologically-confirmed CL cases was conducted from April 2022 to September 2024 at the ALERT hospital in Addis Ababa and Borumeda general hospital in Amhara Region. We collected data on household socioeconomic status, demographics, income, expenditure, productivity losses, and resource use prior to and during the study at baseline and 7 scheduled follow-up visits over 12 months, and assessed provider resource use through clinical record review and key informant interviews. We present the cost per patient to the household and to the health service in Ethiopian Birr (ETB) (with conversion to USD using mean annual exchange rates), assess cost drivers, and explore variation across clinical type of CL, hospital, and other factors. We assess the incidence of catastrophic expenditure, defined as the proportion of households spending >10% of household expenditure on out-of-pocket payments for CL management.

Results

We collected provider resource use data for all enrolled patients (n=674) and household data for 87% (n=585). Preliminary findings indicate that the mean household cost per patient was similar for localized CL (LCL: 13,291ETB, $256) and mucocutaneous CL (MCL: 13,580ETB, $261), but higher for diffuse CL (DCL: 19,558ETB, $377). Productivity losses comprised 54% of household costs, non-medical costs (travel, food, accommodation) 24%, and medical costs 22%. Households incurred catastrophic CL expenditure for 22% of LCL patients, 14% of MCL patients, and 40% of DCL patients. Mean provider costs per patient varied from 13,010ETB ($251) for LCL, to 23,300ETB ($449) for MCL, and 23,928ETB ($461) for DCL; systemic sodium stibogluconate and hospitalisation were the main drivers of provider costs.

Conclusion

The economic cost of CL to households and health services is substantial. Improved access to care in affected communities may improve financial risk protection, equity, and health outcomes, and reduce the societal costs of CL.

Key words: Cutaneous leishmaniasis,

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Skin NTD(s)

Cutaneous leishmaniasis

Scabies and atopic dermatitis: a screening study in a rural setting in three health areas

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Context

Scabies and atopic dermatitis are common and significant skin conditions that are often neglected in developing countries. The disruption of the skin's protective barrier function promotes secondary bacterial infections, which can lead to further complications, potentially fatal, caused by Group A streptococci and Staphylococcus aureus.

Scabies and atopic dermatitis contribute significantly to morbidity and mortality worldwide and are responsible for a wide range of infections, including impetigo, abscesses, and cellulitis, which can lead to severe complications such as sepsis, kidney diseases, and rheumatic heart disease. This study aims to implement a comprehensive skin care plan, including self-management for the treatment of scabies, atopic dermatitis, bacterial infections, and the management of flare-ups.

Methodology

The study, which will primarily target children under 15, will be conducted through an integrated mobile consultation for all cutaneous manifestations of neglected tropical diseases in three health zones of the Abengourou health district in the Centre-East of Côte d'Ivoire, endemic for yaws. The survey will be conducted in a centripetal manner, starting from the most remote villages and moving towards the health centre, examining all enrolled and non-enrolled children from households. Scabies, atopic dermatitis, bacterial infections, and other skin lesions, including cutaneous NTDs such as yaws, Buruli ulcer, leprosy, mycetoma, leishmaniasis, and snakebite poisonings, will also be examined. The study will use the diagnostic criteria for atopic dermatitis based on Hanifin and Rajka's criteria and a microscopy diagnosis for scabies.

Expected Results

The primary outcome will be the prevalence and/or incidence of scabies or atopic dermatitis (eczema) among populations living in rural areas of Côte d'Ivoire.

Secondary outcomes will include the clinical characteristics (phenotype), risk factors, comorbidities, and complications of scabies and atopic dermatitis in rural populations in Côte d'Ivoire, and the epidemiology of skin conditions in the health areas of this district.

Keywords: scabies, atopic detmatitis, epidemiology, neglected tropical diseases, Côte d'Ivoire

Acknowledgements

ISAD

Skin NTD(s)

- Buruli ulcer
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Yaws
- Other: Snakebite poisoning

Social and healthcare seeking experiences of people affected with lymphatic filariasis in Bangladesh

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Background

Neglected tropical diseases (NTDs) such as lymphatic filariasis (LF) are a significant public health concern in lower-income countries such as Bangladesh. Despite elimination of LF in 2023, many remain at risk, especially in the highly endemic northern districts of Bangladesh. The understanding of the complex health and social experiences of the people with LF, is crucial for improving the capacity of the health system but this evidence is scarce in the country. This qualitative study explored the social and health care-seeking experiences of persons affected by LF from northern region, Bangladesh.

Method

Semi-structured face-to-face, in-depth interviews were conducted between January-March, 2024, with people with LF (n = 20) in two highly endemic northern districts- Panchagarh and Thakurgaon. Online key informant interviews were also conducted among stakeholders (n = 8) who have been associated with NTD care in Bangladesh. Recorded interviews were analysed using thematic analysis involving both inductive and deductive techniques.

Result

A total of five major themes emerged from the interviews. In terms of knowledge about the disease, the participants perceived this as a condition presenting with swelling, pain, fever, and caused by eating stale food, being infected by other people, or punishment from God. Female respondents shared their experiences of the negative attitudes from the community, leading to shame and self-stigma. LF was also found to have adverse effect on daily life including mental health and well-being. The respondents commonly sought support from conventional healthcare services such as community clinics and district-level hospitals. Additionally, lack of medication adherence and low satisfaction were common as they perceived the disease as incurable. Lack of knowledge about the healthcare providers, financial challenges, systemic barriers, and physical disability were some of the major obstacles to seeking care. Financial assistance, community awareness, enhancing the accessibility of facilities, and improving the quality of care were deemed beneficial for improving the care pathway for LF-related disabilities.

Conclusion

The findings highlighted the importance of providing an accessible, available, and affordable healthcare infrastructure, particularly in poor communities, to sustain elimination, address long-term disabilities, combined with the need for inclusive well-being-related services for people with LF

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Skin NTD(s)

Lymphatic filariasis: lymphoedema

Retrospective evaluation of the WHO Skin NTD App for diagnosing leprosy

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Background

Leprosy, caused by Mycobacterium leprae, remains a major public health concern, particularly in resource-limited regions where specialized diagnostic expertise is scarce. To address this challenge, the World Health Organization (WHO) developed the Skin Neglected Tropical Diseases (NTD) App, designed to aid non-specialists in diagnosing leprosy. This study retrospectively evaluates the accuracy of the WHO Skin NTD App in diagnosing different types of leprosy compared to standard confirmatory tests.

Methods

A retrospective study was conducted with 25 non-specialist health workers, who assessed 300 confirmed leprosy cases (50 cases per type) using only the WHO Skin NTD App. Each assessment was based on a brief patient history, without additional expert guidance or conventional diagnostic support. The app's diagnostic outcomes were then compared with confirmatory test results to determine sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV).

Results

- The overall sensitivity of the WHO Skin NTD App across all cases was 78%, with an overall specificity of 82%.

- Diagnostic performance by leprosy type:
  - Tuberculoid (TT): Sensitivity 90%, Specificity 88%, PPV 85%, NPV 92%.
  - Borderline Tuberculoid (BT): Sensitivity 85%, Specificity 87%, PPV 83%, NPV 89%.
  - Borderline (BB): Sensitivity 60%, Specificity 85%, PPV 65%, NPV 78%.
  - Borderline Lepromatous (BL): Sensitivity 88%, Specificity 83%, PPV 81%, NPV 89%.
  - Lepromatous (LL): Sensitivity 91%, Specificity 84%, PPV 86%, NPV 90%.

- Leprosy reactions were the most difficult to diagnose:
  - Type 1 Reaction (T1R): Sensitivity 40%, Specificity 78%, PPV 45%, NPV 75%.
  - Type 2 Reaction (T2R): Sensitivity 30%, Specificity 82%, PPV 38%, NPV 73%.
  -
- The app performed best in diagnosing TT and LL cases but had lower accuracy in borderline cases (BB) and leprosy reactions.

Conclusion

The WHO Skin NTD App is a promising tool for leprosy screening, particularly in resource-limited settings, enabling non-specialists to make preliminary diagnoses. While the app demonstrates high accuracy for TT and LL cases, it struggles with borderline cases (BB) and leprosy reactions. Further app refinements and additional field validation including user experience are recommended to improve its diagnostic reliability and usability in clinical practice.

Acknowledgements

Patients and community members

Skin NTD(s)

Leprosy

Centering lived experience within health systems reform: co-produced approaches among people affected by skin Neglected Tropical Diseases in Liberia

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Background

Persons affected by skin Neglected Tropical Diseases (NTDs), are a vulnerable population who often experience stigma and discrimination due to supernatural beliefs about causation. Discrimination often leads to barriers accessing timely, quality health services, as well as limiting participation and inclusion within their community, contributing to worsening physical and mental morbidities. Involving persons affected by skin NTDs in health systems and policy reform is essential, yet there is limited evidence for best practices for equitable co-production. As a representative of persons affected by skin NTDs, together with academic researchers, we present learnings from our co-produced research study (REDRESS) in Liberia which aimed to support development of more person-centred care.

Methods

Within REDRESS, we engaged with persons affected by skin NTDs, and community health workers as co-researchers to co-develop research priorities, shape skills exchange over time to include mixed-methods data collection, analysis, involvement with intervention co-development and dissemination of research findings locally, nationally and internationally. We carried out in-depth interviews with Ministry of Health at county and national levels (17), persons affected (12), paired in-depth interviews (3) and ripple effect mapping with co-researchers (2) to reflect on the value of their participation and the impact of co-production on health systems reform for persons affected.

Results

When underlying power dynamics are considered, with co-produced activities shaped to encourage engagement, these approaches bring value for both the individuals and the wider community and health system. For example, CHW co-researchers grew in confidence and skills through their research role, which they were able to apply in their routine work. Involving persons affected brought stronger advocacy, generating awareness of needs and priorities, with stronger relationships and ability to engage with policy actors, contributing to the establishment of a networks for persons affected by NTDs within Liberia (NEPA NTDs). This brought benefit for both persons affected, as well as health actors who now appreciate their needs.

Conclusion

Using co-produced research approaches promotes inclusion for persons affected within decision-spaces, contributing to greater capacity and advocacy roles by those directly involved as co-researchers, as well as more inclusive health services.

Acknowledgements

With grateful thanks to the co-researchers involved with this study, as well as the persons affected who shared their experiences.

Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws

Enabling structural change through enhanced human resource management practices that promote care and inclusion of persons affected by NTDs

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Mutual trust and respect between the health workforce and persons affected by NTDs is essential to provision of person-centred care. Consequently, good human resource management (HRM) practices enable health workers to be adequately skilled and supported to engage with persons affected who often experience stigma and discrimination. We consider how a co-developed HRM intervention, involving health workers at community, facility and policy levels (as well as persons affected and informal providers), can promote structural change, improving health worker motivation, attitudes and performance resulting in enhanced person-centred care. We implemented a bundle of HRM interventions over a 12-month period (October 2022 – September 2023) to 2537 health workers at facility and community levels in Liberia. Alongside this, we conducted mixed-methods evaluation, involving repeated cross-sectional survey with 425 health workers at baseline (0 months) and endline (12 months) to evaluate motivation and performance. Qualitative methods included: reflective diaries (48), key informant interviews with national and international policymakers (14) and county health workers (12), focus group discussions with health workers at district, facility and community levels (12) and persons affected (3), and in-depth interviews with persons affected (12). Health workers across levels described positive shifts in their attitudes towards persons affected (e.g. reduced stigma and more empathy), as well as increased collaboration with informal providers (faith and traditional healers). These attitude shifts as a result of structural adjustments to the way training, supervision and performance were delivered and monitored increased their understanding of diagnosis and how to respond to the broader needs of persons affected (e.g. mental health support), contributing to increased compassion, holistic quality care, and improved relationships with persons affected. Among formal health workers motivation increased, including pride and satisfaction when patients received care and recovered. Despite these successes, broader systems challenges including 'stock-outs' or delays threatened the increased trust between the health workforce and persons affected. We find a bundle of HRM interventions valuable in enabling health workers to provide person-centred care, improving attitudes and behaviours towards persons affected and enhancing their participation and inclusion within health systems.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws

Clinical profile and quality of life of Buruli ulcer patients at treatment initiation in Nigeria

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Introduction

Little is known about the health needs and quality of life (QoL) of individuals with Buruli ulcer (BU). This study investigated the health needs and QoL of individuals with BU at treatment initiation in Nigeria.

Methods

This was a descriptive cross-sectional survey of PCR laboratory-confirmed BU patients who are part of the health needs Assessment for Buruli Ulcer cohort study (HABU-cohort study). A detailed questionnaire was used to obtain the socio-demographic characteristics and clinical profile of the ulcer. Also, QoL was measured using the Cardiff Wound Impact Schedule (CWIS) and the generic (EQ-5D-3L) QoL tools.

Results

Of the 60 patients enrolled, 40 (66.7%) were adults (median age 23.50 (10.5, 42.0) years), 31 (51.7%) females and 4 (6.7%) of the patients had no formal education. Most of the BU lesions 48 (80%) found in the patients occurred within the last five years and 53 (88.3%) of the patients were presenting with new BU cases. Overall, 41 (68.3%) of the BU lesions were classified as category 3 lesion (>15 cm) and the median size of the BU was 60.1 (8.7, 133.9) cm2. In the CWIS, the physical symptoms and everyday living the mean lowest score 53.2 (13.1); while the well-being domain had the mean highest score of 81.7 (8.0). In the EQ-5D-3L tools, more than half of the patients in each case reported having some problems in their mobility, self-care, usual activities, pain/discomfort and anxiety /depression domain. Overall, the QoL scores of the patients did not differ according to their socio-demographic and clinical characteristics ($p > 0.05$). In addition, we found that BU patients tended to have substantial health care, economic and social needs but less so for environmental needs.

Conclusions

BU substantially affects the physical symptoms and everyday living as well as social life domains of the QoL irrespective of the demographic and clinical characteristics of the patients. This is accompanied by substantial health care, economic and social needs. An integrated and decentralised skin health strategy may be utilized to address these needs and improve QoL of BU patients.

Keywords: Clinical profile, Buruli ulcer patients, quality of life, Nigeria

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Skin NTD(s)

Buruli ulcer

Economic burden of Buruli Ulcer Treatment for Patients and their Households, Nigeria

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Introduction

Although the epidemiology of Buruli ulcer (BU) in Nigeria is well characterized, little is known about the economic needs of patients with BU and their households. This study investigated the patient and household economic burden of BU care including costs of care-seeking and household coping strategies.

Methods

This was a prospective cohort study conducted among patients with PCR-confirmed BU enrolled in the two study sites in two states in Nigeria between May 2021 and January 2022. Enrolled patients were followed up weekly for a month and then monthly wherever they were until the ulcer had healed completely or end of the study (24 months). A standardized questionnaire was used to collect data on the patient profile, their earnings and costs of care.

Results

A total of 60 patients with PCR-confirmed BU were enrolled in the study; 31 (51.7%) were males, and 40 (66.7%) were over 15 years old. Overall, 49 (81.7%) of the patients reported that they had first visited traditional healers for their BU illness followed by community pharmacy/drug shops/grocery 33 (55.0%). The median (IQR) direct pre-diagnosis and post-diagnosis cost per patient was US$253.7 (57.9, 814.5), and US$23.7 (10.8, 40.5), respectively. This was equivalent to 27.1% and 2.1% of the median yearly income of the participants' households, respectively. The overall median direct and indirect costs of BU per patient was US$491.9 (114.1, 2389.8), which corresponded to 44.5% (11.9, 251.34%) of the median annual household income. We found that the total annual costs of BU care was catastrophic to 40 (66.7%) of the patients and their families. The rate of catastrophic costs did not differ among poor and less-poor households.

Conclusions

BU patients and their households receiving free treatment services incur substantial direct and indirect costs of BU care. Therefore, investments into future BU treatment programmes should consider the economic needs of BU affected persons during strategic planning and budgeting process in designing future BU programmes.

Keywords: Buruli ulcer, cost of illness, health economics, illness costs, *Mycobacterium ulcerans*, Nigeria

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Skin NTD(s)

Buruli ulcer

Exploring the knowledge, awareness, and perceptions of endemic community dwellers of Asante Akim District on Buruli ulcer early case detection Program (BU-ECDP) and its impact on their quality of life

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Background

Late reporting of Buruli ulcer disease (BUD) results in significant morbidity and disabilities in affected persons. The Buruli Ulcer Early Case Detection Program (BU-ECDP) was introduced to facilitate early diagnosis and intervention, aiming to reduce disease burden and its related stigma. Despite the program's critical role in mitigating the disease burden, limited evidence exists on community-level awareness, and perceptions of the initiative and its impact on health outcomes and quality of life in endemic communities.

Aim

This study explored the knowledge, awareness, and perception of endemic community dwellers in Ghana on BU-ECDP and its impact on their quality of life.

Methodology

A face-to-face in-depth interview was conducted among participants from three selected endemic communities viz, Ananekrom, Serebuoso and Nhyieso in Asante Akim District of Ghana using a self-designed structured interview guide. Participants were purposively sampled, including community members, healthcare workers, and community leaders. Interviews were recorded, transcribed verbatim, and analyzed thematically using Nvivo version12 to identify patterns and insights into the program's impact. Results were presented using illustrative quotes.

Results

Five major themes and thirteen sub-themes emerged from participants' responses. The major themes were Increased Awareness and Education, Early Detection and Improved Healthcare Outcomes, Empowered community participation and collaboration, Improved Quality of Life and Optimized Healthcare Resource Utilization.

Findings from the study indicate that BU-ECDP has corrected myths about the supernatural cause of BUD, thus, promoting the acceptance of the scientific occurrence and treatment of BUD. Additionally, this has facilitated early disease reporting, detection and prompt intervention, ultimately resulting in significant disability prevention in affected persons. The program's influence extended beyond physical health to include reduction of stigmatization in the community, improved social inclusion, and improved socio-economic impact.

Conclusion

These findings collectively illustrate the comprehensive impact of the program in addressing BUD within the understudied communities, highlighting its value as a sustainable public health intervention. Continued efforts in community engagement, education and program monitoring are essential to sustaining these achievements and ensuring a long-term impact on combating BUD.

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Skin NTD(s)

Buruli ulcer

Shape the future for Skin NTD diagnosis – successes and operational challenges a skin NTD session at the InCORNTD meeting in Kigali, Rwanda, 20-22 January 2025

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Introduction

Skin NTDs, including diseases like leprosy, Buruli ulcer and yaws, disproportionately affect marginalized populations, often leading to stigma, disability, and mental health burden. The Skin NTD session at the InCORNTD meeting in Kigali focused on the latest diagnostic advancements for Skin NTDs within integrated health services and the operational research priorities needed to implement and scale these innovations.

Challenges and opportunities

Skin NTD care challenges include: limited access to dermatological services, insufficient training of healthcare workers and diagnostic tools that lack a user-centred design. Questions remain about validity, costs, effectiveness and adaptability of existing tools, and about the reliability of AI-based solutions. Additionally, choosing between single-plex or multiplex diagnostic tests depends on the epidemiological context and the healthcare system's capacity.

Despite these challenges, innovative diagnostic approaches, such as point-of-care technologies, digital tools and artificial intelligence offer potential to improve health worker knowledge, diagnostic accuracy, increase accessibility and reduce long-term consequences for patients.

Key research questions

To optimize the patient journey toward diagnosis and treatment the following research questions were prioritized:

- How to improve contextualised pre- and in-service dermatology training in existing training programmes for health workers?
- Which tools, methods are most effective in enabling patients to create healthcare demand?
- Which IT decision support tools most effectively improve contextualised diagnosis and management of Skin NTDs?
- What is the optimal way to collect a geographically representative collection of photos and meta-data of skin diseases for AI tool development?
- In which contexts are single- or multiplex tests for Skin NTDs needed and preferred?
- What are the relevant costs and benefits of deploying diagnostic test at various levels of the health system?

Conclusion

Timely, accurate diagnosis is critical to ensure effective treatment, reduce transmission and mitigate long-term impacts. While challenges remain, the session highlighted considerable potential for improving Skin NTD detection through innovative diagnostic approaches. Priority areas include integrating these innovations into healthcare systems, strengthening capacity through intensified training and tailoring solutions to local contexts to maximize their impact.

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Skin NTD(s)

All skin NTDs and other skin diseases

Disability status among persons with onchocerciasis or lymphatic filariasis in hard-to-reach areas of Enugu State, southeast Nigeria: What are the implications for NTD programs?

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Background

Persons affected by onchocerciasis or lymphatic filariasis are prone to disabilities and debilitating health conditions due to the diseases' chronicity accompanied by late detection of the diseases especially in hard-to-reach areas. This study sought to determine the prevalence, pattern and predictors of disability among persons affected by these neglected tropical diseases (NTDs) in Enugu state, southeast Nigeria.

Methodology

A community-based cross-sectional study was done among 376 persons affected by onchocerciasis or lymphatic filariasis in hard-to-reach local government areas (LGAs) of Enugu state, southeast Nigeria. A purposive sampling technique was used to select high-burden and co-endemic hard-to-reach LGAs. Participant recruitment was through consecutive house-to-house sampling, with questionnaires administered to individuals who met the inclusion criteria. Disability status was assessed using the Washington Group Short Set of Questions. The chi-square test and binary logistic regression analysis were used to characterize associations with disability. The level of statistical significance was determined at p-value <0.05.

Finding

The mean age of respondents was 56.6±19.9 years and females were 156 (41.5%). The prevalence of disability was 24.7%. The most prevalent disabilities were visual 75 (20%), mobility 24 (6.4%), then self-care, 11 (3%). The least form was in communication 3 (0.8%). Predictors of disability included being <50 years, (AOR=0.2, 95% CI: 0.1-0.5), having no formal education, (AOR=3.8, 95% CI: 1.7-8.3) and being unemployed, (AOR=3.5, 95%CI: 1.9- 6.6).

Conclusion

Findings reveal a substantial burden of disability affecting 1 in 4 persons affected by Onchocerciasis or Lymphatic Filariasis in hard-to-reach areas of Enugu state, southeast Nigeria. There is a critical need for targeted interventions on morbidity management and disability prevention, and disability-inclusive programs. Specifically, efforts should prioritize older adults, individuals with no formal education and the unemployed in underserved communities to mitigate the socio-economic drivers that exacerbate the effect of these NTDs.

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Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis

Lessons from Lymphedema Self-Care in IDP Camps: Accelerating the Elimination of Lymphatic Filariasis in the Democratic Republic of the Congo

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Introduction/Background

Efforts to manage morbidity and prevent disabilities due to lymphatic filariasis (LF) in the Democratic Republic of Congo (DRC) have faced significant delays. Since 2016, health workers have been trained in case finding and self-care measures during mass drug administration (MDA). However, the second pillar—training patients on self-care and ensuring regular follow-up by community workers—remain underutilized. Expanding this critical component requires clear, evidence-based guidelines to ensure impact. This pilot study aimed to assess the effects of regular follow-up on compliance with self-care practices and subsequent improvements in patients' conditions in internally displaced persons (IDP) camps of Kanyaruchinya in Goma, DRC.

Methods

From June 2023 CBM supports participative interventions targeting displaced persons living with disabilities. Persons with lymphedema were enrolled in a monthly monitored morbidity management and disability prevention (MMDP) service. A mixed method approach combining qualitative and quantitative methods was used. Focus groups and interviews provided additional qualitative insights. Main analysis compares patients by the number of attended follow-up visits to support the thesis of "more follow-up visits, better outcomes"

Results

The study included 40 participants, with a mean age of 51 years and 87.5% females. All respond to at least three of the four major criteria of Podoconisosis definition. Results showed that Attending ≥ 5 follow-up visits is significantly associated with limb being clean and healthy (p-value <0.001), holding of appropriate shoes (p-value <0.001) and elevating the limbs (p-value <0.019). The number of visits is significantly associated with the improvement of the patient state (p= 0.04).

Conclusion

To accelerate the LF elimination agenda, scaling up MMDP services should focus on comprehensive follow-up approaches, especially in vulnerable populations like displaced persons. Regularly assessment of lymphedema self-care practices and improvement criteria give better outcomes, underscoring the need for structured and intensified support to accelerate progress towards LF elimination in the DRC. Lymphedema in this high-altitude volcanic region not endemic to lymphatic filariasis suggests Podoconiosis diagnosis.

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Office for the Coordination of Humanitarian Affairs, Goma, DRC

Skin NTD(s)

- Lymphatic filariasis: lymphoedema
- Podoconiosis

Increasing care-seeking and referrals for skin conditions: Evaluation of a community-based intervention in Ghana

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We developed an intervention to decentralise and strengthen skin health services and facility-led home care in Atwima Mponua, southern Ghana. The intervention aimed to reduce difficulties for people with skin NTDs and other skin conditions experienced in accessing care. We explored the effectiveness of two components of our intervention: complementary community engagement (CE) and community-based referral to encourage greater use of these strengthened services. To better understand the challenges and working practices that facilitated referral, we conducted focus group discussions with community referrers (community-based surveillance volunteers (n = 11) and schoolteachers (n = 8), interviews with healthcare workers who had supported community referrers to deliver CE sessions (n = 17), patients who received skin care (n = 48), and people with skin problems who did not seek care identified during a cross-sectional endline survey (n = 25) from January to October 2024. Preliminary findings indicate that community-based referrers identified people with skin conditions during CE sessions held in markets, schools, and religious institutions; during encounters with affected people at child welfare clinics, house-to-house visits, and schools; and through people seeking referral after CE sessions. Working practices that referrers considered to facilitate referrals included showing pictures to offer provisional diagnoses; calling ahead to facilities to ensure drugs were available; home visits to support referral completion and home care; following up with the facility to understand why patients were turned away or charged for some services; and giving people money or facilitating transportation. Being treated successfully at facilities built trust in community referrers, and testimonies from treated patients facilitated referrals by others. Challenges that hindered referral included convincing people to sign up for or renew their national health insurance card; long travel distances for people seeking care; and engaging migrants who spoke different languages in informal gold mining communities. Positive feedback from intervention staff and patients suggests our intervention filled an important need for skin health services in Atwima Mponua District that could also be useful in other areas of Ghana. Future interventions could consider how to further reduce costs to patients, train referrers in home care, and expand the referrer pool to reach migrant communities.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: scabies
- Leprosy
- Yaws

Financial burden of scabies: A common skin NTD with significant economic impact

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Introduction

Scabies, a prevalent skin-related neglected tropical disease (Skin-NTD), is a parasitic infestation that disproportionately affects low- and middle-income countries. In Nepal, scabies is the most common skin infestation and a frequent cause of dermatological consultations, with an estimated community prevalence of 5%. Treatment requires simultaneous management of affected individuals and their close contacts, significantly increasing the number of treatment courses prescribed. Although topical permethrin is provided free of cost in Nepal, its financial burden remains substantial. This study compares the treatment costs of topical permethrin and oral ivermectin, emphasizing the need for a cost-effective national treatment protocol.

Methods

The annual treatment cost for scabies was estimated based on Nepal's population demographics. A comparative cost analysis was conducted between oral ivermectin and topical permethrin.

Results

With a 5% prevalence in Nepal's 31 million population, the estimated number of scabies patients is 1.55 million. Assuming each patient requires treatment alongside two additional close contacts, the total number of treatments rises to 4.65 million. The cost per patient for two doses of topical permethrin is $2.50, while two doses of oral ivermectin costs approximately $0.60. Projected at the national level, treating all cases with topical permethrin would cost $3.88 million, whereas oral ivermectin would cost only $0.93 million. Including two close contacts per patient, the annual cost rises to $11.63 million for permethrin compared to $2.75 million for ivermectin—resulting in a cost difference of $8.88 million per year.

Conclusion

The substantial financial burden of scabies treatment highlights the urgent need for a cost-effective and practical alternatives. Oral ivermectin offers a cheaper, more convenient treatment option, particularly given the challenges of adherence to topical therapy. Revising national treatment guidelines to incorporate oral ivermectin could significantly reduce healthcare spending while improving patient compliance and treatment outcomes.

Acknowledgements

Rare Skin Disease Nepal
NTD NGO Network Skin Cross Cutting Group

Skin NTD(s)

Ectoparasites: scabies

Collaboration in skin NTDs for cost-effective policy development: Lessons learnt from cutaneous leishmaniasis in Nepal

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Cutaneous leishmaniasis (CL) has emerged as a significant health concern in Nepal, shifting from an imported disease to a locally endemic condition. Until recently, there were no standardized management guidelines for CL, leading to inconsistencies in diagnosis and treatment. This paper highlights how multi-center collaboration, despite limited financial resources, played a crucial role in recognizing CL as a public health issue. Through case documentation, academic partnerships, and governmental engagement, the disease gained national attention. An increasing number of indigenous cases of CL have been diagnosed across the country. The diagnosis was primarily based on clinical and parasitological methods but no species identification. A non-hospital-based academic institute initiated research on Leishmania species identification. Further, dermatologists and clinicians began publishing case reports, drawing further attention. The government, in collaboration with WHO Nepal, took steps to monitor and record cases. Another group conducted study on post-kala-azar dermal leishmaniasis which further emphasized the need for a comprehensive approach to leishmaniasis management. Results showed that CL cases were increasingly reported nationwide, including in the capital, confirming endemic transmission. Despite L. donovani being the primary causative agent, most cases exhibited spontaneous resolution, raising questions about optimal treatment approaches. The data from national registry highlighted the disease burden. The growing case burden, species identification, and treatment inconsistencies prompted the revision of Nepal's national leishmaniasis guidelines. The updated guidelines included a dedicated sections on cutaneous, mucocutaneous, and post-kala-azar dermal leishmaniasis, addressing previous gaps in disease management. Within few years, cutaneous leishmaniasis transformed from a neglected condition to a recognized public health issue. This change was driven by collaborative efforts between clinicians, researchers, and policymakers, despite minimal funding. None of the researchers were funded except one. This experience demonstrates that emerging neglected diseases can gain national and global recognition through strategic, cost-effective collaboration. Similar approaches could be applied to other neglected skin-NTDs, providing a model for effective policy development in resource-limited settings.

Skin NTD(s)

- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Other: mucocutaneous leishmaniasi

Advancing equity in skin NTD control: A gender equity and social inclusion assessment of mass drug administration programs in South Sudan

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Objectives

South Sudan is endemic for two skin related preventive chemotherapy Neglected Tropical Diseases (PCNTDs) - onchocerciasis and lymphatic filariasis. Despite ongoing Mass Drug Administration (MDA) campaigns, challenges such as inadequate health infrastructure, sociocultural barriers, and climate events continue to limit progress toward NTD control and elimination. In response, in 2024 a Gender Equity and Social Inclusion (GESI) assessment was conducted in two counties, Awerial and Kapoeta North, to identify barriers to equitable MDA delivery and support the development of targeted, inclusive, sustainable solutions.

Design

The assessment employed WI-HER's iDARE methodology, integrating community engagement, root cause analyses, and qualitative interviews to explore factors such as gender roles, cultural norms, and access disparities.

Results

Findings reveal persistent barriers, including stigma, mistrust, and limited access among marginalized populations including nomadic pastoralists, women, internally displaced persons, and persons with disabilities.

Conclusions

The study underscores the importance of integrating GESI principles into NTD programming to enhance participation and address inequities. Recommendations include gender-responsive strategies, community-driven engagement, and targeted training for MDA implementers. Addressing these barriers is essential for advancing equitable healthcare access and achieving the global goal of Universal Health Coverage. This study highlights the need for an inclusive approach to sustain progress in the control and elimination of NTDs in South Sudan.

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Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Skin diseases detected through community integrated skin screening by a dermatologist in three Tanzanian districts: A cohort from the PEP4LEP study

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Background

Skin diseases, including neglected tropical diseases (NTDs), are a major cause of disability in most low-income countries, with significant socio-economic impact. The PEP4LEP and PEP4LEP 2.0 research projects combine integrated skin screening with leprosy prevention in Ethiopia, Mozambique, and Tanzania. Preliminary findings, after screening over 20,000 contacts in leprosy-endemic communities, show that nearly half suffer from at least one skin condition. This abstract presents skin disease prevalence data from a PEP4LEP cohort from Lindi, Morogoro, and Mvomero district in Tanzania.

Methodology

A cross-sectional study approach was used. In the community skin health intervention ("skin camps") of the PEP4LEP study, contacts living in twenty houses surrounding that of a leprosy index patient are invited for integrated skin screening and leprosy chemoprophylaxis. We included all Tanzanian community contacts of leprosy patients that consented and were screened by a dermatologist in this cohort from December 2019 to March 2024. Diagnosed individuals received treatment, prescriptions, and/or referrals.

Results

A total of 6,083 contacts were screened by a dermatologist during 45 community events in Tanzania, with a mean age of 27 years; 2,646 (43.5%) were females. Of all contacts, 2,527 (41.5%) had skin diseases. About 20% of the contacts had two dermatological conditions and 2% received three diagnoses. Over 57 different skin conditions were detected. Most common categories were fungal infections (incl. tinea capitis) (~60%) and eczema (~15%). Skin NTDs were found in ~12%, including scabies (~10%), new leprosy cases (~1%), and onchocerciasis (~1%).

Conclusion

An extremely high (>50%) number of people had a skin condition; ~12% having an NTD. Regular outreach and preventive care can provide specialized treatment where dermatological expertise is scarce, resulting in earlier diagnosis and treatment, benefiting public health.

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Skin NTD(s)

- Ectoparasites: scabies
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Podoconiosis

Access challenges for leprosy-affected people in East Africa

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Access Challenges

- Geographical barriers: Many affected individuals live in remote, hard-to-reach areas with limited transportation options.
- Lack of awareness: Limited knowledge about leprosy leads to delayed diagnosis and treatment.
- Stigma and discrimination: Fear of social exclusion prevents many from seeking medical help.
- Economic barriers: Poverty and lack of access to affordable healthcare services.
- Health system challenges: Inadequate training of healthcare workers, lack of diagnostic facilities.

Solutions

- Early detection and treatment: Improve access to diagnostic services, especially in rural areas.
- Awareness campaigns: Educate the public about the signs and symptoms of leprosy to reduce delay in seeking help.
- Stigma reduction: Implement programs to combat stigma and discrimination.
- Strengthen healthcare systems: Provide training for healthcare workers, ensure availability of treatment.
- Collaboration: Partner with local communities, NGOs, and governments to reach affected populations.

Conclusion

- Leprosy is a solvable problem, but addressing the access challenges is crucial.
- A multidimensional approach is needed to ensure that all affected individuals have access to the care they need.

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Skin NTDs

Leprosy

Decentralized diagnosis and treatment of localized cutaneous leishmaniasis: Effectiveness and acceptability of carbon dioxide-based cryotherapy in South Wollo, Northeast Ethiopia

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Cutaneous leishmaniasis (CL) is a major public health problem in Ethiopia but treatment options for CL are limited and primarily available in hospitals. We evaluated whether treatment for CL could be decentralized to primary health centers (PHC) using carbon dioxide (CO2)--based cryotherapy.

We developed a training program for clinicians and laboratory professionals based at PHCs in South Wollo, Ethiopia. The training combined theoretical and practical aspects of the diagnosis and management of CL using CO2-based cryotherapy.

We then implemented a decentralized service for CL. Individuals with lesions in keeping with CL were assessed by PHC staff who performed a slit skin smear (SSS). Individuals with amastigotes on SSS were eligible for CO2 cryotherapy if they had fewer than four lesions, no lesion >4cm, did not have mucosal involvement, and were aged at least 12 years.

CO2 cryotherapy was administered every two weeks at the PHC

To evaluate the accuracy of diagnosis all SSS were re-read by an expert parasitologist unaware of the initial assessment. To evaluate the outcomes of cryotherapy all individuals were assessed at Day 90. We used a global physician assessment of the lesion to classify individuals as cured or not cured using clinical parameters of reduction in size, flattening, re-epithelialization, and resolution of erythema.

159 individuals were assessed and 122 had a positive SSS at the facility. Compared to an expert parasitologist, the evaluation of the SSS at the PHC was 95% sensitive and 98% specific for identifying amastigotes.

85 individuals were eligible for CO2 cryotherapy. 50% were male and the median age was 21 (12-30). At enrolment, most people had a single localized lesion with a median diameter of 20 ± (10, 27.04) cm ± 0.75cm (Median ± IQR). Nearly all lesions were on the face (n = 74, 87%). Most individuals had CO2 cryotherapy administered at 4-6 visits. Seventy-six individuals were assessed at day 90 of whom 67 (90%) were cured.

We demonstrate PHC delivered CO2 cryotherapy for CL is associated with a high cure rate. Our data suggest that controlled trials with possible scale-up of decentralized CO2 cryotherapy to improve access to treatment for individuals with CL are warranted.

Acknowledgements

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Skin NTD(s)

Cutaneous leishmaniasis

Health needs assessment for Buruli ulcers (HABU): A retrospective uncontrolled cohort study

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Introduction

Buruli Ulcer (BU) is a neglected bacterial skin disease caused by Mycobacterium ulcerans, related to tuberculosis and leprosy. Large lesions can cause long-term functional impairments and reduced social participation. Understanding BU care needs is essential for optimizing treatment, improving patient outcomes, and ensuring availability of relevant medical records for quality care assessment. This study retrospectively examines previously-treated BU patients within Nigeria's National BU Control Programme. It aims to: (1) assess long-term outcomes in post-surgical BU patients with complications, and (2) identify barriers and facilitators to BU care.

Methods

This mixed-methods study was nested within a retrospective cohort of BU patients treated between December 2000 and January 2015 in two BU referral hospitals in Southern Nigeria.

A total of 50 patients (25 per facility) and 8 HCWs (4 per facility) were interviewed. Data collection included hospital record reviews for surgical history and complications, patient questionnaires, and interviews with affected individuals and HCWs.

Results

All cases were classified as category III BU, indicating severe and extensive ulcers. Large ulcers were more common among males (40% in children, 50% in adults), while scarring affected 37% of cases. Contractures were more frequent in females (55%) than males (10%), with adult women most affected (59%). Surgical amputations occurred in 7% of males and 14% of females, exclusively in adults. Joint involvement led to movement limitations in 47% of males and 59% of females, with a higher prevalence in adults (55% of males, 71% of females).

Limited knowledge about BU was a major barrier to care, with many believing the disease had supernatural origins, leading them to seek care with traditional healers instead of medical treatment. Inadequate programmatic funding, primarily donor-dependent, further hindered service availability. Facilitators of care included competent healthcare workers, improved community awareness, and active case identification. Sustained funding and community sensitization are essential to improving BU care and reducing complications.

Conclusion

Sustained funding and community sensitization are essential to improving BU care and reducing complications.

Acknowledgements

Dr Charles Nwafor, Prof. Frances Griffiths, Dr Joseph Chukwu

Skin NTD(s)

Buruli ulcer

Understanding reasons for delay in diagnosis of leprosy in Pakistan: A qualitative study

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Background

Recent epidemiological data shows significant rates of grade 2 disability at point-of-diagnosis among new leprosy cases in Pakistan. This indicates a feature of extensive diagnostic delay; the disability burden appears unmoving and disproportionate to the falling leprosy incidence rates. Therefore, this study was required to understand reasons for delay in diagnosis and treatment of leprosy.

Methods

A qualitative design of 7 semi-structured interviews was employed to reveal perceptions and understandings of various leprosy stakeholders in Pakistan, termed "leprosy experts". Subsequent inductive analysis was used to identify themes and subthemes concerned with delay in the diagnosis and treatment of leprosy.

Results

Leprosy experts identified three main areas, or domains, to which delay can be attributed: 1. Awareness and beliefs about leprosy, within the general population, 2. Knowledge and clinical experience of leprosy, among healthcare professionals, 3. Leprosy control program infrastructure, allocation of resources and institutional funding. These domains were each viewed as consequent to the larger theme of 'low-endemicity'. Strong correlations between diagnostic delay and socioeconomic status, gender, geography and health system challenges, were also mentioned, and which intersected the three major themes.

Conclusion

Reasons for diagnostic delay are evident in all tiers of the healthcare hierarchy in Pakistan. Thus, an approach at multiple levels is justified, to improve the general awareness of leprosy, education of healthcare professionals, and organizational structuring. Additionally, cultural features relevant to different communities in Pakistan which might be different from other care access frameworks demonstrated a need for further study into the health beliefs of Pakistani patients in a wide range of communities.

Acknowledgements

Thanks are given to Marie Adelaide Leprosy Centre for their facilitation of this study and to the participants for their time.

Skin NTD(s)

Leprosy

Psychological aspects

What we want the world to know: the skin NTDs research questions that matter most to people affected by leprosy in India

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Background

At its most fundamental, social research means learning about a specific problem in the world in a thorough way and then sharing this knowledge with others. Action research is social research aiming to bring about social change. When carried out by peers on topics that direct affect them and their communities, it should be one of the most democratic things people can do. In practice this is not the case because formal educational systems and current conventions within academia and the research community set up artificial barriers between researchers and researched, and between researchers and non-researchers. This is especially true for people and communities affected by stigmatising skin-NTDs, for example, very little research on leprosy is developed, implemented, analysed, or presented by those affected by leprosy. People affected are rarely given the opportunity to become creators of knowledge on topics that affect them. This has significant implications for the power of research to lead to meaningful sustainable social change and is a direct challenge to the 'Nothing About Us Without Us' ethos that no evidenced-based policy should be decided by anyone without the full and direct participation of members of a group affected by that policy.

Methods

In this Inclusive Social Action Research project, 12 people with lived experience of leprosy in India who were either TLM India staff, or TLM India Leprosy Champions who want to change perceptions around the disease, participated in training on principles of social action research, with the aim of enabling them to conduct their own research on the topics that matter most to them. Peer researchers developed priority research questions on what they wished others knew about living with leprosy (their families, community, TLM, health workers, government, rest of the world) and devised a comparative qualitative research project to best provide thorough answers to them.

Findings

Findings will include presentation of what skin-NTDs research questions should be prioritised, as identified by participants in the Inclusive Social Action Research project in India. Findings will also include discussion of some of the current barriers, both practical and ideological, to peer research being given equal weight alongside more conventional forms of research on Skin-NTDs.

Please note, should hybrid go ahead, this presentation will be jointly presented by members of the Inclusive Social Action Research project.

Acknowledgements

Grateful thanks to all 12 members of the Inclusive Social Action Research project for people affected by leprosy in India. Members are either TLM India staff affected by leprosy or TLM India Champions, persons affected by leprosy who want to change perceptions around the disease.

Skin NTD(s)

Leprosy

Mental health and well-being support for individuals living with skin conditions: A global landscape analysis of patient needs and current resources

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The consequences on mental health and well-being for skin disease patients are often detrimental, impacting the ability to conduct routine daily activities and engage socially. Given the prevalence of dermatological conditions, it is critical that resources are available to address these needs. We conducted a review of dermatology patient advocacy groups and health organizations' websites to determine what types of resources to support mental health and well-being currently exist globally for individuals with skin conditions and identified 26 websites featuring resources such as sections dedicated to providing mental health information, programs on mental health topics and coping strategies, peer support forums, and counselling. Clinical trials and observational studies have demonstrated that many of these tools improve key mental health and well-being-related symptoms. In order for new and existing resources to be effective on a global scale, they should be delivered through methods that are sensitive to a spectrum of mental health-related stigma, and cultural beliefs. In parts of the world where individuals value privacy above openly speaking about one's feelings, or where smartphone adoption is ubiquitous (i.e., Europe, South-East Asia), digital health resources might hold the most potential for uptake. In regions such as Africa, and remote and rural Western Pacific, task-shifting, a process whereby laypeople are trained by health professionals to deliver community-based interventions, may be a promising format given mental health professional shortages. To provide optimal support for the mental health and well-being of those around the world with skin conditions, future efforts should focus on evaluation of the patient benefits offered by existing resources, and their adaptation and expansion to befit other world regions, and align with varied cultural needs and beliefs. This study fosters improved care for the mental health and well-being of those with skin conditions, through the adaptation of existing resources to ensure that they are aligned with the varied needs and cultural diversity of individuals across the world.

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Skin NTD(s)

All skin diseases

Stigma and illness management among podoconiosis patients in rural Ethiopia: An intersectional hermeneutic study

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Background

Podoconiosis, a neglected tropical skin disease causing lower-leg lymphedema, disproportionately affects rural populations in low-income countries and has profound physical and psychosocial consequences. Despite its significant impact, the interplay between stigma and illness management among podoconiosis patients remains underexplored. This study examines the lived experiences of stigma and illness management pathways among patients in rural Ethiopia, highlighting the complex social factors that shape these processes.

Methods

Using an intersectional-hermeneutic framework, we conducted in-depth interviews with 21 purposively selected patients across various genders, ages, and disease stages. Guided by Gadamer's interpretive approach, the data were analyzed iteratively.

Results

Three stages of patients' journeys emerged from the findings: (1) overlooking initial symptoms; (2) disfigurement, disease rebranding, stigma, and active resistance; and (3) despair and acceptance. These stages illustrate the dynamic and evolving nature of stigma and illness management, as patients employ various coping strategies depending on their disease progression. The findings further reveal significant disparities in stigma experiences and management strategies shaped by intersecting social determinants of health.

Conclusions

This research contributes to a deeper understanding of the psychosocial dimensions of podoconiosis and offers actionable insights for the design of contextually appropriate public health initiatives. It underscores the urgent need for targeted interventions to address the root causes of stigma and barriers to care. Community education to challenge misconceptions, improve healthcare access, and integrate culturally sensitive support mechanisms for marginalized individuals could prove effective.

Keywords: Podoconiosis, stigma, illness management, intersectional hermeneutics, Ethiopia

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Skin NTD(s)

Podoconiosis

A retrospective appraisal of community engagement in health research: Experience from the skin health Africa research programme in Ethiopia

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Background

Sociocultural dynamics influence health behaviors, making community engagement (CE) essential for successful and sustainable health interventions. The Skin Health Africa Research Programme (SHARP) aimed to improve the experiences of individuals with severe stigmatizing skin diseases and undertook CE with community members and health system actors in Kalu district, Ethiopia.

Methods

A mixed methods study was used to retrospectively assess the experiences, practices, challenges, and outcomes of CE activities employed by SHARP between 2020 and 2024 using the National Institute for Health and Care Research (NIHR) Guiding Principles for CE in Global Health Research as a framework. A CE evaluation questionnaire, in depth interviews (IDI) and focus group discussions (FGD) were conducted between October – December 2024.

Results

Of the 96 respondents, 60% were male and 52.6% were aged between 35-59 years. Host community and health system actors accounted for 62.5% and 30% respectively. SHARP CE activities were deemed relevant to local context and research aim by 81% and 74% respectively. Participants felt engaged early (67.7%) and involved throughout the research process (79%), with qualitative findings emphasizing that while researchers provided technical expertise, community actors co-owned SHARP activities, ensuring trust and enhancing contextual relevance. 84.4% of participants highlighted researchers' understanding of community dynamics, with qualitative findings showing alignment with community structures, roles, traditions, values, and needs, fostering strong support and active contributions from community and health system actors for SHARP. The research team's relationship with community actors was rated as good or very good in openness (81.3%), trust (79.2%), and mutual benefit (75%), with open communication valued for resolving misunderstandings, such as compensation for research participation. Power-sharing practices were rated as good or very good by 80% of participants, emphasizing collaborative decision-making that integrated community lived experiences with researchers' professional knowledge, fostering ownership, collaboration, and contextual relevance.

Over 80% of participants rated the research team's adaptability, monitoring, evaluation, and learning activities as good or above, emphasizing their flexibility, weekly multidisciplinary meetings, and responsiveness to local needs.

Conclusion: Effective CE benefits from aligning research and CE activities with community priorities, fostering early and sustained engagement, integrating local knowledge, and adapting strategies to cultural and logistical contexts, ensuring trust, inclusivity, and long-term impact.

Key words: community engagement, engagement principles, cutaneous leishmaniosis, health intervention, Ethiopia

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https://www.nihr.ac.uk/

Skin NTD(s)

- Cutaneous leishmaniasis
- Leprosy

Depression and anxiety mitigation in chronic wound patients exposed to an innovative wound management model

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Background

Anxiety and depression are significant mental health disorders among patients with severe wounds. These mood disorders can negatively impact wound healing and reduce patients' quality of life, highlighting the need for psychological support strategies to complement the wound management model and thus to enhance the overall patient's well-being outcome in the wound care.

Method

As part of the wound management model, "identify and treat wounds early", based on WHO standard procedures and implemented in the Taabo Health Demographic Surveillance System, a hot spot of skin NTDs in Côte d'Ivoire, we conducted a cross-sectional study to assess the anxiety and depression along with their predictive factors among wound patients who received early treatment for wounds at the community level, compared to those treated at primary (health centre) and secondary (District hospital) health care facilities. A total of 104 patients with wounds were recruited randomly, including 41 in the community, 30 at the health center and 33 at district hospital level. We gathered information on demographic, clinical and epidemiological characteristics as well as anxiety and depression status of patients using the Hospital Anxiety and Depression Scale (HADS).

Findings

Both anxiety and depression mean scores were low in patients treated early in the community (4.07; 5.07) compared to health centre (7.13; 6.30) and district hospital patients (9; 9). Based on the cut-off scores, the prevalence of anxiety (HADS score ≥ 8), and depression (HADS score ≥ 8), was (2.44%; 7.31%) among patients in community, (56%; 36%) at health center and (79.21%; 73.73%) at district hospital level. Anxiety was significantly associated with age (P=.004), wound etiology (P=1.487e-06), wound size (P=2.274e-10), type of care (P=5.825e-15), wound duration (P=3.136e-05) and not with gender (0.283). Similarly, depression was significantly associated with age (P=.039), wound aetiologia (P=.019), wound size (P=1.746e-08), type of care (P=8.823e-07), wound duration (P=2.246e-08) and not with gender (P=1). The best predictive factors of anxiety and depression found were wound duration (P=.000;.014) and wound size (P=.032;.009).

Conclusion

Patient with chronic wounds and long duration (mean 4.9 months) treated at a hospital need special psychological care. The model ‘Identify and treat wound early’ has potential to mitigate mental health disorders in addition to the economic and social costs.

Acknowledgements

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Other: Wounds

Supporting action for change for meaningful improvements to mental health service provision for people affected by Skin NTDs

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Democratic Republic of Congo (Kasai Province) and Liberia have both experienced protracted conflict, rendering high levels of social inequality and relatively weak health systems infrastructure. Experiences of mental ill-health are common, and frequently interact synergistically with NTDs. Despite these challenges, there are significant assets and capabilities within communities and health systems, that, when leveraged effectively, have significant potential to redress inequalities, enhancing inclusion and belonging and moving toward the development of syndemic health systems. Utilising participatory action research, we co-developed and evaluated community level health systems reform(s) within each setting that could strengthen the combined delivery of mental health and NTD services for affected populations. This involved: 1) working with communities to identify challenges through participatory methods (e.g. photovoice and participatory surveys); 2) bringing communities and health systems actors together to co-develop new psychosocial interventions; 3) conducting a multi-disciplinary evaluation of the interventions; and 4) adapting to challenges and planning for sustainability. Co-produced interventions were nuanced. However, commonalities highlighted key values of vulnerable populations, including: community connectedness (e.g. establishing peer-support platforms); the critical importance of non-formal health actors (e.g. training of traditional and faith healers in provision of basic psycho-social support); and the adaptability of policy makers and implementers within dynamic and evolving primary health care systems (e.g. through the creation of new cross-departmental collaboration platforms). Prior to the intervention commencing, we identified relatively high levels of poor mental health outcomes (depression (PHQ-9) and anxiety (GAD-7)). Resulting from our focus on social and structural reform, as opposed to clinical intervention, we found statistically significant improvements in mental health outcomes post intervention. Furthermore, allowing for and promoting local adaptation led to enhanced sustainability of community level interventions with income-generation activities being established to foster ongoing delivery and expansion, including ongoing support and supervision from health systems.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis
- Yaws

Exploring generational differences in the impact of stigma on mental health among people affected by leprosy in rural India: A qualitative study

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Leprosy continues to be highly stigmatised in India, resulting in the continuation of poor mental health outcomes for affected individuals and delays in seeking treatment. Whilst previous research suggests that the effectiveness of intervention strategies to reduce stigma and improve mental health can vary across generations, little is known about how leprosy-related stigma specifically impacts the mental health of different generational groups. This study, therefore, explored these generational differences in rural India. Through qualitative interviews conducted with people from the Sitapur district in Uttar Pradesh, India, several themes related to stigma and its impact on mental health were identified. These themes were categorized under broader umbrellas: conceptions, social interactions and behaviors, clinical management, and mental health manifestations. These findings highlight the complex interplay of societal, informational, and psychological factors influencing stigma and mental health outcomes. Understanding how stigma impacts the mental health of individuals affected by leprosy is a complicated and multifaceted challenge. While the findings of this study suggest that knowledge and beliefs play a significant role in shaping how younger and older generations experience stigma in rural India, the implications for mental health are wide-ranging. This work also has broader implications for other remote settings and diseases within similar contexts, highlighting the need for further research to better understand these dynamics.

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A special thanks is due to the entire GLRA India team for their unwavering support, with particular recognition of Dr. Rajbir Singh, Pratibha Mishra, and Aditya for their outstanding contributions. This study was made possible through the collaborative efforts of GLRA India and DAHW Germany, whose partnership was integral to its successful execution.

Skin NTD(s)

Leprosy

An approach to treating children living with noma and survivors in Burkina Faso and the Niger

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Before being recognised as a neglected tropical disease by WHO, noma attracted the attention of NGOs in the Sahel in the 1990s. In Niger and Burkina Faso, the Sentinelles Foundation opened noma centres in 1990 and 1992 and developed a comprehensive approach to the care of survivors. In 2025, 35 years later, and despite the establishment of national programmes to combat noma in these two countries, the need for care remains. In Niger, last year, 74 cases of acute-phase noma were admitted to our care centre. Since the beginning of our interventions in 1992, only two other years have seen as many admissions.

Due to its debilitating physical and psychological sequelae, noma must be addressed through holistic care for survivors. In Burkina Faso and the Niger, Sentinelles operates care centres from which holistic follow-up of patients takes place, often over several years, initially at the centre and then at home. This approach includes medical care for both treatment and surgery, psychosocial support, and economic assistance. One example is the case of Habsa, who arrived at the age of 3 in the acute phase of noma. She spent 3 months recovering in our centre, then returned to her village where social workers continued to visit regularly until her surgeries were completed. Today, Habsa is 18 years old, trained in dressmaking, and is happy with her face.

Additionally, awareness-raising activities aim to improve prevention and early detection of noma. Health system stakeholders generally have little knowledge of the disease, and training for healthcare workers, community leaders, and traditional practitioners helps to strengthen their skills in this area.

Recently, an exploratory mission to Chad revealed that there is no care solution for survivors in that country. Given the many health priorities in countries affected by noma, it is essential to come together and draw on innovative approaches to provide an adapted and effective response. In this context, the International NoNoma Federation, which has existed for 20 years and brings together a number of civil society stakeholders active in the field of noma, could be an important resource.

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Skin NTD(s)

Noma

Community behaviour and attitudes towards persons with leprosy and other skin NTDs in Ghana

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Background

Leprosy and other neglected tropical diseases (NTDs), such as Buruli ulcer and yaws, remain significant public health challenges, particularly in low-income countries like Ghana (World Health Organization, 2021). In Ghana, the negative attitudes associated with leprosy, for instance, are deeply rooted in gender, cultural and religious misconceptions.

Methods

The study employed a descriptive cross-sectional design with a quantitative approach to assess community knowledge, behavior, and attitudes towards leprosy and other skin Neglected Tropical Diseases (NTDs) in Ghana. This approach was chosen to provide a comprehensive snapshot of perceptions, attitudes and behaviors within different communities regarding skin NTDs. The research was conducted in four selected regions of Ghana: Greater Accra, Eastern, Bono, and Savannah. These regions were chosen to represent a broad spectrum of Ghana's geographic and socio-economic diversity, including urban, peri-urban, and rural contexts.

Findings

Findings showed that, while the association between educational level and perceived causes was not statistically significant ($\chi^2 = 35.312$, $p = 0.083$), trends indicated that individuals with higher education were more likely to attribute skin NTDs to bacterial infections or genetic factors. In contrast, those with no formal education were more inclined to ascribe these diseases to supernatural causes or poor hygiene. Misconceptions among less-educated individuals perpetuate negative attitudes, stigma, delay treatment, and hinder disease control efforts. Additionally, no statistically significant association was found between gender and perceived causes of skin NTDs ($\chi^2 = 8.963$, $p = 0.111$). Both males and females demonstrated similar patterns in attributing causes to bacterial infections, genetic factors, poor hygiene, and supernatural causes. Males showed slightly higher attribution to bacterial infections and genetic factors, potentially reflecting greater exposure to biomedical knowledge. Conversely, females attributed skin NTDs slightly more often to poor hygiene and supernatural causes, which may be linked to caregiving roles and societal expectations around cleanliness. This also fueled negative attitudes towards the infected.

Conclusion

This study sheds light on how people's backgrounds—like their education, where they live, and their gender—shape their understanding and attitudes toward leprosy and other skin Neglected Tropical Diseases (NTDs) in Ghana.

Acknowledgements

This study was funded by ANESVAD Foundation. We acknowledge all study participants and key informants of this study.

Skin NTD(s)

- Buruli ulcer
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: lymphoedema
- Yaws

Leprosy and leishmaniasis in the Lion City: Lessons learned from Singapore

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Singapore experience with leprosy (Hansen's disease) and leishmaniasis as a non-endemic, high-income urbanised environment offers valuable insights. Leprosy was once a significant health burden with 8500 registered cases between 1951-95. Social stigma was severe with isolation in overcrowded camps away from the general population and compulsory segregation enforced by the Lepers' Ordinance of 1897. Management of the disease evolved from isolation, leprosariums to community-based care, and special clinics, reflecting the change in global attitudes, treatment and capabilities. The development of the Trafalgar Home, Singapore Leprosy Relief Association, schools for affected children, rehabilitation and work placement demonstrated the need for holistic and social care of the patients long after the disease was treated.

Conversely, leishmaniasis is an imported disease. The first reported case of kala-azar in a 32-year-old Singaporean was reported only in 1984 with the patient having travelled to Spain the year prior. Despite its close proximity to Malaysia where phlebotomine sandflies have been recorded in limestone caves, Singapore's absence of suitable sandfly vectors, stringent vector control programs, and high standard of living have minimized the risk of leishmaniasis transmission.

Leprosy and leishmaniasis continue to challenge Singapore's medical community to maintain vigilance in diagnosing and treating these two conditions rarely encountered in daily practice. The country's experience highlights the importance of bringing global health awareness to local medical education and practice, as well as the need for robust public health infrastructure and surveillance systems to detect imported cases. As Singapore continues to be a hub for international travel and migrant workers, lessons learned from managing these diseases remain relevant for addressing future challenges in managing neglected tropical diseases, infectious diseases and pandemics.

Skin NTD(s)

- Leishmaniasis: cutaneous
- Leishmaniasis: post-kala-azar dermal
- Leprosy

Stigma experiences, effects, and coping among individuals affected by lymphatic filariasis morbidity management and disability prevention in Oyo State, Nigeria

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Background

Lymphatic Filariasis (LF) is a neglected tropical disease prevalent in Nigeria, leading to chronic disability and social stigma. The Morbidity Management and Disability Prevention (MMDP) program aims to alleviate the physical burden of LF, but the psychosocial impacts, particularly stigma, remain underexplored.

Objective

This study investigated the stigma experiences, its effects, and coping mechanisms among individuals affected by LF participating in MMDP programs in Oyo State, Nigeria.

Methods

A quantitative descriptive design was employed. Questionnaires was administered to 50 LF patients enrolled in MMDP services across selected communities in Oyo State. Descriptive analysis was used to identify patterns related to stigma experiences, its psychological and social effects, and the coping strategies adopted by participants.

Results

Participants reported experiencing various forms of stigma, social exclusion (65.3%), (20.4%) of respondent reported being discriminated, and 87.5% felt internalized stigma. These experiences led to adverse effects such as depression, anxiety, with about two-thirds (65.3%) facing reduced social participation, and challenges in adhering to MMDP protocols. Common coping strategies included seeking social support from church, traditional healer, family and peers, engaging in economic activities to regain social status, and participating in advocacy and education efforts to combat misinformation about LF.

Conclusion

Stigma significantly impacts the mental health and social well-being of individuals affected by LF in Oyo State, hindering effective disease management. Integrating psychosocial support and community education into MMDP programs is crucial to address stigma, improve adherence to treatment, and enhance the quality of life for affected individuals.

Keywords: Lymphatic filariasis, stigma, coping mechanisms, morbidity management, disability rrevention, Nigeria

Acknowledgements

CBM, Oyo state Ministry of Health

Skin NTD(s)

- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Short and long-term effect of a participatory co-creation approach to improving self-esteem and stigma reduction among persons affected by leprosy

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Background

Addressing leprosy-related stigma and low self-esteem among persons affected by leprosy is a global challenge. We assessed the impact of a participatory co-creation approach led by persons affected by leprosy and guided by the research team as facilitators. The co-created contents were designed and piloted in a community-based anti-stigma intervention in north (Taraba) and south (Cross-River) Nigeria.

Methods

Adults living with leprosy were recruited to undertake a 10-day co-creation workshop using the six steps of quality intervention development (6SQuID). Effect of the co-creation intervention on their knowledge, self-esteem and internalized stigma was measured periodically at baseline, 6 and 12-months post-intervention, as well as 2 focus group discussions. Questionnaires used were a knowledge attitude and practice measure, and 2 culturally-validated tools: Rosenberg Self-Esteem Scale (RSES) and Leprosy-adapted Internalized Stigma of Mental Illness Scale (L-ISMI). Repeated measures Analysis of Variance (ANOVA) was used for within-group and between group analyses at statistical significance of $p<0.05$.

Results

Total of 18 of 20 persons affected by leprosy completed all three assessments. Mean age 46.1 ± 14.1years, 10(56.6%) females, 13(72.7%) had multibacillary leprosy and 11(61.1%) with Grade 1 or 2 disability. There was a slight increase in knowledge score post-intervention though not statistically significant: mean (±SD) correct knowledge of leprosy score (range 0-9) was 8.11 ± 1.23 at baseline, 8.44 ± 0.92 at midterm and 8.39 ± 0.70 at end term ($p = 0.39$). However, the Rosenberg self-esteem scale mean (±SD) score (range 0-30) was 17.78 ± 5.96, 20.94 ± 5.15 and 24.39 ± 2.73 ($p <0.001$) at baseline, midterm and end-term respectively. Conversely, the L-ISMI scale mean (±SD) score (range 29-116) was consecutively 68.29 ± 17.14, 59.83 ± 13.85, and 43.56 ± 9.63 ($p <0.001$) at the 3 timepoints respectively. In-depth interview sessions substantiated evidence of empowerment, change in self-perception, with several now advocating and speaking up about leprosy in their communities.

Conclusion

The co-creation intervention positively impacted participants. We recommend meaningful application of participatory approaches as a sustainable lens for involvement of persons affected by leprosy. Its empowering effect shows long-term reduction of internalized stigma and improved self-esteem.

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Skin NTD(s)

Leprosy

Harnessing collaborative approach to strengthen access to person-centred mental healthcare for people with NTDs in Nigeria

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Background

In Nigeria, an estimated 168 million people are at risk of at least one Neglected Tropical Disease (NTD), with many showing a substantial co-morbidity with mental illness. The World Health Organization recommended person-centred and integrated care for mental health of people with NTDs, including offering guidance through the Essential Care Package (ECP) for Mental Health and Stigma reduction in NTDs. This research seeks to develop, pilot, and review a scalable model of integration of mental health care into the national NTD programme and civil society work, and provide evidence for learning how to effectively address the mental and emotional needs of people with NTDs.

Methods

The Ministry of Health and Social Welfare (FMOHSW) included mental health in its recently revised National Masterplan and case management for NTDs for implementation. Afterwards, funding support from Anesvad Foundation through CBM UK was accessed to develop and pilot the intervention in four states in four of the six geopolitical zones in Nigeria, which includes screening and management of mental health conditions at primary healthcare level and strengthening referral pathways, peer support and livelihood intervention, and stigma reducing activities. While the FMOHSW played project governance role, co-creating and co-implementing the research elements with the academia, NGO partners, and people with NTDs.

Results

The consortium recognized the critical role of government in agenda and priority setting in issues of public health interest, aligning activities of development partners with national priorities for health system strengthening; the importance of active stakeholder engagement in policy formulation and implementation; and leveraging existing NTD structures and thematic areas of strength of civil society actors in a collaborative way for efficient use of available resources. In general, adopting integrated approaches and common platforms for care are a logical and efficient solution to the increased risk of NTDs and mental health co-morbidities for affected populations.

Conclusion

A strong collaborative partnership among critical stakeholders is needed for a sustainable and resilient response in the delivery of person-centered mental healthcare for people with NTDs in low and middle-income countries. Lack of funding for NTD case management and poverty threaten the attainment of sustainable health outcomes for people with NTDs.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Effects of essential care package interventions on the mental health status and wellbeing of persons with skin NTDs in Nigeria

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Background

Neglected Tropical Diseases (NTDs) contribute about 1% of the global burden of disease affecting over one billion people globally with attendant devastating human, social, and economic impact. An estimated 40% of persons with NTDs are in the African region and they experience mental illness with associated stigma, social exclusion, and discrimination. In view of this, this study was conducted to assess the effect of person-centered integrated interventions on the mental health status and wellbeing of persons with skin NTDs in the north central, north western, and south eastern parts of Nigeria using the World Health Organization (WHO) Essential Care Package for mental health and stigma reduction in NTDs.

Methods

This is a preliminary report of a quasi-experimental study conducted among 456 individuals (baseline) affected by Buruli ulcer (BU), leprosy, or lymphatic filariasis (LF) using a quantitative method of data collection. We assessed depression, anxiety, and wellbeing among persons affected by these skin NTDs using the PHQ-9, GAD-7, and WHO-5 scales, respectively, before and six months after the deployment of the person-centered integrated interventions like the formation of self-help groups, provision of psychosocial support, livelihood and income generation schemes, and mental health integration using the WHO mhGAP approach. Data analysis was done using IBM SPSS version 25 with a probability value of less than 0.05 considered statistically significant.

Results

The median age of the participants was 45 years (IQR=25-80) with females constituting 173 (37.9%). The median PHQ 9 score improved significantly from 8.0 (4.0 -13.0) at baseline to 3.0 (0.8 – 9.0) after 6 months ($p < 0.001$) with cases of depression decreasing from 328 (71.9%) to 142 (39.7%). Furthermore, the GAD 7 scores for assessment of anxiety also showed improvement from 6.5 (3.0 – 10.0) to 3.0 (0.0 – 8.0) after the intervention ($p < 0.001$) with those adjudged to have anxiety decreasing from 297 (65.1%) at baseline to 148 (41.3%) at the end of the study. The median wellbeing scores also increased from 12.0 (8.0 - 19.0) prior to interventions to 19.0 (12.0 – 21.0) after the intervention ($p < 0.001$).

Conclusion

It is crucial to implement evidence-based context-specific person-centered integrated interventions as a veritable approach for improving the mental health status and wellbeing of persons with skin NTDs in a contemporary African setting such as Nigeria.

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Skin NTD(s)

- Buruli ulcer
- Leprosy
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema

Towards eliminating discrimination of persons affected with skin NTDs: The need for global research to map associated myths

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With more than one hundred and seventy countries and territories globally being endemic with a number of Neglected Tropical Diseases, and more than ten among which exhibit skin conditions: Knowledge gaps breed myths, and discrimination thus thrives – limiting socio-economic options and upsetting the psychosocial buoyance of affected persons, and their families.

Knowledge shared through recent dialogues of global stakeholders on the subject have highlighted that external drivers of stigma related to Skin NTDs are often the community, health staff, structures, laws and policies; thus, underscoring a strong need for engendering positive change through information, education, high level advocacy and actions of opinion leaders. Such dialogues have established that to advance efforts to eliminate discrimination of persons affected with Skin NTDs, it is important to understand the complexity of the stigma, making it expedient to identify as many myths [associated with these conditions] as possible [globally] to create comprehensive knowledge-base as in instrument for heightened enlightenment & advocacy.

This paper posits that mapping all [or as many as possible] of these myths could serve as a strong tool amidst efforts of global and local NTDs stakeholders to eliminate discrimination of persons affected with Skin NTDs; and thus, proposes that some actions be undertaken by Skin NTDs stakeholders towards a global research to map myths associated with Skin NTDs.

Global stakeholders can work to constitute and commission a research team that will create [simple] research indicators to harness feedback from Country NTD programs and implementing partner NDGOs about all myths encountered in their work with local communities. Such effort can create a data collection tool with capacity to collect data from multiple countries and selectively parse data into each country-specific dashboard [via solutions like KoBoToolBox] and invite all country NTD programs to participate in the research by cascading the research data collection tool to all sub-district NTD programs, and local NTD-NDGOs.

Such research could benefit from preparation of comprehensive reports [inclusive of a section on data-use-ethics-guide by an expert panel], make publications and present same at key NTD [and global health] events towards advocating for its use in breaking down systems and community level barriers. This paper calls all stakeholders to action, in line with the 2030 roadmap.

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Skin NTD(s)

All skin NTDs

Evaluating the Buruli ulcer experience in Côte d'Ivoire and Benin: an inclusive approach

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Buruli ulcer (BU) is a neglected tropical disease (NTD) potentially resulting in permanent disability, with profound psychosocial and socio-economic consequences. Efforts to understand and improve the experience of patients with BU require comprehensive approaches. The BLMs4BU clinical trial (https://blms4bu.org/) aims to shorten treatment duration from 8 weeks to 4 weeks and contribute to alleviate the disease burden. As part of the trial, we are evaluating patient's quality of life, along with individual and structural factors influencing treatment adherence and access to healthcare services in Côte d'Ivoire and Benin. This also includes engaging key stakeholders, such as patients' companions, community leaders, traditional medicine practitioners and healthcare workers from endemic areas.

Information will be gathered from patient's dossiers, official census and interviews to patients and stakeholders, using standardized questionnaires to collect quantitative and qualitative data on: (i) health status and quality of life of patients; (ii) patients' perceptions and beliefs about medicines, as well as other interventions for BU (wound care, physiotherapy, surgery, etc.); and (iii) knowledge, attitudes and practices about BU and barriers to access health care.

After completing training, piloting and validation, the study is now recruiting participants, with interviews being conducted at various time points, from recruitment to discharge, using purposive sampling until saturation is achieved. A greater understanding of the patient's experience will be obtained, allowing the barriers that hinder adherence to treatment and access to health services to be addressed. This will support the development of an implementation strategy for the new treatment evaluated in the BLMs4BU project, as well as other interventions for BU. In doing so, it will contribute to the achieving the objectives outlined in the WHO in its Road Map for NTDs, 2021-2030, by addressing key factors that impact disease management and control.

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Skin NTD(s)

Buruli ulcer

Barriers to social participation for people with disabilities in NTD-endemic areas of Benin and Côte d'Ivoire: Assessing scope and associated factors

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People with disabilities (PWDs) due to neglected tropical diseases (NTDs) or other causes experience restrictions on social participation (RSPs). This study aimed to investigate the magnitude of these restrictions and associated factors in NTD-endemic communities in Benin and Côte d'Ivoire. This cross-sectional quantitative and qualitative study was conducted from 2021 to 2022 among 841 people with disabilities (PWDs) and 90 community members and stakeholders. Questionnaires and interview guides were used for data collection. The World Health Organization P-scale score adapted to the local context, was used to assess RSPs. Univariate and multivariate analyses were performed to identify associated factors. Qualitative data were processed using triangulation or data comparison, categorized, cross-referenced, and synthesized by theme, hypothesis and indicator. Of the 841 PWDs, 65.9% had experienced RSPs. The median age (Q1; Q3) was 38 (22; 52) years, and the M/F ratio was 1.45. Of the respondents, 89.2% had a monthly income between 0 and 50,000 FCFA (76 euros); 43.7% were married, and 64.4% were uneducated. Only 98 (11.7%) were disabled due to NTDs. Factors (OR [95%IC], p-value) associated with RSPs were age (30 to 44 years (1.66 [1.06-2.59], p=0.026), 45 to 59 years (2.26 [1.43-3.58], p=0.001), and 60 to 74 years (2.35 [1.29-4.27], p=0.005); Secondary/University level of education ((0.42 [0.28-0.65], p=0.000); occupation (shopkeeper/housekeeper (0.40 [0.17-0.91]), p=0.029), farmer (0.21 [0.11-0.40], p=0.000), and other professions (0.44 [0.20-0.96], p=0.038)); and income-generating activities (IGAs) (1.53 [1.06-2.22], p=0.023). Our results demonstrate that the magnitude of RSPs among PWDs is high. The associated factors were age, education level, occupation, and IGAs.

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Skin NTD(s)

- Buruli ulcer
- Leprosy

Transmission

Use of multiple interacting tools to identify specific locations of *Mycobacterium ulcerans* infection in Benin

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Despite a decline in the number of Buruli ulcer cases (2110 cases worldwide according to WHO in 2022), the infection persists in highly localised foci, e.g. Ouémé-Plateau in Benin. The current state of knowledge does not enable us to precisely identify infection zones. To date, it is known that affected populations live in contact with aquatic ecosystems contaminated by the *M. ulcerans* bacterium and that transmission probably occurs through accidental insect bites. Aquatic bugs are the only known vector of the bacillus in Africa.

Studies in spatial epidemiology have made it possible to geolocate cases and examine certain risk factors within the living environments of affected individuals. These spatial analyses show a strong association between the risk of contracting the disease and engaging in daily activities, particularly work, in proximity to lowland areas. However, the identification of contamination sites remains insufficiently precise, mainly due to the limited number of cases, which reduces the statistical robustness of studies.

To address this issue, a new method has been developed by two teams from the University of Angers and two partner organisations in Benin. The method relies on a combination of tools: (1) a prospective, geolocated case-control study that cross-references statistical and epidemiological data with microbiological and spatial analyses. This study aims to identify high-risk geographical configurations for exposure as well as protective configurations within the study area. This investigation is supplemented by two additional measures: (2) portable GPS devices distributed to study participants, allowing their movements to be tracked over a set period and providing precise records of their daily mobility and frequented locations. The goal is then to determine whether these locations correspond to high-risk configurations or not. (3) Comparative genomic analysis facilitates classification of patients based on their position in a phylogenetic tree of the *M. ulcerans* strains that infected them. This method reveals geographical clusters and helps narrow down the search to specific areas, facilitating the identification of infection sites. This constitutes a prerequisite for implementing prevention strategies.

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National Research Agency

Skin NTD(s)

Buruli ulcer

Epidemiology of Buruli ulcer in Sub-Saharan Africa: a systematic review from a One Health approach

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The WHO's roadmap for Neglected Tropical Diseases prioritizes research on the epidemiology of Buruli ulcer (BU). In line with this, a systematic review was conducted to assess the level of evidence in the scientific literature regarding environmental and ecological factors associated with BU in sub-Saharan Africa. Following PRISMA guidelines, the review analyzed articles published in English, French, or Spanish up to March 2024, accessible through PubMed, Scopus, and EMBASE. Of the 1,998 initial articles, only 40 met the inclusion criteria for in-depth analysis, and an evaluation of the quality of evidence was conducted.

The findings highlight key factors associated with BU incidence, including exposure to slow-moving or stagnant water bodies, proximity to rivers and wetlands, and land-use changes. However, the transmission mechanisms of *Mycobacterium ulcerans* remain uncertain. The review suggests that the transmission and incidence of BU may be influenced by:

- Contact with stagnant or slow-flowing water bodies.
- Exposure to modified habitats and specific occupations (e.g., agriculture, mining).
- Skin injuries acting as mechanical entry points for the pathogen, whether due to occupational hazards or insect bites.

Further research is needed to elucidate the transmission dynamics, including:

- Prospective case-control studies to better assess environmental exposure to M. ulcerans.
- Molecular epidemiology studies to explore potential animal reservoirs or vector species linked to human BU cases.
- Vector competence studies to determine whether suspected vectors can transmit the pathogen.

Finally, the study underscores the importance of adopting a One Health approach, this holistic framework would provide a deeper understanding of the factors influencing the emergence and spread of BU, ultimately informing more effective prevention and control strategies.

Skin NTD(s)

Buruli ulcer

Vector control and community involvement for the effective implementation of strategies to combat neglected tropical diseases.

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Neglected tropical diseases (NTDs) represent a group of pathologies that primarily affect populations in developing countries, with a devastating impact on public health, socioeconomic well-being, and the quality of life of individuals. Among these diseases, vector-borne diseases, such as malaria, dengue, and leishmaniasis, are among the most common. Vector control, which aims to control the vectors of these diseases (primarily mosquitoes and other insects), is a crucial strategy in the prevention and control of these pathologies.

However, the implementation of these control strategies requires the active involvement of local populations. Indeed, without adequate participation and awareness of communities, efforts to combat these diseases are likely to remain ineffective. Community engagement is reflected in participation in prevention activities (such as the use of insecticide-treated mosquito nets, management of vector breeding sites, etc.), but also in understanding the health and environmental issues around disease transmission (health campaigns, educational talks, training and information seminars).

Control strategies must be adapted to local contexts, taking into account the socio-cultural and economic realities of the target communities. The involvement of community leaders, health education, and the creation of partnerships between local authorities, non-governmental organisations, and communities are essential to ensure the sustainability of intiatives.

Thus, a holistic and inclusive approach, where local populations are considered key stakeholders in efforts to control NTDs, is fundamental for ensuring the effective implementation of vector control strategies and helping to reduce the burden of neglected tropical diseases. These considerations prompted our study on community involvement in vector control in the semi-rural area of Mbanga Pongo. This area, consisting of many communities both locally and further afield, allowed us to assess the extent of involvement of these populations, using survey forms, field data collection, and health campaigns. The results indicated the importance of mastering information on the transmission of these diseases.

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Skin NTDs

- Dracunculiasis (guinea-worm disease)
- Fungal infections (superficial): e.g. tinea capitis
- Leishmaniasis: cutaneous
- Lymphatic filariasis: hydrocele
- Lymphatic filariasis: lymphoedema
- Onchocerciasis

Leprosy: Are we catching it early?

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Background

Leprosy is a bacterial infection caused by Mycobacterium leprae which is transmitted via droplet infection from affected, untreated individuals. Many cases harboring Mycobacterium leprae might remain undiagnosed or misdiagnosed thus spreading the disease to their close contacts.

Observation

We present an interesting case of a couple affected by leprosy wherein the wife had been misdiagnosed with eczema and polymorphous light eruption for a long duration and was being taken to various health centres by her husband for treatment. The husband himself had subtle symptoms and signs of leprosy which had gone unnoticed at various health centres and through multiple health care workers' eyes. Interestingly, the husband's bacillary load was significantly higher than that of the wife.

Key message

Leprosy is an enigma. Many of the patients harboring the bacilli have not ben diagnosed with the disease thus have been spreading the disease. The subtle clues provided by the patients go missing especially among untrained health workers. If we are to achieve the goal of zero leprosy, active case detection and proper training of health workers is a must.

Acknowledgements

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Skin NTD(s)

Leprosy

A randomized control trial to suppress *Aedes notoscriptus* reduces risk of Buruli ulcer in urban Australia

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Background

Buruli ulcer (BU) is a progressive, destructive infection of skin and soft tissue caused by Mycobacterium ulcerans. BU is acquired from the environment. Cases have been rapidly increasing in temperate, densely populated areas of southeastern Australia, where *Aedes notoscriptus*, a widespread native and urban-adapted mosquito species has been implicated in transmission.

Methods

We employed a randomized control trial in an urban Buruli ulcer endemic area in Melbourne, Australia to test if autodissemination mosquito control stations can supress Ae. notoscriptus populations (primary outcome) and reduce subsequent human BU cases in humans (secondary outcome). We randomly assigned six geographic clusters to each receive 100 stations for eight weeks (intervention clusters) and six clusters to receive no stations (control clusters). The stations contained pyriproxyfen and the entomopathogenic fungus Beauveria bassiana. All clusters received standard mosquito control and bite-prevention messaging. The impact of the intervention on the primary outcome was measured by mosquito egg counts across the study area and analysed statistically using generalised linear mixed models. The intervention impact on the secondary outcome compared human BU case numbers between the control and intervention clusters, adjusted for the mean 4.5-month M. ulcerans incubation period.

Findings

After the 8-week mosquito control intervention the average reduction in the six intervention clusters was 70%. This difference in egg reductions between intervention and control clusters was significant ($p = 0.0076$). Notifications of BU in the intervention clusters were significantly lower than notifications in control clusters ($p=0.038$, OR=0.095, 6 cases prevented). There was also a significant, positive linear relationship between mosquito egg reduction and BU risk reduction ($r2$ 0.581, $p<0.001$).

Interpretation

Autodissemination mosquito control stations can supress mosquitoes in an urban area. This effect is sufficient to prevent BU in humans. Mosquitoes are the principal vector of M. ulcerans in southeastern Australia.

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Skin NTD(s)

Buruli ulcer

Mathematical modelling and optimal control of the dynamics of Buruli ulcer transmission with seasonality

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Mycobacterium Ulcerans (MU) is recognised as the causative agent of the skin disease Buruli ulcer (BU). Although the correlation between this ulcer and environmental exposure is well documented, the epidemiology of the disease remains poorly understood, particularly concerning its hypothetical transmission mode to humans.
In this thesis, deterministic models were developed to study the transmission dynamics of Buruli ulcer in a periodic environment, integrating optimal control mechanisms. These models take into account the periodicity of transmission pathways and the seasonal density of *Mycobacterium Ulcerans*.
The equilibrium points of the models were identified, and the necessary conditions for their existence were established.
Sensitivity analysis showed that the parameters having the greatest impact on the basic reproduction number, R0R0, were the excretion rate of MU into the environment (ω ω), the infection rate (γ γ), and the mortality rate of the bacteria in the environment (μp μp).
Two reproduction indicators were calculated and compared: the average reproduction number over time [R0] [R0] and the basic reproduction number R0R0. The results show that when [R0]<1[R0]<1 , the periodic model presents an inaccuracy in forecasting the Buruli ulcer epidemic.
Simulations confirm that if R0>1R0>1, the infection is seasonal, emphasising the importance of considering climate fluctuations in the development of control policies. Optimal control methods were used to determine the conditions for optimal eradication or control of the disease. The best strategies involve a combination of antibacterial measures and awareness-raising. However, the negative environmental impact of antibacterial measures, which destroy the aquatic ecosystem and disturb the balance of the biosphere, makes this strategy unrealistic. Therefore, raising awareness about the disease and preventive measures are crucial in limiting the spread of the infection.
Keywords: Buruli ulcer, equilibria; stability; optimal control.

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Skin NTD

Buruli ulcer

Wound care and rehabilitation

Engaging communities and policy-makers for the roll-out of a skin disease management model in Côte d'Ivoire

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Context

Skin wounds burden caused by trauma or infections, particularly in the agricultural ecosystem highlight their occupational health risk nature, calling for structured strategy and the involvement of various stakeholders under the corporate and social responsibilities. A holistic approach with a co-designed intervention has the potential of sustaining skin diseases management.

Methodology

We have addressed the wound complexity by mobilising the One Health in a socio-ecological system with system thinking, transdisciplinarity, participation, gender equity, collective action and sustainability. Thus the 'Identify and treat early' strategy assessed the baseline wound burden (2019-2021) followed by co-designed intervention impact (2021-2024). The wound management model followed a pathway from the cases at upstream, and at downstream and assessed the potential of community and policy engagement for a collective action.

Results

The baseline wound burden was 13% (2019) and dropped to 6.4% (2023) after the implementation of the model. The socio-ecological factors with the prevalence of confirmed infectious and non-infectious skin conditions put wounds under public and private management system. Enabling factors comprises the humanitarian nature of care of all wounds free of charge; the accessibility to, flexibility of and trust in CHWs, reduced healing time, cost and mental health risk; upgrading water infrastructure, nutrition package as well as counselling and financial coverage of surgery (e.g. skin grafting, amputation). However, the sustainability of the model is threatened by policy gaps: recognition and CHWs remuneration, patient's stigmatisation; differential care of wounds; consumable stock shortage and poor psychological support.

Conclusion

The roll-out strategy should break siloes, engage and deploy CHWs in prevention, foster early detection and treatment and incorporate it into the national health services in line with UHC. Key policy implications include, while counting all wounds, prevention, early diagnostic and treatment into basic health services at the community level, establishing a specialized and well-equipped wound care reference centre, and using the model for adapting wound care curricula. The Skin diseases policy framework underscores the importance of collaboration, resource allocation, and equitable care in strengthening skin health services in Côte d'Ivoire.

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Skin NTD(s)

- Buruli ulcer
- Mycetoma
- Yaws
- Other: Snakebites

Advancing wound care and rehabilitation for skin Neglected Tropical Diseases (NTDs) in resource-limited settings

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Background

Skin Neglected Tropical Diseases (NTDs), such as Buruli ulcer, leprosy, and yaws, pose significant public health challenges, particularly in resource-limited settings. Wound care and rehabilitation are critical components of the management of these diseases, reducing morbidity and preventing long-term disabilities. However, barriers such as inadequate healthcare infrastructure, lack of trained personnel, and socioeconomic constraints hinder effective wound management.

Objective

This study aims to explore innovative, community-driven approaches to wound care and rehabilitation for individuals affected by skin NTDs, emphasizing cost-effective, locally available solutions.

Methods

A mixed-methods approach was used, integrating qualitative interviews with healthcare providers, community health workers, and affected individuals, alongside quantitative analysis of wound healing outcomes from community-based interventions. The study focuses on wound dressing techniques, the role of physiotherapy in rehabilitation, and the impact of psychosocial support.

Results

Preliminary findings indicate that:

- The use of locally sourced, low-cost wound dressings, such as honey and medicinal plant extracts, improves wound healing rates.
- Community health workers trained in basic wound care significantly enhance early detection and management, reducing severe complications.
- Rehabilitation interventions, including physiotherapy and patient education, promote functional recovery and social reintegration.
- Psychosocial support mechanisms contribute to improved mental health outcomes and adherence to care regimens.

Conclusion

Integrating community-based wound care and rehabilitation strategies into existing healthcare frameworks can enhance the management of skin NTDs. Strengthening local capacity, investing in sustainable interventions, and fostering partnerships with governmental and non-governmental organizations are essential steps toward reducing the burden of these diseases.

Keywords: Skin NTDs, Wound Care, Rehabilitation, Community-Based Interventions, Public Health, Resource-Limited Settings

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Skin NTD(s)

- Ectoparasites: scabies
- Fungal infections (deep): chromoblastomycosis
- Leprosy

An assistive technology initiative for leprosy patients

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Leprosy, or Hansen's disease, remains a neglected tropical disease, affecting thousands worldwide. As an initiative of the Alliance Against Leprosy (AAL), improves the quality of life of individuals with disabilities caused by leprosy. By distributing assistive technology devices, the action enhances mobility, independence, and well-being. This document outlines its background, objectives, and impact in addressing leprosy-related disabilities.

Leprosy is a chronic infectious disease caused by **Mycobacterium leprae**, leading to severe disabilities if untreated. The stigma associated with the disease results in social exclusion and limited healthcare access. This program was created to combat these challenges by providing assistive devices tailored to individuals with leprosy-related disabilities.

TECHansen enables healthcare professionals—doctors, nurses, occupational therapists, and physiotherapists—to request assistive devices for patients. The devices are prescribed based on clinical assessments to ensure patients receive appropriate support. Training is also provided to healthcare professionals to maximize the benefits of these technologies.

The initiative relies on an efficient postal system across Brazil for timely delivery of devices. Internet access facilitates requests and educational dissemination. Additionally, trained rehabilitation professionals ensure the effective implementation of assistive technologies. The action currently offers around 20 assistive technology materials, including devices for hands, feet, and eyes, catering to specific needs.

Results and Impact

Since 2021, TECHansen has positively impacted individuals with leprosy-related disabilities, expanding access to assistive technology across Brazil. The projected growth for 2024 includes expanding the program to all states, increasing device availability, and integrating new assistive products such as 3D-printed lumbrical splints and buttoning aids. Over 6,000 assistive materials have already been donated and distributed throughout Brazil.

Conclusion

The projectis a significant step in supporting individuals with leprosy-related disabilities. By offering assistive technology at no cost, it enhances functionality, promotes social inclusion, and restores dignity. As a model for rehabilitation and assistive care. Tha action advocates for continued investment in leprosy-related initiatives.

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Skin NTD(s)

Leprosy

WHO e-learning courses on wound care and lymphoedema: a new step in reducing skin neglected tropical diseases burden

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More than half of the WHO-listed neglected tropical diseases (NTDs) affect the skin, primarily occurring in resource-limited settings and often presenting with moderate to severe ulcers (wounds). After the March 2023 first WHO global meeting on skin NTDs, a "Skin Health, Wound Care and Rehabilitation" Working Group was established. In a collaborative and interdisciplinary manner, it developed two e-learning courses, specifically orientated towards primary health care workers in low-resource settings. Firstly, a course on wound management was prepared, followed by a second one on the general management of lymphoedema.

The wound course was published on the OpenWHO platform early in September 2024. Built upon evidence-based knowledge, it consists of 5 modules, each containing 20 to 30 slides: 1)Introduction and epidemiology 2)Clinical features and diagnosis 3)Six basic principles for wound healing 4)General local wound care, when to refer and treatment of underlying NTDs and 5)Socioeconomic and psychosocial impacts and basic infrastructure required for wound management.

Between September 2024 and January 2025, 3,665 persons enrolled for the course and 1,773 individuals downloaded their certificate of achievement. The average performance in the post-module and final assessment tests was 81.8%. Participants came from a total of 34 countries, with the top five countries being India, Kenya, Nigeria, Pakistan and USA. Unsurprisingly, given that the course was in English, most of the participants were from English-speaking countries. The wound course is now undergoing transition to the WHO Academy platform.

The lymphoedema course, consisting also of 5 modules covers topics such as 1)Epidemiology, socioeconomic and psychological impacts, 2)Basic anatomy, physiology and pathophysiology of the lymphatic system, 3)Clinical features and diagnosis 4)Enhanced home-based lymphoedema care and 5)Function, participation and inclusion. The Lymphoedema course is currently undergoing review.

In summary, the wound care course appears to have generated high interest and hopefully this e-content will foster additional practical, hands-on courses in low-resource settings. There are also plans to translate courses into the six official UN languages. Although originating from interest by the NTD community, both of these courses are relevant for a far wider audience of staff treating wounds secondary to trauma, diabetes and an ageing population and lymphoedema from all causes.

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Skin NTD(s)

- Buruli ulcer
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Podoconiosis
- Yaws
- Other: snakebites

Wound and ulcer care services provided by primary health facilities in low-resource-settings: an informal scoping survey

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In low-resource settings, wounds cause high morbidity, are often associated with skin neglected tropical diseases (NTDs), and lead to complications such as disfigurement, function loss, and socio-economic burden. Data on the availability of wound and ulcer care services in low-income and skin NTD-endemic settings are limited. As wound management is a potential area for integration of skin NTDs, such data will be essential for guiding interventions.

This study aimed to a) explore the availability of primary care services for people with wounds and ulcers in skin NTD-endemic settings and b) identify any service gaps to guide necessary interventions to improve the early management of lesions and reduce their complications.

A questionnaire on wound care and surgical services available at primary healthcare level was prepared in four languages. After pre-testing of the form, the questionnaire was sent to the WHO AFRO Office, requesting that each National NTD Programme Manager forward it to 20 primary health centres. In addition, the questionnaire was sent to the Extended Members of the WHO 'Integration at Country Level' Working Group, requesting National NTD Programme Managers similarly forward the questionnaires. Simple quantitative and qualitative data were collected.

Replies were obtained from a total of 389 healthcare facilities in 14 countries (African region 12, Americas 1, Asia 1 and Oceania 1). The levels of care of the facility were: health centre 328/389 (84.3%); district hospital 30/389 (7.7%) and referral disease-specific centre 31/389 (8%). Most facilities were publicly-run, 339/389 (87.1%), others were private 29/389 (7.5%) or non-profit 21/389 (5.4%). Nearly all centres provided wound cleaning and simple dressing (98.9%), but teaching patient self-care of wounds was reported in only 53%. Compression bandaging was provided in 95.5% of centres. Vascular ultrasound services were available in only 17.4% of centres. Wound repair with suture was available in 91.7 %, and surgical debridement of wound in 45.5% of centres. Full-thickness skin grafting, was available in 20.3% of centres. Free text responses highlighted the lack of necessary materials to manage wounds/ulcers, plus the need to improve wound and ulcer care training of primary healthcare workers.

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Skin NTD(s)

- Buruli ulcer
- Dracunculiasis (guinea-worm disease)
- Ectoparasites: tungiasis
- Fungal infections (deep): chromoblastomycosis
- Fungal infections (deep): sporotrichosis
- Leishmaniasis: cutaneous
- Leprosy
- Lymphatic filariasis: lymphoedema
- Mycetoma
- Podoconiosis
- Yaws
- Other: Snakebites

Project for the prevention and integrated management of noma in Burkina Faso, Mali, Madagascar, Togo and Benin (2018-2028); lessons learnt and challenges

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Since 2018, La Chaîne de l'Espoir and its partners have been running an innovative programme for the prevention and management of maxillofacial pathologies and noma in Burkina Faso. This project now extends to Mali, Madagascar, Togo, and Benin, and aims to raise awareness among populations, train healthcare workers, traditional practitioners, and community intermediaries, detect and treat patients, and strengthen the autonomy of local medical teams.
A multisectoral approach involves various stakeholders: NGOs, civil society, healthcare structures, and local communities. The collaboration with La Chaîne de l'Espoir, Sentinelles, Bilaadga, La Voix du Paysan, Elysium, Vozama, and New Face promotes a comprehensive action plan that includes awareness-raising, training, patient-centred medical care, and psychosocial support.

The lessons learned over the years highlight several key challenges:

- A lack of knowledge of noma among the population and medical staff.
- Persistent stigma against patients, often excluded from their families and the education system.
- Inadequate specialized care for medical complications.
- A need for funding for medical equipment.

In Phase 3, the project is continuing to expand with strengthened advocacy through epidemiological studies and a regional workshop. The regionalization of healthcare services and the development of local maxillofacial services remain priorities to ensure the sustainable and effective management of noma cases.

This programme demonstrates the importance of collective and coordinated action in the fight against noma and in terms of improving sustainable access to care for targeted populations.

Acknowledgements

We would like to express our deepest gratitude to all the stakeholders who have contributed to the success of the Integrated Noma and Maxillofacial Pathologies Prevention and Care Programme. First, we warmly thank our field partners: Sentinelles, Bilaadga, La Voix du Paysan, Elysium, Vozama, and New Face, who, through their unwavering commitment, ensure the effective implementation of the programme through awareness-raising, training, and patient support. Your expertise and dedication are essential to promoting this cause.

We also extend our sincere thanks to the national and local authorities of the countries where the project is being implemented at present (Burkina Faso and Mali) and where it will be implemented in the near future (Madagascar, Togo, and Benin), for their continuous support and valuable collaboration. Their commitment ensures the integration of this programme into local healthcare systems and guarantees a lasting impact.

We particularly commend the healthcare workers, traditional practitioners, community workers and community intermediaries who, on the ground, work with determination to screen, treat, and support patients. Their mobilization and involvement are the driving forces behind this project. Our thanks also go to the donors, sponsors, and institutional partners who make this initiative possible by supporting its deployment and development. Their financial and technical support is vital for ensuring access to care for a greater number of patients.

Finally, we extend our special thoughts to the patients suffering from noma and their families, who place their trust in us and, despite the challenges, demonstrate exceptional courage. Their resilience inspires us to redouble our efforts to offer quality care and fight noma-associated stigma.

To all of you, thank you for your commitment and your invaluable contribution to this essential cause. Together, we are moving forwards in the fight against noma and working towards a future where every child and adult can access the care they deserve.

Skin NTD(s)

Noma

Preliminary results of an innovative 'wound treatment model' in the Health Demographic Surveillance System (HDSS) of Taabo (Côte d'Ivoire)

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Background

The management of acute and chronic wounds is a major public health issue, particularly in regions were standard wound care is neglected at the health services and skin NTDs, wound-related infections and other complications are common.

Methodology

Within the framework of the project 'Identify and treat wounds early', standard wound management (https://doi.org/10.1371/journal.pntd.0010730) was installed in 2019 at the three levels of the Ivorian health system (community, health centre, general hospital) in rural Taabo HDSS, south-central Côte d'Ivoire, where SkinNTDs are prevalent. Two cross-sectional studies combining an active househol and a passive health service surveys were done at baseline in 2019 (https://doi.org/10.1371/journal.pntd.0010608) and for follow-up in 2023. The aims of the surveys were to determine the wound epidemiology and burden and to measure the impact of a wound management model that targets wounds in the community at the earliest.

Results

In 2019, 3842 people were surveyed and 500 had one or more wounds; prevalence 13% (CI95%: 12.0 - 14.1) including the backlog of chronic wounds due to the neglect of wound care in the region (https://doi.org/10.1371/journal.pntd.0010608). In 2023, 3924 people were surveyed in the same HDSS population and 251 suffered from wounds; prevalence of 6.4% (CI95%: 5.7 - 7.2). Three out of four patients were under the age of 15. In the baseline survey, 162 patients with complicated or severe wounds were referred to the Taabo hospital, compared with 57 patients in the follow-up survey. By aetiology, the main causes of wounds were traumatic wounds (85.3% vs. 90.4%), furuncles (5.1% vs. 2.0%), burns (2.9% vs. 1.2%) and Buruli ulcer (3.2% vs. 1.2%). At baseline, 22% (176/799) of wounds recorded showed signs of secondary bacterial infection, compared with 8.6% (8/93) at follow-up. By category, most wounds treated at the health centre were smaller than 5 cm2 (87% vs. 90%). Those between 5 and 15 cm2 (7% vs. 7%) and greater than 15 cm2 (6% vs. 3%) were less common. Almost all (99.5%) of the patient wounds treated healed.

Conclusion

Early wound management at community level can contribute to mitigation of severe and complicated wounds in resource-limited countries and to early detection and treatment of skin NTDs such as Buruli ulcer.

Key words: wound management model, NTDs of the skin, morbidity, Taabo HDSS, Côte d'Ivoire

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Skin NTD(s)

Buruli ulcer

Evaluation of parasitic wound care practices at a low-funded NGO in Kalighat, Kolkata, India

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Chronic wound management in tropical, low-resource settings presents a significant public health challenge, particularly among unhoused populations. In Kolkata, India, a local NGO addresses this issue by providing basic wound care to individuals who are often afflicted with severe, myiasis-infested wounds. These wounds are exacerbated by environmental factors, delayed treatment, and limited access to healthcare. Despite the NGO's dedication, its operations are constrained by minimal funding, reliance on volunteer healthcare workers with limited formal training, and infrequent consultations from a visiting physician. This study empirically evaluates the efficacy and limitations of the NGO's wound care practices to inform improvements and policy recommendations.

The treatment protocol follows a structured yet resource-constrained approach. On the first day of care, maggots are manually removed using forceps, which are sterilized overnight in a donated autoclave. This is followed by debridement using a metal instrument. Wound sterilization is minimal due to resource limitations and is performed with a saline rinse. Betadine is applied using gauze to cleanse the wound. Next, an amorphous hydrogel with colloidal silver is applied to promote healing, followed by a generous layer of betadine cream to prevent infection. The wound is then dressed with sterile gauze. Follow-up visits continue the application of this protocol, though sterilization practices remain inconsistent due to limited resources.

While this treatment strategy reflects the NGO's resourcefulness, patient outcomes reveal critical challenges. High rates of persistent inflammation and recurrent infections are common, likely due to inadequate sterilization and environmental exposure. Many patients eventually require referral to local hospitals, where advanced complications often necessitate amputations. These outcomes highlight the pressing need for improvements in sterilization practices, standardized training for volunteer healthcare providers, and investment in essential medical supplies.

This evaluation underscores the importance of evidence-based interventions to address the wound care needs of vulnerable populations in tropical, low-resource settings. Strengthening infrastructure and training at grassroots organizations could significantly reduce morbidity and improve patient outcomes, aligning with global health priorities to reduce health disparities.

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Skin NTD(s)

Other: Myiasis (cutaneous) (Old World Screwworm)

Techniques for the surgical correction of lagophthalmos secondary to leprosy: a systematic review

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Background

Leprosy is an infectious neglected tropical disease that can result in chronic immune mediated nerve damage. When this involves the facial nerve, this can lead to lagophthalmos, with the later stages requiring surgical correction. If untreated lagophthalmos can cause keratopathies leading to visual impairment and eventual blindness. However, to date no paper has systematically reviewed the surgical management of lagophthalmos in those affected by leprosy.

Methods

A systematic review was conducted on the 16/11/2024 with data from PubMed, Infolep, Web of Sciences Core Collection and Medline ALL. Data extraction and analysis followed PRISMA guidelines. Included were English-language studies on the outcomes of surgical procedures for the surgical management of lagophthalmos, regardless the year of publication.

Results

The 12 papers identified contained data from seven countries. The majority of papers studied Temporalis Muscle transfer. Gillies technique or modifications of this technique were reported in five papers. Three papers reported modifications of Johnson's method of temporalis tendon transfer. One paper reported TMT using a silicone sling. Patients also received TMT using the Brown-McDonnell and the McCord-Cordner techniques. Lagophthalmos was also corrected using gold or steel weight implant techniques. One paper each studied lateral tarsal strip, modified tarsorrhaphy and scapha graft.

Discussion/conclusion

Treatment of lagophthalmos is vital to preserve vision in those affected by leprosy, however, it is important to take into consideration the practical advantages of the five broad techniques identified by this review. Factors such as the type of anaesthesia, level of expertise, success rate, incidence and risk of complications, and longevity and stability of the results, are vital to consider when conducting these surgical procedures in reduced resource settings. Therefore, operations which are more cost effective, show a reduced complication rate and yield better long-term results without complicated follow-up are more likely to be adopted in lower resource settings.

Skin NTD(s)

Leprosy