

Mid-level health providers

a promising resource to achieve the health
Millennium Development Goals



**World Health
Organization**



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Foreword

Many countries are facing critical shortages of health workers, in particular in rural areas, which hinder the provision of essential health services. According to the UN Secretary General Global Strategy for Women's and Children's health, up to 3.5 million additional health workers are needed in 49 low-income countries in order to achieve the health Millennium Development Goals targets by the 2015 timeline.

In many settings, however, finding the resources to train and employ new health workers is problematic; even when new health workers are trained, frequently they end up concentrating in urban areas, and all too often they migrate abroad.

Mid-level providers are health workers with 2-3 years of post-secondary school healthcare training who undertake tasks usually carried out by doctors and nurses, such as clinical or diagnostic functions. They are increasingly being used to render services autonomously, particularly in rural and remote areas to make up for the gaps in health workers with higher qualifications. Despite their growing role, they are seldom properly integrated into the health system and are not adequately planned for nor managed.

A recent online discussion hosted by the Human Resources for Health (HRH) Exchange, a community of practice facilitated by the Global Health Workforce Alliance, aimed to share evidence and good practice examples of the impact of mid-level providers and offer policy-relevant reflections. This report has been developed based on statements provided by the expert advisers and contributions made by participants as part of the discussion, complemented by a selective literature review.

Experience demonstrates that, where these mid-level providers are adequately trained, supported and supervised, they can deliver essential health services including maternal and child health, HIV and other priority conditions with similar quality standards as physicians, and often for a fraction of the cost.

Mid-level health workers should therefore be included as part of the general planning and management of the health system, and equally benefit from support, supervision, regulation, quality control, and opportunities for professional development and career progression.

At a supra-national level, international institutions such as the World Health Organization should advocate for international recognition of mid-level providers in order for them to acquire the necessary legitimacy in the health system.

Overcoming the health workforce crisis is a daunting challenge, but one we must face if we are to achieve the health MDGs and more broadly progress towards universal health coverage: mid-level providers in some contexts, and if we adopt the right approaches, can be part of the solution.

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Summary

Mid-level health providers (MLPs) are health workers trained at a higher education institution for at least 2-3 years. They are authorized to work autonomously to diagnose, manage and treat illness, disease and impairments, as well as engage in preventive and promotive care. Their role has been progressively expanding and receiving attention, in particular in low- and middle-income countries, as a strategy to overcome health workforce challenges and improve access to essential health services. They have also been identified as the potential drivers needed to achieve the health-related targets of the Millennium Development Goals. Evidence, although limited and imperfect, shows that, where MLPs are adequately trained, supported and integrated coherently in the health system, they have the potential to improve distribution of health workers and enhance equitable access to health services, while retaining quality standards comparable to those of services provided by physicians. Significant challenges however exist in terms of the marginalization and more limited management support of MLPs in health systems. An increase in MLPs should be among the policy options considered by countries facing shortage and maldistribution challenges. Improved education, management and regulation practices and integration in the health system would have the potential to maximize the benefits from the use of these cadres.

Introduction

Towards a working definition of mid-level providers

Many countries' health care services are provided by cadres not trained as physicians, but capable of performing many diagnostic and clinical functions. Collectively these are variously referred to as “substitute health workers”, “auxiliaries”, “non-physician clinicians”, or “mid-level health providers”, and include cadres such as clinical officers, medical assistants, physician assistants, nurse practitioners, etc. There isn't an official definition of mid-level providers that represents a direct match with any of the professional categories, such as paramedical practitioners, recognized in the International Standard Classification of Occupations.¹ The use of these terms is fairly broad, ranging from internationally recognized groups, including nurses and midwives to whom specific diagnostic and clinical skills have been delegated (nurse practitioners), to cadres that have been trained to meet specific country needs – e.g. técnicos de cirurgia (surgical technicians) in Mozambique and clinical officers in East African countries.

There would be value in developing a consensus around the definition of mid-level providers (hereinafter MLPs). In many countries, they already function at the forefront of health care provision in health facilities. However, in the absence of an encompassing international definition, it is difficult for these providers to organize globally, advocate for their profession, or even just be appropriately counted and included in routine surveys – a critical step towards recognition, professional visibility and adequate monitoring of the health workforce. For very pragmatic reasons, some consensus around this definition is needed given that the term “mid-level provider” is already widely used in the literature – both grey and peer reviewed. Many attempts at defining MLPs have ended up using “negative” definitions, i.e. defining what they are not², or emphasizing that they work under the direct supervision of professionals,³ which is not an accurate reflection of reality. For the purpose of this paper the following working definition of MLPs will be used:

A health provider:

- a. Who is trained, authorized and regulated to work autonomously, AND
- b. Who receives pre-service training at a higher education institution for at least 2-3 years, AND
- c. Whose scope of practice includes (but is not restricted to) being able to diagnose, manage and treat illness, disease and impairments (including perform surgery, where appropriately trained), prescribe medicines, as well as engage in preventive and promotive care.

Rationale for MLP

There is a growing movement for countries to strengthen and/or initiate the use of mid-level providers to increase access to services.^{4,5} This is evident at local and international levels as seen in country human resources strategy documents and in global documents such as the Kampala Declaration and the Agenda for Global Action⁶ and the Addis Ababa Call to Action on Human Resource for Maternal and Newborn Survival.⁷

Today mid-level providers are used in high- and low-income countries either to assist professionals or to render services independently, particularly in rural health centres and district hospitals, making up for the scarcity or absence of health professionals. However, MLPs have been used for many years in a number of countries in Africa and Asia. They were often regarded as a stop-gap in emergency situations and consequently neither properly integrated into health systems, nor adequately planned for and managed.

In the colonial and immediate post-colonial periods the introduction of MLPs was primarily a response to the severe shortage of health professionals in countries, especially outside the main centres of economic activity. The advantages of MLPs were that they were much less expensive to train and employ, and also less likely to migrate internally (to urban areas and private practices) or externally. Their association with colonial health policies – and indeed with very hierarchical government arrangements – has sometimes conferred a negative image on these cadres. However, longstanding and mostly positive experiences with MLPs, particularly in Africa, and more recently some rigorous studies of their performance, have led to a recognition that MLPs can indeed play a crucial role within health teams. The more recent interest in their contribution has been driven by both the above positive assessment of their potential but also by the human resource crisis – especially in Africa – and of course the advent of HIV/AIDS which has imposed a larger workload on health workers.⁸

Taking stock of current experience with mid-level providers

Findings from reviews suggest that for over a hundred years different categories of MLPs have been utilised successfully to provide health care particularly to underserved communities and that their use has been widening in both high- and low-income countries.^{9,10}

Although the scope of these cadres can be considered similar, there are wide variations among the countries regarding their job description, content, duration and quality of training, and the framework within which they work.

Most studies included in the reviews of MLPs mentioned above show that they improve access to and coverage of health services, and that often well trained and motivated mid-level workers provide superior quality and more accessible services than better qualified but less motivated professionals.

Bangladesh, one of the few countries on track to achieve Millennium Development Goal 4 (reducing child mortality) and which has also made significant progress in reducing maternal mortality,¹¹ for instance has made extensive use of MLPs at community level and in health facilities.¹²

MLPs also play an important role in scaling up access to HIV services, such as the provision of antiretroviral therapy in southern and eastern African countries.^{13,14}

Systematic evidence on cost-effectiveness is lacking, but there are documented cases of comparable results provided by MLPs, as compared to medical specialists, at one tenth of the cost.¹⁵ The shorter duration of the training, as well as the lower salaries, make the production and deployment of MLPs cheaper than doctors. In addition, lower consultation fees and shorter travelling distances have the potential to make MLP-provided care more effective also from the patients' perspective. Besides, the deployment of medical doctors in small health centres with limited diagnostic and therapeutic equipment would result in limited use of their skills with ensuing inefficiencies.

Most studies are descriptive and fail to rigorously link health outcomes to these cadres. Similarly, there are few studies on the cost and cost effectiveness of using MLPs. This lack of evidence contributes to the continuing skepticism regarding the roles of these workers, even in countries where they are widely used.

Studies on perceptions of mid-level providers are also very limited. However, various reports have shown that often the introduction of the mid-level health workers has been met with resistance/reluctance from powerful lobbies and professional associations.

Some of the resistance may be motivated by misperceptions such as: lowering standards of care, fear of increasing costs due to excessive prescription of diagnostic and curative measures, and the risk of replacement or usurpation of traditional cadres. Sometimes the name itself (e.g. physician assistant) may denote and contribute to a tension between MLPs and traditional cadres.

In the rare instances where perceptions concerning MLPs have been formally investigated there was however widespread understanding of and appreciation for the vital role they played in providing essential health services.¹⁶

Improving access

Inequalities within countries in relation to the availability of health workers are acute, and this is arguably a more important problem than absolute shortage at a national level. There are difficulties in measurement and data availability to comprehensively quantify the situation, but a recent WHO report¹⁷ collated data from multiple ad-hoc sources, including the examples summarised below:

Table 1: urban concentration of health workers.

Country	Population vs staffing.	Source*
Bangladesh	30% of nurses in four metropolitan districts where 15% of population lives	Zurn et al., 2004
South Africa	17% doctors; 27% general practitioners; 25% medical specialists; 7% dentists; 6% psychologists in rural areas where 46% of population lives	Hamilton and Yan, 2004 Statistics SA, 1996 Rennberg, 1999
Kenya	64% of psychologists in Nairobi where 7.5% of population lives	No source given
USA	9% of registered physicians in rural areas where 20% of population lives	Ricketts, 2000
Canada	9.3% of physician workforce in rural areas where 24% of population lives	Dumont et al. 2008

*Please see source report for full original references.

The maldistribution is particularly acute for countries affected by a heavy burden of maternal and child deaths: according to the most recent Countdown to 2015 review, in the sub-sample of countries with sufficient disaggregated data available “the median density of physicians, nurses and midwives is four times higher in urban areas than in rural areas, with important implications for equitable delivery of services”.¹⁸

It has been suggested that MLPs may represent a solution to providing services where more qualified staff are difficult to recruit and retain. However, there are limited data in relation to cadres of mid-level providers (especially where defined to exclude internationally recognised categories such as nurses and midwives), where they are practicing, and where the greatest shortages of more qualified staff (which may be defined to include nurses and midwives) are found.

Dovlo¹⁹ compiled some data in 2004 for seven African countries which are summarised below:

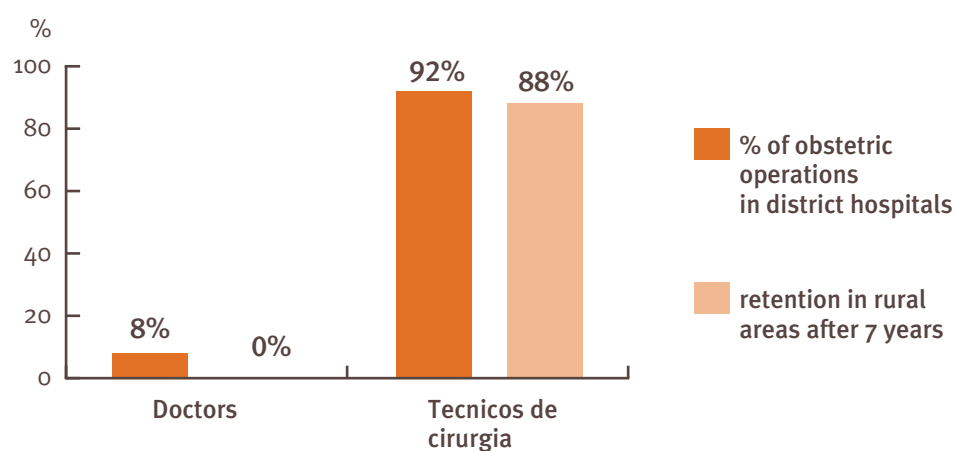
Table 2: number of MLP and doctors in selected African countries

Country	Clinical officers/medical assistants	Doctors
Ghana	442	1600
Kenya	4300 (2300 public sector)	4900 (1200 public sector)
Malawi	442	315
Mozambique	627	278
Central African Republic	182	121
Uganda	750	671
Zambia	1458	900

The Kenyan data indicate that a larger share of MLPs than doctors operate in the private sector, a finding unlikely to be associated with filling public sector gaps; but this situation may not reflect those of other African countries, and may also have changed since 2004, given policy initiatives in Kenya.

Some limited evidence exists to support the notion that MLPs may help in reducing geographical maldistribution: Pereira et al. compared retention in rural areas of Mozambique of medical officers versus técnicos de cirurgia (TC), finding that retention of TCs approached 88%, while no medical officers who were originally assigned to district hospitals after graduation were still working there 7 years later.²⁰

Figure 1: obstetric surgery workload and retention of MLPs and doctors in rural areas in Mozambique



As discussed in the introduction, the lack of international standardisation and a common definition of MLPs presents some challenges, but looking at the issue through a retention lens, this situation may represent both a draw-back and a benefit. On the one hand, it limits comparison across countries, effective monitoring and it might negatively impact the potential for career progression; but on the other, it ensures their suitability to local needs and also facilitates retention in the country.

The lack of international mobility doesn't however preclude internal mobility²¹ and reliable figures on in-country distribution of MLPs do not exist for most countries. Various policy options exist and have been proposed to ensure MLPs serve primarily in rural areas. It is widely recognized that if MLPs are drawn from local under-served populations and if they are trained there, they are more likely to remain.²² Bonding schemes have been suggested and these have been shown to work in some places, to constrain international nurse migration. However, constraining internal migration is probably more complex, and it may encroach on individual liberties. In the end, there is probably no short cut around the need for health workers, including MLPs, to be retained in posts by adequate pay and conditions and career opportunities.

Preserving quality

Perhaps the most typical (if unspoken) objection to the use of MLPs is that, because of the shorter training and lower qualifications, these might provide lower quality of care than traditional health care providers. Some caution explicitly against the establishment of two-tier health care systems: with services in urban areas provided by physicians, and lower quality care provided by MLP in rural and disadvantaged areas. Linking quality and equity concerns, these objections relate also to the risk that such a system would be prone to skewed allocation of financial resources, as the urban-based medical elite would be likely to capture a larger proportion of public funds, thereby entrenching inequality.

The fact that services provided should be of good quality is a basic tenet of trust between users and providers of health services, and these concerns need to be duly acknowledged as legitimate and analysed.

Given the paramount importance of quality of care, and its centrality to the mission of the medical profession ("first, do no harm"), it is imperative that the dimension of the quality of care offered by MLPs be explored and credibly substantiated through a rigorous empirical perspective, even though it is in reality of relevance also to traditional cadres.

What do we mean by quality of care? ²³

Quality of care should:

- Fit the needs of the patient;
- Cause no harm to the patient;
- Be right for the patient (correct diagnosis and treatment, i.e. evidence based);
- Be given without unnecessary delays;
- Include only the necessary medical tests and procedures for the specific diagnosis and treatment;
- Be fair and not affected by gender, religion, language, age or income.

According to Lehmann's literature review (op cit), the evidence regarding the performance of MLPs, either measured by specific quality benchmarks or in comparison to their professional equivalents comes exclusively from a few African countries. In Kenya in the mid-1970s approximately three-fourths of the care dispensed by clinical officers in the outpatient department was of acceptable quality. However, weaknesses in the referral system and lack of a suitable record system had a substantial impact on the overall quality of services.²⁴

It has been documented that clinical officers in Malawi and Mozambique have been particularly successful at providing emergency obstetric and gynaecological care. They performed the majority of major obstetric operations and their postoperative outcomes (general well-being, stillbirths, neonatal mortality) were similar to those for Medical Officers.^{25, 26, 27, 28} MLPs are also increasingly being used to render HIV care in primary care facilities in Zambia with comparable clinical outcomes and CD4 cell responses.²⁹

Some studies from Uganda³⁰ and Tanzania found that problems with performance were often linked to lack of training and/or support and supervision, as well as lack of guidelines.

Existing evidence is sparse and not systematic to draw univocal conclusions, but overall it suggests that where MLPs received appropriate and adequate training and continue to be supported, their performance is close to or even better than that of their professional counterparts.³¹

The issue of quality of care of MLPs is therefore inextricably linked to that of their education and training, regulation, and management.

Education of MLPs

The role, skills and management practices vary substantially across cadres of MLPs and countries. In many African countries most MLPs have been modelled on professional cadres, such as medical doctors, pharmacists, registered nurses, environmental health officers, etc. Some countries have developed a large number of categories, most notably Mozambique. Asian countries have, over the years, developed a large number of local MLP categories, from birth attendants to health assistants, who are not modelled on traditional health professions, but respond to specific country needs.

Practices on entry requirements, duration of training and curricula for MLPs therefore vary considerably across countries and regions reflecting wide diversity in their roles within health systems.

Typically training programmes for MLPs can be categorized according to whether they 1) aim at recruiting (and upgrading the skills of) registered nurses or 2) recruit school-leavers with no prior health training. In the African region, for example, Mullan and Frehywot documented that at

least 18 countries have non-nurse based training programmes for MLPs, whereas seven countries have programmes admitting matriculates with nursing a background. In some countries, admitting candidates with a nursing background is under consideration to avoid depleting the stock of nurses. This demonstrates a shift towards a direct training approach, i.e. admitting school leavers, which may limit opportunities for further training or professionalization of health workers already serving.

The duration of training is shorter (typically 1 year, with a 3-6 months internship) for the courses admitting nurses, and normally of around 3 years of pre-service training with 1 year of internship for the training programmes admitting school leavers.

In the case of programmes admitting school-leavers, MLPs are typically recruited from rural areas or disadvantaged locations. Often these candidates do not meet the entry requirements or don't possess the financial means to enrol in medicine or other traditional health professions.

Table 3: Selected examples of education programmes for MLP
(adapted from Mullan and Frehywot, 2007; Lehmann, 2008)

Country	MLP name	Entrance requirement	Pre-service education	Internship duration
Angola	Clinical officer	Secondary school ⁱ	3 years	Data not available
Ethiopia	Health officer	Initially Bachelor of Science or registered nurse; now secondary school	3 years	1 year
Kenya	Clinical officer	Secondary school	3 years	1 - 1.5 years
Micronesia	Health assistant	Secondary school	18 months	Data not available
Rwanda	Nurse clinician	Registered nurse with experience	1 year	none
Tanzania	Assistant medical officer	Clinical officer with 3 years experience	2 years	none

ⁱ Secondary school typically means completion of 12 years of schooling, in some cases 10.

MLP candidates coming from rural areas may have attended schools lacking teachers, books and equipment for practical science education, disadvantaging them in basic education necessary for a health worker position. Similarly to the variations in the scope of practice, also the contents of training vary significantly across countries.

Some mid-level providers focus on a single clinical area (for instance eye care, orthopaedic skills, anaesthesia, etc.), whereas others have a broader but specific skill set (such as Pakistan's lady health visitors, who focus on maternal and child health); most MLP programmes (for clinical officers, medical assistants, nurse clinicians, etc.) provide a more comprehensive set of competencies; the contents of the training curricula vary accordingly.

Training programmes sometimes emerge to formalize the education and certification requirements of informal cadres: in Brazil, for example, an informal cadre of "nurse-agents" was progressively professionalized through a programme supported and co-funded by the Government, the Pan-American Health Organization and the Inter-American Development Bank. The training and professionalization of hundreds of thousands of informal health workers, carried out through 35 training institutions in all 27 states, contributed to the reconfiguration of health teams into family health teams in the *Programa de Saúde da Família (Family Health Programme)*, an essential element of Brazil's Unified Health System.

Most training programmes include diagnostic and curative skills and combine traditional classroom teaching with variable amounts of practical training. Training programmes for MLPs usually follow the curricula for traditional cadres, but are typically simplified and taught at dedicated training institutions.

There has been a movement in education of health professionals to adapt curricula away from traditional didactic (teacher-centred) approaches to more learner-centred, problem-based learning (PBL) approaches. Along with this are community service or placement requirements as part of the training which is expected to produce a health worker more willing to serve in rural or traditionally disadvantaged areas. Practical training for MLPs typically rely less on hospitals and medical technology than training for traditional cadres, and usually focuses on challenges relative to the local context.

In the desire to increase numbers, there is a danger of quality dropping because of relaxed academic qualifications, ability to cope with the level of study, etc. This is often cited by professional associations as their main reason for opposing relaxed entry requirements.

Nevertheless, the discourse on entry requirements has implications not only on quality of providers (and, by reflection, of the health services rendered), but also on capacity to retain MLPs in rural areas, and therefore their potential to improve access to care.

Recruitment from rural disadvantaged areas may favour retention (Henry, op cit). Some of the examples of flexible or affirmative action strategies that can be used to help increase the numbers of MLPs ready to be trained and potentially deployed to serve in the most needy areas include; a) allowing experienced in-service personnel to upgrade (Zambia), b) using practicing professionals to contribute to the training of MLPs, c) allowing lower entry grades from disadvantaged areas but holding all to the same standard of training and competency requirement (Malaysia), d) relaxing entry requirements according to country needs (Tunisia), or e) make up remedial classes for

candidates from disadvantaged areas (USA). Some of these options may present trade-offs with the objective of preserving quality standards.

An equally important concern relative to education and quality of care is that, despite the absence of systematic information, capacity for training MLPs is widely believed to be inadequate in terms of facilities, faculty, and clinical practice opportunities in many countries. Rigidity to only use formally established training infrastructure or institutions may result in loss of opportunity for innovative training approaches. In many countries, a critical limiting step is faculty time as trainees, even on distance programmes, still require faculty to set training materials, conduct sessions, and respond to queries, set and mark examinations, etc.

Regulation and management

Closely linked to the issue of education of MLPs are the accreditation and regulation aspects. Health policy, specific health legislation, accreditation of cadres and accreditation of teaching institutions in fact form the basis of a regulation framework in the area of health care, a critical element in maintaining quality standards. In turn social and political recognition of these cadres, as well as their potential for association and organization, depend on accreditation and legislation. In resource-poor environments these issues are sometimes neglected, and this is particularly evident in the case of non traditional cadres, such as community health workers and MLPs.

The following table is taken from Dovlo's review in 2004 and is used as an example of the patchy regulation systems for medical related MLPs in Africa at that time.

Table 4: 2004 regulation system for medical MLPs

Specific regulatory body for clinical officers	Board regulating training systems	MOH administrative control only	Umbrella board for "allied health professionals"	"Medical Council" registration
Kenya	Tanzania Zambia	Ghana	Namibia	Zambia
		Malawi	South Africa	
		Tanzania		
		Mozambique		

Source: Dovlo 2004.

In some federal countries legislation covering MLPs is state-based and not federal which adds a level of complexity in those environments. Although many countries have approaches for accrediting MLPs, many still do not.

It is important that all cadres of practicing MLPs have their scope of practice defined by appropriate legislation and regulation in a way that suits the specific country environment and the role envisaged in the health system. Many general principles on regulation and accreditation apply equally to MLPs. Their relevance and critical importance is magnified by the absence (typically) of professional bodies that can mitigate the patchy application of regulation, and the less defined and established nature of the MLP roles. Therefore, very relevant, if not specific, to MLPs is that the quality regulation approach must include mechanisms to ensure that the desired competence is sustained over the career span, ensuring for instance that licensing and certification are time-limited and clear requirements and process for renewal are established. Similarly, there need to be enforcing mechanisms and sanctions to ensure compliance with regulation, and adequate resourcing for regulatory and accreditation bodies.

Adequate training and accreditation alone are not sufficient in guaranteeing quality standards over time: MLPs, like all health workers, need to be properly managed, motivated, supervised and supported. They need collaborative planning, definition of scope of practice, clear selection and educational requirements, established mechanisms for registration, licensure and certification, adequate incentives for recruitment and deployment, sustainable remuneration, supportive mentoring and supervision, functioning referral system, the existence of career paths and continuous education opportunities, fair and development-oriented performance evaluation and availability of supply of equipment and commodities. However, precisely because they are typically outside the normal staffing establishment, their deployment poses a management challenge to health providers.³²

Also, with regards to prevailing management practices of MLPs the evidence is scanty. The root of the problem is, in many cases, the absence of a framework of distinctive competencies, which negatively impacts on an effective selection process, monitoring of performance, professional development and career progression opportunities. The development of competence frameworks for MLPs must strike the right balance, allowing effective management but avoiding an over-specification that would make these health workers less flexible in responding to the health care needs of the population.

Moreover, in many countries MLPs exist on the margins of the health sector, even though their central role in the delivery of health care is well accepted. This ambiguity, whose roots trace back to the colonial history of such programmes and in the dominance of the traditional health professions, is accompanied by a lack of attention to management issues, such as training and support, fair remuneration, career progression, regulatory issues and the integration of these into health staffing structures.

While some management challenges apply generally to all or most of health worker cadres in low- and middle-income countries (e.g. poor remuneration and support and supervision systems), others are particularly acute for MLPs.³³

For example, there is a tension between offering MLPs career opportunities while at the same time retaining them in hard-to-fill posts. Often there are limited staffing numbers in remote facilities and the staffing pyramids are characterised by hierarchies among cadres rather than within cadres, with professional rivalries constraining the ability to advance members of each specific cadre.

Similarly, a hierarchical reading of the concept of “team approach” to care entails that MLPs should be supervised by “higher level” cadres. But, rather than emphasising the hierarchy across cadres and expecting that mid-level cadres be supervised by doctors, who are in short supply at district and sub-district levels as well as at individual facility levels, career advancement and supervision goals could be perhaps jointly and more appropriately met by promoting more experienced MLPs to more supervisory roles at central, provincial or national levels.

Conclusions

Patchy evidence suggests that MLPs have the potential to make a significant contribution to achieving health and health equity goals. If MLPs’ strategies are to become rooted and sustained in health systems in low- and middle-income countries, their legitimacy, education standards, recruitment practices, management, governance, and evidence of impact needs to be addressed.

The absence of systematic and robust evidence on the impact of MLPs warrants the generation of such knowledge, as well as consultations and pro-active stakeholder engagement to overcome skepticism and professional gate-keeping. Of particular importance would be large-scale, prospective effectiveness studies in programme settings to establish optimal categories, structures and models of health service delivery making use of MLPs.

A second crucial issue is that these cadres should have “international” recognition in such a way that they can be perceived as normal and as an integral part of health systems, rather than “substitute health workers” for (poor) health sectors. International institutions, such as WHO, could usefully enhance their role by advocating and taking concrete steps forward on concepts such as:

- a move from mid-level workers, or doctor substitutes, to health workers who have their own role in the respective health systems, and not substitute or temporary cadres;
- supporting the definition of minimum global standards;
- going beyond the doctor, nurse and midwives population ratios, supporting countries in collecting vital statistics on other professional cadres.

As with issues of standardization, a tension exists between such regulation and the desirability to retain the local “fit” of these cadres, whether they have their roots in conventional health professions (i.e. physiotherapy assistants) or have emerged organically in response to country needs (i.e. health assistants). This tension is not easily resolvable and should be addressed in country contexts. It may not be feasible to develop an internationally standardized detailed model of MLPs due to the differences in health system contexts, but some international consensus on minimum requirements for these cadres, perhaps in terms of duration of training, could be useful.

Flexibility and innovation are needed in entry requirements and training strategies if the acute shortage of health workers is to be addressed through MLPs in the most needy countries. Building new training facilities or training dedicated faculty takes time and resources that most of the countries with urgent need can ill afford. Opportunities to use innovative and flexible strategies to increase numbers of certified MLPs exist and some countries are already being applied. There is room for this despite the current levels of resources e.g., using existing practicing professionals to train MLPs, increasing clinical practice opportunities to ensure acquisition of competencies, flexible use of the scarce training facilities e.g., allowing different sessions to use the existing capacity and reduce slack time. The need to increase training faculty who have real and continuing practical experience is critical and necessary to ensure that training courses are relevant and regularly updated according to changes in the situation.

Finally, there is a clear need for establishing procedures and systems that can integrate core HR management functions, such as accreditation, regulation, professional development and career progression for MLP, in the planning and management of the health system. Regulatory and professional bodies, when not in place, should be established to govern and speak on behalf of MLPs, including on issues of remuneration, scopes of practice and the relationship with other professions.

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- Launched in 2006, the **Global Health Workforce Alliance** is a partnership dedicated to identifying and coordinating solutions to the health workforce crisis. It brings together a variety of actors, including national governments, civil society, finance institutions, workers, international agencies, academic institutions and professional associations. The Alliance is hosted by the World Health Organization.

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