Nigeria Centre for Disease Control
Protecting the health of Nigerians

NIGERIA CENTRE FOR DISEASE CONTROL

Event Based Surveillance in Nigeria
Use of Tatafo for mining signals

Dr Muntari Hassan

Lead- Event Based Surveillance Unit of NCDC

13th November, 2019

Nigeria Centre for Disease Control (NCDC)

Mandate

Prevent, detect, and control spread of communicable diseases

Coordinate surveillance systems to collect, analyse and interpret data on communicable diseases to guide action

Support States in responding to small outbreaks, and lead response to large disease outbreaks

Develop and maintain a network of public health laboratories

Conduct, collate, synthesise and disseminate public health research to inform policy

Coordinate the compliance with international health regulations

Areas of our work

INCLUDING EIOS, Tatafo, SITAware, Connect Centre, SORMAS
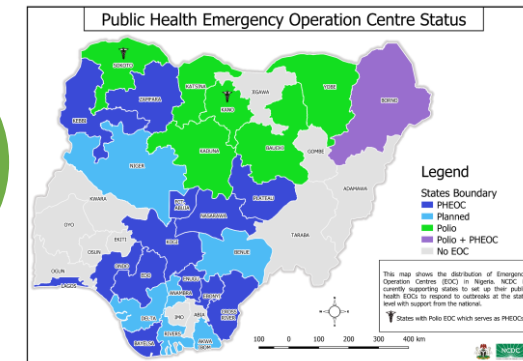
Incident Coordination Centre

Digital Surveillance

Networked State PHEOCs

NCDC

External Communications

Laboratory Network

Event Based Surveillance Milestones

2016

- **NCDC EBS Unit established** mainly in partnership with University of Maryland Baltimore(UMB)

- **Three receptors enabled**

  TATAFO software, Connect centre

  Moderated search

2017

- EBS included in NCDC 2017-2021 Strategic Plan

- 'Goal B2: Strengthen the early warning / horizon scanning alert system'

- Draft national guidelines

- JEE Score =39%

2018

- Digital Surveillance Workshop with PHE

- EBS evaluation

- SITAware Developed

- SOPs Developed

- Updated reporting templates

2019

- SITAware Updated

- EBS training with CDC

- EIOS training with WHO

- Updated Organogram + Team expansion

National Guidelines on Integrated Disease Surveillance and Response (IDSR) Strategy

Systems in use

Tatafo & EIOS
Bio-surveillance information systems

Hotline
Publicly available toll-free number

SITAware
Platform for documenting and managing signals & events

Twitter Deck
Dashboard -tracking twitter conversations
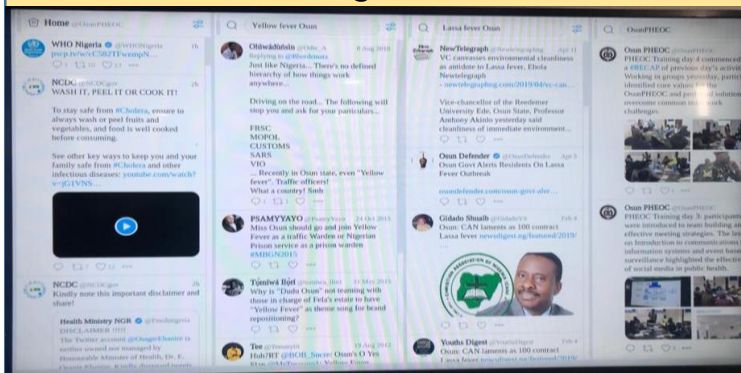
SMS & WhatsApp
Publicly available number dedicated

to receiving messages

Sugar CRM
Logging queries for inbound and outbound calls & messages

Standards in Place

SOPs

Draft National EBS guideline

Template for daily reporting

Template for logging signals/events

Modified workflow
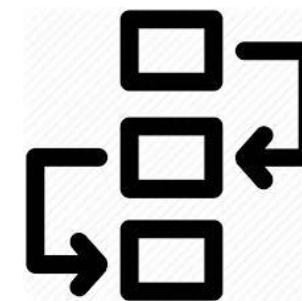
Tatafo

What was the need to be addressed?

- Early identification of public health threats

- One-stop-shop for media monitoring

- Identifying areas where there is need for intervention

Tatafo: System Description

- Initially rolled out in 2016 by UMB with funding from US CDC

- Tatafo means "Gossip" in one of the local languages

- A data mining tool, uses;
  - Text mining, analysis and natural language processing

- Retrieves hits from over 1,250 media sites

  - Categorized into online TV, radio, blogs, magazines and online health sites

  - Data filtered into the newsfeed, usually auto-update every 15minutes

- Retrieves trending information via configured keywords used at site searches.
  - Key words coined from 41 notifiable diseases including street words that connote diseases, deaths or health conditions/events

Tatafo raw data: snapshot

Ta-ta-fo
Bio-surveillance information system

Hi Guest 1,
Log out

- Dashboard
- Map
- Raw Data
- Ranked Data
- Export Data
- Top Sources

Published	Topic	Text	Source	Score	Rating	..
2019-11-01 08:44:45	vaccine	I wish I didn't have to go anywhere today. I feel so sick ewwww ! Now I'm gonna get my vaccine shots today again, i… https://t.co/0yccLGyi9I	twitter @_iam_no1	38	-	
2019-11-01 04:32:24	tuberculosis	Oxidative stress biomarkers in pulmonary tuberculosis patients in Gombe, North-eastern Nigeria- https://t.co/8PouSR2M8k	twitter @arun732003	17	-	
2019-10-31 18:33:52	sexual transmitted disease	@bigmoNaija @projectpinkblue @ACTFoundation_ @aproko_doctor @DrZSB @MedicaidCF @ekemma @renoomokri @9jafinestchic… https://t.co/98m1YgLizx	twitter @DrZobo	2,754	-	
2019-10-31 15:25:19	polio	our peoples need awareness Pakistan is one of three remainingpolio-endemic countries in the world, along with Afgha… https://t.co/kTLrV7te6Z	twitter @ak_652	1	-	
2019-10-31 13:52:36	plague	@oladapo_engr That overhead bridge is the biggest scam sold to Ogun State people. That man wasted public funds more… https://t.co/REmAM5wUbB	twitter @TosinOdetoran	9	-	
2019-10-31 10:30:20	vaccine	Examining the effect of Vaccine Direct Delivery (VDD) on #vaccine stockouts and #vaccination cases prevalent in… https://t.co/R0OjhUNqS4	twitter @immeconomics	17	-	
2019-10-31 10:22:53	snake bite	@villagewomenija @UDUSOK The things we go tru in this country is unthinkable.... The school couldn't provide light… https://t.co/fHy29Up6Th	twitter @Joshua17767	30	-	
2019-10-31 09:53:26	vaccine	How is measles disease prevented? Vaccination with measles vaccine is the only preventive method , it is safe and e… https://t.co/Lwp34VLKo9	twitter @MsJameelaUmar	289	-	
2019-10-31 08:49:28	outbreak	#Nigeria, suspected #Yellowfever #outbreak killed at least 24 people (CNEB) https://t.co/uKQi7i2MY8	twitter @ironorehopper	6	-	

Tatafo: System Description

- Articles/tweets are ranked based on;
  - Relevance to disease of public health interest
  - Ranked in 4 categories;

- Data can be exported from particular time/date to another to compare information and for analysis

- Overtime, a time graph can be plotted to display trend of conditions on daily, weekly, monthly and yearly basis

- Data is displayed graphically and geo-located on maps

Tatafo output: snapshot
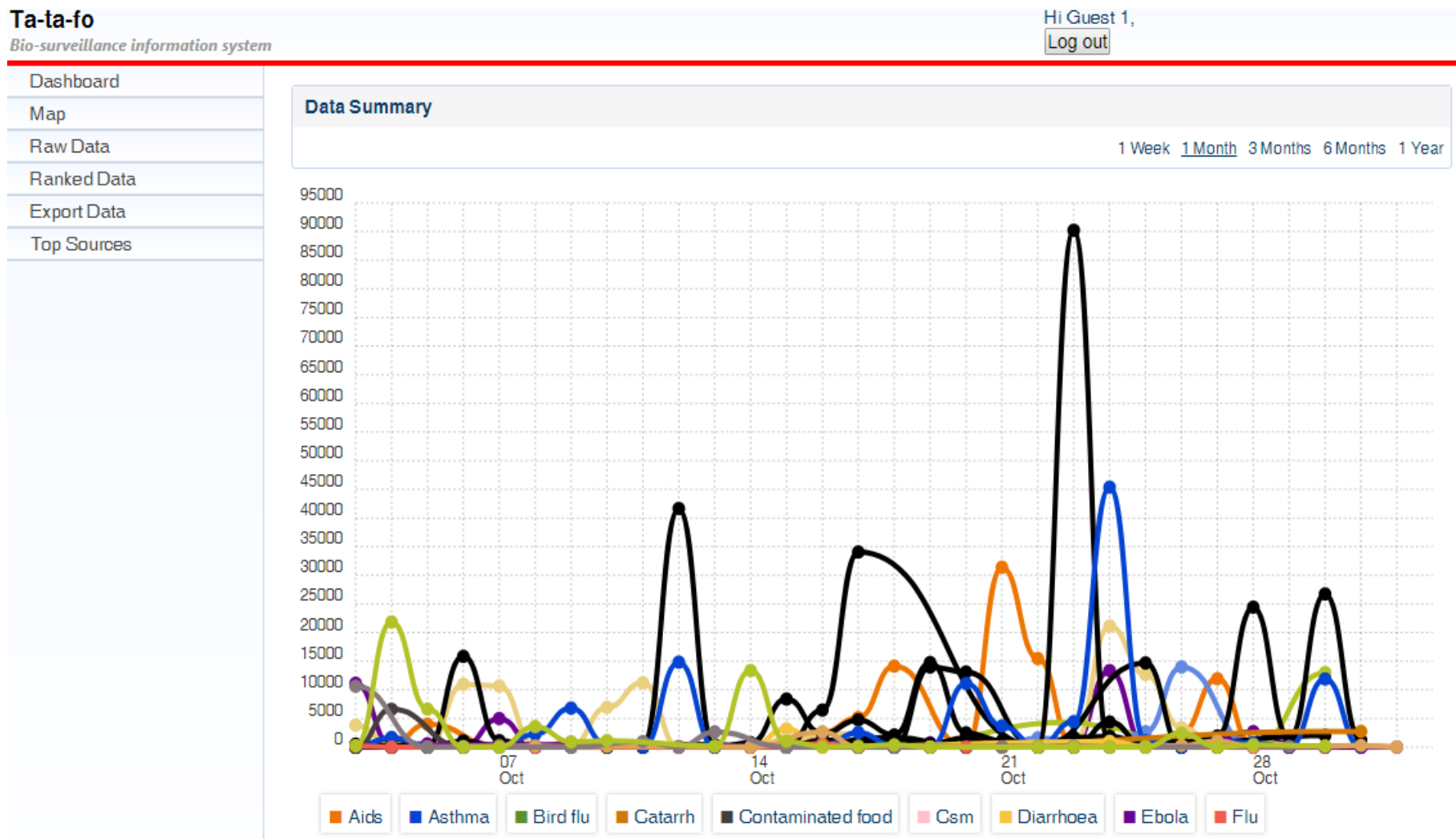
Key uses
- Document events of interest

- Contribute to Epidemiologic summary reports

- Escalation of signals for verification

How has the tool contributed to disease surveillance and guided public health action?

Captured over 80,000 signals since deployment in Nov 2016.

- 570 identified related signals for follow up

- 220 verified true

• 41 priority diseases and events are captured by tatafo and this includes Lassa fever, Monkey pox, Meningitis, Yellow fever, Polio, Cholera, HIV/AIDS and Ebola

• Country-wide coverage of data mining processes.

- Top locations for most hits-Borno, Lagos, Edo, Zamfara, Abuja, Benue, Rivers and Sokoto

Achievements

- **Institutional Support:**
  - Dedicated EBS Unit, Increased number of staff
  - New staff trained on EBS principles & practices
  - SOPs developed

- **Strong Partner support**
  - Functional relationship with WHO, CDC and PHE

- **Introduction of new tools**
  - Introduction to EIOS
  - Nigeria 1st country in Africa to roll out EIOS at country level

- **Integration with existing systems**
  - Integrated into the IDSR reporting system as information from the community

Broad EBS Challenges

- Significant noise from the system

- Some staff/activities heavily dependent on partner funding

- Delays in signal verification

- Sub optimal adherence to SoPs

Way forward

- Improving the specificity of our EBS tools

- Decentralisation/roll out to sub national level

- Implement learnings from recent EBS trainings (from US CDC & WHO EIOS)

- Opportunities for regional collaboration
  - Information sharing & Capacity building e.g. Africa CDC, WAHO, ECDC

Acknowledgement

- State officials

- Partners
  - Public Health England
  - WHO (all 3 levels)
  - US CDC
  - University of Maryland Baltimore (UMB)
  - George town University

Thank you

Nigeria Centre for Disease Control

A healthier and safer Nigeria through the prevention and control of diseases of public health importance