Uganda – Lessons Learned from Improving Vaccine Management Using EVM Approach

14th TechNet Conference
Bangkok Thailand
11 – 15 MAY 2015

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Presentation outline

Country context

Integrated Management as a way forward

How it works in Uganda?

The EVM assessment and progress with key notes

Benefits of integration
**Republic of Uganda** is located in sub-Saharan Africa along the equator and covers an area of 241,550 km²

<table>
<thead>
<tr>
<th>Country statistics</th>
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<tr>
<td><strong>Total population (2014)</strong> [1]</td>
<td>34,856,813</td>
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<tr>
<td>% Population under 15 (2012)</td>
<td>48.54</td>
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<tr>
<td>% Population over 60 (2012)</td>
<td>3.72</td>
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<tr>
<td>Life expectancy at birth (2012)</td>
<td>57</td>
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<tr>
<td>Neonatal mortality rate per 1000 live births (2012)</td>
<td>23</td>
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<td><strong>Under-5 mortality rate per 1000 live births (2012)</strong></td>
<td>69</td>
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<td>Maternal mortality ratio per 100 000 live births(2010)</td>
<td>310</td>
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<tr>
<td>% Births attended by skilled health workers (2011)</td>
<td>58</td>
</tr>
<tr>
<td>Density of physicians per 1000 population (2005)</td>
<td>0.117</td>
</tr>
<tr>
<td>Density of nurses and midwives per 1000 population (2005)</td>
<td>1.306</td>
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<tr>
<td>Total expenditure on health as % of GDP (2011)</td>
<td>9.5</td>
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<tr>
<td><strong>Government expenditure on health as % of total government expenditure (2011)</strong></td>
<td>10.8</td>
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<td>Adult (15+) literacy rate (2010)</td>
<td>73.2</td>
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Source:  
Global Health Observatory April 2014  
http://apps.who.int/gho/data/node.cco  
Context of Immunization Supply Chain Management
ISCM in 2011 versus 2014

Key context
Following persistent decline in immunization indicators < 80% DPT3 in 2011 and Low score during 2011 EVMA assessment specifically 54% E7_Distribution and 45% E8_Vaccine management.
In 2012, the vaccine logistics function was transferred to the government pharmaceutical warehouse and medical logistics; National Medical Stores – NMS

Expected benefits from this integration were;

a. Use the vast warehousing and distribution expertise of NMS to improve vaccines delivery lead time.

b. Use the already existing NMS refrigerated trucks and other fleet to distribute vaccine supplies

c. Use NMS logistics expertise and synergies to lower vaccine storage and distribution costs.

d. Ensuring sustainability of in-country vaccines delivery system

Above all having strong teamwork, dedication and supportive management
How it works

UNEPI
- Policy formulation
- Setting standards
- Supervision
- Training
- Monitoring & evaluation

NMS
- Storage & Distribution

With Partner Support
- UNICEF
- WHO
- CHAI
- PATH

Improved country vaccine logistics management

Collaborative vaccine forecasting

Phase One (2012)
1. NMS procures vaccines and related supplies
2. Storage of vaccines at NVS
3. Distribution from NVS to DVS

Phase Two (starting 2014)
1. Last mile delivery up to health facility level
2. Maintenance of cold chain equipment at DVS
NVS showed significant improvement in all the 9 criteria including five meeting the 80% standards set for countries to achieve under the EVM initiatives.
Storage and transport capacity improvement

Storage specifics
• DVS and SP storage mainly LPG absorption fridges
• Storage capacity affected by frequent breakdown and delayed supplied of LPG from the centre
• Improved Dry storage at NVS

What has been introduced
• Fully refrigerated trucks move vaccines from NVS to DVS (with monitored temperature conditions)
• Improved storage practices and systems at the NVS

Planned Strategic improvements
a. Next 5 years, replace 70% of LPG with Solar DD fridges (sustainability)
b. Build capacity: installation and maintenance of Solar DD
c. With increased rural electrification: Turn EG fridge to main power grid
Long term vision!

- Cold storage expansion has been gradual over last 10 years (GAVI applications)
- 7 WICRs approved for all new vaccine introductions till 2018. *(still not enough)*
- Shift from multiple WICRs to single DICR *(700 m³)*

**Comparative storage capacities in litres**

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<th>7 WICRs</th>
<th>700m³ DICR</th>
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<td>Storage Capacity</td>
<td>280,000</td>
<td>700,000</td>
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**DICR option will offer an additional 420,000 litres versus 280,000 litres from seven WICRs**

**Benefits**
- Less time spent on repeated planning to increase storage capacity
- More time focused on improving operations and vaccine management

**Technical support needed**
Layout design of DICR to maximise available space
Stock Management

Major EVMA findings
• Facilities ordering based on consumption
• Stock out of data tools (VIMCB) still a challenge
• Wastage calculations not done
• VVM changes not recorded

Key learnings
a. Regular stock count to update inventory records
b. Keeping all relevant stock records (performance reporting, root cause analysis and corrective action)

Technical support needed: SMT, DVD MT and IRP tools working in silos; How can we integrate all these tools to relay data to the centre?

a. Need to have regular exchange of stock information between national and district vaccine stores
Maintenance management

**EVMA Findings**
- Reactive maintenance (Breakdowns)
- No planned preventive maintenance
- Maintenance records lacking
- No maintenance SOPs (new equipment)
- Updating the Cold Chain Inventory started

**Critical Corrective Action**
- Develop a planned preventive maintenance program

**Key learnings**
- a. Use maintenance record trends to identify skills gap (both user and technician)
- b. Regular update of CCI
- c. Review maintenance records to guide future selection of PQS equipment.
- d. Regular reporting on status of equipment maintenance. *(at country EPI technical meetings)*

**Technical support needed:**
- Developing systems for planned Preventive Maintenance
- Developing SOPs (SDD systems)
Mgt Information System & Supportive functions

Major EVMA findings
Wastage calculations not done
Frequent stock out of data tools at DVS and SP

Critical constraints in LMIS
- Logistics data is managed in silos at all levels
- Heavily paper based (analysis constraint)
- No country snapshot visibility of key indicators.

Ongoing
Updating supportive supervision check-list to add EVMA criteria checks

Technical support needed:
- Linking all available tools to a central EPI depository
  (with possibility of data access via cloud)
- Centralized report generator for key EPI indicators
- Training and roll out of current versions of DVD MT, DHS, SMT
Distribution Management

- **EVMA findings**
  - Use of vaccine carrier however conditioning of ice pack not properly done.
  - Fully refrigerated trucks (2º- 8ºC) distribute vaccines from NVS to DVS.
  - Monitored temperature conditions during distribution (Log tags and freeze tags)
  - Good contingency plan for NVS.. Refrigerated Trucks used as the option.

**Key learnings**

a. Irregular and non standardised last mile distribution (LMD) of vaccines.

b. Delayed supply to facilities results in:
   - Reduced ordering from NVS due to limited DVS storage capacity
   - Risk of stock out of vaccines at service point

c. Distribution performance indicators hard to get at this supply level

**Technical support needed:**

- Supply chain modelling to determine best vaccines LMD method to SP.
- New technologies that prevent freezing during transportation (vaccine carrier)
- Possibility of Policy shift from *conditioned ice packs to cool packs* (WHO)
Vaccine management procedures

Major EVMA findings
• Good understanding and use of VVM at all levels
• MDVP appropriately used
• Knowledge & use of Shake Test procedure still a challenge at DVS and HF level
• Vaccine wastage not tracked

Key learning’s
a. Lack of wastage data plus lack of corrective measures causing reduced stock availability at facility (*i.e* faster depletion of stock)

b. Need for strengthening wastage monitoring through supportive supervision (*include wastage monitoring on supervision checklist*).

c. Start regular updates on all EVMA criteria during monthly EPI technical meetings

Technical support needed:
Continued support during planning and implementing of in-country trainings
Benefits of Integration

UNEPI and NMS work with partners UNICEF, WHO, CHAI and PATH under the Vaccines Management Committee

- Forecasting
- Stock reviews
- Policy formulation (Logistics)
- Monitoring vaccine utilisation and wastage

A forum for collaborative approach to solving EPI logistics issues

Benefits

a. Improved monthly distribution to districts (vaccines and LPG)
b. Easier consultations and quick transfer of technical information
c. Improved immunisation coverage (DPT3 <80% in 2011 and >95% in 2014)
d. Improved storage and stock data management at central level
e. Faster and reliable reporting from central and district level. (improved communication)
f. Improved 2014 EVMA scores at NVS level
g. NMS providing maintenance support at DVS level
h. Collaborative training of DCCAs in vaccine logistics management
Working together to make the improvement

Thank You