Compilation of presentations delivered either at meetings of the SAGE Working Group (WG) on Maternal and Neonatal Tetanus Elimination and Broader Tetanus Prevention or at the WHO TechNet Consultation, March 22-25, 2003 Antalya, Turkey and referenced in the September 2016 report of the WG

4. “Critical operational challenges to achieving at least 80% protection at birth from MNT in high risk districts”, Jane Soepardi, Ministry of Health, Indonesia, SAGE WG on MNTE and Broader Tetanus Prevention, March 30-April 1 2016, Geneva, Switzerland.
Impact of Delivery Technologies on Increased Access: BASICS II

WHO TechNet Consultation

March 22-25, 2003
Antalya, Turkey
Goal

"Use TT-Uniject as an adjunct to regular program in areas that are less accessible and with populations that are less accessible."

- Prefilled TT-Uniject
- Single-use
- Device combines AD syringe + needle (fine, small)
- Individually packaged with heat-sensitive indicator
Study Purpose

Determine if traditional birth attendants (TBAs) who are participating as community-based volunteers (CBVs) could successfully use TT-Uniject in Mali and would be accepted by the population for vaccinating women against tetanus.

Mali UNIJECT, WHO TechNet, March 22-25 2004
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mali – Tetanus</th>
<th>Bolivia – Tetanus</th>
<th>Indonesia – Hepatitis B</th>
<th>Comparison to Previous Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of vaccinator</td>
<td>Presumed</td>
<td>Not specified, but CBV, self-employed, mostly TBAs</td>
<td>Majority trained village midwives</td>
<td>Vaccine type of vaccinator</td>
</tr>
<tr>
<td>Education</td>
<td>Not specified, but at least some education</td>
<td>At least some education</td>
<td>At least some education</td>
<td>Selected for participation</td>
</tr>
<tr>
<td>Selection for participation</td>
<td>Selected by village midwives</td>
<td>Selected by village midwives</td>
<td>Selected by village midwives</td>
<td>Selected for participation</td>
</tr>
<tr>
<td>Prior injection experience</td>
<td>Presumed none</td>
<td>About half had experience</td>
<td>Routinely vaccinating for several years</td>
<td>Routinely vaccinating for several years</td>
</tr>
<tr>
<td>Program</td>
<td>Not specified, but mostly TBAs</td>
<td>Not specified, but mostly TBAs</td>
<td>Not specified, but mostly TBAs</td>
<td>Not specified, but mostly TBAs</td>
</tr>
<tr>
<td>Midwives selected to participate in health program</td>
<td>Not specified, but mostly TBAs</td>
<td>Not specified, but mostly TBAs</td>
<td>Not specified, but mostly TBAs</td>
<td>Not specified, but mostly TBAs</td>
</tr>
</tbody>
</table>

Comparison to Previous Studies:
- Mali UNIJECT, WHO TechNet, March 22-25 2004
Program Method

Approach for incorporating volunteers into administering TT injections:

- Vaccinators would be volunteers who are TBAs.
- They would be selected by their respective communities, that is, they would be community-based.
- CBVs, capacity would be tested during MNTE campaigns held in 6 districts, using TT-Uniject in 2 districts accessible for supervision and with typical coverage, and AD syringes with multi-dose vaccine vials in the 4 other districts.

Volunteers (CBVs) would be community-based.

viels in the 4 other districts.
Selection of CBVs:

- Interest in participating in the activity
- Physical capacity to use UNIJECT
- Acceptability by the majority of townspeople

Selection based on 3 criteria:

- One CBV per town

Reproductive-aged women with TT-Uniject:
Select local CBV to be trained to vaccinate
Health Officers (AHO) to talk to town chiefs to
District health officer (DHO) requested Area

Program Method, cont'd
Training of CBVs:

**TOT fashion:** 2 national trainers - each trained a DHO and the AHO of a single district. In turn, AHOs trained their own CBVs.

- Nominated CBVs who were unable to perform during 1st training were deselected.
- First training was for 2 days (before 1st MNTE round, June 2002).
- 1 day refresher session preceded 3rd round (2/03).

Program Method, cont'd
Evaluation Methods

Three indicators:

1. % of CBVs who correctly used TT-Uniject (measured by performance indicator, PI)

2. % of CBVs' clients who were satisfied having CBVs give vaccination (with TT-Uniject)

3. Immunization data (coverage and drop-out) in districts using TT-Uniject should be similar to those of the 4 districts using AD syringes administered by health personnel.
Evaluation Methods, cont'd

Data Collected in TT-Uniject districts by:

A survey of CBVs and their clients during round 3 by two different methods comprising four aspects:

1) Observation of:
   • CBVs administering TT-UNIJECT
   • Site after completion of vaccination campaign in a town

2) Interviews with:
   • CBVs
   • One client of each CBV surveyed

MNTE immunization data collected during 3 rounds

Focus groups conducted just after 3rd round with

• Area Health Officers
• CBVs

Mali UNIJECT, WHO TechNet, March 22-25 2004
Performance indicator (PI) to measure % of CBVs who correctly used TT-Uniject, based on 8 tasks:

1. Correctly determines vaccine vial monitor (VVM)
2. Easily opens package
3. Correctly activates device
4. Uses sterile technique
5. Injects in correct body location
6. Completely empties reservoir
7. Does not recap needle
8. Places device directly into sharps container

Performance indicator (PI) to measure % of CBVs who correctly used TT-Uniject, cont'd.
### Sample Selection

For survey (observations and interviews):

<table>
<thead>
<tr>
<th>Number of CBVs, by District (Cercles)</th>
<th>Number of Women Aged 15 – 49 yrs</th>
<th>Population of Women Aged 15 – 49 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bla (Bougouni)</td>
<td>53,500</td>
<td>290</td>
</tr>
<tr>
<td>Bougouni</td>
<td>88,548</td>
<td>446</td>
</tr>
<tr>
<td>Total</td>
<td>142,048</td>
<td>605</td>
</tr>
</tbody>
</table>

### Table of Sample Selection

<table>
<thead>
<tr>
<th>District</th>
<th>Population of Women Aged 15 – 49 yrs</th>
<th>Number of CBVs</th>
<th>Number of Women Aged 15 – 49 yrs</th>
<th>Population of Women Aged 15 – 49 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bla (Bougouni)</td>
<td>53,500</td>
<td>114</td>
<td>210</td>
<td>98</td>
</tr>
<tr>
<td>Bougouni</td>
<td>88,548</td>
<td>290</td>
<td>446</td>
<td>88</td>
</tr>
<tr>
<td>Total</td>
<td>142,048</td>
<td>404</td>
<td>605</td>
<td>142</td>
</tr>
</tbody>
</table>

**Note:**
- Number of CBVs: 404
- Number of Women Aged 15 – 49 yrs: 605
- Total Population: 142,048
Sample Selection, cont’d

For focus groups:

- Each AHO invited one CBV. Selection was by convenience, e.g., available to attend, had a way to get there, invited by AHO (so 22 in Bla and 23 in Bougouni).
- All AHOs in the district were to participate (22 in Bla, 23 in Bougouni).
Results

Data were collected by survey and focus groups between February 17 – 25, 2003.

- 346 CBVs and clients were surveyed
- 182 site observations were conducted
- 4 focus groups were conducted, 1 each of CBVs and AHOs in each of the 2 districts

346 CBVs and clients were surveyed
182 site observations were conducted
4 focus groups were conducted, 1 each of CBVs and AHOs in each of the 2 districts
Results: Focus Groups
### Number of Focus Group Participants, by District

<table>
<thead>
<tr>
<th>District</th>
<th>AHOs</th>
<th>CBVs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bougouni</td>
<td>18</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Bia</td>
<td>17</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

Results: Focus Groups, cont'd
Results: Focus Groups, cont'd

Summary of key aspects (AHOs + CBVs)

- Most CBVs said they learned in one session.
- Half of AHOs trained each CBV after 1st training.
- Most AHOs and CBVs were satisfied with the method of selection.
- Most AHOs were satisfied with most of the CBVs selected.
- A number of AHOs suggested that there should be more stringent adherence to the criteria when selecting the CBV (improve standardization of selection).
- Most AHOs agreed that the CBVs should be more stringent adherence.
- Most AHOs and CBVs were satisfied with the method of selection.
- Actual method of selection was:
  - The method by which CBVs were recruited was:
  - A number of AHOs suggested that there should be more stringent adherence to the criteria when selecting the CBV (improve standardization of selection).
  - Most AHOs agreed that the CBVs should be more stringent adherence.
  - Most AHOs and CBVs were satisfied with the method of selection.
  - Method by which CBVs were recruited:
    - Village health committee (26%)
    - Primary by general assembly (all of Bla and 42% of Bougouni)
    - Most popular method was by town chief in collaboration with the village health committee in Bougouni.
Results: Focus Groups, cont'd

- Perception of the community's view:
  - Townspeople agree to having CBV vaccinate:
    - 1/3 of Bla’s and almost all of Bougouni’s AHOs thought this. Yet the survey showed 9 out of 10 clients would return if CBV were vaccinating and/or UNIJECT were used.
  - Rumors: CBVs thought that their participation helped reduce rumors, but AHOs thought that it didn’t.

- Rumors: CBVs thought that their participation helped reduce rumors, but AHOs thought that it didn’t.
Stated advantages of having CBVs help:

- Increased coverage: both AHOs and CBVs thought this, and that it was because CBVs mobilize the population and they know who's missing.
- Improves work efficiency: AHO's said it reduces their (immunization) work load, allowing them to do other things (that CBVs can't do).

Results: Focus Groups, cont'd
Results: Focus Groups, cont’d

CBVs routinely administering TT-Uniject:
- CBVs suggested implementing this through immunization outreach with AHO
- Both groups thought this was possible
- Both groups said pay was not necessary
- AHOs suggested serving as the link between AHO and the (existing) community supervisor and the (existing) community health worker (relais) serving as the link between AHO

Mali UNIJECT, WHO TechNet, March 22-25 2004
21
Characteristics of CBVs in focus groups with respect to work as a TBA:

**Bla (N=17):**
- Practicing TBAs = 2 (11%)
- Apprentice TBAs = 7 (41%)
- Who aren't TBAs = 6 (35%)

**Bougouni (N = 18):**
- Practicing TBAs = 16 (89%)
- Apprentice TBAs = 2 (11%)
- Who aren't TBAs = 6 (35%)
Results: Survey
Characteristics of volunteers cont'd

- Literacy courses: 47% had taken some
- Schooling: 78% had none
- Age: 57% > 45 years of age (4% < 30 yrs)
- Residence in village: 75% since marriage
- 15% since birth
Results: Survey, cont’d

Practice as a TBA:

- How long had she been a TBA (years)?
  - About 40% had been a TBA for 5 or more years
  - About 33% for one year or less
  - About 20% for less than a year

- Had she provided prenatal counseling during the 10-11 wks prior to interview?
  - About 53% had counseled someone (about 1 per wk)

- How many deliveries had she assisted during the 10-11 wks prior to interview?
  - About 70% had assisted at deliveries (usually about 2 every 3 wks)
Results: Survey, cont’d

- 3% said they had no special instruction.
- 7% had 2 trainings, but not the planned two.
- 10% had the originally planned training plus an extra training (36, of whom 31 were from Bla).
- 17% had only one training (either one of the planned trainings or an ad hoc training).
- 63% had the originally planned training.

Training of community-based volunteer:
Results: Survey, cont’d

Supervision during UNIJECT administration:

- 6% were not watched at all
- 97% had at least one person near her
- 58% of those having someone so close they could touch her
- 75% were constantly watched or checked
- 6% were not watched at all
Results: Survey, cont'd

Performance Indicator:

- Correctly disposed of the device
- Didn’t recap needle
- Injected at correct arm site
- Used sterile technique

9 out of 10:

4 out of 10 successfully executed all 8 tasks
The task that posed the most difficulty was emptying the reservoir – 1 out of 4 did not completely empty the reservoir.

Results: Survey, cont’d

- Easily opened the package
- Easily activated the device
- Correctly made a decision using the VVM

8 out of 10:
- Easily opened the package
- Easily activated the device
- Correctly made a decision using the VVM
- Easily made a decision using the VVM
Mean performance indicator (MPI) was 7.1 out of possible 8.0 (SD=1.1).

3 out of 4 had a value of at least 7.0.

MPI was significantly greater for Bla, 7.4 ± 0.7 versus 7.0 ± 1.2 for Bougouni.

MPI was significantly greater for CBVs <46 years of age, 7.4 ± 0.8 versus 6.9 ± 1.2.

The differences between districts and between age groups was due to a much lower MPI for older women in Bougouni.
Results: Survey, cont’d

- Supervision: No association with MPI
  - CV needed supplemental training.
  - There were interactions between having taken literacy courses, age, and district. MPI was greater for those who had literacy courses but not significantly so.

- Training: MPI was lower for those with 3 trainings versus 1 or 2 trainings, perhaps because AHO felt the CBV needed supplemental training.

- Literacy: School can’t analyze (78% had no schooling)

- TBA experience: No association with MPI
Results: Survey, cont'd

Injection Safety:

- 99% of the CBVs disposed of the Uniject in a safety box
- 5% admitted to having stuck herself (but not someone else) at some time with the Uniject needle

---

Mali UNIJECT, WHO TechNet, March 22-25 2004
Results: Survey, cont'd

Client Satisfaction:

- 4% said this was her first injection
- 3 out of 4 had previously received injections and said the injection that day was less painful
- 8 out of 10 thought it was good to have the CBV do the injection (6% didn't think so)
- Virtually 100% said she would come back for a vaccination given by the CBV
- For a vaccination by the CBV with Uniject
- For a vaccination with Uniject
- For a vaccination given by the CBV with Uniject
Results: Survey, cont'd
99% used the safety box
10% also had other boxes
98% of volunteers took the boxes to a health person; 2% did nothing with them
99% of the boxes were taken away by health personnel; the other 1% was appropriately disposed of.

\[ N = 182 \]

Injection Safety - Site Observations

Results: Survey, cont'd
### Results: MNTE Data

**Total % of Women with T1 after 3rd Round and T1 – T3 Non-complete Vaccination, by District**

<table>
<thead>
<tr>
<th>District</th>
<th>Total T1 Coverage</th>
<th>T1 - T3 Non-completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bla</td>
<td>99.6</td>
<td>101.3</td>
</tr>
<tr>
<td>Bougouni</td>
<td>109.3</td>
<td>103</td>
</tr>
<tr>
<td>Djenné</td>
<td>100</td>
<td>102</td>
</tr>
<tr>
<td>Kadiolo</td>
<td>103</td>
<td>103</td>
</tr>
<tr>
<td>Kolokani</td>
<td>99.3</td>
<td>101.3</td>
</tr>
<tr>
<td>Sikasso</td>
<td>103</td>
<td>103</td>
</tr>
</tbody>
</table>

*TT-UNIJECT districts are first 2 on left.*

Non-complete Vaccination by District

**Total % of Women with T1 after 3rd Round and T1 – T3**

**Results: MNTE Data**
Conclusions

Regarding CBV’s capacity to use TT-Uniject:

- CBVs, including nonliterate CBVs, can be trained to safely and correctly use TT-Uniject.
- Training may impact performance.
- CBVs, including nonliterate CBVs, can be trained to TT-Uniject.

Regarding acceptance of CBV-administered TT-Uniject:

- TT-Uniject is accepted by communities in Mali.
- CBVs vaccinating women are accepted by communities in Mali.

TT-Uniject is accepted by communities in Mali.
Conclusions, cont’d

Regarding costs of CBVs administering TT-Uniject:

- CBVs are willing to participate in routine vaccination as unpaid community volunteers.
- Health staff believe that CBVs can routinely vaccinate using TT-Uniject as unpaid community volunteers without additional costs beyond training costs.
- Such participation can be done without additional costs beyond training costs.
Conclusions, cont'd

Other Implications:

- Reducing rumors
- Better identification of those needing vaccination
- Mobilizing population

Increase coverage by:

- Health staff and CBVs thought that CBVs may help health work
- Immunization workload load to allow them to do other health work
- Health staff felt that CBVs in this role reduce their own work load
Next Steps

- Develop strategy and procedures for incorporating CBV administered TT-Uniject into routine vaccination
- Revise training materials to accommodate adult learners who are predominantly non-literate learners
- Incorporating CBV administered TT-Uniject
- Develop strategy and procedures for

Iterate learners

CBVs with TT-Uniject Can Overcome Social Barriers
TT Uniject: 
Programmatic Needs 
vis-à-vis Availability  
      
SAGE Working Group for MNTE 
2nd face-to-face meeting  
Azhar A Raza 
Immunization Specialist UNICEF 
Geneva, 17 August 2016
Presentation Outline

UNICEF

Why needed programmatically?
Operational advantages and past experience
Resources required and estimated timeline
Availability in global market
Manufacturers capacity & priorities
Forecast 2017-2020
Next steps
9 out of 18 remaining MNT risk countries have prevailing issues of conflict and insecurity!
40% of WRA inaccessible in 9/18

Countries still at risk of MNTE

- Afghanistan (35%)
- Chad** (40%)
- Nigeria (22%)
- Pakistan (22%)
- Somalia (80%)
- Sudan (22%)
- Sudan South** (40%)
- Yemen (40%)

Total

Accessible target

Estimated inaccessible target
~18 million targeted women in 9 countries are repeatedly missed by routine and TT SIAs??!

** Chad and South Sudan may need it for one corrective round.

Can we afford leaving 3 million newborn at risk of tetanus?

** Chad and South Sudan may need it for one corrective round.

Countries with an estimated WRA inaccessible with either routine or TT SIAs? due to security and/or conflict.

<table>
<thead>
<tr>
<th>Country</th>
<th>(40%)</th>
<th>(22%)</th>
<th>(60%)</th>
<th>(80%)</th>
<th>(1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yemen</td>
<td>2.063</td>
<td>93.4</td>
<td>1.231</td>
<td>5.290</td>
<td>5.574</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>0.034</td>
<td>96.7</td>
<td>1.234</td>
<td>4.530</td>
<td>6.062</td>
</tr>
<tr>
<td>Chad*</td>
<td>35%</td>
<td>100%</td>
<td>40%</td>
<td>22%</td>
<td>80%</td>
</tr>
<tr>
<td>Chad**</td>
<td>903.5</td>
<td>9.1</td>
<td>1.237</td>
<td>5.290</td>
<td>5.574</td>
</tr>
<tr>
<td>Nigeria</td>
<td>92%</td>
<td>22%</td>
<td>93.4</td>
<td>1.231</td>
<td>5.290</td>
</tr>
<tr>
<td>Pakistan</td>
<td>87.1</td>
<td>40%</td>
<td>1.231</td>
<td>5.290</td>
<td>5.574</td>
</tr>
<tr>
<td>Somalia</td>
<td>80%</td>
<td>40%</td>
<td>1.231</td>
<td>5.290</td>
<td>5.574</td>
</tr>
<tr>
<td>Sudan</td>
<td>77.1</td>
<td>22%</td>
<td>1.231</td>
<td>5.290</td>
<td>5.574</td>
</tr>
<tr>
<td>Sudan South**</td>
<td>77.1</td>
<td>40%</td>
<td>1.231</td>
<td>5.290</td>
<td>5.574</td>
</tr>
<tr>
<td>Yemen</td>
<td>2.063</td>
<td>93.4</td>
<td>1.231</td>
<td>5.290</td>
<td>5.574</td>
</tr>
<tr>
<td>Yemen</td>
<td>2.063</td>
<td>93.4</td>
<td>1.231</td>
<td>5.290</td>
<td>5.574</td>
</tr>
</tbody>
</table>
The situation ideally warrant innovative technologies for service delivery. UNICEF

- A preparation that is easy to handle and use
- More stable on exposure to heat
- That need less expertise to operationalize
- It is more safer to use in such circumstances
- A preparation that is easy to handle and use

Technologies for service delivery

The situation ideally warrant innovative
Past experience of TT Uniject

- Successfully used in past – pilot in 9 countries
- Prefilled device – that was easy to administer
- Used satisfactorily by community workers and volunteers
- No change in VVM despite being indoors without cold chain
- Was carried to remote sites even out of cold chain
- Required very brief trainings / orientation
- Used 9 million TT Uniject used
- 2002-2004
Annual Uniject forecast 2017-2020

# of Uniject doses required

Total 2017: 4,980,878
Total 2018: 18,542,038
Total 2019: 27,075,081
Total 2020: 4,980,878

Countries based on tentatitive validation timeline

Estimated # of TT Uniject doses required by

Afghanistan 40%
CAR 40%
Nigeria 40%
Pakistan 40%
Somalia 30%
Sudan 100%
South Sudan 100%
Yemen 50%

Chad 100%
Somalia 70%

An additional US$50 million will enable access to target 18 million WRA with 3 doses.

** Chad and South Sudan may need it for one corrective round.
Due to prior commitments for HBV, the TT Uniject preparation will be earliest available in 2017.

UNICEF

At present, not readily available

Only one WHO pre-qualified manufacturer – Biofarma

Current annual production capacity is close to 6 million in various batches.

The manufacturer has a valid registration of this product

9 million doses used in 9 countries between 2002 & 2004

TT Uniject is a registered product in many countries

Availibility in global market
Current Status - Biofarma

- 2nd Uniject filling plant is operational now
- Annual **production capacity** of Uniject doubled
- Currently 50% of production capacity earmarked for **HBV Uniject (birth dose)** – the commitment with the Government of Indonesia (6 million units annually)
- Approximate **5-6 million TT Uniject** units can be made available per year
- **Production lag time is 4-6 months** – that means for availability of first batch of Uniject in January 2017, the order need to be placed with guaranteed funds not later than August 2016.
Cost per unit with VVM varies from $0.80 to $1.00. This includes cost of device ~ $0.23 (BD). This is ex-factory price and covers transportation to Jakarta airport only. Further transportation/shipment cost shall be borne by the consumer. Estimated wastage rate vary from 5-10%.

The high cost is due to excessive wastage primarily from leakage and sealing.

Countries using Td will need administrative instruction to use TT Uniject. Td Uniject is not a registered product. Registration and pre-qualification is a lengthy process that need on average 2-3 years.

Countries using Td will need administrative instruction to use TT Uniject. Td Uniject is not a registered product. Registration and pre-qualification is a lengthy process that need on average 2-3 years.

Countries using Td will need administrative instruction to use TT Uniject. Td Uniject is not a registered product. Registration and pre-qualification is a lengthy process that need on average 2-3 years.
What Next!

TT
Uniject

¾ Need endorsement from SAGE

¾ Readiness of countries to use Uniject – policy and capacity.

¾ Secure funding; present business case to potential donors – BMGF, Gavi, BD, Kiwanis, P&G, etc.

¾ Liaise with UNICEF SD to follow-up on pricing and demand.

¾ Talk to BD for possible donation – extent and duration.

¾ Readiness of countries to use Uniject – policy and need endorsement from SAGE.
An additional $50 million will enable tetanus protection to the one missed repeatedly.

### Financial Needs for TT Uniject for MNTE Programme (July 2016)

<table>
<thead>
<tr>
<th>No.</th>
<th>Country</th>
<th>Additional cost for Uniject</th>
<th>WRA per Round</th>
<th>Ops Cost at 0.50 per</th>
<th>UNIJECT DEVICES</th>
<th>TOTAL ADIPL COST</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Afghanistan</td>
<td>$2,894,649</td>
<td>$6,795,825</td>
<td>$1,554,315</td>
<td>$3,110,391</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Central African Republic</td>
<td>$2,103,966</td>
<td>$4,795,985</td>
<td>$1,480,656</td>
<td>$3,684,621</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Chad**</td>
<td>$1,235,670</td>
<td>$2,742,000</td>
<td>$1,324,785</td>
<td>$4,664,706</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Nigeria</td>
<td>$13,599,351</td>
<td>$29,955,351</td>
<td>$6,795,825</td>
<td>$20,395,176</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Pakistan</td>
<td>$15,881,284</td>
<td>$36,354,259</td>
<td>$7,936,145</td>
<td>$23,817,429</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Somalia</td>
<td>$3,697,170</td>
<td>$8,249,310</td>
<td>$1,847,538</td>
<td>$5,544,708</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Sudan (22%)</td>
<td>$2,962,990</td>
<td>$6,795,825</td>
<td>$1,480,656</td>
<td>$4,443,646</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sudan South**</td>
<td>$13,599,351</td>
<td>$31,955,351</td>
<td>$6,795,825</td>
<td>$20,395,176</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Chad and South Sudan may need it for one corrective round.

* Adjusted after subtracting cost of TT vaccine and devices (ADS + Safety Box)

** Chad and South Sudan may need it for one corrective round.
Dr. Rakesh Kumar
Joint Secretary (RCH)
Govt. of India

Approach
Health Systems
MNT Elimination
India: Achieving

Govt. of India
Elimination of MNT in 2015
Major Milestone achieved

15 May 2015:
"WHO congratulates India on achieving the milestone of MNTE"
Estimated neonatal tetanus cases, India

672 districts

TT for Pregnant women and children scaled up in the 1980s

Data source: JRF data from 2006 onwards

150 000–200 000 Estimated NT cases
How was this milestone achieved?
1. Systematic vaccination of pregnant women attending antenatal care (ANC) with tetanus toxoid (TT) containing vaccine.

2. Demand creation through conditional cash transfers (JSY) and supply side strengthening (JSSK); and promotion of skilled birth attendance (SBA) and intensive behaviour change communication targeting communities to reduce harmful cord care practices.

3. Neonatal Tetanus (NT) control and elimination strategies through conditional cash transfers and conditional vaccination of pregnant women attending antenatal care (ANC) with tetanus toxoid (TT) containing vaccine.
Two doses of TT, 4 weeks apart, offered to all pregnant women, if next pregnancy is within 3 years, 1 booster TT dose is provided.

Introduction of TT during infancy and childhood.

TT dose at 10 years and 16 years.

Two booster doses of DPT/DT at 16–24 months and 5–6 years.

Three doses of DPT at 6, 10 and 14 weeks.

TT SIAs targeting areas at risk in week performing states of MP, Rajasthan, UP, West Bengal.

Strengthening of immunization services through inclusion of 400,000 high risk areas identified through polo in 400,000 high risk areas.

Special Immunization Weeks (SIWs)

1. Interventions undertaken to improve TT coverage in pregnant women and children.
Introduction of TT vaccine under National Immunization Programme since 1983 led to rapid decline in no of NT cases.
HMIS: Health Management Information System

* Data as on 2 May 2015

TT2+ injection received during pregnancy

80% to 90%
70% to 80%
60% to 70%
50% to 60%
< 50%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%

79%

70%
Percent DPT 3 & DPT Booster coverage, India

Percent DPT3 coverage from WHO-Unicef JRF coverage estimates

Percent DPT booster from Health Management Information System (HMIS)

Percent DPT 3 & DPT Booster coverage, India
2. Promotion of hygienic birth at home or in health institutions under the NHM

- Improving clean deliveries
  - Janani Suraksha Yojana (JSY) launched in 2005
    - Conditional money transfer scheme to encourage pregnant women to give birth in health facilities, including
      - Free drugs, consumables, diagnostics, blood, and transport
      - Incentives to Accredited Social Health Activists (ASHA)
  - Janani Shishu Suraksha Karyakram (JSSK) launched in 2011
    - Women delivering in health facilities received additional benefits
      - Free drugs, consumables, diagnostics, blood, and transport
      - Incentives to Accredited Social Health Activists (ASHA)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of beneficiaries in million</th>
<th>Institutional delivery under JSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>2013-14</td>
<td>7.56</td>
<td>10.65</td>
</tr>
<tr>
<td>2015-16</td>
<td>10.00</td>
<td>12.00</td>
</tr>
<tr>
<td>2016-17</td>
<td>12.00</td>
<td>14.00</td>
</tr>
</tbody>
</table>

Institutional delivery under JSY

- High Focus States
- India
JSY Funding by GoI

USD Funding under Janani Suraksha Yojana (JSY)

- **2012-13**
  - Low Performing states: $200 million
  - Other states: $50 million

- **2013-14**
  - Low Performing states: $250 million
  - Other states: $25 million

- **2014-15**
  - Low Performing states: $250 million
  - Other states: $25 million

---

USD in millions

- **Funds Govt of India under Janani Suraksha Yojana (JSY)**

---

Note: The map indicates the distribution of funding across different states.
Other interventions undertaken to improve clean deliveries:

- Nearly 70,000 nursing personnel trained and deployed
- More than 900,000 ASHAs (community mobilizers) engaged
- Dial 108 Ambulance System introduced: More than 20,000 ambulances supported for timely access to public health facilities
- Over 40 million Village Health & Nutrition Days (VHNDs) held, with a range of ante-natal care and immunization services
- Skilled birth attendance as per most recent survey, India > 80%
- 70% to 80%
- 60% to 70%
- 50% to 60%
- < 50%

* AHS: Annual Health Survey (2012-13); DLHS: District Level Household Survey (2012-13)

Promotion of hygienic birth at home or in health institutions under NHM (contd...)

Improve clean deliveries:
- Skilled birth attendance as per most recent survey, India
- More than 90,000 ASHAs trained and deployed
- Almost 70,000 nursing personnel

2. Promotion of hygienic birth at home or in health institutions under NHM (contd...)

Skilled birth attendance as per most recent survey, India
ASHAs & Increase in institutional deliveries

No. of ASHA (in thousands)

% Institutional Delivery

National Rural Health Mission-JSY

DPHS1 1998-99

DPHS2 2002-04

DPHS3 2007-08

CES 2009

SRS 2012

SRS 2013

RSOC 2013-14

0 100 200 300 400 500 600 700 800 900 1000

0 20 40 60 80 100

14 34 41 47 73 74 79 74 75 79

86.8 143 432 589 707 803 850 867 891 900 936
## Institutional Delivery

<table>
<thead>
<tr>
<th>State</th>
<th>NFHS-3 (2005-06)</th>
<th>NFHS-4 (2013-14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>87.9</td>
<td>93.3</td>
</tr>
<tr>
<td>Assam</td>
<td>65.4</td>
<td>83.4</td>
</tr>
<tr>
<td>Bihar</td>
<td>62.2</td>
<td>82.1</td>
</tr>
<tr>
<td>Chhattisgarh</td>
<td>56.6</td>
<td>76.3</td>
</tr>
<tr>
<td>Delhi</td>
<td>78.1</td>
<td>89.0</td>
</tr>
<tr>
<td>Gujarat</td>
<td>52.7</td>
<td>67.3</td>
</tr>
<tr>
<td>Haryana</td>
<td>74.2</td>
<td>87.7</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>68.7</td>
<td>79.5</td>
</tr>
<tr>
<td>India</td>
<td>73.4</td>
<td>84.0</td>
</tr>
<tr>
<td>Karnataka</td>
<td>81.3</td>
<td>91.4</td>
</tr>
<tr>
<td>Kerala</td>
<td>87.9</td>
<td>93.3</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>64.1</td>
<td>76.4</td>
</tr>
<tr>
<td>Maharaashtra</td>
<td>52.7</td>
<td>68.5</td>
</tr>
<tr>
<td>Manipur</td>
<td>45.9</td>
<td>55.9</td>
</tr>
<tr>
<td>Madhya Pradesh</td>
<td>64.1</td>
<td>76.4</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>62.1</td>
<td>74.2</td>
</tr>
<tr>
<td>Mizoram</td>
<td>52.7</td>
<td>68.5</td>
</tr>
<tr>
<td>Nagaland</td>
<td>45.9</td>
<td>55.9</td>
</tr>
<tr>
<td>Orissa</td>
<td>66.5</td>
<td>82.7</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>75.1</td>
<td>85.0</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>83.4</td>
<td>94.1</td>
</tr>
<tr>
<td>Tripura</td>
<td>46.9</td>
<td>55.9</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>69.8</td>
<td>79.5</td>
</tr>
<tr>
<td>West Bengal</td>
<td>76.3</td>
<td>87.7</td>
</tr>
</tbody>
</table>

*Note: NFHS stands for National Family Health Survey.*
Communication programme to reduce harmful cord care practices through ASHA, Anganwadi and female health workers

3. Intensive communication targeting communities to reduce harmful cord care practices

- Promotion of 5 „cleans” – hands, delivery surfaces, instruments for cutting cord, cord tie and caring of cord

Health workers: Care practices through ASHA, Anganwadi and female health workers

To reduce harmful cord care practices
Reduction of harmful practices like cow dung

Indigenous substances

*Oil and clarified butter used for baby massage are the most common indigenous substances
RMNCH+A strategy under NHM: 5X5 Matrix to focus on 184 high priority districts to address equity issue

Improving Maternal & Child Health

Adolescent Health

Neonatal Health

Reproductive Health

Improving Maternal & Child Health
Validation through:

- Desk review of data in 7 small states, where quality data was available.
- 30 x 7 cluster surveys in 4 medium sized states with hilly terrain.
- LQAS in 25 large states, in high risk districts.

18

16 states/UTs

MNTE validation progress in India

19 states/UTs

30 states/UTs

36 states/UTs

Desk review of data in 7 small states, where quality data was available.

30 x 7 cluster surveys in 4 medium sized states with hilly terrain.

LQAS in 25 large states, in high risk districts.

2003–2012 2013 2014

16 states/UTs

36 states/UTs

30 states/UTs

19 states/UTs

2015

2014

2013

2003–2012

MNTE validation progress in India
Pre-validation visits including 30x7 cluster surveys in Uttar Pradesh and Bihar used to assess feasibility of validation.

- Pre-validation visits
- Use of polio microplains to develop MNTE validation survey
- Microplains training of supervisors and surveyors
- Microplains
- Data
- Intensive supervision and monitoring with use of real time data
- Daily evening debriefings at planning unit for corrective actions
- Intensive training of supervisors and surveyors
- Accountability through district task forces for immunization
- Effective partners' support: WHO-India-NPSP, WHO HQ and UNICEF & others
Strengthening RI - Mission Indradhanush

201 High priority districts & 352 Medium priority districts with high left-outs & drop-outs in India

Catch up Campaign for low RI areas

- Intensive planning, training, monitoring,
- Communication using polio network
- Active engagement of polio partners (WHO, UNICEF, Rotary)
- Phase I: April, May, June, July 2015
- Phase II: October, November, December 2015 & January 2016

Phase 2 (Oct, Nov, Dec 2015 & Jan 2016)
Phase 1 (April, May, June, July 2015)
7 days each month for 4 months

Catch up Campaign for low RI areas

Drop-outs in India

Priority districts with high left-outs & drop-outs

201 High priority districts & 352 Medium priority districts
2 million additional sessions held

- 3.7 million children fully immunized
- 3.6 million pregnant women immunised
- 35 million antigens administered
Laboratory supported diagnosis of Diphtheria & Pertussis

Using polio surveillance as a platform

Surveillance launched in Haryana and Kerala with support from WHO-India

Plan to expand VPD surveillance to other states (Bihar & Rajasthan) in 2015
Sharp reduction in MNT cases due to targeted interventions under Universal Immunization Programme

- Provision of TTCV during Ante natal care period
- High coverage with TTCV sustained
- High risk approach adopted for rapidly increasing protection at birth through targeted TT SIAs in weak performing states & districts
- Systems strengthening measures leading to elimination of MNT & positive MCH benefits and reduction in maternal & neonatal mortality

Lessons learnt:

- Engagement of ASHA and BCC initiatives have led to reduction in harmful cord practices
- Innovative schemes such as Janani Suraksha Yojana & Janani Shishu Suraksha Karyakram
- Rise in institutional births and skilled birth attendance
- Launch of National Health Mission in 2005
- Rise in institutional births and skilled birth attendance
- Innovate schemes such as Janani Suraksha Yojana & Janani Shishu Suraksha Karyakram
- High risk approach adopted for rapidly increasing protection at birth through targeted TT SIAs in weak performing states & districts
- High coverage with TTCV sustained
- Provision of TTCV during Ante natal care period
Polio infrastructure and learnings leveraged to improve routine immunization

Mission Indradhanush launched - Risk analysis and high risk approach

Emphasis on microplanning, training, and UNICEF & others

Effective partners’ support: WHO-NPSP, WHO HG

Engaging accountability mechanisms – task forces

Monitoring Emphasis on microplanning, capacity building and intensive approach

Mission Indradhanush launched - Risk analysis and high risk

Improve Routine Immunization

Polio Infrastructure and learnings leveraged to

Lessons Learnt...
High TT coverage, institutional births, hygienic cord care practices with increasing TT coverage through life cycle approach will sustain MNT elimination.

Strengthening of VPD surveillance to detect cases of neonatal tetanus will further strengthen routine immunization.

Lessons learnt:
- Through life cycle approach, high institutional births, hygienic cord care practices with increasing TT coverage.
- Strengthening of VPD surveillance to detect cases of neonatal tetanus will further strengthen routine immunization.

Lessons Learnt...
Thank you

Tetanus-free newborns remain at risk and our mothers & families must continue to strive to ensure India will continue
Critical operational challenges to achieving at least 80% Protection at Birth from MNT in high risk districts

SAGE WG on MNTE

Dr Jane Soepardi
Timeline of activities to Maternal and Neonatal Tetanus Elimination in Indonesia

1977
- EPI started, 3 dose of DPT

1979
- Introduction of 2 dose of TT for Pregnant women in EPI

1984
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

1988
- 5 dose TT schedule implemented
- School Immunization Month

1998
- Making Pregnancy Safer (social safety net)

2000
- Community based NT Mortality Survey

2001
- 2 rounds TT SIAs in high risk districts 2003 - 2009
- Joint WHO-UNICEF Reviews

2003
- Introduction of DTP-HepB into EPI

2004
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2009
- Safe motherhood program (village midwives)

2010
- UHC (delivery in health facility)
- District review in Papua, Region 4

2011
- Introduction of 2 dose of TT for Pregnant women in EPI

2015
- Joint WHO-UNICEF Reviews

2016
- District review in Papua, Region 4

2018
- MNT eliminated in regions 1, 2, 3

2019
- Making Pregnancy Safer (social safety net)

2020
- Community based NT Mortality Survey

2021
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2022
- Introduction of DTP-HepB into EPI

2023
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2024
- Joint WHO-UNICEF Reviews

2025
- District review in Papua, Region 4

2026
- MNT eliminated in regions 1, 2, 3

2027
- Making Pregnancy Safer (social safety net)

2028
- Community based NT Mortality Survey

2029
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2030
- Introduction of DTP-HepB into EPI

2031
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2032
- Joint WHO-UNICEF Reviews

2033
- District review in Papua, Region 4

2034
- MNT eliminated in regions 1, 2, 3

2035
- Making Pregnancy Safer (social safety net)

2036
- Community based NT Mortality Survey

2037
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2038
- Introduction of DTP-HepB into EPI

2039
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2040
- Joint WHO-UNICEF Reviews

2041
- District review in Papua, Region 4

2042
- MNT eliminated in regions 1, 2, 3

2043
- Making Pregnancy Safer (social safety net)

2044
- Community based NT Mortality Survey

2045
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2046
- Introduction of DTP-HepB into EPI

2047
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2048
- Joint WHO-UNICEF Reviews

2049
- District review in Papua, Region 4

2050
- MNT eliminated in regions 1, 2, 3

2051
- Making Pregnancy Safer (social safety net)

2052
- Community based NT Mortality Survey

2053
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2054
- Introduction of DTP-HepB into EPI

2055
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2056
- Joint WHO-UNICEF Reviews

2057
- District review in Papua, Region 4

2058
- MNT eliminated in regions 1, 2, 3

2059
- Making Pregnancy Safer (social safety net)

2060
- Community based NT Mortality Survey

2061
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2062
- Introduction of DTP-HepB into EPI

2063
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2064
- Joint WHO-UNICEF Reviews

2065
- District review in Papua, Region 4

2066
- MNT eliminated in regions 1, 2, 3

2067
- Making Pregnancy Safer (social safety net)

2068
- Community based NT Mortality Survey

2069
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2070
- Introduction of DTP-HepB into EPI

2071
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2072
- Joint WHO-UNICEF Reviews

2073
- District review in Papua, Region 4

2074
- MNT eliminated in regions 1, 2, 3

2075
- Making Pregnancy Safer (social safety net)

2076
- Community based NT Mortality Survey

2077
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2078
- Introduction of DTP-HepB into EPI

2079
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2080
- Joint WHO-UNICEF Reviews

2081
- District review in Papua, Region 4

2082
- MNT eliminated in regions 1, 2, 3

2083
- Making Pregnancy Safer (social safety net)

2084
- Community based NT Mortality Survey

2085
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2086
- Introduction of DTP-HepB into EPI

2087
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2088
- Joint WHO-UNICEF Reviews

2089
- District review in Papua, Region 4

2090
- MNT eliminated in regions 1, 2, 3

2091
- Making Pregnancy Safer (social safety net)

2092
- Community based NT Mortality Survey

2093
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2094
- Introduction of DTP-HepB into EPI

2095
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2096
- Joint WHO-UNICEF Reviews

2097
- District review in Papua, Region 4

2098
- MNT eliminated in regions 1, 2, 3

2099
- Making Pregnancy Safer (social safety net)

2100
- Community based NT Mortality Survey

2101
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2102
- Introduction of DTP-HepB into EPI

2103
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2104
- Joint WHO-UNICEF Reviews

2105
- District review in Papua, Region 4

2106
- MNT eliminated in regions 1, 2, 3

2107
- Making Pregnancy Safer (social safety net)

2108
- Community based NT Mortality Survey

2109
- 2 rounds TT SIAs in high risk districts 2003 - 2009

2110
- Introduction of DTP-HepB into EPI

2111
- Validation Surveys in phases, MNT eliminated in regions 1, 2, 3
- Introduction of 2 dose DT for school enterers and 2 dose of TT for school leavers in EPI

2112
- Joint WHO-UNICEF Reviews

2113
- District review in Papua, Region 4

2114
- MNT eliminated in regions 1, 2, 3

2115
- Making Pregnancy Safer (social safety net)

2116
- Community based NT Mortality Survey
Strategies to sustain MNT Elimination

- Increasing routine DTP coverage among infants and TT2+ among pregnant women
- Long term protection against tetanus through:
  - Booster doses:
    - DT, Td for Grade 1, 2 and 3 at elementary school (since 1984)
    - DTP4 at 18 months (since 2013)
- Short term TT SIAs, in high risk districts only, targeting CBAW (15-39 years)
- Continued NT surveillance as part of VPD surveillance through improving sensitivity on NT cases
- Improving clean delivery and cord care practice
- Use of every opportunity during a child and mother’s contact in HF e.g. childhood treatment (IMCI), Malaria nets distribution, ANC screening for Malaria, HIV, etc.
School Based Immunization, Td containing vaccines coverage, 2005-2014

- DT kls: 96.7 88.2 77.2 87.2 84.7 88.2 88.6 91.9 93.1 92.6
- TT/Td kls 1: 92 87.4 69.9 87.7 73.9 79.2 93.3 93.4 94.2 92.6
- TT/Td kls 2: 88.8 90.8 75.3 88.7 73.3 79.4 92.8 94.2 95.1 92.8

Td vaccine is used since 2011
Long term benefits of Vaccination through School based Immunization? Recording? Screening?
Neonatal Tetanus Cases and TT2+ (PW) Immunization Coverage, 2002 - 2014

Data as of 30 Apr 2015

Screening?  
Neonatal Tetanus Cases and TT2+ (PW) Immunization
**Selected 18 MNTE High Risk Districts**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NT Rate/1,000LB</td>
<td>Birth Attendance Rate</td>
</tr>
<tr>
<td>2. Skilled Birth</td>
<td>Attendance Rate</td>
</tr>
<tr>
<td>3. TT2+ Coverage</td>
<td>Immunization Coverage</td>
</tr>
<tr>
<td>4. DTP1 and DTP3 Coverage</td>
<td>Immunization Coverage</td>
</tr>
<tr>
<td>5. School Based Immunization Coverage</td>
<td>Immunization Coverage</td>
</tr>
</tbody>
</table>

**Indicators Used for MNTE Scoring System:**

A. Core Indicators:

B. Other Indicators:
Strategies to sustain MNT Elimination

• Increasing routine DTP coverage among infants and TT2+ among pregnant women

• Long term protection against tetanus through:
  – Booster doses: DTP4 at 18 months (since 2013)
  – TT for Grades 1, 2, and 3 at elementary school (since 1984)

• Short term TT SIAs, in high-risk districts only, targeting CBAW (15-39 years)

• Continued NT surveillance as part of VPD surveillance through improving sensitivity on NT cases

• Improving clean delivery and cord care practice

• Use of every opportunity during a child and mother's contact in HF e.g. childhood treatment (IMCI), Malaria nets distribution, ANC screening for Malaria, HIV, etc.

In all districts incl. remote districts to monitor progress and identify areas at risk.
### Strategies to Sustain MNT Elimination

- Increasing routine DTP coverage among infants and TT2+ among pregnant women

  - Long term protection against tetanus through:
    - Booster doses:
      - DT, Td for Grade 1, 2 and 3 at elementary school (since 1984)
      - DTP4 at 18 months (since 2013)
    - TT/Td vaccination

- Short term TT SIAs, in high risk districts only, targeting CBAW (15-39 years)

- Improving clean delivery and cord care practice

- Use of every opportunity during a child and mother’s contact in HF e.g. childhood treatment (IMCI), Malaria nets distribution, ANC screening for Malaria, HIV, etc.

- Continued NT surveillance as part of VPD surveillance through improving sensitivity on NT cases in all districts incl. remote districts to monitor progress and identify areas at risk.

- Increasing routine DTP coverage among women and infants.
Progress on MCH in contributing to MNT elimination

Status of MNTE Validation in Indonesia

MNT has been eliminated in ≥ 88.7% cities/districts, 97.4% population

Remaining areas 2015, 2016

- District level data analysis:
  - Using spreadsheet
  - Series of indicators
  - Classify MNT status
  - Classify routine performance

2010: Region 1 (Java & Bali); and region 2 (entire Sumatera)

2011: Region 3 (entire Kalimantan, Sulawesi, NTT, NTB)

2012: Region (entire Kalimantan, Sulawesi, NTT, NTB)
7/14 districts in Papua are new, split from mother districts, high projected population estimates are diluted or not reported.

- True/actual pop about 60% of political pop
- The real TT coverages are
- Challenges
60.6% Coverage ≤80%
33.3% Coverage ≥80% and <95%
6.1% Coverage ≥95%

Remarks:
Coverage <80%
Coverage ≥80% and <95%
Coverage ≥95%
as of 29 March 2016

Proportion of Province’s Achievement

Discrepancy in use of target population between census and province/district (possible overestimation)

2016 Polio NIDs Coverage

National Coverage: 96.4%
Logistic Challenge

Papua: Many highland districts with less developed or no road network, geographically very difficult to reach. Only 9% with electricity, 50% refrigerator functioning (solar & electric). 196 HCs in 14 districts, only 9% with electricity, security challenges.

Moluccas: Remote islands, access and transportation issues, high tides. Small target population in very dispersed areas, geographically very difficult to reach. Only 96 by foot in 3 days.

Logistic Challenge
Security concerns make it difficult for the health staff to do outreach activities (posyandu or pusling) and even for the population to access the health services in the facilities (sharp wood/bark as knot) and cord care (ash/herbs/bee’s oil/etc).

Some tribes continue to practice the use of traditional methods in cutting the cord but variable in Papua. Bupati (Mayors) and DHO Heads support are key.

Socio-cultural-political challenges make it difficult for the health outreach activities (posyandu or pusling) and even for the population to access the health services in the facilities.
Health System Challenges

- Poor recording and reporting of accomplishments (underestimation)
- Lack of trained, motivated health staff
- Accomplishments (underestimation)
- Healthcare Financing: difficulties in accessing government operational funds in Papua despite MoH directives
- Vaccinators have multiple tasks
- Frequent staff turnover
- >1 Doctor/10,000 pop
- Midwives and nurses in remote areas
- Midwives and nurses in remote areas
- Midwives and nurses in remote areas
- Midwives and nurses in remote areas
Team based health workforce allocation
130 REMOTE HEALTH CENTRES YEAR 2016
What innovation are designed

• Priority to reach all WRA in the populated areas, Health centers with population >1500

• Prioritization based on accessibility and with a very detailed realistic/costed microplanning

• Adequate and timely availability of vaccine and logistics, enhanced supervision by Central and Provincial level manager

• Assessments (RCA) undertaken to initiate

• Assessments (RCA) undertaken to initiate appropriate action, especially in areas that are at highest risk with limited data,

Priority to reach all WRA in the populated areas,
Papua

Rapid Convenience Assessment (RCA) in Household, Papua

Polio NIDS: 8 – 15 March 2016

Total Respondents: 1,401

Number of under 5s: 1,626

% under 5s immunized during NIDS: 89%

Official Report: 79.1%

Number of under 5s: 1,626

Total Respondents: 1,401

15 March 2016

WHO EXTERNAL MONITORING
Innovative approach to provide TT

• Integrated service delivery, providing TT at all opportunity, Routine Immunization, MCH,

• Recent ORI after pertussis outbreak in one district, TT was also given to WRA

• Include TT Target for high risk districts as a pro-poor strategy

• TT vaccine also given along with Polio NIDs in March

• Polio monitors also assisting in MNTE implementation

• Optimizing Integration of TT with Polio End Game

• 1000 days agenda of Governor

• Recent ORI after pertussis outbreak in one district, TT

• Routine Immunization, MCH,

• Integrated service delivery, providing TT at all
TT provided as part of Polio NIDs
Thank you

The saying:

Eliminating MNT is simple and inexpensive... is not always correct 😊
New Vaccination Platforms and Opportunities for TTCV Boosters

Tracey Goodman, EPI Team/HQ

Presentation to the SAGE MNTE Working Group Meeting
Aug 17-19, 2016 (Geneva)
Vaccinating Older Age Groups

Beyond infancy vaccination

Birth

Infant

2nd year of life

School entry

Adolescence

2nd Year

In life cycle

Immunization

Adult

Maternal

Birth

Establish a life-course approach to immunization planning and implementation, including new strategies to ensure equity across the life span.
And catch-up of any missing/delayed doses!

- Booster given between 9 and 15 months.
- Alternative schedule (2+1) with 2 doses before 6 months and
- Pneumococcal conjugate vaccine:

- Measles-containing vaccine:
  - Where high-risk of measles mortality: Recommended 15-18 months
  - Measles-containing vaccine 2 (MCV2): Of life.

For Pertussis-containing booster, it is recommended preferably during the second year:

- DTP: Booster dose recommended 7-6 years (DTP-containing vaccine 4 or DTPCV4).
Majority of countries (161) have 2-dose measles schedule, 2015

Data source: WHO/IVB Database, as of 27 June 2016

Map production Immunization, Vaccines and Biologicals (IVB), World Health Organization

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.
Steady Progress with MCV2, 1989-2015

Global Estimates (WUENIC)

MCV2 Coverage

Number of countries introduced 2nd dose of measles

137 Countries recommending a 4th dose of DTP-containing vaccines (DTPCV4), 2014
128 Countries recommending both MCV2 and DTPC4, 2014

Data source: WHO/IVB Database, as of 13 January 2016

MNTE SAGE WG, Aug 17-19 2016
Countries recommending both DTPCV4 and MCV2 at the same age during 2YL, 2014...
Considerations: 2YL for TTCV Booster

- **Vaccine Supply**
  - For MCV2, same vaccine (wastage savings)
  - For TTCV booster needs to be different from primary series (Penta)

- **Demand creation among caregivers**
  - Provision of immunization services to <1 year is new
  - Need to improve communication with caregivers about need for 18-month visit

- **Other Important Influences**
  - Coverage calculations – “what denominator?”
  - Recording and reporting issues – “how tally sheets influence behaviour”
  - Definitions

- **Data and Recording Issues (Health staff training)**
  - Annual WHO/UNICEF coverage estimates (WUENIC) for MCV2
  - Funding support (Gavi for MCV2)

**Vaccine Supply**

- For TTCV booster needs to be different from primary series (Penta)
- For MCV2, same vaccine (wastage savings)
School-based vaccination more frequent in LMICs (caution: SIAs?)

<table>
<thead>
<tr>
<th>Region</th>
<th>% 60%</th>
<th>% 49%</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>57</td>
<td>96</td>
<td>Total</td>
</tr>
<tr>
<td>WPR</td>
<td>12</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>SEAR</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>EUR</td>
<td>7</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>EMR</td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFR</td>
<td>7</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>AMR</td>
<td>20</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>States</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

JRF 2015 data

Routine Vaccination Provided in Schools,
Types of Health Services Provided to School Children with Vaccination (2011)

- Deworming
- General check up (vision, hearing, growth)
- Dental
- Screening (NCDs, nutritional status)
- Education, awareness, mental health
- Curative, referral
- Nutrition (supplements, food)

A few countries also report water & sanitation and hygiene

Services:

- General check-up
- Dental
- Growth
- Nutritional screening (NCDs, nutritional status)
- Education, awareness, mental health
- Curative, referral
- Nutrition (supplements, food)
Country* Study 2009: Enabling factors for successful school vaccination

- High enrolment of school-age children, both genders
- Strong primary healthcare system with adequate network of health centres at lower levels
- Collaboration between Ministries, especially MOH and MOE, and within department of MOH
- Strong central government support through vaccine supplies and equipment procurement
- Standard of operations, guidelines and training
- People's trust in the public health and education system
- Strong central government support through vaccine supplies and equipment procurement
- Cooperation of staff from schools and healthcare workers
- People's trust in the public health and education system

*Indonesia, Malaysia, Sri Lanka, Syria, Tunisia
The opportunity of school health programs


Compulsory school age range

Compulsory starting age
Compulsory ending age

School Vaccination: “Easy to say, difficult to do”

CONTENTS

1. Overall readiness - deals with the policy level support for school based vaccination

2. School readiness - deals with school level infrastructure and processes

3. Implementation readiness - deals with the Health system readiness to administer in schools

4. How to develop an improvement plan

5. Bibliography

MNTE SAGE WG, Aug 17-19 2016
Global School Health Policies & Practices Surveillance (SHPPS)

- Build on the success of GSHS (optional component)
- 131 Questions in 5 topic areas:
  - Physical Education/Activity
  - Health Services (incl. vaccination)
  - Health Education
  - Nutrition Services
  - School Environment
- School health policies in schools (primary & secondary)
- Generate pop-based national data on the characteristics & quality of school health policies
- Country workshop July 2012 then piloting
Adolescent Vaccination Platform: HPV Vaccination

*Includes partial introduction but excludes countries where vaccination is temporarily interrupted.*

- **Not applicable**
- **Not available, not introduced / no plans** (111 countries or 57%)
- **Gavi supported nationwide introduction** (2 countries or 1%)
- **Gavi Demo projects (starting 2015/16)** (9 countries or 4%)
- **Gavi Demo projects (started to date)** (14 countries or 7%)

Map production Immunization Vaccines and Biologicals (IVB), World Health Organization

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data source: WHO/IVB database, as of 30 January 2015.
Integrating HPV vaccination with adolescent health interventions and programs

- An opportunity for reaching girls and boys with additional health interventions.
- An opportunity for reaching girls and boys with adolescent health interventions and programs.

Integrating HPV vaccination with adolescent health interventions and programs

Broutet et al. JAH, 2013; Hindin et al. JAH, 2015
Learning from HPV Vaccination

- Working with new partners takes time
- Left out interventions not easy/fast and boys
- Integration with other health (rumours/consent)
- Strong communication effort needed
- Routine outreach/facility (coverage?)
- Many adjusting delivery strategy to:
  - High coverage; found to be expensive
  - School-based „campaign-style“ = $3-$5/dose and not sustainable
In Summary

- Engagement of new partners and stakeholders is key (particularly for adolescent platform and school vaccination)

- Coverage estimates for TTCV boosters

- "What gets counted, counts" – need to produce WHO/UNICEF

- "Financial sustainability is a concern for many"

- Funding support helps but countries have a lot to prioritize

- Vaccine rumours, etc. BUT at lot of learning from MCV2/2YL and HPV

- Challenges for TTCV boosters likely to be similar (identifying target/denominators, demand, recording/reporting, training)

- Opportunities (will differ from country to country)

- No "ready made" platform exists for TTCV booster – BUT there are
Thank you
HIV prevention through voluntary medical male circumcision and TTCV gaps for males

Liz Miller, Public Health England
Julia Samuelson
WHO Department of HIV/AIDS
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria, neglected tropical diseases and other communicable water-borne diseases, hepatitis, and combat epidemics of AIDS.

Ending the AIDS epidemic firmly enshrined in SDGs
10 Leading Causes of Deaths in Adolescents, Global, 2012

- AIDs
- Suicide
- Lower Respiratory Infections
- Diarrhoeal Diseases
- Interpersonal Violence
- Self-harm
- HIV/AIDS
- Road Injury
- Meningitis
- Drowning
- Epilepsy
- Endocrine, Blood, Immune Disorders
Antiretroviral therapy coverage and number of AIDS-related deaths, global, 2000–2015

Sources: GARPR 2016; UNAIDS 2016 estimates.
HIV incidence is declining but very limited

New HIV infections among people aged 15 years and over, by region, 2010–2015

Source: UNAIDS 2016
maintaining coverage or fast track coverage.

HIV impact targets: zero new infections among infants by 2030, 75% reduction in new infections from 2010 to 2020, and Fast Track.
Efficacy in HIV Prevention Interventions (2013)
HIV prevention research:
- Observational data
- Global consensus to conduct RCTs

Kenya, Uganda, South Africa
randomized control trials

UNAIDS and WHO Global Recommendations

Medical male circumcision for HIV prevention

Implementation in priority countries of eastern & southern Africa

2000 - today

2000 - 2006

60% reduction in risk
Impact

- These 11.7 million MC estimated to avert 335,000 HIV infections by 2025; half a million by 2030.
- HIV incidence reduction shown in Rakai, Uganda, and Orange Farm, South Africa.
Table. Key features of 15 cases of tetanus after voluntary medical male circumcision reported to the World Health Organization from 2012 to 2016

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Date</th>
<th>Country</th>
<th>Method</th>
<th>Age, years</th>
<th>Days to symptoms</th>
<th>Days to diagnosis</th>
<th>Days to death</th>
<th>Unclean substance applied to wound</th>
<th>Alternate exposure route on body</th>
<th>Septic</th>
<th>Unconf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circumcision wound</td>
<td>May 2016</td>
<td>Rwanda</td>
<td>Device</td>
<td>18</td>
<td>9</td>
<td>12</td>
<td>16</td>
<td>12</td>
<td>Yes</td>
<td>Unconf</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Mar 2016</td>
<td>Rwanda</td>
<td>Device</td>
<td>34</td>
<td>7</td>
<td>11</td>
<td>18</td>
<td>12</td>
<td>No</td>
<td>Unknown</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Jun 2013</td>
<td>Uganda</td>
<td>Device</td>
<td>32</td>
<td>7</td>
<td>8</td>
<td>14</td>
<td>8</td>
<td>Yes</td>
<td>Unknown</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Sept 2014</td>
<td>Tanzania</td>
<td>Surgery</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>17</td>
<td>12</td>
<td>Septic</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aug 2014</td>
<td>Uganda</td>
<td>Device</td>
<td>32</td>
<td>7</td>
<td>8</td>
<td>14</td>
<td>8</td>
<td>Septic</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>Aug 2014</td>
<td>Kenya</td>
<td>Surgery</td>
<td>18</td>
<td>12</td>
<td>15</td>
<td>16</td>
<td>12</td>
<td>Septic</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oct 2014</td>
<td>Tanzania</td>
<td>Surgery</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>14</td>
<td>12</td>
<td>Septic</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>Nov 2014</td>
<td>Tanzania</td>
<td>Surgery</td>
<td>18</td>
<td>12</td>
<td>16</td>
<td>11</td>
<td>12</td>
<td>Septic</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mar 2015</td>
<td>Uganda</td>
<td>Device</td>
<td>19</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>12</td>
<td>Septic</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>Mar 2015</td>
<td>Uganda</td>
<td>Surgery</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>Septic</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>May 2016</td>
<td>Tanzania</td>
<td>Surgery</td>
<td>13</td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>Septic</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mar 2016</td>
<td>Tanzania</td>
<td>Surgery</td>
<td>39</td>
<td>12</td>
<td>12</td>
<td>14</td>
<td>14</td>
<td>Septic</td>
<td>Unknown</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>Dec 2012</td>
<td>Zambia</td>
<td>Surgery</td>
<td>12</td>
<td>5</td>
<td>8</td>
<td>10</td>
<td>9</td>
<td>Septic</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apr 2012</td>
<td>Zambia</td>
<td>Surgery</td>
<td>47</td>
<td>12</td>
<td>12</td>
<td>n/a</td>
<td>n/a</td>
<td>Septic</td>
<td>Unknown</td>
<td>No</td>
</tr>
</tbody>
</table>
Additional points -- Uganda, Indonesia

HCMC Vietnam, 80% admissions males

- Cause 17% jiggers – unknown 52%
- 87% lower extremity wounds

- Among 71 cases in 2007-8:
  - 154 cases during 2005-2008: 66% males, 66% > 5 years, CFR 47%

Zziwa, 2009: St Francis Hospital Buloba Uganda, record review

Method differences

- Inpatient cases / 100 000 months, 0.71 outpatient cases / 100 000 months
- The relevant background comparison is tetanus incidence per month, not year, or 0.25
- Risk of tetanus following circumcision is restricted to an approximate one month period

- Outpatient NN rate of 8.6 / 100 000 males
- Inpatient non-neonatal rate of 3 / 100 000 males

Papua Indonesia interested in VMMC, TTCV rates appear low

Background rates -- Indonesia

Uganda, Indonesia

- Inpatient non-neonatal rate of 3 / 100 000 males
- Outpatient NN rate of 8.6 / 100 000 males

Additional points

- Risk of tetanus following circumcision is restricted to an approximate one month period

- Among 71 cases in 2007-8:
  - 154 cases during 2005-2008: 66% males, 66% > 5 years, CFR 47%

- Method differences
  - Inpatient cases / 100 000 months, 0.71 outpatient cases / 100 000 months
  - The relevant background comparison is tetanus incidence per month, not year, or 0.25
  - Inpatient non-neonatal rate of 3 / 100 000 males
  - Outpatient NN rate of 8.6 / 100 000 males
<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Country</th>
<th>Study Period</th>
<th>Case Fatality Rate (%)</th>
<th>Male</th>
<th>Female</th>
<th>Mean/Median Age (yrs)</th>
<th>Sample</th>
<th>Rate (%)</th>
<th>Admissions</th>
<th>Cases</th>
<th>Surgical Cases</th>
<th>Post-Emergency Admission Cases</th>
<th>Post-Emergency Admission</th>
<th>Intestinal Case Fatality Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hesse et al.</td>
<td>2003</td>
<td>Germany</td>
<td>1994-2001</td>
<td>71%</td>
<td>55</td>
<td>92</td>
<td>28</td>
<td>715</td>
<td>19%</td>
<td>1,870</td>
<td>28</td>
<td>31.9</td>
<td>2003</td>
<td>66</td>
<td>35.3</td>
</tr>
<tr>
<td>Tanon et al.</td>
<td>2004</td>
<td>Senegal</td>
<td>1994-2001</td>
<td>72.7%</td>
<td>91</td>
<td>82</td>
<td>76.6</td>
<td>254</td>
<td>52</td>
<td>682</td>
<td>91</td>
<td>60.8</td>
<td>2004</td>
<td>61</td>
<td>70.7</td>
</tr>
<tr>
<td>Ojini &amp; Danesi</td>
<td>2005</td>
<td>Nigeria</td>
<td>1995-2002</td>
<td>26.7%</td>
<td>70</td>
<td>36</td>
<td>51.2</td>
<td>36</td>
<td>12</td>
<td>36</td>
<td>70</td>
<td>45</td>
<td>2005</td>
<td>58</td>
<td>58.0</td>
</tr>
<tr>
<td>Soumare et al.</td>
<td>2005</td>
<td>Senegal</td>
<td>1998-2002</td>
<td>31.4%</td>
<td>92</td>
<td>21</td>
<td>34.9</td>
<td>52</td>
<td>12</td>
<td>52</td>
<td>92</td>
<td>60.1</td>
<td>2005</td>
<td>66</td>
<td>60.8</td>
</tr>
<tr>
<td>Soumare et al.</td>
<td>2005</td>
<td>Senegal</td>
<td>2001-2003</td>
<td>75%</td>
<td>52</td>
<td>72</td>
<td>8.8</td>
<td>1,13</td>
<td>9</td>
<td>113</td>
<td>52</td>
<td>31.4</td>
<td>2005</td>
<td>66</td>
<td>35.3</td>
</tr>
<tr>
<td>Towey</td>
<td>2005</td>
<td>Nigeria</td>
<td>2001-2003</td>
<td>41%</td>
<td>46</td>
<td>36</td>
<td>70.1</td>
<td>41</td>
<td>13.8</td>
<td>45</td>
<td>46</td>
<td>64</td>
<td>2005</td>
<td>66</td>
<td>70.1</td>
</tr>
<tr>
<td>Bankole et al.</td>
<td>2006</td>
<td>Nigeria</td>
<td>2006-2011</td>
<td>44%</td>
<td>176</td>
<td>128</td>
<td>45</td>
<td>176</td>
<td>0%</td>
<td>176</td>
<td>176</td>
<td>0%</td>
<td>2006</td>
<td>66</td>
<td>0%</td>
</tr>
<tr>
<td>Oshinaike et al.</td>
<td>2006</td>
<td>Nigeria</td>
<td>2006-2011</td>
<td>44%</td>
<td>175</td>
<td>125</td>
<td>0%</td>
<td>175</td>
<td>0%</td>
<td>175</td>
<td>175</td>
<td>0%</td>
<td>2006</td>
<td>66</td>
<td>0%</td>
</tr>
<tr>
<td>Sawe et al.</td>
<td>2007</td>
<td>Sierra Leone</td>
<td>2001-2009</td>
<td>35%</td>
<td>33</td>
<td>33</td>
<td>35</td>
<td>33</td>
<td>33%</td>
<td>33</td>
<td>33</td>
<td>33</td>
<td>2007</td>
<td>66</td>
<td>33.3</td>
</tr>
<tr>
<td>Soumare et al.</td>
<td>2007</td>
<td>Senegal</td>
<td>2006-2008</td>
<td>31%</td>
<td>39</td>
<td>39</td>
<td>31%</td>
<td>39</td>
<td>31%</td>
<td>39</td>
<td>39</td>
<td>31%</td>
<td>2007</td>
<td>66</td>
<td>31%</td>
</tr>
<tr>
<td>Zziwa et al.</td>
<td>2007</td>
<td>Uganda</td>
<td>2001-2007</td>
<td>38.9%</td>
<td>39</td>
<td>39</td>
<td>38.9</td>
<td>39</td>
<td>38.9</td>
<td>39</td>
<td>39</td>
<td>38.9</td>
<td>2007</td>
<td>66</td>
<td>38.9</td>
</tr>
<tr>
<td>Akhuwa et al.</td>
<td>2010</td>
<td>Nigeria</td>
<td>2007-2010</td>
<td>80%</td>
<td>175</td>
<td>100</td>
<td>175</td>
<td>175</td>
<td>0%</td>
<td>175</td>
<td>175</td>
<td>0%</td>
<td>2010</td>
<td>66</td>
<td>0%</td>
</tr>
<tr>
<td>Soumare et al.</td>
<td>2011</td>
<td>Senegal</td>
<td>2009-2012</td>
<td>35%</td>
<td>33</td>
<td>33</td>
<td>35</td>
<td>33</td>
<td>33%</td>
<td>33</td>
<td>33</td>
<td>33%</td>
<td>2011</td>
<td>66</td>
<td>33%</td>
</tr>
<tr>
<td>Chukwubike et al.</td>
<td>2011</td>
<td>Nigeria</td>
<td>2010-2011</td>
<td>38%</td>
<td>39</td>
<td>39</td>
<td>38</td>
<td>39</td>
<td>38%</td>
<td>39</td>
<td>39</td>
<td>38%</td>
<td>2011</td>
<td>66</td>
<td>38%</td>
</tr>
<tr>
<td>Oshinaike et al.</td>
<td>2011</td>
<td>Nigeria</td>
<td>2010-2011</td>
<td>44%</td>
<td>175</td>
<td>125</td>
<td>44%</td>
<td>175</td>
<td>0%</td>
<td>175</td>
<td>175</td>
<td>0%</td>
<td>2011</td>
<td>66</td>
<td>0%</td>
</tr>
<tr>
<td>Sawe et al.</td>
<td>2012</td>
<td>Sierra Leone</td>
<td>2009-2011</td>
<td>30%</td>
<td>33</td>
<td>33</td>
<td>30%</td>
<td>33</td>
<td>30%</td>
<td>33</td>
<td>33</td>
<td>30%</td>
<td>2012</td>
<td>66</td>
<td>30%</td>
</tr>
<tr>
<td>Soumare et al.</td>
<td>2012</td>
<td>Senegal</td>
<td>2011-2012</td>
<td>30%</td>
<td>33</td>
<td>33</td>
<td>30%</td>
<td>33</td>
<td>30%</td>
<td>33</td>
<td>33</td>
<td>30%</td>
<td>2012</td>
<td>66</td>
<td>30%</td>
</tr>
<tr>
<td>Sawe et al.</td>
<td>2013</td>
<td>Sierra Leone</td>
<td>2011-2012</td>
<td>33%</td>
<td>39</td>
<td>39</td>
<td>33%</td>
<td>39</td>
<td>33%</td>
<td>39</td>
<td>39</td>
<td>33%</td>
<td>2012</td>
<td>66</td>
<td>33%</td>
</tr>
<tr>
<td>Soumare et al.</td>
<td>2013</td>
<td>Senegal</td>
<td>2011-2012</td>
<td>30%</td>
<td>33</td>
<td>33</td>
<td>30%</td>
<td>33</td>
<td>30%</td>
<td>33</td>
<td>33</td>
<td>30%</td>
<td>2013</td>
<td>66</td>
<td>30%</td>
</tr>
<tr>
<td>Sawe et al.</td>
<td>2014</td>
<td>Sierra Leone</td>
<td>2012-2013</td>
<td>33%</td>
<td>33</td>
<td>33</td>
<td>33%</td>
<td>33</td>
<td>33%</td>
<td>33</td>
<td>33</td>
<td>33%</td>
<td>2013</td>
<td>66</td>
<td>33%</td>
</tr>
<tr>
<td>Soumare et al.</td>
<td>2014</td>
<td>Senegal</td>
<td>2012-2013</td>
<td>33%</td>
<td>33</td>
<td>33</td>
<td>33%</td>
<td>33</td>
<td>33%</td>
<td>33</td>
<td>33</td>
<td>33%</td>
<td>2014</td>
<td>66</td>
<td>33%</td>
</tr>
</tbody>
</table>

**Summary of hospital studies of non-neonatal tetanus in sub-Saharan Africa published 2003-2014**

- 71% males, 32.7 years
Medical male circumcision coverage in 9 of the African countries implementing voluntary medical male circumcision.

Diphtheria-Tetanus-Pertussis dose 3 (DTP3) immunization.
Generation of short term protection (relevant for recommendations pre-male circumcision)

- No herd immunity
  - Two doses 4 weeks apart needed
  - Single priming dose inadequate

Primary response in a vaccine-naïve individual
  - One booster dose sufficient
  - Kinetics suggest booster dose should be given at least 7 days before procedure but ideally 14 days before
  - Age (adolescent versus adult) not relevant
  - Vaccine dose (common feature of inactivated vaccines) response is elicited many decades after last dose (at least one dose in past)

Booster response in a primed individual
  - Kinetics suggest booster dose should be given at least 7 days before procedure but ideally 14 days before
Natural immunity to tetanus?

• Recovery from disease does not reliably produce protective antibodies

• Some claim natural immunity can be acquired via asymptomatic colonization of gut to explain antibodies detected in unvaccinated individuals, but lack of prior vaccination not confirmed in these individuals or non-specific in vitro assay used

• Safer to assume that there is no background of naturally-acquired immunity

• Also no herd immunity as infection is not spread human to human
Studies in African schoolchildren (Rey, 1981), Indian military recruits (Menon et al., 1976), persons taking care of horses (Lahiri, 1939), pregnant women in New Guinea (Maclean, 1965), and healthy persons in Upper Volta (Brennan et al., 1981), have demonstrated that populations in developing countries with a high level of exposure to tetanus spores usually lack tetanus neutralizing antitoxins. Even if asymptomatic colonization occurs in some areas of the developing world, natural immunity is not thought to have any practical importance in controlling tetanus.
Recommendations from consultation in 2015 and 2016

A dual approach: TTCV and clean care

• For conventional surgical methods of male circumcision, the experts recommended that no modification to the strategies used will depend on the country’s TTCV schedule and practices, and its tetanus burden. Ministries of health are advised to develop and phase in effective and practical delivery strategies for providing at least one dose of TTCV at the time of voluntary medical male circumcision (VMMC), unless an individual has documented evidence of protection through receipt of circumcision (VMMC), unless an individual has documented evidence of protection through receipt of modification. The strategies used will depend on the country’s TTCV schedule and practices, and it is

Need to strengthen efforts to better educate all MC clients, their parents/care givers (in case of adolescents), communities, traditional healers on importance of avoiding harmful wound-care practices. This applies to all male circumcision methods.

W HO 2006 recommended vaccination schedule

For circumcision with a device method that requires that the foreskin remains in situ for several days before it is removed, the June 2016 consultation updated its previous advice:

 principals. This applies to all male circumcision methods.

- c) a series of five doses of TTCV, or

- b) if a client has previously received three infant doses, or one dose during adolescence or placement; or

- placement, or

- two TTCV doses at least 4 weeks apart, with the second dose at least 2 weeks before device placement.

The necessary number of doses of TTCV, unless an individual has documented evidence of protection through receipt of circumcision (VMMC), unless an individual has documented evidence of protection through receipt of

个工作 twists: TTCV and clean care

Principles of IPC for skin preparation must be applied for all methods.

Work closely with immunization programmes.
Rapid (point of care) antibody test

- Marketed as ProTetanus in UK, TQS in rest of Europe and SD BIOLINE Tetanus in Korea
- Detection threshold 0.1 IU/mL for serum or 0.2 IU/mL for whole blood
- MHRA guidelines on point of care testing
- Pre-MC screening: high specificity needed to avoid false positives.
- Results: potential use in relation to MC.
- Booster dose in age.
- Serosurveys of susceptibility in target population: high specificity and sensitivity needed to produce meaningful results.
- Pre-MC screening: for assessing need for HTIG and HTAC.

Reviewed by NHS Purchasing and Supply Agency in 2010.
Test performance: conclusions of NHS review

• More effective at determining a patient's immune status than history

• Specificity high (estimates ranged from 94-100% using ELISA at 0.1 IU/ml as "gold standard")

• Sensitivity low (estimates ranged from 55-83%)

Thus, test could be useful for identifying non-immune subjects but not useful for serosurveys.
Key issues on implementation in the 14 countries of ESA

- Vaccination policy:
  - Policy for boys and men after infancy limited
  - Reported policy to provide booster doses only in South Africa (6 and 12 years); Zimbabwe (18 months)

- Reporting tetanus
  - Only Uganda reports non-neonatal tetanus
  - Safety monitoring within VMMC / Programs
  - Reporting accuracy?

- Resources
  - Reported stock out in Rakai Uganda during pilot to implement 2 doses

- Immediate and longer term perspectives:
  - Other options: use of POC?
  - Funding – HIV or vaccine programs?

- Practice: coverage of school and booster age unknown

- Other options: use of POC?

- Immediate and longer term perspectives:
  - Vaccination policy:
Adolescents are in need of multiple services—HIV/AIDS, vaccination (HPV, TTCV), other.

Source: UNICEF AllIn To end Adolescent AIDS
Strategies and synergies by providing multiple services

- Adolescents in need of integrated package of relevant services
  - School and adolescents doses for boys and girls
  - Routine: 5 - 7 year dose

- Longer term
  - Role for POC, unjackets?
  - Compression device method: 2 doses of TTCV unless evidence of vaccination
  - Surgical, phaser in one dose at time of MC, country context
  - Clean care – skin prep and wound care – especially adolescents
  - Short term – dual approach to protection

- VMMC Platform – Reaching adolescent and adult men
- Gender gap in TTCV for males