Progress and challenges in meningitis prevention in the African meningitis belt

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MenAfriVac is a major success story...

should we still be concerned about meningitis in the belt?
Meningitis epidemics in meningitis belt 2016-17

**Figure A**: Meningitis epidemic season 2016 w 1-26

<table>
<thead>
<tr>
<th>Countries</th>
<th>Suspected cases</th>
<th>Deaths</th>
<th>CFR %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>600</td>
<td>29</td>
<td>5.2</td>
</tr>
<tr>
<td>Niger</td>
<td>1540</td>
<td>114</td>
<td>7.4</td>
</tr>
<tr>
<td>Togo</td>
<td>1834</td>
<td>118</td>
<td>6.4</td>
</tr>
<tr>
<td>Ghana</td>
<td>2406</td>
<td>222</td>
<td>9.2</td>
</tr>
<tr>
<td>Chad</td>
<td>114</td>
<td>21</td>
<td>18.4</td>
</tr>
</tbody>
</table>

**Figure B**: Meningitis epidemic season 2017 w 1-26

<table>
<thead>
<tr>
<th>Countries</th>
<th>Suspected cases</th>
<th>Deaths</th>
<th>CFR %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nigeria</td>
<td>14,518</td>
<td>1,166</td>
<td>8%</td>
</tr>
<tr>
<td>Niger</td>
<td>3,303</td>
<td>197</td>
<td>6%</td>
</tr>
<tr>
<td>Togo</td>
<td>515</td>
<td>35</td>
<td>6.6%</td>
</tr>
<tr>
<td>Cameroon</td>
<td>25</td>
<td>9</td>
<td>36%</td>
</tr>
<tr>
<td>Ghana</td>
<td>817</td>
<td>75</td>
<td>9.2%</td>
</tr>
<tr>
<td>Chad</td>
<td>205</td>
<td>19</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

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.
Meningitis burden 2004-2017

Meningitis suspected cases and deaths in the meningitis belt

MenAfriVac introduction 2010-2017
MenAfriVac impact across the meningitis belt

- >99% decline in NmA
- 2x increase in other Nm
  (IRR=2.0, 95%CI 0.92, 4.38)

Important overall benefit
- 58% decline in meningitis
- 60% decline in risk of epidemics

Analysis of surveillance data from 9 countries 2005-15:
Benin, Burkina Faso, Chad, Côte d’Ivoire, Ghana, Mali, Niger, Nigeria, Togo

Trotter et al Lancet Inf Dis 2017:17;867-72
MenAfriVac achievements
Mass campaigns  2010–2017

300 million people vaccinated
300 000 cases averted
30 000 deaths averted
NmA is still in circulation

Confirmed cases of NmA after MenAfrivac campaigns, 2011-2016

NmA detected:
- 2015: in 3 countries
- 2016: in 5 countries
- 2017: in 2 countries (Guinea, Nigeria)

Only one documented case of vaccine failure (NmA in a vaccinated case)
in Burkina Faso

Introduction into routine is a priority
MenAfriVac
Routine immunization 2016–2017
Meningitis epidemics in the African meningitis Belt in 2015 - 2017

2015: first large-scale Nm C outbreak
Niger and Nigeria: 11,000 cases

2016: Nm C, W and Spn outbreaks
Niger and Nigeria Nm C: 2400 cases
Ghana Nm W, Spn: 2406 cases
Togo Nm W: 1834 cases

2017: large-scale Nm C outbreak
Nigeria: 14,518 cases
Niger: 3317 cases
Challenges in surveillance and laboratory confirmation

- Low quality data
- Insufficient laboratory capacity
- Need for rapid tests
Challenges in emergency vaccination

• Lack of vaccine in international vaccine stockpile (ICG)
  Polysaccharide vaccines little used outside the belt
  Conjugate vaccines expensive

• Delays in accessing the stockpile
  Late requests
  Insufficient surveillance data
  Long shipment times

• Falsified vaccines (Niger, Cameroon)
Getting more and better vaccines

• ICG procurement strategy agreed
  5 year tender 2017-2021 for 5 million doses per year)

• Exploring national contingency stockpiles

• Promoting development and use of affordable multivalent conjugates
And there is still the risk of pneumococcal meningitis: Ghana 2016
Pneumococcal meningitis in the belt

- Similar pattern to meningococcal meningitis
  - Incidence in dry season 10x wet season
  - Majority of cases in older children and adults

- Previous outbreaks: Burkina Faso 2009 & 2011, Chad 2009, Ghana 2010

- High burden outside epidemics
  - Spn >25% of confirmed meningitis cases in the belt
  - High case fatality ratio (20% - 60%) and severe after effects

- Uncertain if PCV13 infant vaccination programmes with 3+0 schedule will protect older age groups
Global vision for meningitis by 2030 and an action plan to get there

WHO now leading task force to develop action plan
First meeting WHO, MRF, CDC, MSF, LSHTM, UNICEF, PATH to take place July 2018
Meningitis in the belt: Key points

• Meningitis is still a major threat in the African meningitis belt

Priorities
• Ensuring vaccine supply for outbreaks
• Developing affordable multivalent conjugate vaccines for meningococcal meningitis
• Implementing new vaccine strategies to prevent pneumococcal meningitis
• Advancing new technologies for rapid diagnosis
Districts in epidemic 2018 wks 1-22
Pathogen distribution 2018 wks 1-22
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