Yemen: Diphtheria Outbreak
Weekly epidemiology bulletin
Week 52 - 2017

Highlights:

- The cumulative total of probable diphtheria from week 33 to 29 December 2017 is 429 and 42 associated deaths.
- During week 52 (from week 33 to 29 December 2017), 16 probable diphtheria and 0 deaths were reported in Yemen.
- The national attack rate is 0.16 per 10,000 and CFR is 10%. The governorates with the highest cumulative of probable cases are Ibb (53% of the cases) and Al Hudeydah.
- 18 governorates and 90 districts are affected. Ibb is the most affected governorate.
- 50% of the probable case were between 5-14 years old
- 63% were not vaccinated at all.
- 17 tests were positive for Gram stain and Albert stain

![Probable Diphtheria Cases and CFR %](image)

Figure 1: number of probable diphtheria cases per epiweek, and CFR, Yemen, 2017
Geographical distribution of cases and deaths

The most affected governorates are Ibb (53.9%) and Al Hudaydah. Ibb has the highest attack rate (0.75 per 10,000), followed by Aden (0.30 per 10,000). The highest cumulative number of deaths is in Ibb.

<table>
<thead>
<tr>
<th>Governorate</th>
<th>Cases</th>
<th>Population</th>
<th>AR/10000</th>
<th>Death</th>
<th>CFR%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ibb</td>
<td>226</td>
<td>3017004</td>
<td>0.75</td>
<td>13</td>
<td>6%</td>
</tr>
<tr>
<td>Al Hudaydah</td>
<td>50</td>
<td>3315812</td>
<td>0.15</td>
<td>11</td>
<td>22%</td>
</tr>
<tr>
<td>Aden</td>
<td>29</td>
<td>955022</td>
<td>0.30</td>
<td>2</td>
<td>7%</td>
</tr>
<tr>
<td>Amran</td>
<td>24</td>
<td>1173542</td>
<td>0.20</td>
<td>3</td>
<td>13%</td>
</tr>
<tr>
<td>Sana'a</td>
<td>23</td>
<td>1497466</td>
<td>0.15</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Dhahmar</td>
<td>20</td>
<td>2064534</td>
<td>0.10</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Taizz</td>
<td>13</td>
<td>3056222</td>
<td>0.04</td>
<td>4</td>
<td>31%</td>
</tr>
<tr>
<td>Hajjah</td>
<td>12</td>
<td>2442558</td>
<td>0.05</td>
<td>2</td>
<td>17%</td>
</tr>
<tr>
<td>Amanat Al Asimah</td>
<td>10</td>
<td>2964094</td>
<td>0.03</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Al Mahwit</td>
<td>4</td>
<td>749974</td>
<td>0.05</td>
<td>1</td>
<td>25%</td>
</tr>
<tr>
<td>Sa'ada</td>
<td>4</td>
<td>959746</td>
<td>0.04</td>
<td>1</td>
<td>25%</td>
</tr>
<tr>
<td>Abyan</td>
<td>4</td>
<td>583242</td>
<td>0.07</td>
<td>2</td>
<td>50%</td>
</tr>
<tr>
<td>Lahj</td>
<td>3</td>
<td>1028118</td>
<td>0.03</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Al Bayda</td>
<td>2</td>
<td>770358</td>
<td>0.03</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Marib</td>
<td>2</td>
<td>368613</td>
<td>0.05</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Hadramaut</td>
<td>1</td>
<td>1468311</td>
<td>0.01</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Raymah</td>
<td>1</td>
<td>622106</td>
<td>0.02</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Al Jawf</td>
<td>1</td>
<td>589320</td>
<td>0.02</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>429</strong></td>
<td><strong>27626042</strong></td>
<td><strong>0.16</strong></td>
<td><strong>42</strong></td>
<td><strong>10%</strong></td>
</tr>
</tbody>
</table>

Table 1: Number of probable diphtheria cases and deaths, AR and CFR, per governorate, Yemen, week 33-52, 2017

In Ibb governorates, As Sadah and Yarem districts are the most affected. In Al Hudeydah, the districts of Al Hali and Bayt el Faquiah are more affected.
Suspected Diphtheria Cases by Districts

In total 90 districts are affected

(Ibb) As Saddah
(Al Hudaydah) Al Hadhramawt
(Ibb) Al Dhar
(Kelb) Al Dhahir
(Aden) Abyan
(Aden) Al Hawak
(Ibb) Al Harir
(Dhamar) Dhamar City
(Ibb) Al Radh
(Aden) Al Mubs"ur
(Ibb) Al Miskin
(Ibb) Khair al Suqan
(Ibb) lbs
(Aden) Harf Sufyan
(Aden) Al Chweif
(Aden) Al Qaflah
(Aden) Al Madan
(Ibb) Al Qafr
(Abyan) Assafiyah
(Aden) Craiter
(Aden) Al Qaflah
(Dhamar) Al Hada
(Ibb) Al Qadiri
(Dhamar) Maylat Ansar
(Dhamar) Al Hadh
(Aden) Al Hali
(Ibb) Al Makhadir
(Sanaa) Al Husn
(Aden) Al Mualla
(Sanaa) Bani Matar
(Al Bayda) Al Bayda
(Ibb) Al Dhihar
(Ibb) Al Munirah
(Aden) Al Mudimah
(Aden) Al Mawsil
(Dhamar) Al Hada
((Ibb) As Saddah
(Al Hudaydah) Al Hadhramawt
(Ibb) Al Dhar
(Kelb) Al Dhahir
(Aden) Abyan
(Aden) Al Hawak
(Ibb) Al Harir
(Dhamar) Dhamar City
(Ibb) Khair al Suqan
(Ibb) lbs
(Aden) Harf Sufyan
(Aden) Al Chweif
(Aden) Al Qaflah
(Aden) Al Madan
(Ibb) Al Qafr
(Abyan) Assafiyah
(Aden) Craiter
(Aden) Al Qaflah
(Dhamar) Al Hada
(Ibb) Al Qadiri
(Dhamar) Maylat Ansar
(Dhamar) Al Hadh
(Aden) Al Hali
(Ibb) Al Makhadir
(Sanaa) Al Husn
(Aden) Al Mualla
(Sanaa) Bani Matar
(Al Bayda) Al Bayda
(Ibb) Al Dhihar
(Ibb) Al Munirah
(Aden) Al Mudimah
(Aden) Al Mawsil
(Dhamar) Al Hada

Number of probable cases

Figure 2: Number of probable diphtheria cases per district, Yemen, week 33-52, 2017

Figure 3: Map of number of probable cases per district, Yemen, week 33-52, 2017
Epi curves in the most affected Districts

In total there were 226 cases in Ibb governorate, 71 in Yareem and 123 in As Saddah.

Figure 4: epicurve of probable diphteria cases and deaths in Ibb governorate, Yemen, week 33- 52, 2017

- Yareem District (Ibb)

Figure 5: Epicurve of probable diphteria cases and deaths, Yareem district, Yemen, week 33-52, 2017
Sex and age distribution

The male/female sex ratio was 0.9. The highest proportion of cases was seen in the 5-14 year age group (i.e. 50%). The proportion of under-five y.o. cases was 17% and this age group was was more at risk of dying (CFR: 17%).

### Table 2: Distribution of probable cases and deaths by age and sex, Yemen, week 33-52, 2017

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
<th>% of cases</th>
<th>Death Female</th>
<th>Death Male</th>
<th>Total</th>
<th>Specific CFR %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>29</td>
<td>43</td>
<td>72</td>
<td>17%</td>
<td>6</td>
<td>6</td>
<td>12</td>
<td>17%</td>
</tr>
<tr>
<td>5-14</td>
<td>94</td>
<td>116</td>
<td>210</td>
<td>50%</td>
<td>12</td>
<td>13</td>
<td>25</td>
<td>12%</td>
</tr>
<tr>
<td>15 - 24</td>
<td>38</td>
<td>34</td>
<td>72</td>
<td>17%</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>6%</td>
</tr>
<tr>
<td>25 - 44</td>
<td>30</td>
<td>20</td>
<td>50</td>
<td>12%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>45 - 64</td>
<td>14</td>
<td>3</td>
<td>17</td>
<td>4%</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>6%</td>
</tr>
<tr>
<td>&gt;65</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>205</td>
<td>218</td>
<td>423</td>
<td>100%</td>
<td>21</td>
<td>21</td>
<td>42</td>
<td>10%</td>
</tr>
</tbody>
</table>

6 Missing values
Vaccination Status

Among the 419 cases, 268 (63%) were not vaccinated with diptheria vaccine, 27% received 3 doses.

Laboratory

In total, 47 samples were taken for Albert stain and Gram stain test in Ibb, Al hudeydah and Sanaa. In total, 17 were positive for Albert stain and gran stain: Ibb (11/40), Al Hudaydah (4/5), Sanaa (2/2).

For further information:
Bouhenia Malika
WHO country office Epidemiologist, Yemen
Phone: +967 739 888 893
E-mail: bouheniam@who.int

Christine (Tiff) COOL
Emergency Communications Lead
WHO Country Office, Yemen
Phone +967 739 888 959
Email: coolc@who.int