1.0. DISEASE SURVEILLANCE – AND EARLY WARNING AND RESPONSE NETWORK (EWARN)

1.1. Training and orientation on EWARN
Strengthening local capacity for surveillance and response is one of the main areas that WHO and its EWARN partners continue to support in southern Sudan. As part of this effort, training and orientation for health workers, community volunteers, leaders and members were carried out.

1.1.1. Training of health workers
W.H.O and ICRC jointly organized a one-week EWARN training for Sudanese health workers on strengthening surveillance and response. The training focused on basic surveillance, detection, alerting, verification and response techniques to epidemic-prone, emerging and new diseases. Selected outbreak conditions, case examples, and formats and guidelines were discussed. Moreover, video films on VHF, cholera, dysentery, viral diarrheal diseases and Buruli ulcer were used to facilitate discussion sessions.

A total of 14 Sudanese health workers and one trainer from 11 health NGOs participated.

It was recommended to continue training activities on regular basis. This training is the third one jointly organized by WHO and ICRC.

1.1.2. Community-level EWARN orientation
A four-days on the job orientation on clinical investigation and case management of cerebrospinal meningitis and dysentery was conducted in Peiri, Upper Nile. Four community-based health workers attended. Additionally, 45 community volunteers were oriented on how to organize and implement mass vaccination activities. Similarly, a one-day orientation of community leaders and community members was conducted. In the first day, a total of nine community leaders were consulted and briefed on how to detect, alert and support response to suspected outbreaks. In a separate day, a total of more than 500 people were oriented on how to recognize and alert on suspected outbreaks.

The orientation used case examples from outbreaks that occurred in the area in the last five years, including cholera, meningococcal meningitis, measles, and dysentery.

This community orientation was carried out as part of the response to a confirmed meningitis outbreak in the area (refer 1.2).
1.2. Preparedness, Detection and Response

1.2.1. Forecasting and preparedness
Based on experiences and health data from the previous years, it was forecasted that an outbreak of meningitis is likely in southern Sudan. Attention was given to improve stocks of drugs, vaccines and supplies, and laboratory networking.

Accordingly, UNICEF/OLS and WHO have pre-positioned adequate stocks of meningitis vaccines and supplies at Loki base where these can be immediately mobilized once an outbreak of meningitis is laboratory confirmed. Arrangements were made on lab supplies, CSF specimen referral and testing with AMREF.

The need for vigilance to early detect and report suspected cases of meningitis was communicated to health NGOs, WHO field staff, and local counterparts. A radio network is in place for receiving alerts.

1.2.2. Detection, verification and response
A total of seven alerts on suspected disease outbreaks were received and followed-up. An outbreak of meningococcal meningitis was detected and reported to WHO and Medair by community health workers at Pieri in a remote village of Upper Nile. Field investigations were done and CSF specimens tested at AMREF confirmed N.meningitidis group A.

Following the lab confirmation, a team from WHO, Medair, local counterparts, and OLS security coordinated orientation, case management and mass vaccination at Pieri and Motot. The meningitis outbreak was contained with 89 cases and 11 deaths.

Other suspected outbreaks were verified and responded through a network of NGOs, CBOs, WHO and UNICEF/OLS (Table 1).

1.3. Regional consultation on EWARN
A three-day consultative meeting to establish cross-border EWARN in the Horn of Africa was held in Addis Abeba, Ethiopia. This meeting was based on a 1998 protocol signed among HoA member countries which underscored the need for promoting cross-border health activities, including surveillance and response.

Participants deliberated on mechanisms to strengthen cross-border health activities, focusing on the early detection, alert, reporting and verification of suspected outbreaks. It was highlighted that the HoA member countries share many common problems and need to work together to improve surveillance and response.

Experiences from southern Sudan on establishing EWARN as a strategy to improve surveillance response for epidemic-prone diseases were shared with participants. Considering the socio-political and economic situations that are shared by the HoA countries, it was agreed that to establish and strengthen cross-border EWARN activities.

Most countries in the Horn of Africa are frequently affected by conflict, famine and disease outbreaks

Experts from ministries of health and WHO from Eritrea, Ethiopia, Kenya, Somalia and Sudan participated. Representatives from WHO/HQ/CSR, OAU, CSR/AFRO, the EHA Great Lakes and the Horn of Africa epidemiological blocks, and the French Embassy in Ethiopia, and SABC also attended. WHO, SACB, EMRO and AFRO supported this regional workshop.
Table 1. Summary update of disease outbreaks, Jan-Feb, 2003.

<table>
<thead>
<tr>
<th>Outbreak disease/syndrome</th>
<th>Location/Onset</th>
<th>Source and date of update</th>
<th>Reported cases/deaths/actions taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meningitis</td>
<td>Peiri, Upper Nile</td>
<td>WHO and Medair</td>
<td>89 cases with 11 deaths (CFR=12.3%) Mass vaccination: 5,918 people Surveillance, case management</td>
</tr>
<tr>
<td></td>
<td>Reported onset: Week 5</td>
<td>Last Update: 02/03/03</td>
<td>Training/orientation of health workers Community Health education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encephalitis</td>
<td>Limon, Nogorban The Nuba Mountains</td>
<td>MSF-H</td>
<td>72 cases, no recorded deaths</td>
</tr>
<tr>
<td></td>
<td>Reported onset: Week 03</td>
<td>Last Update: 23/02/03</td>
<td>Case management, field investigation</td>
</tr>
<tr>
<td>Acute diarrheal disease</td>
<td>Mabior, Upper Nile</td>
<td>SMC</td>
<td>94 cases with 2 deaths (CFR=2.1%) All were among children Case investigation and management Health education</td>
</tr>
<tr>
<td></td>
<td>Reported onset: 16/01/03</td>
<td>Last Update: 28/01/03</td>
<td></td>
</tr>
</tbody>
</table>

Figure 01/03. Reported meningitis cases and deaths, Peiri, Latjor, Upper Nile, southern Sudan; 2003

Source: WHO, Medair

- Cases <5 years
- Deaths <5 years
- Cases =/> 5 years
- Deaths =/> 5 years
2.0. POLIO ERADICATION ACTIVITIES

2.1. Progress towards Polio Eradication, 2002

2.1.1 Supplemental Immunization Activities
During 2002, three rounds of national immunization days (NIDs) and two sub-national immunization day (SNIDs) campaigns were conducted. As in the past, the quality of successive SIAs improved. In the 1998 NID campaign, 809,245 children were vaccinated. In 2002, 1.3 million children under 5 years of age were vaccinated during the last NID round. The overall results of the 2000-2002 campaigns can be found in the Table 2 below. The impressive 2002 SNID achievements resulted from the first unimpeded humanitarian access since the polio program began.

Table 2. Results of Supplemental Immunization Activities, s-Sudan 2000-2002

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>NID Round 1</td>
<td>1,012,037</td>
<td>1,237,643</td>
<td>1,236,501</td>
</tr>
<tr>
<td>NID Round 2</td>
<td>1,087,107</td>
<td>1,129,116</td>
<td>1,292,029</td>
</tr>
<tr>
<td>NID Round 3</td>
<td>N/A</td>
<td>1,140,792</td>
<td>1,334,163</td>
</tr>
<tr>
<td>SNID Round 1</td>
<td>480,447</td>
<td>539,845</td>
<td>755,877</td>
</tr>
</tbody>
</table>

2.1.2. Acute Flaccid Paralysis Surveillance
Southern Sudan is achieving certification standard surveillance. Since 2000, southern Sudan has exceeded the WHO-established minimum AFP reporting rate of 1 non-polio AFP case per 100,000 children aged <15 years, which indicates a sensitive surveillance system. In 2002, the rate was 2.53.

The second key indicator of the quality of AFP surveillance is a minimum of 80% adequate stool specimens collected for all persons with AFP. The target was met for the first time in 2002 after steady improvements in this indicator.

At the end of 2001, southern Sudan (as part of Sudan) changed from the clinical classification scheme to the virological classification scheme. This change was implemented retroactively for 2001. In March 2002, the southern Sudan Expert Review Group met for the first time and classified the 17 pending cases from 2001 (those that had inadequate stool collection and no wild virus isolated and residual paralysis/patient died/patient lost to follow-up). The Expert Review Group classified 6 of these pending cases as non-polio AFP and 11 cases as polio-compatible. The Expert Review Group met quarterly in 2002 and classified 12 cases: 11 were classified as non-polio AFP and 1 as polio-compatible. The decrease in compatible cases in 2002 is due to an increase in information about each case: a detailed case investigation by a medical officer is now required for every AFP case.

2.1.3. Epidemiology of AFP Cases in 2002
Eighty-eight AFP cases were reported in 2002. One case was classified as polio-compatible and 87 were discarded. Eleven (13%) cases were less than a year, 41 (47%) were between 1 and 3 years. The majority of AFP cases presented with asymmetric paralysis (76%) and a fever at onset (86%). Eighteen (20%) reported no history of vaccination, 30 (34%) reported 1 to 2 doses, and 40 (45%) three does or more. Non-polio enterovirus was isolated in 15 (17%) AFP cases.
Low-level transmission of wild poliovirus in southern Sudan was identified in 1999 and again in 2001. Poliovirus type 1 was isolated from one case in Ruweng, Upper Nile in April 2001. No further wild virus has been isolated from northern or southern Sudan.

**Upcoming:**

- South Sudan will attend the 6th Global Advisory group meeting on Buruli ulcer, Geneva, 10-13/March, 2003
- EWARN training in Tonj (Bahr Ghazal) and Shilluk (Upper Nile); 3rd week of March and 1st week of April, 2003