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

1.1. Documentation of implementation of EWARN in southern Sudan

Following consultations between WHO and its technical and funding partners, it was agreed to document the process, experiences, challenges, and lessons in the implementation of integrated disease surveillance and response (IDSR) in different countries. Based on set criteria for this purpose, Sudan, Uganda, Ghana, Ethiopia, Mali and Burkina Faso were chosen for country documentation.

Sudan is in a complex emergency situation, with more than three decades of internal conflict, frequent internal displacement, repeated floods and famine. All these conditions create favorable conditions for repeated outbreaks including meningococcal meningitis, measles, relapsing fever and diarrheal diseases. To address the gaps in the early recognition and prompt response to outbreaks, WHO and UNICEF/OLS with support from NGOs initiated an Early Warning and Response Network (EWARN). Following funding from UNF in 2000, this imitative started full implementation in southern Sudan. The current documentation, which was carried out by a team of WHO consultants and experts in Epidemiology and Microbiology, took place from 27/11-07/12/2002. To document this, Key Informant interviews (KII) and Focus Group Discussion (FGD), document reviews and field visits were used. The documentation team met and discussed with experts and health staff from EWARN partners in southern Sudan. These participants included from AMREF, KEMRI, MEADIR, MSF-H, SMC, SRRA, UNICEF/ESARO and OLS, and WHO.

A draft of the documentation is on review by a core-team. The results of the documentation will greatly contribute to further strengthen the ongoing local capacity building for an early detection, prompt verification and effective response to outbreaks in Sudan. It will also provide inputs for developing proposals for future funding. Moreover, experiences and lessons from EWARN can contribute to improve surveillance and response in countries with similar complex emergency situations.
1.2. UNF Project Annual Review and Planning

WHO southern Sudan liaison office hosted the UNF annual review meeting for 2002. It took place in Nairobi, Kenya, from 10-12/12/2002. The UNFIP consortium is supporting a three-year project to strengthen surveillance and response for epidemic-prone and vaccine-preventable diseases. It includes four countries from the WHO/African Region (Ghana, Mali, Burkina Faso and Guinea-Conakry), and southern Sudan from WHO/Eastern Mediterranean region.

The objectives of this meeting were:
- To review implementation of UNFIP project for 2002
- To plan for the remaining project period
- To recommend ways to continue implementation of UNFIP supported activities beyond the project period

In this review meeting, country activity and financial status reports and project perspectives were discussed. Following the presentations and discussions, country activity plans for the remaining project period were developed.

Peace in Sudan will offer an opportunity for consolidating and expanding EWARN

Status reports, reviews and plans for Sudan included for both Khartoum/Juba accessible and Loki accessible southern Sudan. Reviews from these reports show that implementation of activities and financial utilization for southern Sudan has been as per plan. The plan for the remaining period will focus on consolidating local capacity building, lab strengthening and extending the EWARN into more areas. The ongoing peace initiative in Sudan will offer a great opportunity for consolidating and also extending EWARN to more areas.

A total of 18 participants from project countries, WHO/CSR/HQ, WHO/AFRO, WHO/EMRO, and the Horn of Africa initiative attended the meeting.

1.3. Training and orientation of health workers and EWARN partners

1.3.1. Training of health workers

Two training activities are included in this monthly Update (Kajokaji, Equatoria and Pochalla, Upper Nile). A total of 19 clinical, public health, and laboratory health workers, selected from ARC, Comboni Missionaries, County Health Department, WA&CW, and World Relief participated.

The objectives of the workshop are:
- Provide a practical form of continuing education on surveillance and response
- Review the roles of clinical and laboratory health workers in outbreak detection, reporting and response
- Improve skills to early recognize and verify epidemics and initiate measures.
- Promote partnership in EWARN for early detection and alert
- Establish/strengthen EWARN teams for improving surveillance and response

In 2000, WHO in collaboration with AMREF, had trained two laboratory technicians from MSF-CS Kajokaji Hospital. Both are members of the Kajokaji county EWARN team. The training of more health workers is expected to further strengthen the County EWARN team. Following the training of the 8 health workers in Pochalla, an EWARN team is established to coordinate surveillance and response for epidemic-prone diseases.

1.3.2. Advocacy and orientation

WHO participated at a one-day county health coordination meeting held on 7/08/2002, and briefed 19 participants on EWARN and their roles in supporting surveillance and response. These participants were representing a total of 13 organizations working in the areas of health, social development and HIV/AIDS prevention. Similarly, at the October Quarterly OLS Health Coordination meeting, WHO, KEMRI and IRC presented experiences on surveillance and response and training of health workers in southern Sudan.
1.4. Preparedness, Detection and Response

1.4.1. Partnership: response to Buruli Ulcer

In July 2002 WHO, KEMRI, CARE and Tambura County Health Department jointly investigated a reported outbreak in Mabia Internally Displaced Persons (IDPs) camp, Tambura County. The outbreak was later confirmed both clinically and by laboratory tests as Buruli ulcer. KEMRI and the Institute of Tropical Medicine, Belgium, confirmed Mycobacterium ulcerans using polymerase chain reaction (PCR) studies.

Before July 2002 there has been no confirmed case of Buruli ulcer in the area, but the disease has been reported in Uganda and a number of countries in West Africa. Thus, Buruli is an emerging problem in Sudan.

As a result of this partnership, more than 400 cases were managed, health education was provided and training for local health workers was conducted. Our next plans are consulting with health NGOs, OLS and SRRA to fill gaps in basic health care, ensuring the training of a resident Sudanese surgeon from Yambio civil hospital through a short-term attachment in Uganda, scaling-up community surveillance, continuing community orientation and training of local health workers for early detection and management of new cases.

Partnership in Action:
The investigation and response to Buruli ulcer proves that EWARN is feasible in areas with complex emergency situations like Sudan

Following the confirmation of the Buruli ulcer in the camp the need to respond to the outbreak became a matter of priority for WHO/EWARN. However, CARE International was closing all its programs in the county including the health program it had in Mabia, Tambura and the area was left without any NGO to support the health care services.

To bridge this gap, WHO closely worked with EWARN partners including WHO/CSR, Global Buruli Ulcer Initiative (WHO/HQ), MEDAIR, CARE, UNICEF/OLS, CORAID/DoY and ICRC to mobilize resources for response.

MEDAIR International and WHO mobilized a mobile health team to the IDP camp for a period of three weeks. CARE International provided logistics support. Local communities and chiefs participated in field assessment, case detection and health education activities.

Basic Facts on Rabies
(Also called: Hydrophobia)

Causative Agent:
Rabies virus, rhabdovirus of Lyssavirus

Transmission:
Entry to body of rabies virus laden saliva through the bite or scratch by a rabid animal, usually dogs (sometimes cats, foxes, wolves)

Clinical manifestations
- Starts with headache, fever, apprehension
- Progresses to weakness, paralysis
- Spasm of swallowing muscles leads to fear of water (hydrophobia)
- Later confusion/delirium, convulsions,
- Death is often due to respiratory spasm

Other descriptions
- In Sudan, dogs remain the main reservoir
- Duration of developing symptoms depends on site and severity wound (Example: People with head and face bites and large wounds develop symptoms faster than leg scratches).
- Symptoms usually develop within 3-8 weeks from date of exposure (time of bite).

Management
- At home: clean and flush the wound immediately
- At Health Facility: through wound cleansing
- Give anti-rabies vaccine and/or immune globulin
- Administer: Tetanus prophylaxis and antibiotics
- Leave the wound open: no sutures and no closure
- Clinical rabies: provide intensive medical care

Public Health Measures:
- Eliminate stray dogs or if feasible vaccinate dogs
- Observe dog for ten days for signs and symptoms
- If dog is rabid/suspected, immunize bitten people

Magnitude in Sudan (southern)
- In 2002 alone, 42 unprovoked bites with suspected rabid dogs, and 3 deaths from rabies were confirmed.

Note:
Once a person develops rabies, there is no cure!
Communities have to support killing of stray dogs
**1.4.2. Outbreaks detection and response**

A total of seven suspected outbreaks were detected and investigated through EWARN partners, including DOT, COSV, MEDAIR, MSF-CH, MSF-H, UNICEF/OLS, and WHO field staff. Outbreaks of measles, whooping cough, and rabies were confirmed and responded. The other response was a follow-up of the Buruli ulcer outbreak mentioned above (1.4.1.) A summary of verified outbreaks is included in Table 1.

Table 1. Summary update of verified outbreaks, Nov-Dec, 2002.

<table>
<thead>
<tr>
<th>Suspected outbreak disease/syndrome</th>
<th>Location/Onset</th>
<th>Source of info &amp; date of update</th>
<th>Reported cases/deaths/actions taken</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Whooping cough</strong></td>
<td>Akon Gogrial county Bahr Ghazal</td>
<td>WHO and SRRA Last Update: 23/12/02</td>
<td>127 cases with 2 deaths reported</td>
</tr>
<tr>
<td></td>
<td>Reported onset: Week 41 15/10/02</td>
<td></td>
<td>Health education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Challenge: No health NGO in area</td>
</tr>
<tr>
<td><strong>Whooping cough</strong></td>
<td>Akop payam Tonj county Bahr Ghazal</td>
<td>MSF-CH (Swiss) Last Update: 14/12/02</td>
<td>5 recorded cases, no deaths</td>
</tr>
<tr>
<td></td>
<td>Reported onset: Week 49</td>
<td></td>
<td>Surveillance, Case management, health education, and immunization</td>
</tr>
<tr>
<td><strong>Measles</strong></td>
<td>Gomjuer, Aweil west County Bahr Ghazal</td>
<td>IRC Last Update: 03/11/02</td>
<td>45 cases, no recorded deaths</td>
</tr>
<tr>
<td></td>
<td>Reported onset: Week 43 21/10/2002</td>
<td></td>
<td>Case management, health education, Immunization carried out in the area</td>
</tr>
<tr>
<td><strong>Measles</strong></td>
<td>Nimule, Magwe County Equatoria</td>
<td>DOT Last Update: 13/11/02</td>
<td>40 cases with 3 deaths reported (CFR 7.5%)</td>
</tr>
<tr>
<td></td>
<td>Reported onset: Week 43 28/10/2002</td>
<td></td>
<td>Case management, health education, Children among IDPs vaccinated</td>
</tr>
</tbody>
</table>
POLIO ERADICATION ACTIVITIES

Sub-national immunization days (SNIDs) held in October and November reached an unprecedented number of children. The SNIDs targeted children under five in high-risk areas of southern Sudan. During the first round, 755,877 children were vaccinated. In the second round, 1,108,316 children were vaccinated. Unimpeded access throughout southern Sudan allowed the polio program to reach some areas for the first time.

<table>
<thead>
<tr>
<th>Region</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Round 1</td>
<td>Round 2</td>
</tr>
<tr>
<td>Bahr el Ghazal</td>
<td>139,499</td>
<td>141,123</td>
</tr>
<tr>
<td>Western Equatoria</td>
<td>55,858</td>
<td>65,499</td>
</tr>
<tr>
<td>Eastern Equatoria</td>
<td>107,675</td>
<td>113,288</td>
</tr>
<tr>
<td>Upper Nile / N. Jonglei</td>
<td>102,936</td>
<td>90,010</td>
</tr>
<tr>
<td>Lakes / S. Jonglei</td>
<td>87,689</td>
<td>79,491</td>
</tr>
<tr>
<td>Nuba Mts.</td>
<td>46,188</td>
<td>53,356</td>
</tr>
<tr>
<td>S. Blue Nile</td>
<td>26,327</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>539,845</strong></td>
<td><strong>542,767</strong></td>
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</tbody>
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