



World Health Organization Southern Sudan Office

Annual Report 2004



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**World Health Organization
Southern Sudan Office
Warwick Centre UN Avenue
P.O.Box 63565
Nairobi, Kenya
Tel: +254 (20) 622832; 623197/98/99
Fax: 623640**



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Foreword

This annual report is the first to be produced on the World Health Organization (WHO) health interventions in Southern Sudan since the launch of humanitarian assistance and opening of offices in Nairobi and Southern Sudan. Each chapter catches in one snapshot the multitude of activities on the ground and sets the scene upon which each programme was established providing our readers with a clear picture in key priority areas.

The country has been tangled in a vicious cycle of conflicts with one of the longest civil conflict—more than 35 years—leaving an estimated 1.5 million people dead; 4 million people displaced, out of which about ½ million are still living in refugee camps. The civil war also resulted in the severe devastation of health services infrastructure. The abysmal social and economic situation of Southern Sudan is further exacerbated by the occurrence of natural disasters such as floods, and frequent drought. Furthermore the region is known to host some of the most dangerous endemic diseases adding to the already high toll of morbidity and mortality from conflicts.

In response to 1989 crisis, described as one of the worst emergency situations in Sudan, an agreement for safe delivery of humanitarian aid was signed between the Government of Sudan, SPLM, and the UN, under Operation Lifeline Sudan (OLS). And in 1998 WHO decided to open a liaison office for Southern Sudan in Nairobi and Lokichoggio (Kenya) to improve access. Since then the World Health Organization is engaged in the provision of humanitarian assistance in the form of technical, financial and logistical support.

The Nairobi office is assisted by 320 staff members comprising of technical staff, general services staff and support staff dispatched throughout the country at Payam level. The six field offices divided into two categories serve the Southern Sudan Office. The first two located in Lokichoggio (North Kenya) and Arua (North Uganda) provide logistical support to hubs inside

the country. Four other hubs implement WHO programmes are based in the following districts:

- Rumbek field office serves the Lakes and South Jonglei. Following the establishment of Rumbek as the interim capital for South Sudan, this field office has become the central hub for the coordination of activities with the UN system, government authorities and partners.
- Akon field office caters for the programmatic and logistical needs of Bahar e Ghazal region
- Yambio field office manages activities carried out in Western Equatoria
- Nyal field office handles programmes in Upper Nile and North Jonglei areas.

In 2004, the WHO Southern Sudan office expanded considerably to include programmes on surveillance and control of major communicable diseases and planning activities in relation to the recovery and rehabilitation of health services. As such, its structures and scope of work are continuously being enhanced to match forthcoming challenges and needs.

The Office works in close collaboration with the Sudan's People's Liberation Movement (SPLM) Health Secretariat (HS) which is expected to be strengthened to take over programmes currently implemented by WHO and other partners.

Next year we hope to share with you more success stories on the recovery and the reconstruction of the health care system in Southern Sudan.

We express here our gratitude to donors and partners whose financial participation combined with the dedication WHO staff highly contributed in accomplishing major achievements in the provision of health in Southern Sudan.

D. Abdullahi M. Ahmed
Head of Office
WHO Southern Sudan

D. Guido Sabatinelli
Representative
WHO Sudan

Executive Summary

After many years of presence in Southern Sudan, WHO continued in 2004 to assist health authorities and partners from other international organizations in the provision of humanitarian assistance to reduce the burden of diseases in this state affected by war. Outlined below are the main priority areas of intervention which received much attention and resources from WHO throughout the year.

Emergency and Humanitarian Action: In 2004, and anticipating an imminent signing of the peace agreement, that would end decades of war between the North and Southern part of Sudan, the United Nations agencies, working as architects for the return, reintegration and reconstruction of Sudan, were continuously involved in simultaneous planning processes. Such building blocks which saw the active participation of the World Health Organization included: The mounting of the Consolidate Appeal Process (CAP) 2004 containing UN agencies and NGOs humanitarian requirements for both Northern and the Southern parts of Sudan; the organization of a UN Joint Assessment Mission (JAM); the identification of recovery and developments needs including funding gaps and finally, the conception of the Work plan 2005 for the return, reintegration, peace building and peace agreement implementation complementary to the JAM and the GoS/SPLM joint document: "Urgent needs in Sudan". Meanwhile, collaboration in developing strategies to respond to the growing needs of IDPs and returnees between Health Working Groups in both the North and Southern part of Sudan were strengthened in 2004.

The workshop on the recovery and reconstruction of the health sector in south Sudan was the first step in the development of a solid action plan and path to recovery of the health sector. This workshop was an HS-WHO joint venture conducted on 19- 20 February 2004 . The Work Plan was developed in consultation with sectoral ministries/departments of the GoS and SPLM/A leadership and draws on the priorities reflected in the GOS/SPLM/A document, Urgent Needs in Sudan: October 2004-June 2005.

Meanwhile, WHO continued negotiations with potential donors to fund the Southern Sudan health sector in key components of the recovery strategy, namely-the health emergency plan for refugees and host communities; research studies and surveys, human resources development, infrastructure rehabilitation and strengthening of

the EWARN. A Southern multi-stakeholders consultation took place, late in 2004, on several clusters set by the JAM including Basic Social Services (health, education and water) to prepare for the upcoming donors conference for the Sudan to be held in Oslo in 2005.

Communicable diseases: Reducing the burden of communicable diseases responsible for silent deaths, equally threatening the lives of Southern Sudanese as much as the war, engulfed much human and financial resources in 2004.

Polio eradication: The detection and isolation of an imported wild poliovirus in May 2004, in West Darfur was a stark threat to polio eradication efforts in Southern Sudan. Once the transmission of the wild virus was re-established across Sudan, Supplemental Immunizations Activities (SIAs) were increased exponentially. Two mop-up campaigns were conducted in August and September in Bahr-el-Ghazaal region which borders south Darfur and west Kordofan in the north. Over 500 000 children were vaccinated during each round. Subsequently, two rounds of Sub-National Immunization Days (SNIDs) were conducted in October and November 2004 with 1.9 million children under 5 vaccinated in each round. A final mop-up campaign was conducted in western Upper Nile in December reaching over 175 000 children.

WHO Southern Sudan once again exceeded the WHO-established minimum non-polio AFP rate of 1 case per 100,000 children aged under 15 years achieving 2.18 in 2004. 111 AFP cases were investigated in 2004: 8 cases were confirmed wild poliovirus, 5 were classified as polio compatible, and 98 were discarded.

Despite the impressive achievements in 2004, the outbreak has amplified the need for continued immunization campaigns, particularly in the absence of strong routine immunization.

Roll Back Malaria: Activities in this area focused on the provision of technical support to standardize services and protocols used in control activities in Southern Sudan where about 7 million people are at risk of contracting the disease.

A strategy for the implementation of Insecticide Treated Bednets (ITNs) was developed providing for the institutional framework and partnership building, both prerequisites in scaling up ITNs distribution in Southern Sudan. In November 2004, WHO and Samaritan's Purse Hospital in Lui jointly conducted an assessment and monitoring of the therapeutic efficacy of anti-malaria drugs for uncomplicated falciparum infection in areas of intense transmission based on WHO's protocol. Furthermore, WHO technically supported the elaboration of guidelines for the diagnosis and treatment of malaria.

Stop TB: Though the precise burden of TB in Southern Sudan is not known, the Annual Risk of Infection is estimated at 2% with an incidence of 100 cases of smear positive TB per 100,000 populations. In 2004 the treatment outcome for patients registered improved compared to patients registered in 2003. The TB control programme in Southern Sudan employs the directly observed treatment, short course (DOTS) strategy coordinated by WHO. Support to partner NGOs was provided during awareness campaigns targeting patients and communities and through the distribution of TB drugs. WHO recruited in 2004 a laboratory technologist and a TB focal point to manage the overall implementation of the program. Capacity building was carried out through training workshops for health workers and laboratory technicians. TB policy and guidelines for Southern Sudan were reviewed during a workshop with partners. In 2005, plans are to reduce TB morbidity and mortality in Southern Sudan through an expansion of the DOTS strategy and an increase in case detection rates.

Global Fund to Fight Aids, TB and Malaria: In 2004 WHO was involved with other partners in the development of the proposal until the final approval and signing of the grant by the Global fund. WHO-Southern Sudan was nominated as the lead agency to provide monitoring and evaluation technical support to the malaria and TB programs under the Global Fund. The HIV/AIDS grant is in the final stages of negotiations, and funds are anticipated to be dispersed this year. HIV/AIDS is becoming a major public concern as the peace process entails the return of IDPs and refugees from areas with greater prevalence rates including the prospects of the mobilization of thousands of peacekeeping forces into Southern Sudan. Various studies made in selected areas have shown a prevalence ranging from 1 to 3.8% in 1997/98.

Leprosy: Launched in 2002, in Southern Sudan, the programme introduced rapid and simple diagnostic tools and delivered free short courses of multidrug therapy (MDT). This region remains the only area in the Eastern Mediterranean Region with a prevalence of leprosy still above the WHO elimination target of 1 person per 10,000 population. The programme is run by 15 NGOs managing 29 treatment centers with the

support of WHO. Training workshops were organized to strengthen the capacity of health workers in treating leprosy. During the first 6 months of 2004 around 1,253 new cases were detected. In 2005 the programme will aim to increase case detection and continue to build the capacity of health personnel.

Human African Trypanosomiasis (HAT): The implementation of the Human African Trypanosomiasis (HAT) emergency program was handed over to an international NGO on 1 December 2004. WHO continued to train local health care workers in the diagnosis and treatment of persons with HAT; rehabilitated health facilities and centers and provided necessary equipment including drugs and supplies.

Visceral Leishmaniasis (Kala-Azar): is endemic and common in both North and South Sudan especially in the Upper Nile Region. One major accomplishment of the kala-azar program has been the development of standardized guidelines on the disease. In 2004 the development of a centralized database for kala-azar was delayed. But in 2005, emphasis will be placed on this task. The programme also introduced rapid diagnostic tests carried out in selected field locations.

Onchocerciasis Control: A new partnership for Onchocerciasis Control (River Blindness) between the African Programme for Onchocerciasis Control (APOC), the Health Secretariat SSOCP, the WHO-South Sudan office and a new NGO partner, Christofen Blindeen Mission (CBM) was formed. Funding for the five separate project sites was provided by APOC through WHO-South Sudan to the SSOCP. Intense training for two project sites have begun.

Early Warning and Response Network: Strengthening local capacity in surveillance and response continued to be one of main areas of support in Southern Sudan. A number of orientation workshops were organized in 2004 on basic detection, alert, verification and response techniques to epidemic prone, emerging and new diseases. Surveillance data from selected sentinel sites are received on a weekly basis on the eight diseases considered to be epidemic-prone in Southern Sudan: Acute bloody diarrhea; Acute watery diarrhea, measles, Acute Flacid paralysis, suspected meningitis, suspected relapsing fever, suspected malaria and viral haemorrhagic fevers. Discussions to expand the list and include other diseases responsible for outbreaks such as whooping cough are underway with partners. Many Rumors of suspected outbreaks of vaccine preventable illnesses like measles, whooping cough, meningococcus were reported throughout 2004 testifying for the weak status of the vaccination coverage in Southern Sudan. Only half of the 72 health NGOs working in SPLA/M controlled areas are involved in the routine EPI programme.

In late May, 2004 Southern Sudan was struck by an outbreak of Ebola Hemorrhagic fever. A total of 17 cases were reported including 7 deaths. The spread of the disease was rapidly contained following the rapid deployment of an international response team headed by WHO Southern Sudan Office. Thanks to the collaboration of major partners such as UNICEF, MSF-F, CDC, and the support from EMRO and WHO/HQ logistical support was available at all times through transport, supplies of PPE materials, drugs and communications. Workshops on disease surveillance and outbreak investigation and response were organized as part of WHO Southern Sudan efforts to improve epidemic response to epidemic-prone diseases in the region.

Community based initiatives (CBI): Basic Development Needs programme (BDN) is one of the main Community Based Initiatives (CBI), initiated in 2004 as model in two areas: Deng Nhial Rumbek and Nzara road Yambio. Community organization and the formation of intersectoral structures was followed by capacity building on the CBI concept and process. A baseline and needs assessment survey of both areas revealed serious developmental gaps which needed urgent actions by all sectors. In spite of budgetary constraints, two projects were implemented in 2004 with one in each model area: 1) Strengthening of PHC Unit of the BDN area in Deng Nhial, Rumbek; and 2)

Establishment of an MCH center in BDN area, Yambio. In 2005 WHO plans to consolidate projects in these pilot areas and additional funds are expected to be disbursed for the following programmes:

- 1- Introduction of Healthy Cities approach
- 2- Streamlining Primary Health Care
- 3- Reinforcing District Health System
- 4- Introduction of School Health initiative
- 5- Health promotion through Health Education and Healthy Lifestyles

Human resources development is one major key concern for WHO. A plan for the establishment of an Institute of Health Sciences at Rumbek is under consideration. The institute is expected to be partly sponsored by the Italian Cooperation and technically supported by WHO. It will train Health managers as well as health workers.

The **Integrated Management for Childhood Illnesses** (IMCI) tool was adapted and introduced at village level for South Sudan into a simplified version called Essential Community Child Health Care. However the tool never enjoyed wide implementation. Late in 2004, the WHO-South Sudan office planned an evaluation of the ECCHC program to determine the reasons behind the successes and failures of the tool.

Chapter 1 Emergency & Humanitarian Action



Emergency & Humanitarian Action (EHA)

In 2004, EHA concentrated its efforts on two main components: Returns and Post-Conflict. The UN & Partners 2005 Work Plan for the Sudan was another key task of the EHA, as a key instrument for fundraising purposes.

Post-Conflict

A key event took place at the beginning of the year, namely the Post-Conflict Workshop, led by the SPLM Health Secretariat and stakeholders in the Southern Sudan Health Sector. The workshop was preceded by a consultancy provided by WHO for the elaboration of a recovery strategy for the health sector. Support was also given to the creation of several thematic working groups covering the key components of the recovery strategy (e.g. Health Financing, Human Resources and Infrastructures, Pharmaceuticals, Management Systems, Public Health Programs, Emergency/Returns).

The recovery strategy was approved and formally endorsed by the Health Secretariat. An operational paper: First Steps towards the implementation of the Southern Sudan Health Sector Recovery Strategy was developed for fundraising purposes. Several working groups developed tasks following recommendations made by the workshop. With the existing (limited) resources the teams proceeded to the collection and analysis of information, elaboration of Terms of Reference for planned studies and surveys, etc.

Returns

In early 2004, the UN developed a policy & strategic framework for the return of IDPs and Refugees, in close coordination with national authorities, both the GOS and the Sudan's Peoples Liberation Movement. Several sectors among which the Health Sector were given the responsibility of developing sector plans fitting into the UN overall policy framework.

WHO, as the Health Sector focal agency, developed in close coordination with the SPLM Health Secretariat and Health UN agencies and NGOs a Basic Health Package to provide to IDPs and Refugees Returnees at

starting points and likely return routes and final destinations. Responsibilities, both for implementation and financial management, were defined for key stakeholders.

Later in the year, WHO and other partners in the North conducted Health Informative Workshops whose beneficiaries were IDPs from camps in Khartoum. The Health basic package was then shared with partners in the North, and formally approved.

The Work Plan 2005

A UN Country Team Retreat took place on the 20-21st September in Port Sudan. Heads of UN agencies and offices, North and South jointly discussed and agreed upon: Lessons learned from the CAP 2004 and key themes to take into consideration when planning 2005; the linkages between the several on-going planning processes, namely the UN Work Plan 2005, the SPLM & GOS Urgent Needs and the JAM; the most-likely scenarios for 2005; the UNCT's strategic priorities for 2005; and management and coordination principles. Core Planning Teams (CPT) were created both in the North and the South including all UN agencies. Sector Focal Points were identified. Instruments for a 5-step planning process were elaborated and are being gradually discussed and filled by the CPT.

Sudan was chosen by the UN to introduce conceptual changes to the regular Consolidated Appeal Process (CAP). Rather than the usual agencies' plans and projects, it should become a strategic plan, based on common strategic priorities commonly agreed upon by the North-South UN Country Team, and follow a sector approach (instead of an agency approach). Five major regions were defined, namely Darfur, South, East, Transitional Areas, and the Rest of the Sudan. Sector focal agencies were selected, of which WHO for the Health Sector. WHO worked in close collaboration with national authorities and Health implementing agencies, in the identification, selection and elaboration of projects that fit into the strategic priorities defined by the UNCT and, on the other side, into the Health Sector recovery strategy.

Together with OCHA, WHO participated in fundraising initiatives next to several donor agencies and, more recently, in the allocation of donor pledges, while coordinating within the Health sector. Negotiations with donors continue, aiming at funding three key components of the recovery strategy, namely (a) the Health Emergency Plan for returnees and host communities; (b) a set of studies and surveys, as well as mid-term planning, focusing on Human Resources, Infrastructures and Pharmaceuticals; and (c) the EWARN system.

Constraints

- Lack of funds was the key constraint in 2004. Delays in signing the comprehensive peace agreement, and the Darfur humanitarian crisis were major constraints.
- Working groups lacked additional resources (human and financial) that considerably limited their capacities. Recommended studies and surveys, or recovery-oriented tasks were not conducted and implemented due to insufficient funding. The same applies to the Emergency/returns component, whose plan was not implemented. Nevertheless, agencies responded to the most urgent needs derived from the return of several thousands of IDPs from the North, by reallocating existing resources.
- The signing of the peace agreement early in 2005 was immediately followed by donor pledges and the consequent (on-going) funds allocation to regions, sectors and projects in the Work Plan 2005 finally creating the conditions for its implementation.
- Within the Health sector, difficulties were encountered in reaching consensus among stakeholders; as well as in mobilising NGOs to adhere to a strategic approach. Meanwhile efforts should be made in 2005 in improving strategic and operational coordination between

the South and the North within the Health sector as a whole.

Lessons learned

Conceptual changes demand time to be disseminated, discussed and absorbed. Time is equally a key precondition to learn by doing and to consolidate positive outcomes.

Nevertheless, important steps taken allowed the programme to move forward and contribute to the production of UN workplan 2005 despite limited time and other constraints mentioned above. An achievement highly appreciated by donors and major partners.

Future directions

- The importance of Health Sector Recovery Strategy officially endorsed by the SPLM Health Secretariat should be constantly reminded to the sector's stakeholders. WHO, as the Health sector focal agency, has an important role to play in this domain.
- In 2005, actions should concentrate on minimizing the consequences of returns by addressing the most urgent needs of returnees and host communities, while consolidating health services provision and disease control programs.
- Crash training of most needed health categories is another key task to start as soon as possible.
- Concomitantly, it's crucial that WHO actively supports the Health Secretariat to conduct the several studies, assessments and surveys that were planned, as well as to elaborate mid-term plans in several key domains. This would enable the Health Secretariat to take fundamental evidence-based decisions on policy and strategic issues, prioritise its (scarce) resources and energies and steadily move forward towards post-conflict recovery.



Crash training for health workers is key to saving lives as thousands return to Southern Sudan

Chapter 2

Communicable Diseases





Polio Eradication

In 1988 member states of the World Health Organization (WHO) unanimously agreed to eradicate poliomyelitis worldwide. In turn, the Regional Committee of the World Health Organization, Eastern Mediterranean Regional Office (EMRO) adopted a resolution to eliminate polio in 1988. This report summarizes polio eradication activities in South Sudan particularly in 2004.

In May 2004, a case of wild poliovirus was detected in West Darfur, the first Sudanese case in three years. An importation from Nigeria and Chad, the P1 type virus established transmission and quickly spread across Sudan. One hundred and twenty seven cases were confirmed by the end of 2004, 8 of which were detected in South Sudan. In response to the reestablishment of wild poliovirus transmission, surveillance was intensified and emergency mop up campaigns were conducted in August, September and December. In addition, sub-national immunization days were conducted in October and November.

Structure & Partnership

The eradication initiative in Sudan is divided into separate programs for the north and the south. Both receive full support from the WHO country office, the WHO Regional Office of the Eastern Mediterranean, UNICEF, several NGOs, and other partners. In South Sudan, polio eradication activities are implemented under the umbrella of Operation Lifeline Sudan (OLS). OLS coordinates activities between the Government of Sudan, humanitarian wings of the rebel forces, UN agencies, and NGOs.

WHO and UNICEF provide technical leadership and coordinate logistical support for the polio eradication program. Funds for polio eradication activities are channeled through the two UN agencies. Their program offices operate out of Nairobi, Kenya. Five regional hubs (Bahr El Ghazal, Eastern Equatoria, Lakes, Upper Nile, and Western Equatoria) have been established to strengthen coordination and logistical support. Through WHO, national personnel dedicated to polio eradication are in place in almost all payams/districts. The program employs 12 international staff and 297 national staff on a "permanent" basis. During immunization campaigns, over 9,000 vaccinators are selected from the community as temporary staff.

Nearly 50 non-governmental organizations lend support and assistance to the polio program. In Blue Nile, a non-OLS area that WHO and UNICEF cannot access, GOAL implements the supplementary immunization campaigns. In other regions, NGOs lend support in the form of supervision and vehicles during SIAs (Supplementary Immunization Activities). In addition, polio staff train NGO employees on acute flaccid paralysis (AFP) surveillance and NGOs report AFP cases to WHO. The polio program reciprocates by lending logistical and operational support to NGOs whenever possible.

Routine Immunization

NGOs and UNICEF primarily provide routine immunization services in Southern Sudan. Coverage remains extremely low at less than 20%.



Staff loading polio vaccines in cold boxes.

Supplemental Immunization Activities

The first SIA (NIDs) in South Sudan was conducted in 1998. In 1999, activities were accelerated and by 2000 over 200 full-time staff were hired to conduct polio eradication activities.

To eliminate gaps in coverage, sub-national immunization days (SNIDs) were conducted in the border areas and synchronized with the Central African Republic, Democratic Republic of Congo, Ethiopia, and Uganda.

In 2003, two rounds of NIDs were conducted in the spring and two rounds of SNIDs in the fall. In 2004, NIDs were cancelled due to a lack of funds. Two rounds of SNIDs were conducted in October and November.

During NIDs, over 9,000 vaccinators are hired temporarily and trained to deliver vaccine in South Sudan. Every village (or boma, or cattle camp, etc.) is mapped and each vaccination team is assigned the areas they are expected to cover during each day of the campaign.

Logistical needs are addressed and a distribution plan for vaccine, cold boxes, ice (if there is no cold chain in the area), tally sheets, and supplies is developed.

A social mobilization plan is also developed for each region. Due to the lack of media in Southern Sudan,

alternative methods are used such as sporting events, concerts and plays.

At least once a year, the field staff from northern and southern Sudan come together for the North-South Coordination Meeting. During the meeting, they map out "gap areas" between the programs and arrange for these areas to be covered during the SIAs. They also brief each other on the status of the program in each region. Updated data is shared weekly between the WHO and UNICEF offices in Khartoum and Nairobi. In addition, cross-border meetings are attended yearly by polio staff and NIDs are synchronized with neighboring countries whenever possible.

The quality of successive SIAs improved each year. In the 1998 NIDs campaign, 809,245 children were vaccinated. In 2004, 1.9 million children under 5 years of age were vaccinated during each SNID round. The overall results of the 2001-2004 campaigns can be found in Table 2. The detailed results from 2004 are in Annex 1.

The impressive 2002 SNIDs achievements (an additional 500,000 children reached during the second round of SNIDs) resulted from the first unimpeded humanitarian access since the polio program began. Access remained good in 2003 and 2004 and record numbers of children were immunized during the NIDs.

Table 2: Results of Supplemental Immunization Activities, South Sudan 2001-2004

	2001	2002	2003	2004
NID Round 1	1,237,643	1,236,501	1,729,342	N/A
NID Round 2	1,129,116	1,292,029	1,792,833	N/A
NID Round 3	1,140,792	1,334,163	N/A	N/A
SNID Round 1	539,845	755,877	948,744	1,965,717
SNID Round 2	542,767	1,108,316	1,007,691	1,991,573

Mop-up Campaigns

A mop-up campaign was conducted in August 2001 in the district surrounding the location of the last confirmed indigenous case of wild poliovirus type 1. The case was from Ruweng County, Upper Nile, an area that had ongoing insecurity, which disrupted campaign activities and delayed the establishment of AFP surveillance in the area.

Following the detection of an importation (P1) in May 2004 in West Darfur, two mop-up rounds were conducted in the Bahr el Ghazal region of South Sudan. In November, the first P1 virus was detected in South Sudan and a mop-up was conducted in western Upper Nile and three payams (districts) of Bahr el Ghazal in December. Detailed results are in Annex 2. Western Upper Nile, the location of the first and all subsequent P1 cases, is an area of historic and on-going insecurity. The polio program was able to access this area in only 2 NID and 3 SNID rounds prior to the 2004 outbreak.

AFP Surveillance

AFP surveillance was initiated in late 1998. Given the logistical constraints in Southern Sudan, surveillance was introduced in phases. With the acceleration of polio eradication activities in 1999, and the hiring of over 200 field staff in 2000, the surveillance system was strengthened and spread to every region. Active surveillance visits are conducted by field assistants in 341 sentinel sites and 1,523 other reporting sites throughout Southern Sudan. Initial and detailed case investigations, specimen collection, and sixty-day follow-up investigations are conducted by focal points and, when possible by medical officers. The specimens are frozen and flown to Nairobi on OLS chartered planes where they are transported to the Kenya Medical Research Institute (KEMRI) for initial tests. Isolates requiring intra-typic differentiation (ITD) are sent to the WHO-AFRO Regional reference laboratory in South Africa.

Each year, all international and national focal points receive an intensive training on AFP. Attendees return to their respective regions and conduct training workshops for all county supervisors and field assistants. In addition, a training for sentinel site workers has been introduced.

Data is collected in the field and sent by pouch to the national level in Nairobi. Case notification and

arrangements for stool specimens are communicated immediately through radio and email. Zero reports and work plans are submitted monthly. Data management has been improved by: the revision of AFP surveillance guidelines and forms, installation of IFA software, and increased analysis of AFP data.

Epidemiology of AFP Cases in 2004

One hundred and eleven AFP cases were reported in 2004; 8 cases were confirmed wild poliovirus, 5 were classified as polio-compatible, and 98 were discarded. The distribution of cases can be seen in Annex 2. Of the 103 non-polio AFP cases, 13 (13%) were less than a year, 62 (60%) were between 1 and 4 years, and 28 (27%) were above 5 years. The majority of non-polio AFP cases presented with asymmetric paralysis (61%) and a fever at onset (92%). Twenty-one (20%) reported no history of vaccination, 24 (23%) reported 1 to 2 doses, and 55 (53%) 3 doses or more. Non-polio enterovirus was isolated in 16 (16%) cases.



Vaccinators go through great strides to reach populations.

One hundred twenty-seven wild polio cases were confirmed in 2004; 119 in northern Sudan and 8 in southern Sudan. Of the 8 cases in South Sudan, 6 were P1 viruses linked to the outbreak and 2 were P3 viruses genetically related to viruses reported in 1999. The source of the type 3 virus is still unclear; however it may represent undetected circulation in Sudan and/or other neighboring countries. Of the 8 wild cases in South Sudan, 2 (25%) cases were less than a year, 2 (25%) were between 1 and 2 years and 4 (50%) were 2 years. Two (25%) reported no history of vaccination, 2 (25%) reported 1 to 2 doses of OPV, and 3 (38%) had 3 OPV doses or more (1 was unknown). Five (63%) were female and 3 (38%) were male. Five (63%) cases presented with asymmetric paralysis, 7 (88%) with fever at onset, and 7 (88%) progressed to full paralysis within 4 days.

AFP Surveillance Indicators

South Sudan is achieving certification standard surveillance. Since 2000, South 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 (Table 3). In 2004, the rate was 2.18.

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, and was 87% in 2004.

At the end of 2001, Southern 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. In 2003 the Expert Review Group reviewed 12 cases; all were classified as non-polio AFP. In 2004, 10 cases were reviewed; 5 were classified as non-polio AFP and 5 as polio-compatible.

Monitoring and Evaluation

Monitoring and evaluation is an essential component of the polio eradication initiative. Ongoing process monitoring is done for both immunization campaigns and surveillance. During NIDs, daily supervision and monitoring allow problems to be identified and rectified immediately. After the campaign, surveys are carried out to identify any area where children have been missed. If children in three or more households were

missed, vaccination teams are sent back to cover the area. Following completion of the NID, an extensive review is held to identify weaknesses and improve subsequent activities. Surveillance data are analyzed bi-weekly to identify any sub-national areas of weakness.

To ensure overall programme oversight, an independent Technical Advisory Group has been established. This group reviews the current programmatic and epidemiological situation and makes recommendations on program implementation. In addition, Expert Review Group meetings are held quarterly to help guide the surveillance system and give expert judgment the final classification of cases with inadequate specimens and residual paralysis/lost/

Contributions to other Public Health Initiatives

The WHO Early Warning and Response Network (EWARN) has been integrated with the AFP surveillance system. Starting in 2002, polio field staff report cases of potential outbreaks to EWARN staff and assist in outbreak investigations. Conversely, EWARN medical officers conduct detailed case investigations of AFP cases and serve as members of the Expert Review Group. In July 2004, the AFP surveillance system was expanded again to collect data on measles cases by age. In 2005, training is planned to allow for case-based measles surveillance.

The polio program has also collaborated with the Carter Center, the lead agency of the global guinea worm eradication program. In 1998-2001, vaccinators collected information on guinea worm from every village enhancing the Carter Center's baseline data. In the 2003 NIDs, this process was repeated.

To decrease child morbidity and mortality, Vitamin A is administered to children during immunization campaigns. Vitamin A has been distributed each year since 1998.

Bed nets for malaria prevention were distributed yearly to vaccinators until 2002.



Vaccinators participate in a training session prior to immunizations days in Southern Sudan.

Support to Health Systems Development

The benefits of the polio eradication program to health systems in South Sudan are significant, most notably the following:

- Developed a grassroots system: The vaccination and surveillance systems are organized around the community. More than 9,000 southern Sudanese serve as vaccinators during National Immunization Days. Trusted community members report polio cases to the polio outreach teams. To be successful, the trust of the community had to be established and maintained. If the polio infrastructure is not maintained, this network of community cooperation will be lost.
- Strengthened national capacity for surveillance systems, outreach activities, and training of health professionals: The polio program helped develop the EWARN surveillance system and is helping it expand its reach at the grassroots level.
- Increased access to health services for children in areas affected by conflict. OLS and its partners negotiated days of tranquillity allowing for the temporary cessation of hostilities for immunization campaigns, delivery of routine immunization and the establishment of surveillance. However, the outbreak
- has exemplified the need for continued SIA's, particularly in the absence of strong routine immunization.
- Improved demographic data: Planning for SIAs provides key demographic data, such as the finding of children in remote villages and households for the first time. This demographic information has been shared with other programs and has proven instrumental in planning and implementing their activities.
- Improved coordination: Through cross-border activities and the synchronization of SIAs, Sudan has developed a model for cross-border cooperation for health that can be used for other major health initiatives.
- Developed north-south relations: Through North-South Coordination Meetings, the polio program brings staff together from all areas of the country to improve program performance; setting an example for what can be achieved with the peace process.
- The cooperation between northern and southern Sudan in implementation of days of tranquillity and regular program activities has served as a bridge for peace.

Table 3: AFP Surveillance Indicators, South Sudan 2002-2004

	for	South	Sudan
	2002	2003	2004
Number of AFP cases	88	87	111
Number of clinically confirmed polio cases	0	0	0
Number of confirmed cases with isolation of wild poliovirus	0	0	8
Number of compatible cases	1	0	5
Number of discarded polio cases	87	87	98
Number of cases pending classification	0	0	0
- pending 60-day follow-up result	0	0	0
- pending initial lab results	0	0	0
- pending intra-typic differentiation only	0	0	0
Expected annual number of non - Polio AFP cases (1/100,000 children under 15 years)	35	42	48
Non-polio AFP rate in children under 15 years (includes pending classification)	88 (2.53)	87 (2.11)	103 (2.18)
Suspected AFP cases investigated within 48 hours of notification	53 (60%)	80 (92%)	93 (84%)
AFP cases with adequate specimens	70 (80%)	71 (82%)	97 (87%)
AFP case s (date of onset at least 60 days ago) with inadequate specimens with 60 day follow-up result	18 (100%)	16 (100%)	14 (86%)
Cases with stool specimens arriving at laboratory <= 3 days after collection	22 (25%)	15 (17%)	19 (17%)
Cases with stool specimens arriving in good condition	88 (100%)	87 (100%)	110 (100%)
Cases with stool specimens with laboratory results <= 28 days after Specimen receipt	67 (76%)	66 (76%)	93 (85%)
Cases with stool specimens from which non-Polio enteroviruses (NPEV) isolated	15 (17%)	9 (10%)	16 (15%)



Children in Southern Sudan at greater risk of dying from malaria than any other group.

Over one million malaria related deaths occur annually in Africa, south of the Sahara. According to WHO estimates, over 30% of these occur in countries affected by complex emergencies, as in Southern Sudan, where malaria is the leading health problem. According to the Office for the Coordination of Humanitarian Assistance (OCHA) consolidated appeal 2002, 24-26% of the population is affected by malaria. MARA estimates that about 73.77% of the Sudanese population lives in areas of high or moderate risk to malaria. Malaria outbreaks are also common in South Sudan due to climatic and other factors that favor the proliferation of malaria. The high- risk groups are internally displaced persons (IDPs) and returnees moving from areas of low to high endemicity. Lack of health services and delays in diagnosis and treatment likewise increase the risk of epidemics.

The Health Policy of the New Sudan, released by SPLM Health Secretariat in 1998 together with the Guidelines (1999) for its implementation, articulates the vision of the main southern opposition movement and main principles for health service delivery. Although reliable diagnosis for malaria cannot be made on the basis of signs and symptoms alone because of the non-specific nature of clinical malaria, clinical diagnosis was common in health facilities, especially PHC Units and PHCC where resources and trained health personnel are scarce. Presumptive clinical diagnosis remains as the most Practical option so far used for malaria diagnosis at the majority of health units. Clinical diagnosis offers the advantages of ease, speed, and low cost but the disadvantage of inaccuracy. In southern Sudan where malaria is common, clinical diagnosis usually results in all patients with fever and no apparent other cause being treated for malaria. Over-diagnosis can be considerable and contributes to misuse of antimalarial drugs and eventual drug resistance. *Plasmodium falciparum* resistance to

chloroquine was first detected in Kajo-Keji (East Equatoria) and Lankien (Upper Nile) in 2001, with 93% and 28% of treatment failure respectively. In 2002, 72% of chloroquine resistance rate was documented in Lui (Mundri) of West Equatoria. Again in 2003, 83% and 40% of chloroquine resistance rates were detected in Mapel and Akeum (BEG) respectively. *Plasmodium falciparum* resistant to SP was also documented. The resistance rates were lower than those with Chloroquine. Meanwhile the treatment failure rates of SP is respectively 69% in Kajo-Keji, 0% in Lankien, 15% in Lui, 16% in Mapel and 15% in Akeum.

ITNS implementation

In South Sudan, ITN coverage is reportedly low. Most of the ITNs available were distributed by NGO-funded projects. The exact numbers however, are not known. A UNICEF multi-cluster survey carried out in three operational areas in 2000 indicated that a maximum of 36% of children under the age of five were sleeping under ITNs. A project looking at the cultural acceptance of locally made nets (Damuria) among the Nuer nomadic tribes in Lankien, revealed their preference for these nets. Some untreated nets are imported through the commercial sector of retailers and wholesalers.

From a total population of 8 million people in South Sudan, about 7 million people (including about 1 million IDPs and returnees) are at risk of malaria. An estimated 3.5 million ITNs are therefore required to cover the entire at-risk population if, 2 people sleep under one ITN. At the present very low rate of ITN distribution (almost negligible), it will take several years to cover the 7 million people at-risk of malaria and other vector-borne diseases with ITNs. The scale of the task of providing ITNs to everyone at risk of malaria and other vector-borne diseases within 5 years in South Sudan therefore requires a massive effort from all partners.

Achievements

- WHO provides technical support to standardize services and protocols of all RBM activities in the operational areas of South Sudan;
- ITN strategy implementation for South Sudan was developed;
- Institutional arrangements are necessary for the implementation of ITN interventions as an integral part of malaria control programming efforts in South Sudan. However, its implementation involves a range of stakeholders within and outside health services including communities, NGOs, private sectors and Donor community. Suitable arrangements are needed for effective partnerships at each level of implementation and to manage overall ITN implementation;
- Partnership building is necessary to scaling up and coordinating the implementation of ITNs programme in South Sudan. This can be achieved through the creation of coordinating mechanism for ITN implementation with representatives of the Health Secretariat, potential RBM partners and NGOs.

A workshop to review the anti-malaria treatment policy was conducted for partners in Nairobi last year in April after evidence was documented on high treatment failure rates to the traditional anti malarial drugs (Chloroquine, SP and Amodiaquine). A set recommendations were agreed upon and later implemented. Major recommendations implemented included:

- Advocacy training on antimalaria treatment policy change for County Health Departments and partners' health workers in the field;
- Assessment of the recommended ACT (Artesunate + Amodiaquine) efficacy versus Amodiaquine monotherapy in Lui (results are not ready);
- Estimation of drug requirements, financing to support the policy implementation and resource mobilization (for GFATM sub-recipient NGOs);
- Elaboration of the new guidelines for malaria diagnosis and treatment;
- Development of a seven-month project proposal funded by ECHO for the provision of technical support on malaria guidelines and to train partners.



An insecticide treated bed-net (ITN)

Challenges

- Poor and low coverage of health services - majority of the population have limited or no access to formal health care;
- High operational costs due to logistical barriers - including limited road access to many parts of South Sudan;
- Adherence to co-administered tablets of Artesunate and Amodiaquine combination therapy;
- The gap in the deployment of ACT in areas receiving money from the Global Fund and the non-recipient areas of Global Fund.

Lessons learned

Information and experience sharing among partners at field level is key to developing, updating and implementing antimalaria treatment policy in Southern Sudan.

Future Directions

Continued provision of technical support to partners (NGOs) implementing malaria control programmes and building the technical capacity of Secretariat of Health to plan, implement and coordinate the different control measures of malaria control in Southern Sudan.

With prospects for long-term peace solution in South Sudan, scale up the implementation of ITNs as a powerful tool for disease vector prevention despite the limited health infrastructure. This coupled with emphasis on prompt access to effective treatment; early detection and response to epidemics should contribute to the overall reduction of the burden of malaria and other vector-borne diseases.

Stop TB



WHO supports training of laboratory technicians working in TB centers throughout Southern Sudan.

The complex emergency situation, resulting from more than two decades of war, has created favorable conditions for tuberculosis to become the leading cause of morbidity and mortality in Southern Sudan. Such conditions include displacement, overcrowding in IDP camp settings, malnutrition and poor hygiene. These are further exacerbated by the capsized health care services, shortages in medical staff and the unavailability of tuberculosis drugs. Though the precise burden of tuberculosis in South Sudan is not known, the Annual Risk of Infection is estimated at 2% with an incidence of 100 cases of smear positive TB per 100,000 populations. Despite the just ended war, the tuberculosis program in South Sudan was launched in the late 1990's by international national organizations (NGOs). This program has jointly been supervised and monitored by the SPLM Health Secretariat and the Health Organization (WHO). The program is based on a memorandum of understanding (MOU) signed between NGOs and WHO specifying the role of each stakeholder.

Achievements

- The Tuberculosis program in Southern Sudan made remarkable progress in 2004 despite operational constraints due to insecurity in many parts of the region. The civil war rendered expansion of the programme and accessibility to services extremely difficult.
- In 2004, the number of NGOs managing

tuberculosis in South Sudan increased from 7 in 2002 to 12 in 2004. The number of TB centers increased from 9 in 2002 to 18 in 2004. Both the number of NGOs and TB treatment centers are expected to increase in 2005 thanks to the Global fund which is to finance TB activities. Two new NGOs sponsored by the fund will establish 9 TB treatment centers while two others based in the Nuba Mountains will begin treatment of TB patients this year in two TB treatment centres. Meanwhile the NGO Merlin will establish another treatment center in Mboma at the beginning of 2005

- In 2004, the treatment outcome for patients registered in 2003 improved compared to patients registered in 2002. The treatment success was 86.4% for patients registered in 2003 compared to 80.5% in 2002. The defaulter rate dropped from 11.6% in 2002 to 8% in 2003. The death rate also declined by 4.2%. It dropped from 6.6% in 2002 to 2.4% in 2003 while the treatment failure rate rose to 2.5%. A rate which remains within acceptable limits.
- WHO South Sudan appointed one full time TB Focal Point officer in 2004 to manage the program. This officer was trained in Arusha on TB program management. Plans are underway to recruit a doctor to supervise the global fund sponsored TB program. To strengthen South Sudan laboratories networks, the TB program also recruited one full time laboratory technologist.

Estimated tuberculosis burden in South Sudan in 2004

Year	2004
Population (Estimated)	7.7 million
Annual Risk of infection (ARI)	2%
Incidence of SM+ tuberculosis	100/100,000 Population
Prevalence of SM+ tuberculosis	200/100,000 Population
Estimated number of SM+ cases	7,700
Estimated number of SM- cases (30%)	2,310
Estimated number of Extra PTB cases (20%)	1,540
Estimated number of Retreatment TB cases (5%)	385
Estimated number of TB in children (8%)	616
Total estimated burden of TB in Southern Sudan	12,551

Capacity building

Capacity building is a cardinal component of the the TB program to strengthen not only the proficiency of health workers and laboratory technicians but also to strengthen the capacity of the Health Secretariat. The process of capacity building in South Sudan involves training and policy development.

- Four laboratory training sessions were conducted in different locations in Southern Sudan from April to November 2004;
- Two workshops were held in Nairobi to review and develop the southern Sudan TB Policy and Policy Guidelines including a six year development plan;
- From June to September 2004, 5 TB/Leprosy training workshops were conducted;
- A total of 40 health workers (TB officers and lab technicians) were trained to strengthen the Health Secretariat to enable it to take over the management of the TB program in South Sudan;
- One staff of the Secretariat was trained in pharmaceuticals and 7 computers were donated.

Strengthening recording and reporting systems

To ensure that recording and reporting of cases is properly carried out, recording and reporting forms for Southern Sudan were developed in 2004 and distributed to all partner NGOs involved in the management of tuberculosis in Southern Sudan. Such forms include sputum smear request forms, TB laboratory registers, patient treatment cards, case finding reports and quarterly report forms for treatment outcome. These forms are based on WHO recording and reporting formats.

Supporting NGOs

The TB program in South Sudan also provides support to partner NGOs in carrying out effective TB awareness campaigns targeting patients and the community. The program developed, in 2004, IEC materials for distribution to all NGOs. There are plans to translate these materials into different local languages.

Supply of drugs

In February 2004, WHO South Sudan received the following quantity of anti-tuberculosis drugs:

- Rifampicin 150mg+isoniazid 75mg 4,080,000 tabs
- Ethambutol 400mg 810,000 tabs;

This was followed by another consignment of the following drugs in March 2004:

- Rifampicin 150mg 100,000 tabs
- Isoniazide 100mg 30,000 tabs
- Streptomycin 1gm 30,000 vials
- Water for injection 5ml 30,000 vials

In April 2004, another consignment of pyrazinamide 500mg 1,380,000 tabs was received. All NGOs currently participating in the treatment of tuberculosis received most drugs. TB drugs are distributed to NGOs according to their specific needs determined by the number of TB cases treated in the past year.

Monitoring and Evaluation

National supervision and evaluation of the tuberculosis Program in Southern Sudan was conducted between December 2003 and February 2004. The purpose was to identify problems facing the implementation Process of the tuberculosis program in South Sudan; and conceive strategies to strengthen the program. Similarly laboratory supervision was done between February 2004 and April 2004.

External review of the program

The Southern Sudan TB program purchases drugs from the Global Drug facility (GDF) and in accordance to the agreement signed between the two parties, the TB program agrees to a yearly evaluation. The purpose of the evaluation is to assess the performance of the program and its eligibility for continued provision of drugs by the GDF.

The TB program was evaluated for the first time by external evaluators dispatched by the GDF in 2004. The evaluation included meetings with TB NGOs partners, drug clearance agents, WHO staff and representatives from the Health Secretariat authorities. Findings and recommendations of the evaluation are already submitted to the GDF. The TB program is eligible to purchase TB drugs from the GDF as recommend by the external evaluator.

Constraints

Despite successes achieved in 2004, the program still faces a number of challenges all related to the past war.

- Lack of state health infrastructures for the treatment of tuberculosis in Southern Sudan. All health facilities in are owned by NGOs and not by local authorities
- The Health Secretariat lacks the capacity to manage the TB program. This includes the lack of qualified staff and financial resources to supplement efforts by NGOs in the management of tuberculosis
- Inaccessibility to many areas due to insecurity and lack of a road network
- The very limited number of NGOs treating tuberculosis cannot cover the entire Southern Sudan. NGOs are not evenly geographically distributed allowing for a lack of access to treatment in certain areas.
- Many NGOs have limited capacity to accommodate many patients. In addition, these NGOs have few trained staff and limited resources to sustain their own employees.
- Lack of a well organized primary health care system prevents the decentralization of TB treatment . Many programs are vertical and only integrate leprosy activities.
- Vertical programs are usually expensive as health facilities are compelled to withstand large numbers of cases during both the initial and the continuation phase of treatment. Such patients could have been followed as outpatients in the primary health care units. It is hoped that with the end of the war , the government of southern Sudan will gather sufficient resources to establish an adequate health system with appropriate microscopic network services, train personnel at all levels, ensure an uninterrupted



Demonstration on TB drugs to patients

supply of drugs and Strengthen logistical support for the program.

Lessons learned

- Effective implementation of the program can be successful with sustained political will;
- NGOs can play a vital role in the management of tuberculosis though there is a need for improved guidance and effective coordination;
- Community Based DOTS should be introduced in Southern Sudan to rapidly expand the TB program when peace is established;
- Training is crucial at all the stages in the program implementation including for case management, case finding, recording and reporting of cases.

Future Directions

The way forward in 2005 is to increase TB case detection rates from 20% in 2003 to 40% in 2005, maintain cure rate over 85%; initiate the phased implementation of a collaborative TB and HIV program of activities starting with the establishment of a baseline data on HIV infection among TB patients in Southern Sudan. The overall goal is to reduce TB mortality and morbidity in South Sudan by expanding the DOTS strategy to cover more areas, and increase TB detection rates.

TB treatment outcome

Year	2002	2003
SM+ cases detected	752	838
SM- Cases detected	225	358
Extra-PTB cases	283	338
Re-treatment cases	111	138
Total TB cases detected	1371	1672
Treatment success	80.5%	86.4%



Partnership with the Global Fund

Tuberculosis is known to have a close relationship with HIV/AIDS. Where HIV/AIDS infection is high, a rapid increase in tuberculosis cases occurs. Worldwide it is estimated that 13% of tuberculosis cases have HIV/AIDS. The precise prevalence of HIV/AIDS among tuberculosis patients is not known in South Sudan.

With prospects of peace, HIV infection is expected to increase and is likely to influence and complicate the tuberculosis situation in Southern Sudan. General population studies conducted in Southern Sudan on HIV prevalence show a wide variation between 0.9% up to 7.2%. However, results obtained at VCT centers in as predicted show a high rate of infection. Results in TB patients are very limited and do not reflect the true situation between TB and HIV in Southern Sudan.

Achievements

Throughout 2004 WHO together with other partners involved in the approved grant worked with the Global Fund (GF) representatives. By the end of 2004 questions raised by the GF were resolved and as of January 2005 the funding was made available.

One oversight in the original proposal submitted was the omission of a lead agency appointed to carry out the monitoring and evaluation of the malaria and TB components funded by the Fund. After multiple discussions all partners involved in the grant agreed that WHO-South Sudan office would be the lead agency to provide monitoring and evaluation of these two components.

In 2004 WHO-South Sudan office worked in conjunction with the Health Secretariat and other involved partners to develop and submit a proposal to the Global Fund on HIV/AIDS. The proposal submitted in April 2004 (fourth round) was conditionally awarded later in the year. The HIV/AIDS grant is in the final stages of negotiation and it is

anticipated dispersal of funding will begin in 2005.

Constraints

In 2002, at the time of the original writing there was no strong Health Secretariat of the SPLM and the peace accord had not been signed. The original grant was structured by specific agencies to carry out malaria and tuberculosis control in specific areas of operation. However by end 2004 with the emergence of a strong Health Secretariat and the signing of peace the grant required significant re-structuring to help fill the newly identified needs.

Future directions

- Phased implementation of a collaborative TB and HIV program activities starting with the establishing baseline data on HIV infection among TB patients in South Sudan.
- Train selected personnel in the TB treatment centers to ensure that diagnostic facilities are able to provide appropriate testing for HIV coupled with counseling and support for patients.
- Conduct a baseline data survey on prevalence of HIV in TB patients in South Sudan to be carried out.
- Provide support to agencies to carry out a baseline survey to establish HIV prevalence in TB patients attending treatment programs.
- The Implementation of this program will not only provide us with the HIV prevalence among TB patients but will also kick start the TB/HIV linkage program with the broader aim of curbing the spread of HIV among HIV patients while helping those already infected to cope with the disease.

Leprosy



Case management of leprosy in Southern Sudan suffers from low capacity of health workers.

Before the war broke out in 1983, South Sudan possessed a number of county based Leprosy treatment programs supported by the German Leprosy Relief Association (GLRA). These treatment centers, however, collapsed when the GLRA pulled out due to insecurity. In the last 20 years, the leprosy burden has grown steadily worse as a result of the displacement of many people fleeing conflicts. The war has forced people to live in overcrowded conditions where poverty is widespread, malnutrition is rampant and hygiene is lacking. Leprosy has thereby emerged as one of the major health concerns in Southern Sudan. The precise prevalence and impact of leprosy in this sector of Sudan is not known but the number of leprosy cases is still increasing. Southern Sudan is now the only area in the Mediterranean region with a prevalence of leprosy still above the WHO elimination target of 1 person per 10,000 population.

Achievements

Despite the wretched situation created by the war, the leprosy program in Southern Sudan resuscitated in the mid 1990's and is run by NGOs with the support of WHO.

- In 2003, 12 NGOs were treating leprosy and ran 23 leprosy treatment centers. In 2004, three more NGOs joined the program establishing 5 more leprosy treatment centers.
- Four training workshops were conducted in 2004 alone to Strengthen the capacity of health workers treating leprosy in Southern Sudan.
- The number of cases detected will continue to peak as patients in Government held areas are added to those treated in SPLM areas. In 2003, the total number of new cases detected were 2,139 against 1,253 in the first 6 months of 2004.

Constraints

Despite noteworthy progress in the leprosy program, major constraints are still to be overcome:

- Attracting more NGOs to take up the challenge of managing the leprosy program to reach the WHO

leprosy elimination target of 1 person per 10,000 population.

- Low capacity among health workers in the proper management of leprosy. This has led to the number of patients remaining on treatment to be high due to the improper usage registers.
- Patients who finish treatment and those who defaulted should be removed from registers but this practice is not followed.
- continuous need for training of staff to streamline the management of leprosy cases.

Lessons learned

The most important lessons learnt during the course of implementation of the leprosy program in Southern Sudan is the crucial need for continuous education for health personnel involved in the implementation process.

Creating public health awareness to dispel the stigmatization of leprosy patients has been quite difficult in a region where there are no electronic and print media. Even holding public awareness campaigns is often difficult. However despite the lack of a health and road infrastructure, treatment of leprosy is still feasible by using the MDT drugs and strategy. What is really needed is strong will and conviction from implementing bodies and authorities.

Future directions

- Increasing case detection and treatment by training health workers;
- Reducing stigmatization of patients through continuous provision of IEC materials and health education;
- Increasing efforts to provide free MDT;
- Ensuring the integration of leprosy into the primary health care system in Southern Sudan.

Buruli Ulcer

Buruli ulcer was unknown in Southern Sudan until in the 1990's, the International Committee of the Red Cross (ICRC) reported 4 suspected cases of the disease in Upper Nile and Bahr El Ghazal regions . In July 2002, CARE international sounded an alert about a sudden outbreak of tropical ulcer among Internally Displaced Persons (IDPs) in Mabia, Tambura County; Western Equatoria. Following swift interventions by WHO and its partner organizations operating health programs in Southern Sudan. This outbreak was confirmed to be caused by mycobacterium ulcerans, the causative organism for Buruli ulcer. Since then several cases of Buruli ulcer have been diagnosed in Mabia, Tambura, Yambio and Nzara; all in Western Equatoria but also in



Surgical excision and grafting of a BU performed in Yambio Civil Hospital.

Nimule in Eastern Equatoria, an area almost more than three hundred kilometers from Yambio. These findings together with the ICRC reports indicate that Buruli ulcer is a widespread infection in Southern Sudan. However, its incidence and prevalence are not yet known as many clinicians tended to diagnose the disease as tropical ulcer.

Actions

- A meeting of major partners was convened in Nairobi, early last year, to map out the strategies to control the disease. As a result one Sudanese senior

surgeon was trained to start surgical management of patients. A National Buruli ulcer taskforce and County Buruli ulcer taskforces are already in place in Yambio and Tambura to coordinate activities.

- In 2004, two workshops were conducted in Yambio and Tambura to strengthen the capacity of health workers in the early detection of the disease, the management of simple cases in peripheral clinics and the referral of major Buruli ulcer cases to Yambio hospital for surgical care.
- Equipments and other supplies for specimen collection and documentation were also provided.
- A workshop was conducted to build a surgical core group to support the surgeon in the management of cases. A total of 13 confirmed Buruli ulcer patients were treated in Yambio.
- South Sudan participated in two international conferences for Buruli ulcer. One in Yaoundé in July last year where two representatives from Southern Sudan attended the meeting. The other Conference was held in March, in Geneva, where Southern Sudan BU program was represented by three representatives.

Constraints

The major constraint in the management of BU in Southern Sudan is the lack of awareness about the disease amongst the people and health workers. Lack of recognition of the disease has not only led to under reporting, mismanagement of cases in many areas, but also to the lack of resources allocated to manage the disease.

Lessons learned

The basic lesson learnt is the fact that, for a long time, patients of Buruli ulcer in Southern Sudan had been misdiagnosis and considered to be tropical ulcers. As a consequence many people ended up with deformities. It is also becoming clear that BU is widespread in Southern Sudan and there is therefore an urgent need to create BU awareness to improve case management.

Future directions

These early steps initiated to kick start the Buruli ulcer control program should be followed by activities aimed at improving the health infrastructure, train more health workers to investigate and respond to diseases and to build the communities' awareness on Buruli ulcer.

Trypanosomiasis



10 year old boy being treated for sleeping sickness at Tambura Hospital

Human African Trypanosomiasis (HAT) is endemic in specific areas of Equatoria Region of Southern Sudan. Control of the disease in the colonial times was achieved by mandatory rigorous population screening through a systematic and effective Southern Sudan wide control program supported by the Belgium government based at Lirangu, Yambio County, Western Equatoria. In the late 1980s due to increased civil unrest the control program collapsed and within the following decade sleeping sickness rose to epidemic proportions in multiple foci in the region. In response to the increase in HAT cases multiple international NGOs developed HAT treatment programs in the specific locations of their operations. In Tambura and Ezo Counties IMC and CARE international initiated a control program from 1997 to 2001 and achieved good results reducing the prevalence of the disease dramatically (about 8% down to about 2%). However after their departure in 2001, the disease gradually resurged and by late 2003 the local authorities requested aid from WHO.

Achievements

In December 2003 WHO sponsored an assessment to Tambura and Ezo Counties and confirmed the resurgence of the disease and felt emergency interventions were required. In early 2004 WHO brought together all the involved partners including the local authorities, the Health Secretariat of the SPLM, MOH of the GOS, and multiple International NGOs to discuss and develop a plan of action to alleviate the deteriorating situation in Tambura and Ezo Counties. WHO-Southern Sudan office was mandated to implement emergency interventions over a six-month period until an appropriate long term partner could be identified.

The WHO-South Sudan office identified Sudanese national staff and together with WHO international staff were based in Tambura and Ezo for the six-month period. The WHO team trained local health based care workers for a six-month period in Tambura and Ezo in the diagnosis and treatment of persons with HAT, rehabilitated the health facilities in these two localities and at Source Yubu primary health care centers. Necessary equipment including drugs and supplies for treatment of affected persons were also

provided. The successful emergency program was then handed over to MSF-E on 1 December 2004.

Constraints

One main constraint encountered in the implementation of the program was the low educational level of the locally recruited national staff. The WHO technical team was required to concentrate on training specifically focused on the diagnosis and treatment of trypanosomiasis. Other more general aspects of training initially scheduled to include physical examination, etc could not be included.

Security in Tambura and Ezo County required two short term evacuations of the WHO team from the field site causing minor interruptions and some delays in the program.

Another constraint was the internal capacity of the WHO-Southern Sudan office regarding logistics. To avoid overload the majority of procurement and transport was sub-contracted out. However the remaining procurement still stretched the system in to have supplies and equipment at site in a timely fashion.

Lessons Learned

WHO's intervention was successful in handing over the implementation of the programme to an NGO. However there is a need for WHO to monitor the situation and to continue its support to this NGO and to local health authorities.

Future directions

In 2005 although the WHO-South Sudan office is no longer directly implementing trypanosomiasis activities in Tambura and Ezo Counties the Nairobi sub-office in conjunction with the Health Secretariat continues to provide technical support to other agencies implementing HAT control activities throughout the Equatoria Region of South Sudan. The WHO office also facilitates the country-wide collection of data on HAT to facilitate the preparation of the situational analysis of HAT in Sudan by WHO-Geneva.

Leishmaniasis



Sandfly responsible for leishmaniasis (Kala-Azar)

Visceral Leishmaniasis (Kala-Azar) is an endemic disease common in both North and Southern Sudan especially in the Upper Nile Region.

In the late 1980s and early 1990s a major outbreak of the disease occurred in new locations in the Upper Nile Region of the south where it was never reported before, resulting in the death of an estimated 10,000 persons with the disease.

The international NGO, MSF-H working both in north and south Sudan historically has been the major agency involved in diagnosis and treatment activities.

By 2003 multiple smaller NGO partners (approximately 10) began providing health services in the Upper Nile region and to ensure coordination of all the smaller partners. Health Net International (HNI) was designated as the lead NGO to coordinate Kala-Azar activities.

The WHO-Southern Sudan office applied and received support from ECHO to assume the role of coordinator to prepare for the 2004-2005 Kala-azar outbreak season. Fortunately in 2004-5 there was no outbreak of kala-azar cases reported in Southern Sudan. Nonetheless WHO-Southern Sudan office has been assuming the coordination role.

Achievements

To facilitate coordination of kala-azar activities, in Oct. 2004 the WHO-Southern Sudan office sponsored a meeting for all partners implementing diagnostic and treatment activities in the field to determine the major needs for the program.

An expert on kala-azar was recruited and has been stationed in the field. He has been providing NGO partners with on-site training in diagnosis and treatment.

The laboratory diagnosis (DAT testing) at field sites has also been strengthened and necessary equipment and reagent have been supplied to the field labs via WHO support.

A major accomplishment of the program has been the development of standardized guidelines on kala-azar. Guidelines have been prepared for various levels of workers. One to include doctors and clinical officers while another guideline was developed for health workers such as CHWs at the peripheral health unit sites directly involved in outbreaks. These guidelines are in the final stages of review and will be presented to the Health Secretariat.

WHO also participated in the development of “key messages” that will be included in the book on community education being prepared by Tearfund. Guidelines for the laboratory diagnosis have also been drafted.

Constraints

The major constraint experienced in the implementation of the program concerned delays in the release of funds and in the recruitment of a logistics officer in Loki. Moreover lack of knowledge in DAT reagent handling resulted in the loss of reagents.

Lessons Learned

- WHO needs to continue its support to NGOs in the control of Leishmaniasis;
- Logistical support should be strengthened;

Future Directions

In 2005, WHO is to continue to revise training packages for health workers in addition to developing another training package for use in communities. The focus of that package is on prevention and early recognition of disease to promote advocacy at the community leadership level.

In 2004 the development of a centralized database for kala-azar was delayed but in 2005 emphasis will be placed on this task.

Onchocerciasis Control



Child leading adult affected by river blindness.

Onchocerciasis (River Blindness) is endemic in most of Southern Sudan however some areas are hyperendemic while others are less severely affected. The only region spared from the disease are specific locations in Upper Nile. It is estimated that 4 million people in Southern Sudan live in hyper and mesoendemic areas.

The Southern Sudan Onchocerciasis Control Program (SSOCP) began in 1995 with support from APOC (African Program for Onchocerciasis Control) and the Carter Center and coordinated by the lead NGO, Health Net International (HNI). HNI was responsible for obtaining Mectizan for all partners implementing the control program through mass distribution of the drug in locations where Onchocerciasis is hyper and mesoendemic.

The program began by distributing 31,500 treatments in 1995. By 2003 there were 437,773 treatments distributed by partners. In 2003 APOC funded a REMO exercise to be carried out by the SSOTF (South Sudan Onchocerciasis Task Force).

Although not all areas were mapped due to access constraints, many areas of Southern Sudan were evaluated. Based on the results of the REMO exercise Southern Sudan was divided into five separate project areas to be supported by APOC for control activities led by the Health Secretariat. In 2004, HNI for multiple reasons could no longer take the lead in managing this program.

Achievements

A new partnership between APOC, the Health Secretariat & SSOTF, the WHO-South Sudan office and the NGO partner, Christofen Blindeen Mission (CBM) was formed. Funding for the five separate project sites is provided from APOC channeled through WHO-Southern Sudan to the SSOTF. In September 2004, the formal opening of the project was hosted in Rumbek and Supported by the WHO-Southern Sudan office. After the initial

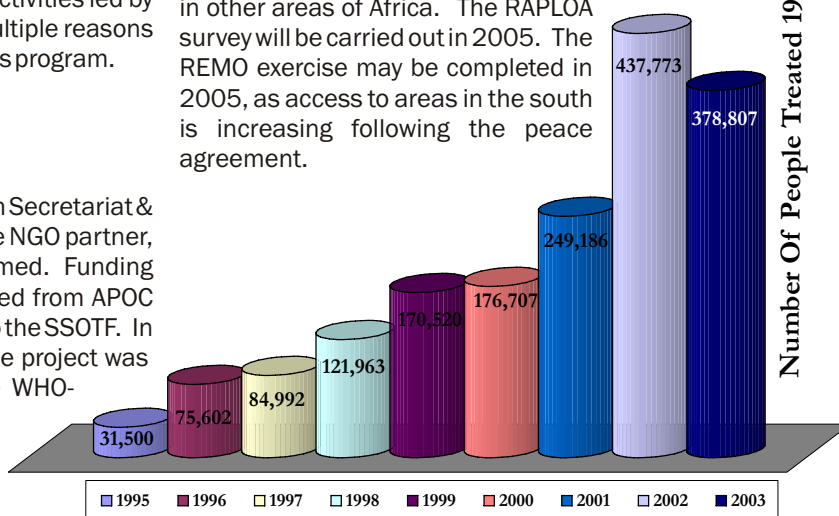
opening which included intense training two project sites have initiated activities. Training of national staff at all project locations has continued through the end of 2004 and will continue in 2005.

Constraints

- Identification of Sudanese staff to administer the OV control program was difficult as remuneration of staff was low and qualified persons were limited in number. This has led to a high turn-over of staff and the necessity for refresher training;
- Technically a major challenge in Southern Sudan is co-endemicity of OV with Loalao in some locations leading to the possible occurrence of serious adverse events from Mectizan mass distribution.

Future directions

To identify locations of co-endemicity to avoid serious problems the WHO-Southern Sudan office is working with the Health Secretariat and APOC to carry out a Loalao survey using the RAPLOA methodology utilized in other areas of Africa. The RAPLOA survey will be carried out in 2005. The REMO exercise may be completed in 2005, as access to areas in the south is increasing following the peace agreement.



Chapter 3

Early Warning and Response Network(EWARN)



Early Warning Reporting Network

The WHO/UNICEF/OLS field assessments, HIS reviews and lessons from outbreaks investigation and response teams, recommended the need to initiate a more responsive disease surveillance and outbreak response system. An outbreaks early warning and response network (EWARN) was initiated in late 1999. After which the UNF project to strengthen surveillance and response to epidemic-prone and vaccine-preventable diseases commenced in March 2000, with the development of an implementation plan for a three-year period. Actual implementation of activities started in May 2000. Implementation of the project activities in GoS areas (from Juba side), however, did not commence until September 2000.

Harmonization of plans

To ensure that the UNF Project activities on both sides were harmonized, joint planning and review sessions were held every year, and information on the implementation status shared. In January and December 2002, UNF project mid-term and annual review and planning meetings were held in Accra, Ghana and Nairobi, Kenya respectively. In December 2003, a final review meeting for the UNFIP was held in Luxor, Egypt. During this last meeting the project was extended to April 2004 to allow countries that had not utilized all project funds to complete them. These review meetings and joint north-southern Sudan review meetings, with inputs from EMRO and HQ/CSR, documented that implementation,

including financial utilization, were achieved, encouraging progress were scored, and that the project activities have made a significant improvement in the early detection, verification and response to outbreaks.

Based on inputs from the final review and those from senior WHO/EMRO officials, that recommended a continuation of an expanded EWARN implementation plan for the post project period, a plan of action for 2004 was developed. The plan of action emphasized on consolidating achievements made so far through: scaling-up of ongoing local capacity building activities, expanding networking (EWARN) to more areas, improving epidemic preparedness, and strengthening of field monitoring and supervision.

This report includes the implementation status of the EWARN activities for the year 2004.

Performance for the year 2004 was generally successful even without any approved budget. Our success is a result of the commitment of WHO Southern Sudan office, NGOs, KEMRI, CDC, UNICEF/OLS staff, local counterparts, an improved local capacity to support EWARN, and invaluable support from WHO/HQ (CSR, Outbreak and GBul), EMRO, and WHO Sudan country office. As a result of this teamwork and some funds left over from the yellow fever outbreak response of 2003, more health workers were trained; laboratory networking improved; EWARN extended to more new sites and improved coordination and integration with other WHO programs.



VHF patient with skin Rash & soft palate hemorrhages, Yambio

These achievements have improved local capacity to early recognize, confirm and respond to suspected outbreaks. Timeliness and quality of alert, verification and response for outbreaks have continued to improve. The program greatly improved coordination among partners through an innovative EWARN as evidenced during the recent Ebola hemorrhagic fever outbreak. This approach has proved successful despite financial constraints, the difficult security and geographic landscape of southern Sudan. The UNFIP support to EWARN ended in December 2003, but it laid down the foundation through which even with modest budget, EWARN has not only saved many lives, but also minimized resources required in mobilizing international teams.

Following the signing of the peace protocol in Naivasha, Kenya some refugees and IDPs have started to return to their homes. This trend may progress to a mass return of people should a final peace deal be reached. Such a scenario will result in overcrowding, exposure and outbreak of diseases. In this situation a strengthened EWARN will provide the required leadership for epidemic preparedness and response.

As South Sudan heads towards peace and stability EWARN will play key roles in the formation of a ministry of health. It is a unique opportunity to start with the establishment of a structure for disease surveillance and outbreak response. Through this project, many health workers are trained, laboratory services are strengthened, and, communication and epidemic preparedness have improved. As a result of these inputs and the continued collaboration and coordination among partners, EWARN has proved effective in improving surveillance and response. Thus, the project is relevant in addressing the priorities of the country in general and the complex emergency needs in particular.

Major achievements

Local Capacity Building: Based on the final UNF project review in December 2003, more emphasis was given on scaling-up local capacity building through training and

orientation of Sudanese health workers. To ensure that this effort continues beyond the project phase, it was essential to strengthen collaboration with the SoH, health NGOs and UNICEF/OLS.

Training of health workers

The plan for 2004 was to train more health workers in areas not previously covered by the same training. Accordingly, more health workers from these areas were enrolled in a one-week period integrated clinical and lab training sessions. As usual, there was involvement of local partners in the selection and facilitation of the training. The Ebola outbreak investigation mission and response was also used to conduct training for health workers and community leaders in Yambio County;

A one-day, EWARN training was included in the AFP surveillance training for over 350 polio field surveillance officers in the five sub-regions of Southern Sudan;

A total of 203 community leaders from 8 counties attended a two-day EWARN orientation workshops during 8 training sessions;

A number of advocacy meetings and community orientations were carried out during field trips for outbreak investigation, EWARN training and polio activities in Bahr Ghazal, Equatoria and Upper Nile. Extra efforts were made to maximize regular and ad-hoc workshops, meetings and outbreak response visits for promoting surveillance and response objectives. This has contributed to achieve the following outputs:

WHO participated in the organization and provision of logistics for training on EWARN of 22 NGOs with health programs, 2 local counterpart organizations and county health departments;

More systematic institutional coordination was again signed between UNICEF/OLS and WHO/EWARN programs through the signing of a letter of agreement specifying responsibilities and roles in strengthening outbreak surveillance and response.



A child recovering from measles: Note the skin exfoliation Yambio.

Epidemic Preparedness

- An encouraging progress was achieved in improving epidemic preparedness and response. Experiences from the earlier years showed the need to preposition adequate stocks of assorted drugs, reagents and supplies closer to the field. This was necessary due to frequent flight bans, floods that rendered air landing difficult, and also to the urgency in outbreak verification and response;
- Strategic stocks of selected drugs, reagents and supplies continued to be stocked at Loki and Yambio for immediate mobilization whenever required. These include mainly drugs for meningitis, acute watery diarrhea, dysentery, measles, and suspected VHF;
- There continued to be an improved laboratory networking between the field and referral centers at AMREF, KEMRI and CDC Atlanta, USA. This has proved fruitful in the prompt verification of the recent outbreaks of Ebola hemorrhagic fever, measles and Meningitis, among others.

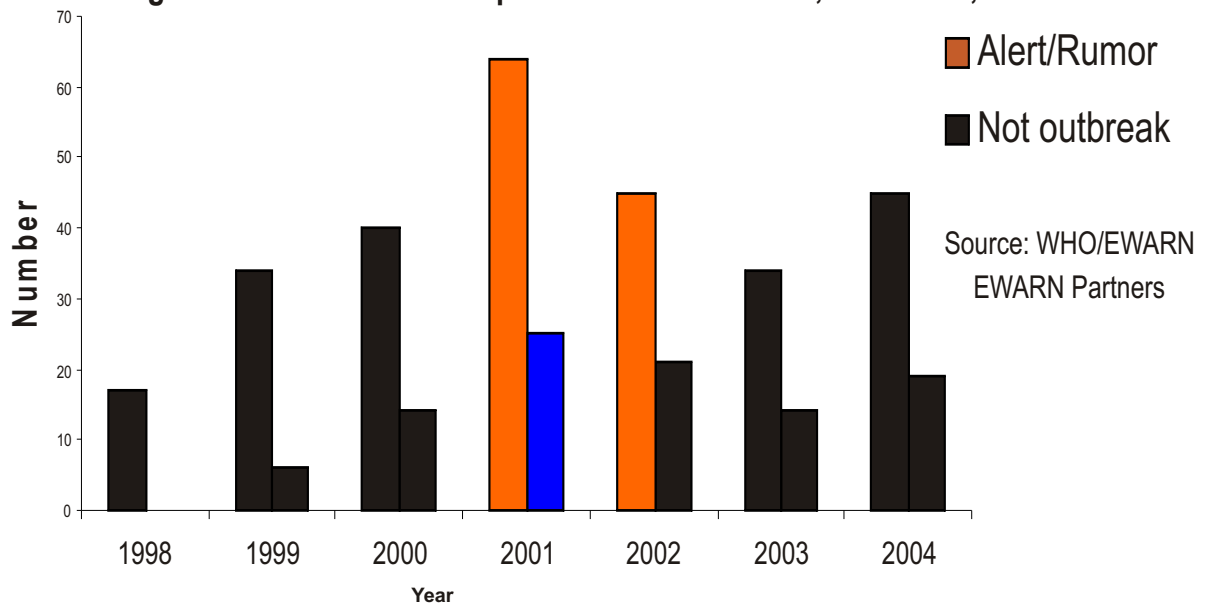
Outbreaks detection, alert and response

- The main goal of strengthening surveillance and response through EWARN is to early recognize, immediately report, and promptly verify and respond to suspected outbreaks. Activities focusing on local capacity building, community awareness, networking, laboratory and communication, and

preparedness were planned and implemented. Progress made is evidenced by the growing collaboration, geographic distribution, timeliness of detection, reporting, and response to suspected outbreaks compared to earlier years. Moreover, the quality of outbreak confirmation, including lab confirmation, has markedly improved as a result of growing lab networking with special centers, like KEMRI, AMREF and CDC;

- 14 health NGOs, ICRC, local counterparts, county health departments, CBO, local communities, AMREF, KEMRI, CDC, UNICEF/OLS, WHO/CSR/HQ and WHO/EMRO, and WHO Sudan offices participated in epidemic preparedness, detection, and response;
- A total of 45 suspected outbreak alerts from 37 counties were received. All were verified, and 42% did not constitute an outbreak. This is a result of an improvement in the quality of verification of outbreak alerts. Major confirmed outbreaks were; Ebola hemorrhagic fever, measles, meningitis and whooping cough. (Thanks to EWARN the Ebola outbreak was contained and controlled in the shortest time with minimum morbidity and mortality for the first time in the history of the disease);
- Proportion of outbreaks responded to on time (within one week) from reported onset has generally improved from previous year (14.3%, 21.6%, 33.3%, 47% and 42%, for 2000, 2001, 2002, 2003 and 2004 respectively). Similarly, response time from alert (reporting) has also steadily improved 85.7%, 87.2%, 95%, 91% and 96%, for 2000, 2001, 2002, 2003 and 2004 respectively.

Figure 3. Verification of Suspected Outbreak Alerts, 1998-2004,



Ebola hemorrhagic fever

An outbreak of Ebola hemorrhagic fever was reported to WHO/EWARN by Yambio County Health Department on May 6th with an onset of April 15, 2004. An EWARN joint field investigation team including WHO, the Kenyan Medical Research Institute (KEMRI), UNICEF/Health and Diocese of Yambio/Tambura rapidly investigated the report from 9-11 May and found 14 suspected cases including 2 deaths in Yambio Town Payam of Yambio County, in the south-western part of the country. During field investigations, the EWARN team collected 15 blood samples for diagnosis. Ten cases of EHF were confirmed by KEMRI and by the Center for Disease Control and Prevention (CDC), Atlanta, USA.

Following the confirmation of EHF in Sudan a massive response effort was organized and coordinated by Yambio County authorities, CBOs, WHO, CDC, MSF-France, UNICEF/OLS and NGOs.

Collaboration and information sharing within the team was well organized. For the first time in the history of EHF, the outbreak was contained and Controlled within 53 days with the lowest number of cases and deaths. The last case and death from the outbreak were reported on June 6 and June 26, 2004 respectively. The total number of cases and deaths at the end were 17 and 7 respectively (CFR = 41.2%).

This outbreak response effort clearly demonstrated the effectiveness in the international collaboration and the synergy and teams work among EWARN partners.

Data management and documentation

In 2004, 6 more sentinel sites were established in the regions. Two new reporting sentinel sites were started in each of the three regions of Equatoria,

Upper Nile and Bahr el Ghazal. Some non-reporting sentinel sites were removed from the list. Each polio County supervisor has been requested to report on EWARN from at least one sentinel site in his county. However, high turnover in NGOs and lack of incentives for volunteer staffs has resulted in poor performance by the sentinel reporting sites. EWARN relies on volunteer health workers to compile and send these reports.

Weekly surveillance was initiated at 6 new sentinel sites and data was irregularly received from 6 sites. To encourage the tradition of data use, the sites were encouraged to send data to the regional public health coordinators where the data should be compiled and preliminary interpretation done.

Data from outbreaks were systematically collected, analyzed and used for health workers training, providing feedback and for improving epidemic preparedness. The first half of the year was dedicated to trainings.

Coordination and integration

An improved coordination and integration of activities was achieved between various WHO programs. This was obvious in the following areas:

- Polio AFP surveillance officers have been trained to report actively on EWARN's selected diseases in general and measles in particular;
- EWARN staff regularly participated at and facilitated AFP surveillance training, detailed case investigation, 60-day follow-up, AFP review expert group meetings, and NIDs activities throughout the reporting period. Similarly, polio program staff provided invaluable support for outbreaks surveillance, verification and response.



Members of the case management team at work in the isolation ward-Yambio

Achievements

- Encouraging progress in the implementation of planned activities despite difficult political and geographic challenges, including escalation of conflict;
- Continued commitment of partners to support implementation of activities. This support included: cost sharing in transporting trainees, funding trainings, detection, reporting and responding to outbreaks, providing vehicles and training venues, and other logistical support;
- Progressive work in strengthening local capacity building through training, lab support, expanding networking and field supervision and feedback;
- More focus was given to delegate Sudanese in training, field investigation and response tasks as a means to promote ownership of the project and also to build local skills;
- Growth of WHO Southern Sudan Update in content and coverage, dissemination. More data and topics of interest to local health workers were included in the 2002 Updates;

Constraints

- Insecurity due to LRA activities continued to affect response efforts in Torit and Magwi counties;
- Weak and fragile basic health care delivery with high dependence on NGOs;
- Dependence on volunteer health workers to collect surveillance data is proving to be very unreliable in terms of their commitment to deliver free services. This has negatively affected the quality and quantity of our surveillance performance indicators (completeness and timeliness);
- Uncertainty over the future of EWARNS program as there is no reliable source of funding. The program has been working without any approved budget for activities for the last twelve months;
- Some outbreaks like the “Nodding Disease” remain unresolved and yet this disease is still maiming and killing children;
- Movements in most parts of South Sudan rely heavily on air transport. These flights are expensive and the costs are prohibitive. EWARNS program has not been able to raise enough funds to meet the costs of flying for supervisions and sometimes even for outbreak response;

- Training and supervision in remote areas where there are no communication means.
- Limited field presence due to a vast geographic area, difficult access, and insecurity;

Lessons Learned

- Participation of stakeholders from the beginning, starting from assessment and planning activities;
- Communities should be part of any surveillance and response effort. This improves early recognition and containment of outbreaks occurring in remote areas;
- With focused and flexible approaches, local capacity for surveillance and response can be improved even in chronic complex emergency situations;
- Collaboration with partners in the global alert and response network (GOARN) and other institutions is essential for an international control of major outbreak especially for countries at war and with poor health infrastructure;
- Improving existing resources and structures has remarkably contributed to minimize required costs for enhancing surveillance and response. This allows planning of limited project funds to be used for other priority areas, like capacity building.

Future Directions

- Consolidate earlier gains through an expanded EWARNS;
- Continue training of health workers on EWARNS in new areas;
- Polio field staff will be involved in the collection of the weekly surveillance data from sentinel sites;
- Recruit 3 more public health workers to improve supervision and provide close coordination;
- Proposal for possible funding beyond project phase has been submitted to donors. It is hoped that once funded, the expansion of EWARNS to new opening areas will be accelerated.
- New EWARNS public health coordinators will be given further training opportunities in the field of epidemiology.

Chapter 4

Community Based Initiatives



Basic Development Needs

The prolonged civil war, natural disasters, and frequent epidemics have restricted developmental opportunities in Southern Sudan causing serious gaps in all sectors of the economy. The drastic consequences of the war have positioned Southern Sudan as a region with the lowest socio-economic indicators in the world. People live in miserable conditions, usually at the margin of survival. This adverse situation entails humanitarian assistance allied with the activation of multisectoral developmental processes that would contribute in reducing miseries, enhancing opportunities and improving the overall health status of its people.

WHO supported Southern Sudan, in 2004, to implement a Basic Development Needs (BDN) programme. The BDN approach is considered to improve the living conditions of deprived communities. The BDN strategy for health and development provides a paradigm in addressing the multisectoral determinants of health.

The programme was introduced in Yambio and later in Rumbek counties with the technical support of WHO's Regional Office for the Eastern Mediterranean Region (EMRO). Due emphasis was placed on advocating the approach and seeking political support at all levels.

As the programme is self-managed at local levels by proactive and organized communities, with the active and coordinated support of related sectors, the capacity of the selected CBI structures were enhanced through the provision of formal training on programme concepts and processes.

The bottom up and needs based approach was applied in addressing priority needs revealed from the baseline household survey. Building partnerships and involving all stakeholders was given due emphasis, a key factor in



bringing about a self-sustainable model. The implementation of this programme is a continuous process, and works in harmony with the existing system and emerging needs of communities. In 2004 EMRO provided financial assistance to initiate programme activities in the selected model areas. Based on successes achieved a proposal was submitted by WHO Southern Sudan office to EMRO to consolidate existing BDN sites, the sustainability of activities and ensure the promotion and expansion of the programme.

WHO supported the initiation of the BDN programme in Southern Sudan through the appointment of a consultant. The latter carried out a situation analysis and oriented authorities, partners, and communities on the programme approach. Special focus was given to the concept clearance, gaining political support and structuring partnerships in support of this innovative community based development approach. The concept was also introduced to county authorities, to ground agencies and organizations, and communities to gain a wider consensus.

During February 2004 a model area was selected in Yambio town as per criteria determined by WHO-EMRO. A union of four localities namely Hei Masia, Hei Kokora, Hei Malakia and Hei Napere situated on the main road towards Nzara was selected. A 100 houses from each locality were selected. In June 2005, a model area was selected in the Rumbek county namely Deng Nhial village, 3 km from the main town, comprising of 300 houses.



Community leaders orientation on basic development needs initiative

Community organization is a pre-requisite in the introduction of the BDN approach. CBI guidelines and tools designed by WHO-EMRO provide a well-defined outline for building local structures.

In 2004, local authorities and communities were oriented on standard procedures. In both areas households were listed, dividing the area into clusters, each containing 25 houses. Residents of each cluster selected a male and female 'Cluster Representative' (CR). In both areas communities democratically selected Community Development Committees (CDCs).

Technical committees were selected for sectoral activities such as health, education, water and sanitation, women development, youth development, social welfare, agriculture, livestock and skilled projects. Each committee is represented in the CDC through its coordinator. Communities were empowered to locally manage programme activities with the notion of "development of the people, by the people."

Area	Target groups	Participants Number	Period
Yambio	TST, and representatives of partner agencies & NGOs	20	5 th to 13 th August 2004 (8 days)
	CDC and representatives of other stakeholders	20	14 th to 20 th August 2004 (6 days)
	Cluster representatives	24	21 and 23 August 2004 (2 days)
Rumbek	TST, CDC and representatives of partner agencies / organizations	31	10 th to 17 th September 2004 (7 days)
	Cluster representatives and volunteers	30	18 th September 2004 (1 day)

Intersectoral support system

Effective implementation of programme depends on the involvement of stakeholders and in the provision of intersectoral support to communities. In each area, a Technical Support Team (TST) was formed comprising of locally operating officials of related sectors such as health, agriculture, livestock, water, county development council, SRRC, municipality and local administration. A Programme Manager (PM) leads the team and is responsible for the implementation and monitoring of programme activities. Subsequently, in each county an intersectoral council was constituted comprising of heads of related departments and partner agencies, who function under the leadership of the county secretary to ensure sectoral support and monitoring of programme progress.

Capacity building

Capacity of community organizations, intersectoral teams, representatives of partner agencies and programme managers was carried out separately in both areas in accordance with the training course developed by WHO CBI unit. (table 1 shows the number of participants trained)

Baseline and needs assessment survey

A baseline household survey and needs assessment were conducted following the prescribed questionnaire adapted to local needs and situations. Surveyors and supervisors were trained on the survey process. The data revealed from the survey was screened, tabulated and compiled by the survey teams who then computed, matched and analyzed data according to standard procedures.



Survey tabulation process in Dheng Nhial area.

Area Development profile

Based on survey results, an Area Development Profile was prepared which signify the current status of socio-economic and health indicators. The main tool for planning feasible interventions and evaluating the programme achievements. The survey results revealed priority needs indicated by the communities in both Yambio and Rumbek, which are mainly health, education, literacy, farming, women empowerment, economic growth, and skills development. The table 2 provides indicators reflecting developmental gaps in need of an urgent response.

The literacy rate, considered one of the main determinants of the poor health status is low, especially in the elderly and women's groups. The highest rate of child mortality reflects the scanty sanitary conditions, the deficiency in health services, and the low vaccination coverage. Services for maternal health are negligible. Information revealed from the survey provides a mirror

image of the ground situation and highlights the imperative need for appropriate Multisectoral actions.

Developmental projects

WHO supported, the multisectoral developmental projects to address the soaring problems in the model areas. Based upon the identified priorities, the communities presented various project proposals for health and social development. A number of these are under consideration. However despite budgetary constraints the following two projects have been implemented:

- Strengthening of PHC Unit of BDN area Deng Nhial, Rumbek
- Establishment of an MCH center in BDN area, Yambio

The PHC unit in the BDN area of Deng Nhial of Rumbek county was semi functional due to deficiencies in health facilities and the lack of supplies. WHO procured essential furniture, equipments, drugs and other supplies; whereas the community is paying for salaries of staff members.

In the Yambio BDN area, the community made available two rooms for the establishment of a MCH centre while WHO purchased the required furniture, equipments, drugs and other supplies. The CDC appointed a trained MCH worker who received a refresher training course offered by WHO to enable him to operate the centre.

Partnerships have been explored to ensure the continued supply of drugs and other essential items.

Table 1: key socio-economic indicators

Indicators	Unit	Southern Sudan	Rumbek	Yambio
Adult literacy	%	24	15,66	40,30
Poverty rate	%	90	83,66	68,5
Crude birth rate	/1000 LBs	50,5	55	42,2
Infant Mortality Rate	/1000 LBs	150	325	164
Immunization of children	%	18	12,5	19,53
Exclusive breast feeding	%	>30	35,84	67,20
Severe malnutrition	%	21	9,20	10,23
Immunization of mothers	%	16	12,5	26
Ante Natal Care	%	16	17,5	36

Health Development



Primary Health Care

Primary Health Care (PHC) a mechanism for addressing basic health needs of communities has become a powerful instrument and significant public health model in the provision of equitable health services.

Southern Sudan has sustained to some extent its PHC system despite its patchy coverage with uneven and insufficient services. The supervision, monitoring and management of PHC services is almost trivial, with practically no information system. Coordination among departments and health implementing agencies is also insignificant, leading to a number of operational concerns. There was therefore a felt need to streamline the PHC programme by filling the gaps and adopting the modalities for an integrated primary health care model.

The network of Primary Health Care Centers (PHCCs) and Primary Health Care Units (PHCUs) must be functional. In addition, the curriculum for training Community Health Workers (CHWs) and Trained Birth Attendants (TBAs) should be reviewed. Proposals in these regards have been rooted to WHO-EMRO. For final approval. WHO is to explore the provision of additional support to increase activities and to advocate for the programme expansion.

District health system

District Health System (DHS) provides a vital framework within which the delivery of health services takes place. Since the war destroyed the majority of structures, the available system is either fragmented or obsolete with minimum resources available and semi functional County Health Departments. WHO and the Health secretariat have set as a priority to strengthen the district health systems as a key strategy to revive the health sector, and based on experiences gained in other

countries. WHO-EMRO has approved the proposal in this respect and resources are being explored to launch the programme. This proposal mainly supports the reinforcement of the district health care system by rebuilding the health sector, enhancing the physical capacities and capabilities and through efficient planning and policy formulation. The main focus will be on capacity building of existing officials and actively filling the gaps to empower the County Health Departments to fully undertake their roles.

Human resource development

Scarcity of trained and skilled human resources is one of the main hindrances in improving the health status and delivery of appropriate health services. As a result, there is a high dependency on foreign support in terms of manpower.

The lack of trained health managers is also one of the main causes for the poor supervisory and management system. Very few institutions are engaged in training of clinical officers and community health workers. WHO is advocating to partner agencies to join efforts in this respect.

A plan for the establishment of an Institute of Health Sciences in Rumbek, mainly sponsored by Italian Cooperation and technically supported by WHO, is under consideration. The institute would provide training to Health managers as well as health workers.

In 2004, the Health Secretariat and WHO laid the basis for a long-term human resource development strategy and jointly launched an assessment of human resources and training facilities.

Health Promotion



Health education

Imparting health education and promotion of healthy lifestyles are most vital and fundamental factors for the promotion of health within communities. Concurrently, Healthy lifestyles designate the social practices conducive to maintaining good health.

There are plans to implement a health education project based on the belief that individual lifestyles are influenced by values and cultures of the societies in which they live.

An in-depth situation analysis will precede the launch of the project and will serve as the basis for devising relevant strategies. According to the proposal, two model areas will be created and are expected to expand to other areas.

School health programme

The school health programme includes a set of policies, procedures and activities to protect and promote the health and well being of students through appropriate and cost effective strategies and methodologies.

As the condition of existing schools in Southern Sudan is precarious the introduction of a school health programme was considered to improve and protect the health of school children. The proposal for the induction of a school health curriculum on health education, promotion of healthy lifestyles, physical education, and sports programmes and more is under consideration for its funding and implementation during the next fiscal year.

Constraints for CBI and PHC

- The constant threat of war threatens the sustainable development process;
- Large-scale migration and forced displacement affected the availability of human resources and services;
- Seasonal migrations due to weather conditions were hindrances to developmental activities;
- Infrastructures and institutions have been ruined due to the civil war;
- Trained and skilled manpower have shifted to other countries.
- Most government civil servants are semi paid agencies;
- The developmental activities are either absent or patchy. The entire focus is on relief and hardly any efforts for the rehabilitation and recovery
- Many health facilities are non-functional or semi functional;
- Supplies of essential drugs are insufficient to cope with emerging needs;
- Lack of communication facilities like roads and public transportation which affect the referral system;
- The limited health care programmes and absence of efficient services have resulted in the low coverage and high rates of morbidity and mortality;
- Frequent epidemics of communicable diseases enhance mortality rates;
- Food insufficiency is one of the major causes of malnutrition and micronutrients deficiency among children and mothers;
- Limited access to safe water and sanitation facilities.
- The unemployment rate is at its extreme level;
- High illiteracy and enhanced school dropouts. Female students leave school due to high pregnancy rate;
- Inexistence of institutions offering higher and technical education;
- Very high cost of operations within Southern Sudan.



Communities involved in CBI improve their overall health status.

Lessons learned

- High level of political commitment is available at all tiers;
- Concept of cost sharing already exists and generally acknowledged by the people;
- Gender sensitivity is appreciated through active role of women in social and economic activities;
- Intersectoral structures are limited and professional skills of officials are minimal; Opportunities for training and capacity building are considered an asset and as temporary employment;
- Lack of market opportunities restrict economic growth and success of income generation activities;
- Population in the rural areas is scattered, causing high costs for provision of public services and health care measures;
- Scarcity of resources and limited technical know-how is a hurdle for multisectoral development;
- Human resource development is crucial for the establishment of an efficient health system in Southern Sudan;
- Streamlining Primary Health Care;
- Health promotion through Health Education/Healthy Lifestyles;
- Introduction of School Health programme;
- Emphasis will be given on health and social development programmes;
- To build national capacities and sustain the programme implementation, a National Technical Officer will be recruited for CBI, PHC, IMCI and allied programme;.
- Along with micro level developmental activities in model areas, macro level actions will also be initiated in accordance with the WHO report of MCHon enhancing the capacities of local governments, strengthening infrastructures, improving public services, ensuring best governance and increasing economic opportunities;
- Communities and local health staff will be trained on Emergency Preparedness;
- The process of Human Resource Development will be initiated through the creation of an Institute of Health Sciences;
- Partnerships will be explored under the leadership role of the Health secretariat to mobilize resources, promote the CBI approach;
- BDN offices will be established equipped with modern facilities in the WHO compounds of Rumbek and Yambio, facilitating close linkage with other peer health programmes and partners.

Future directions

- CBI approach will be extended through the consolidation of existing BDN sites, the initiation of a third model area and the introduction of a Healthy City initiative in two developing towns;
- Reinforcing District Health System;

Integrated Management of Childhood Illnesses



In 1999, the IMCI (Integrated Management of Childhood Illnesses) strategy was introduced in Southern Sudan to decrease morbidity and mortality in the under-five year old population due to extremely limited access to health services in some areas by the population. Due to the lack of well trained personnel, the IMCI tool was adapted for Southern Sudan into a simplified version called ECCHC (Essential Community Child Health Care). This modified version was introduced at village level and implemented by village volunteers. Community Health Workers (CHWs) at the PHC (primary health care) units level were also trained in the tool. For multiple reasons the ECCHC tool although utilized with success in some areas never enjoyed wide implementation.

Achievements

The major achievement in this programme is the leadership taken over by WHO in the management of the programme.

Late in 2004 the WHO-Southern Sudan office planned an evaluation of the ECCHC program to determine the reasons behind the successes and failures in the implementation of the tool. The evaluation was carried out in January through March 2005. Based on the results of the evaluation, a workshop was to be organized for agencies working in the health sector in Sudan to implement ECCHC in a more consistent way, and to expand this tool to further areas in Southern Sudan. The lessons learned from the evaluation were shared with partners and a plan of action for the way forward was developed.

Constraints

The major constraint in the field evaluation was the limited time available to carry out the evaluation. The two months time allotted due to logistics and transportation limitations in Southern Sudan made site visits very short and in depth review of each program was difficult.

Lessons Learned

From the evaluation it was noted that the current quality of implementation varied widely due to inadequate monitoring, follow-up and lack of standardized guidelines. Most agencies involved with ECHC had different concepts of its purpose, way of implementation etc.

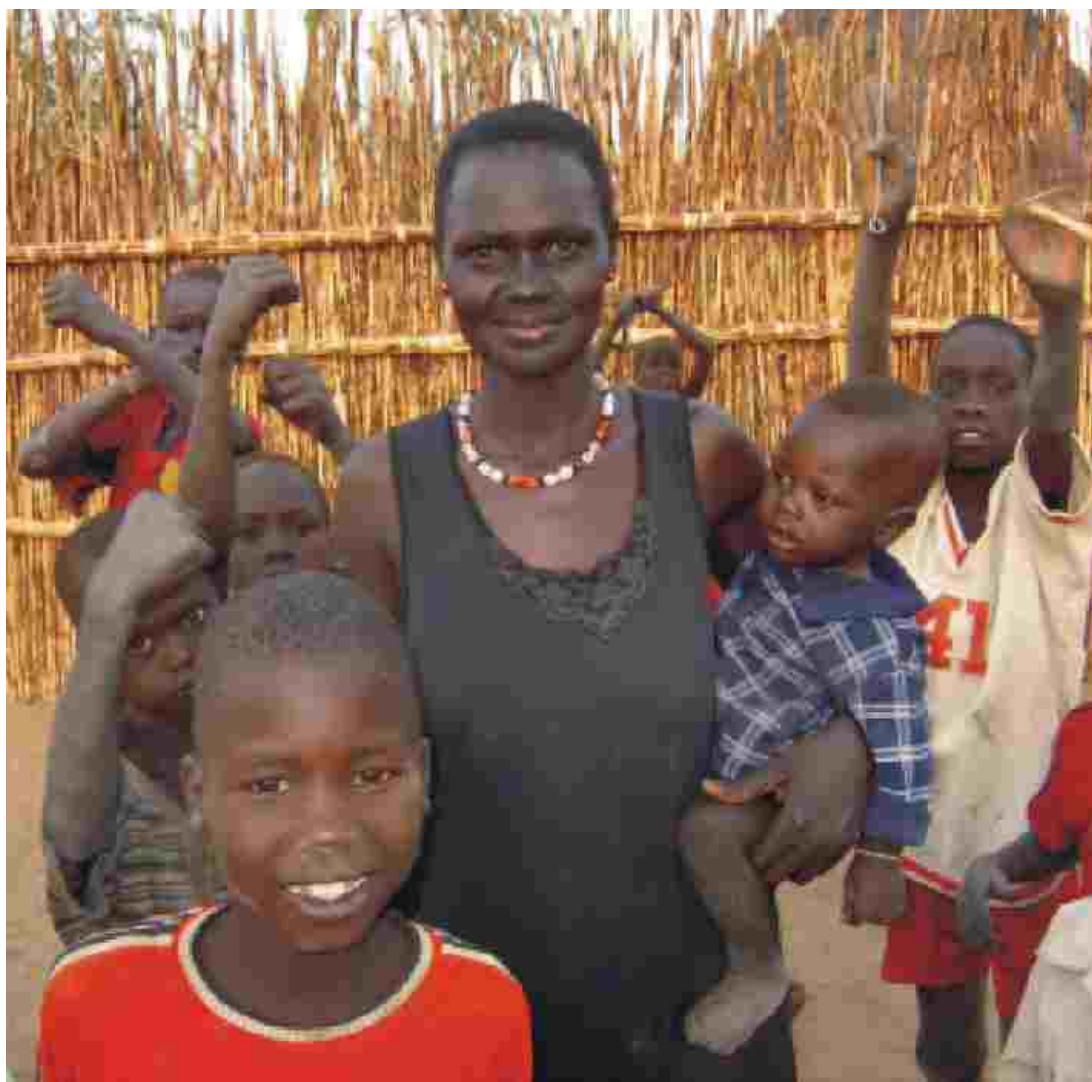
Methods used for training, supervising and paying Village Volunteers (VV) and CHW differed from agency to agency. Different training materials, recording forms and ways of supervision were found at all sites visited. To work reliably and correctly, regular monitoring at several levels is crucial. This includes supervision of the VV and CHW, supervision of the trainers and supervisors as well as regular follow-up of the NGOs by the Health Secretariat and WHO.

Future directions

- In 2005, WHO plans to encourage the wide-spread use of this tool throughout the health system in Southern Sudan by supporting the training of the IECHC tool;
- Training of trainers will be made available for all agencies implementing primary health care activities in Southern Sudan;
- Trained trainers of each agency will then carry out training of all the health workers in that particular agency's area of operation;
- A key component also includes the training of village volunteers. Villages located more than ten hours away from any health facility are at increased risk of the under-five population dying from these three major killer diseases. The training of village volunteers is key to achieving the early recognition and treatment of the three main killer-diseases in children under five;
- It is anticipated that the Health Secretariat will adopt this tool into the official curricula for all health cadres so in the future all new health workers will follow these guidelines in the care of the under-five group. Training will therefore also include teaching staff based at all training institutions.

Chapter 5

The Peace Agreement & Its Implications for WHO Southern Sudan



The Peace Agreement & Its Implications for WHO Southern Sudan

With the signing of the peace agreement new dynamics must be taken into consideration by WHO in addressing determinants of ill-health in Southern-Sudan. According to the peace agreement the Health Secretariat becomes the legitimate health authority in this sector of Sudan. Thus becoming the counterpart with whom WHO will continue to collaborate and support in all matters related to health and other social issues in Southern Sudan.

The agreement also establishes that southern areas now ruled by the Government of Sudan will be part of the Government of Southern Sudan. Hence, WHO Offices and programmes in these areas should be gradually relocated to Southern Sudan.

Meanwhile, the move by Southern Sudan authorities from the provisional capital Rumbek to the new capital for Southern Sudan Juba will have a number of operational and logistical challenges for WHO and the UN system overall.

Delivery of services to Southern Sudan will no longer be cast in emergency preparedness and response but geared towards long-term development as peace unfolds, and the foreseen cessation of hostilities increase access to all parts of Southern Sudan.

During the war that spanned several decades, extra budgetary funds were mainly disbursed to support WHO's intervention in Southern Sudan related to polio eradication and disease surveillance. Today WHO's actions in Southern Sudan have expanded to cover other communicable diseases such as Malaria, Tuberculosis and HIV/AIDS, Sleeping sickness, Kala Azar, onchocerciasis, relapsing fever and hemorrhagic fevers. All of which call for an increase of funds to finance surveillance and control activities in this part of Sudan which possesses some of the world's poorest health indicators.

Moreover, special emphasis should be given to PHC and community based initiatives.

The immediate needs for the health sector will be as follows:

- Strengthening the capacity of the Health Secretariat: WHO will work with the emerging health authorities of Southern Sudan to strengthen their capabilities in health care financing, human resource development and health policy. Focus will be given to strengthen the managerial and supervisory skills of the Sudanese staff through short and long term training programmes. The emerging Ministry of Health should be prepared to take over/provide assistance and guidance to all programmes so far run by other agencies.
- Recovery and reconstruction of the health system: The existing health delivery system consists of 20 small hospitals, about one hundred PHC Centres and 550 very basic PHC Units. Beds amount to around 1,500. No tertiary hospitals exist in SPLM-controlled Southern Sudan. Almost half of the existing facilities are concentrated in Equatoria, serving only one fourth of the population of Southern Sudan. Thus, the main challenges are the expansion of PHC services and the establishment/strengthening of county health departments.
- Returns: As the lead agency in health, WHO was given the responsibility to coordinate the health sector component of the UN strategic framework for a sustainable population returns of 3,500,000 IDPs and 570,000 refugees to Southern Sudan.
- The strain exercised by new arrivals may create new breeding conflicts if such issues as the reconstruction and rehabilitation of infrastructures and social structures, the introduction of community based initiatives and overall poverty reduction initiatives are not urgently addressed. In this regard, WHO will expand its Basic Development Needs (BDN) programmes to empower local communities in improving their livelihood and local ownership of developmental programmes.

Therefore, WHO Office should be strengthened in several areas such as human resources, office space and communication to take its responsibilities in coordinating the health sector and to generate resources for the recovery plan:

Allocation of a regular budget: The allocation of funds through the regular budget is therefore necessary to complement other financing mechanisms and to ensure the fulfillment of WHO's commitment to the recovery of the health sector and to strengthen WHO's operations in Southern Sudan.

Increase in Human Resources: So far the Office focused on polio eradication and emergency response. Now more staff, especially in the areas of health systems development are required. Staff should be deployed in Southern Sudan to support health authorities and to coordinate all health activities carried out by partners. As the expansion of programmes continues there is a pressing need to create adequate and conducive working environment for technical staff and consultants.

Efficient communication: WHO Office for Southern Sudan has installed their own VSAT connection in

Lokichoggio, Yambio, Rumbek, Akon and Nyal. However radio communication and satellite phones are still required where health facilities are located in remote areas to ensure communication with Nairobi and sub-offices.

Relocation of WHO Office: The strengthening/relocation of field offices inside the country will depend on the progress of the implementation of the peace agreement and will be in line with the joint response of the UN Country Team. The complete move of the Office in Nairobi to the provisional capital Rumbek and then to Juba will depend on the implementation of the comprehensive peace agreement and advancements accomplished in the availability of support systems such as housing, banking system etc. In the meantime, the WHO Southern Sudan Office will continue to operate from Nairobi to provide financial and logistical support to its field offices.

In 2005, WHO will continue to contribute to the overall humanitarian action which we hope will switch to developmental assistance as political heavyweights pave the way to sustainable peace.

Abbreviations

ACT	Artemisinin Combination Therapy
AFP	Acute Flaccid Paralysis
ARI	Acute Respiratory Infection
ARI	Annual Risk of Infection
AIDS	Acquired Immunodeficiency Syndrome
BDN	Basic development Needs
EHA	Emergency and Humanitarian Action
AFRO	African Regional Office
AMD	Antimalarial Drug
AQ	Amodiaquine
CCM	Country Coordination Mechanism
CBI/O	Community Based Initiatives/Operations
CDC	Communicable Disease Control
CQ	Chloroquine
DOTS	Directly Observed Therapy, short course
EMRO	Eastern Mediterranean Regional Office
EPI	Expanded Programme on Immunization
EWARN	Early Warning and Response Network
GAVI	Global Alliance for Vaccines and Immunization
GDF	Global Drug Facility
GDP	Gross Domestic Product
GFATM	Global Fund for HIV/AIDs, Tuberculosis and Malaria
GoS	Government of Sudan
GoSS	Gouvernement of Southern Sudan
HAC	Humanitarian Aid commission
HAT	Human African Trypanosomiasis
HIV	Human Immunodeficiency Virus
HNI	Health Net International
HOC	Horn of Africa
HCM	Health Coordination Meeting
HQ	Headquarter
HS	Health Secretariat
ICC	Interagency Coordinating Committee
ICRC	International Committee of the Red Cross
IDPs	Internally Displaced Persons
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illnesses
IPT	Intermittent Preventive treatment
ITN	Insecticide Treated Nets
JAM	Joint Assessment Mission
MDR TB	Multidrug resistant TB
MDG	Millennium development goals
MDT	Multidrug Therapy
MoH	Ministry of Health
MSF-CH	Médecine Sans Frontières
MSF-H	Médecins Sans Frontières-Holland
MTF	Malaria Task Force
NGOs	Non-Governmental Organizations
NIDs	National Immunization Days
NPA	Norwegian People's Aid
NTP	National Tuberculosis Control Program
OCHA	Office for the Coordination of Humanitarian Assistance

ORCHC	Office of the United Nations Resident and Humanitarian Coordinator
OLS	Operation Lifeline Sudan
OPV	Oral Poliomyelitis Vaccine
PHC	Primary Health Care
POA	Plan Of Action
R/A	Regional Advisor
RBM	Roll Back Malaria
SAF	Sudan Assistance Framework
SIA	Supplemental Immunization Activities
SNIDs	Sub-National Immunization Activities
SM+	Smear Positive
SM-	Smear Negative
SoH	Secretariat of Health
SP	Samaritan Purse
SP	Sulphadoxine+Pyrimethamine
SSOCP	South Sudan Onchocerciasis Control Programme
SPLM/A	Sudan People's Liberation Movement/Army
TAG	Technical Advisory Group
TB	Tuberculosis
ToR	Terms of Reference
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNCHR	United Nations High Commissioner for Refugees
UNCT	United Nations Country Team
UNICEF	United Nations Children's Fund
UNJTF	United Nations Joint Transition Fund
WB	World Bank
WHO	World Health Organization
WR(O)	World Health Organization Representative

Annexes

Annex 1

Southern Sudan indicators

Demographics

Total population	8,184,000
Rural population	98%
Under 5 population	21% (1,578,000)
Under 18 population	53% (3,982,000)
Population above 65 years	1.6%
Life expectancy at birth	42 years
Total fertility rate births per women	6.7
Crude birth rate	50.5
Crude death rate	22
Total growth rate of population	2.85%

Economic

Gross national income per capita \$	90<
Poverty, population below one dollar a day	> 90%
Fixed/mobile phone subscribers per 1000	1<

Education

Primary completion rate	1.9%
Primary completion rate, Male	3%
Primary completion rate, Female	0.8%
Share of cohort reaching grade 5	28%
Share of cohort reaching grade 5, Male	30%
Share of cohort reaching grade 5, Female	22%
Gross enrolment ratio primary schools	23%
Adult literacy rate	24%
Adult illiteracy rate, Male	63%
Adult illiteracy rate, Female	88%

Health indicators

Infant mortality rate	150 / 1000 LBs
Under 5 mortality rate	250 / 1000 LBs
Under 5 deaths	57% of total
Maternal mortality ratio	1700 / 100,000 LBs
Maternal deaths	3.9% of total
Lifetime risk of dying in pregnancy or childbirth	1 in 9
Births attended by trained personnel	6%
Pregnant women receiving pre-natal care	16%
Contraceptive prevalence rate	<1%
Tetanus vaccination of pregnant women	16%
Measles vaccination among under 1 year children	25%

Health indicators

DPT (3) vaccination under one year children	8%
Polio vaccination under one year children	30%
BCG vaccination among under one year children	21%
Diarrhoea prevalence, U5 children, two weeks period	45%
ARI prevalence, among U5 children	30%
Fever prevalence, U5 Children	61%
HIV/AIDS adult prevalence rate	2.6%
HIV/AIDS prevalence rate, adult male	1.1%
HIV/AIDS prevalence rate, adult female	3.1%
Incidence of tuberculosis per 100,000 pop	325
Malaria cases per 100,000 population	>50,000
Anti malarial treatment (febrile, under 5)	36%

Nutrition

Prevalence of U5 malnutrition, wasting, w/h	45%
Infants receiving at least 12 months continuous breast-feeding	80%

Children and women's right

Level of birth registration	0
Female genital mutation	2<
Proportion of children (5-15) in households who are working	58%

Major endemic communicable diseases

Parasitic

Malaria
 Onchocercosis (river blindness)
 Guinea Worm
 Schistosomiasis
 Kala Azar
 Trypanosomiasis (Sleeping Sickness)

Bacterial and Viral

Tuberculosis
 Leprosy
 STI
 HIV
 Ebola virus
 Bruil Ulcer

Major causes of morbidity

Malaria	28%
Diarrhoea	13%
Respiratory infections	11%
Intestinal parasites	8%
Eye problems	6%
Skin infections	5%
STD	4%
Trauma	5%
Others	26%

Water and sanitation

Access to improved water source	27% pop
Access to improved sanitation facilities	15% of pop

Status of health facilities in Southern Sudan

Region	Population	No. Of Hfs	Functional Health Facilities	Hospitals and Specialty Clinics	PHCCs	PHCUs	Mobile outreach clinics
Equatoria	2,134,994	381	380	19	52	309	0
Bahr el Ghazal	4,040,945	165	162	14	28	120	0
Upper Nile	1,526,749	178	177	12	12	130	23
Nuba Mountains	288,000	40	40	2	4	34	0
Southern Blue Nile	165,000	24	24	1	3	6	14
Abyei	31,680	0	0	0	0	0	0
Total	8,184,368	788	783	48	99	599	37

Number of health staff in Southern Sudan

Regions	Doctors	Medical Assistants	Nurses	Lab Technicians	PHC workers	Total
Equatoria	18	89	409	698	1591	2805
Bahr El Ghazal	4	82	144	9	735	974
Upper Nile	2	21	54	12	269	356
S. Blue Nile	2	0	0	0	0	2
Nuba Mountains	4	2	5	2	10	23
Total	30	194	612	721	2603	4160

Annex 2

SNID 2004 Results

SUMMARY OF SNIDs 2004 (OCT/NOV) RESULTS																					
		FIRST ROUND										SECOND ROUND									
Region	County/state	Total pop. 2004	< 5 years	# children vaccinated before	# of zero dose children	Total vaccinated	coverage	Zero dose	vials received	vials used	Wastage %	# children vaccinated before	# of zero dose children	Total vaccinated	coverage	Zero dose	vials received	vials used	Wastage %	# of children given Vitamin A	% of children given Vit A
Lakes	Tonj	883,393	152,827	125,886	38,062	163,948	107%	23%	9,397	9,046	9%	164,168	15,620	179,788	118%	9%	10,389	10,024	10%	125,414	91%
	Cuibet	228,021	39,448	33,009	9,743	42,752	108%	23%	2,467	2,373	10%	41,761	3,023	44,784	114%	7%	2,480	2,456	9%	38,893	110%
	Rumbek	438,083	75,788	81,709	11,453	93,162	123%	12%	5,214	5,198	10%	92,176	2,160	94,336	124%	2%	5,272	5,154	8%	70,410	103%
	Yirol	238,165	41,203	33,650	5,451	39,101	95%	14%	2,388	2,233	12%	40,545	2,236	42,781	104%	5%	2,482	2,448	13%	38,394	104%
	Bor N	126,883	21,951	20,950	1,726	22,676	103%	8%	1,500	1,281	11%	23,295	465	23,760	108%	2%	1,525	1,267	6%	14,076	71%
	Bor S	152,023	26,300	25,088	5,117	30,205	115%	17%	1,765	1,609	6%	24,099	3,069	27,168	103%	11%	1,522	1,455	7%	14,652	62%
	Pibor	132,373	22,901	22,075	3,190	25,265	110%	13%	1,477	1,345	6%	26,433	767	27,200	119%	3%	1,480	1,417	4%	20,151	98%
	Pochalla	38,124	6,595	6,824	620	7,444	113%	8%	436	419	11%	7,664	173	7,837	119%	2%	455	410	4%	6,290	106%
Sub total		2,237,065	387,012	349,191	75,362	424,553	110%	18%	24,644	23,504	10%	420,141	27,513	447,654	116%	6%	25,605	24,631	9%	328,280	94%
WEO	Yambio	287,116	49,671	46,719	957	47,676	96%	2%	2,854	2,521	5%	49,990	283	50,273	101%	1%	2,974	2,651	5%	36,806	82%
	Mundri	226,665	39,213	40,019	213	40,232	103%	1%	2,349	2,155	7%	40,089	87	40,176	102%	0%	2,261	2,150	7%	31,684	90%
	Maridi	198,803	34,393	35,074	713	35,787	104%	2%	2,288	1,933	7%	36,041	256	36,297	106%	1%	2,250	1,956	7%	27,498	89%
	Tambura	97,792	16,918	14,925	476	15,401	91%	3%	1,079	862	11%	15,648	134	15,782	93%	1%	1,041	889	11%	10,878	71%
	Ezo	86,156	14,905	15,564	264	15,828	106%	2%	889	842	6%	16,457	166	16,623	112%	1%	928	892	7%	12,303	92%
Sub total		896,532	155,100	152,301	2,623	154,924	100%	2%	9,459	8,313	7%	158,225	926	159,151	103%	1%	9,454	8,538	7%	119,169	85%
EEQ	Kajo keji	185,535	32,098	37,439	593	38,032	118%	2%	2,218	2,000	5%	38,800	283	39,083	122%	1%	2,233	2,024	3%	26,198	91%
	Kapoeta	519,384	89,853	98,275	12,283	110,558	123%	11%	6,510	5,976	7%	94,160	8,179	102,339	114%	8%	4,674	5,426	6%	75,129	93%
	Yei	328,389	56,811	59,994	4,245	64,239	113%	7%	3,945	3,607	11%	63,141	1,645	64,786	114%	3%	3,949	3,594	10%	44,824	88%
	Torit	361,177	62,484	61,439	7,945	69,384	111%	11%	3,997	3,561	3%	75,809	4,311	80,120	128%	5%	4,545	4,125	3%	59,081	105%
	Juba/Terek	165,920	28,704	32,288	1,390	33,678	117%	4%	1,841	1,833	8%	35,281	503	35,784	125%	1%	1,956	1,938	8%	24,943	97%
Sub total		1,560,405	269,950	289,435	26,456	315,891	117%	8%	18,511	16,977	7%	307,191	14,921	322,112	119%	5%	17,357	17,107	6%	230,175	95%
UNJ	Bieh	504,693	87,312	87,333	8,766	66,099	76%	13%	3,772	3,533	6%	59,818	6,335	66,153	76%	10%	3,671	3,436	4%	62,300	79%
	Latjor	586,550	101,473	95,905	6,254	102,159	101%	6%	6,246	6,236	18%	98,392	3,733	102,125	101%	4%	6,234	6,574	22%	82,044	90%
	Liech	744,912	128,870	113,837	15,398	129,235	100%	12%	7,854	7,142	10%	118,371	14,350	132,721	103%	11%	7,749	7,261	9%	111,472	96%
	Phou	470,553	81,406	65,194	10,356	75,550	93%	14%	4,591	3,962	5%	66,511	7,978	74,489	92%	11%	4,725	4,136	10%	68,461	93%
	Shilluk K.	97,671	16,897	12,986	2,098	15,084	89%	14%	951	835	10%	13,947	642	14,589	86%	4%	1,067	743	2%	11,949	79%
	Ruweng	59,722	10,332	9,412	1,512	10,924	106%	14%	620	594	8%	10,328	523	10,851	105%	5%	615	600	10%	8,620	93%
Sub total		2,464,101	426,289	354,667	44,384	399,051	94%	11%	24,034	22,302	11%	367,367	33,561	400,928	94%	8%	24,061	22,750	12%	344,846	90%
BEG	Aweil West	601,163	104,001	116,743	1,985	118,728	114%	2%	6,439	6,366	7%	115,867	2,257	118,124	114%	2%	6,428	6,397	8%	0	0%
	Aweil East	472,192	81,689	99,636	2,173	101,809	125%	2%	5,433	5,332	5%	92,406	1,766	94,172	115%	2%	5,084	5,071	7%	79,648	108%
	Aweil South	285,492	49,390	47,876	804	48,680	99%	2%	2,905	2,701	10%	48,808	695	49,503	100%	1%	2,871	2,732	9%	40,157	90%
	Gogrial	665,370	115,109	131,349	2,093	133,442	116%	2%	7,467	7,369	9%	126,589	2,272	128,861	112%	2%	7,109	7,054	9%	119,476	115%
	Raga	45,650	7,897	7,010	78	7,088	90%	1%	423	383	7%	6,770	217	6,987	88%	3%	412	385	9%	6,084	86%
	Wau	266,517	46,107	46,552	518	47,070	102%	1%	2,675	2,563	8%	45,902	1,082	46,174	100%	2%	2,709	2,579	10%	39,079	94%
	Twic	524,305	90,705	100,495	924	101,419	112%	1%	5,507	5,421	6%	101,778	1,019	102,797	113%	1%	5,568	5,487	6%	90,484	111%
	Abei	45,442	7,861	8,196	86	8,282	105%	1%	474	459	10%	8,153	71	8,224	105%	1%	475	472	13%	7,326	104%
Sub total		2,906,131	502,761	557,857	8,661	566,518	113%	2%	31,323	30,594	7%	545,463	9,379	554,842	110%	2%	30,656	30,177	8%	382,254	84%
Nuba	Dilling	113,300	19,601	17,432	2,154	19,586	100%	11%	1,171	1,116	12%	19,139	627	19,766	101%	3%	1,177	1,149	14%	11,083	63%
	Lagawa	38,914	6,732	6,876	741	7,617	113%	10%	399	392	3%	5,846	78	5,924	88%	1%	322	322	8%	3,455	57%
	Kadugli	126,148	21,824	13,531	2,111	15,642	72%	13%	1,251	863	9%	15,120	299	15,419	71%	2%	1,027	849	9%	11,924	61%
	Rashid	164,542	28,466	23,549	3,354	26,903	95%	12%	1,681	1,477	9%	27,137	1,144	28,281	99%	4%	1,749	1,575	10%	24,716	96%
Sub total		442,904	76,622	61,388	8,360	69,748	91%	12%	4,502	3,848	9%	67,242	2,148	69,390	91%	3%	4,275	3,895	11%	51,778	74%
SBN	Kurmuk	189,000	32,697	28,624	6,408	35,032	107%	18%	2,065	1,770	1%	32,417	5,079	37,496	115%	14%	2,104	1,899	1%	0	0%
Sub total		189,000	32,697	28,624	6,408	35,032	107%	18%	2,065	1,770	1%	32,417	5,079	37,496	115%	14%	2,104	1,899	1%	0	0%
Grand total		10,696,138	1,850,432	1,793,463	172,254	1,965,717	106%	9%	114,538	107,308	8%	1,898,046	93,527	1,991,573	108%	5%	113,512	108,997	9%	1,455,902	87%

Annex 3 Mop-Up 2004 Results

SUMMARY 1st ROUND MOPPING UP 2004

SUMMARY 2nd ROUND MOPPING UP 2004

BAHREL-GHAZAL REGION

BAHR-EL-GHAZAL REGION

County	Payam	Total Pop	Tar. Pop < 5	FIRST ROUND							County	Total Pop	Tar. Pop < 5	SECOND ROUND							
				< 5 Vaccinated	< 5 Zero Dose	Total < 5 Vaccinated	Cover. (%)	Zero Dose %	OPV Received	OPV Used				Wastage %	< 5 Vaccinated	< 5 Zero Dose	Total < 5 Vaccinated	Cover. (%)	Zero Dose %	OPV Received	OPV Used
Aweil	Ayat	103,096	17,836	16,330	2,551	18,881	106	14	1,078	1,076	Aweil	103,096	17,836	19,364	390	19,754	111	2	1,177	1,130	13
West	Aroyo	44,039	7,619	7,608	545	8,153	107	7	457	457	West	44,039	7,619	8,003	104	8,107	106	1	462	462	12
	Mariem West	66,058	11,428	11,110	1,960	13,070	114	15	699	699		66,058	11,428	11,858	902	12,760	112	7	703	703	9
	Mariem East	45,430	7,859	7,519	1,465	8,984	114	16	476	476		45,430	7,859	9,308	277	9,585	122	3	516	516	7
	Gomjuer	100,320	17,355	14,562	3,593	18,155	105	20	959	959		100,320	17,355	19,202	417	19,619	113	2	1,041	1,041	6
	Malual West	110,990	19,201	18,308	2,663	20,971	109	13	1,152	1,152		110,990	19,201	19,133	335	19,468	101	2	1,075	1,071	9
	Malual East	131,230	22,703	19,024	3,498	22,522	99	16	1,237	1,201		131,230	22,703	23,411	1,165	24,576	108	5	1,420	1,420	13
	TOTAL	601,163	104,001	94,461	16,275	110,736	106	15	6,058	6,020		601,163	104,001	110,279	3,590	113,869	109	3	6,394	6,343	10
Aweil	Baac	109,502	18,944	19,603	930	20,533	108	5	1,166	1,137	Aweil	109,502	18,944	21,481	677	22,158	117	3	1,253	1,191	7
East	Mangartong	46,466	8,039	7,740	1,394	9,134	114	15	502	496	East	46,466	8,039	11,233	409	11,642	145	4	675	664	12
	Madhol	78,045	13,502	15,119	756	15,875	118	5	835	828		78,045	13,502	14,672	273	14,945	111	2	810	809	8
	Mangok	41,957	7,259	7,955	855	8,810	121	10	446	446		41,957	7,259	8,437	215	8,652	119	2	436	436	1
	Yaargot	48,644	8,415	8,547	1,071	9,618	114	11	537	502		48,644	8,415	8,854	358	9,212	109	4	520	482	4
	Wunlang	71,477	12,366	13,883	941	14,824	120	6	818	818		71,477	12,366	15,331	886	16,217	131	5	837	833	3
	Malual Bai	76,100	13,165	13,139	3,471	16,610	126	21	851	849		76,100	13,165	15,256	415	15,671	119	3	821	820	4
	TOTAL	472,191	81,689	85,986	9,418	95,404	117	10	5,155	5,076		472,191	81,689	95,264	3,233	98,497	121	3	5,352	5,235	6
Aweil	Wathmok	102,212	17,683	17,138	3,818	20,956	119	18	1,189	1,189	Aweil	102,212	17,683	15,792	665	16,457	93	4	990	924	11
South	Barmayen	52,160	9,024	5,159	1,421	6,580	73	22	513	367	South	52,160	9,024	6,163	604	6,767	75	9	411	356	5
	Gakrol	40,700	7,041	5,691	834	6,525	93	13	422	400		40,700	7,041	6,404	233	6,637	94	4	425	400	17
	Mangargier	90,420	15,643	10,923	3,889	14,812	95	26	963	828		90,420	15,643	13,734	768	14,502	93	5	883	824	12
	TOTAL	285,492	49,390	38,911	9,962	48,873	99	20	3,087	2,784		285,492	49,390	42,093	2,270	44,363	90	5	2,709	2,504	11
Gogrial	Akon	93,814	16,230	19,958	1,064	21,022	130	5	1,161	1,084	Gogrial	93,814	16,230	21,209	430	21,639	133	2	1,394	1,376	21
	Alek	102,280	17,694	15,264	672	15,936	90	4	947	903		102,280	17,694	16,579	939	17,518	99	5	1,021	1,008	13
	Riau	75,537	13,068	11,844	3,127	14,971	115	21	788	788		75,537	13,068	15,174	398	15,572	119	3	814	814	4
	Gogrial	54,567	9,440	8,471	829	9,300	99	9	563	518		54,567	9,440	8,779	255	9,034	96	3	557	530	15
	Toch South	77,350	13,382	16,196	1,351	17,547	131	8	993	920		77,350	13,382	18,044	257	18,301	137	1	1,073	1,037	12
	Toch North	63,251	10,942	11,392	2,349	13,741	126	17	693	693		63,251	10,942	12,610	391	13,001	119	3	724	724	10
	Kuajok	91,002	15,743	13,351	2,006	15,357	98	13	944	927		91,002	15,743	15,662	807	16,469	105	5	1,017	1,006	18
	Pathuon	107,569	18,609	17,301	2,442	19,743	106	12	1,131	1,087		107,569	18,609	19,371	611	19,982	107	3	1,118	1,075	7
	TOTAL	665,370	115,109	113,777	13,840	127,617	111	11	7,220	6,920		665,370	115,109	127,428	4,088	131,516	114	3	7,718	7,570	13
Raga	Awoda	25,850	4,472	3,385	442	3,827	86	12	265	212	Raga	25,850	4,472	4,172	76	4,248	95	2	258	239	11
	Agoga	19,800	3,425	3,189	191	3,380	99	6	182	176		19,800	3,425	3,332	78	3,410	100	2	183	188	9
	TOTAL	45,650	7,897	6,574	633	7,207	91	9	447	388		45,650	7,897	7,504	154	7,658	97	2	441	427	10
Wau	Kuajiena -1	60,519	10,470	9,671	2,055	11,726	112	18	628	628	Wau	60,519	10,470	11,275	351	11,626	111	3	632	631	8
	Kuajiena -2	41,323	7,149	6,733	1,233	7,966	111	15	428	428		41,323	7,149	7,021	340	7,361	103	5	418	409	10
	Udici	101,026	17,477	18,551	3,313	21,864	125	15	1,214	1,214		101,026	17,477	15,014	2,190	17,204	98	13	972	949	9
	Marial Wau	38,940	6,737	6,212	1,140	7,352	109	16	394	389		38,940	6,737	7,247	571	7,818	116	7	408	403	3
	Bazia	24,709	4,275	4,782	231	5,013	117	5	256	256		24,709	4,275	5,027	11	5,038	118	0	256	256	2
	TOTAL	266,517	46,107	45,949	7,972	53,921	117	15	2,920	2,915		266,517	46,107	45,584	3,463	49,047	106	7	2,686	2,648	7
Twic	Pan-Nyok	99,682	17,245	18,975	471	19,446	113	2	1,012	1,012	Twic	99,682	17,245	19,661	269	19,930	116	1	1,034	1,043	4
	Turalei	109,384	18,923	16,447	2,700	19,147	101	14	1,103	1,070		109,384	18,923	16,482	2,736	19,218	102	14	1,129	1,094	12
	Aweng	88,055	15,234	14,395	2,240	16,635	109	13	944	907		88,055	15,234	14,584	2,571	17,155	113	15	921	891	4
	Ajakuc	37,870	6,552	4,662	860	5,522	84	16	386	321		37,870	6,552	4,023	845	4,868	74	17	333	308	21
	Wunrok	99,171	17,157	19,656	511	20,167	118	3	1,086	1,076		99,171	17,157	20,088	302	20,390	119	1	1,076	1,076	5
	Akoc	90,144	15,595	17,589	353	17,942	115	2	936	936		90,144	15,595	18,011	178	18,189	117	1	936	936	3
	TOTAL	524,306	90,705	91,724	7,135	98,859	109	7	5,467	5,322		524,306	90,705	92,849	6,901	99,750	110	7	5,429	5,348	7
Abyei	Rum Ameer	11,700	2,024	2,695	481	3,176	157	15	221	176	Abyei	11,700	2,024	1,987	35	2,022	100	2	106	103	2
	Mijak	6,497	1,124	526	236	762	68	31	45	42		6,497	1,124	1,057	30	1,087	97	3	41	53	-3
	Biem Nhom	6,156	1,065	1,219	244	1,463	137	17	110	79		6,156	1,065	1,409	30	1,439	135	2	79	76	3
	Ameth Aguok	9,210	1,593	1,321	528	1,849	116	29	111	101		9,210	1,593	2,177	60	2,237	140	3	121	119	6
	Alal	11,880	2,055	1,987	339	2,326	113	15	133	124		11,880	2,055	2,175	97	2,272	111	4	125	124	8

Annex 3 Mop-Up 2004 Results (Cont.)

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Summary of Mopping-up December 2004 Western Upper Nile and 3 Payams of Bahr el Ghazal

Region	State/County	Total	Target <5 yrs	Vaccinated	Zero	Total	Coverage	Zero	OPV	OPV	Wastage
		population	Population	before	Dose	vaccinated	%	dose %	Given	used	%
UPPER NILE	LIECH	806,200	139,473	121180	7698	128878	92%	6%	7687	7391	13%
	RUWENG	64,604	11,177	10909	407	11316	101%	4%	671	632	10%
	Sub-total	870,804	150,649	132089	8105	140194	93%	6%	8358	8023	13%
BAHR EL GHAZAL											
	GOGRIAL	63,251	10,942	11,180	872	12052	110%	7%	653	643	6%
	TWIC	125,925	21,785	23,117	511	23628	108%	2%	1,722	1,656	29%
	Sub-total	189,176	32,727	34,297	1,383	35,680	109%	4%	2,375	2,299	22%
TOTAL	1,059,980	183,376	166,386	9,488	175,874	96%	5%	10,733	10,322	15%	

**World Health Organization
Southern Sudan Office**

**Warwick Centre UN Avenue
P.O.Box 63565
Nairobi, Kenya
Tel: +254 (20) 622832; 623197/98/99
Fax: 623640**

