

1. OBJECTIVES

The Federal Ministry of Health (FMOH) of the Republic of the Sudan, in collaboration with the Eastern Mediterranean Regional Office (EMRO) of the World Health Organization (WHO) conducted a survey from 12 March to 22 April 2003 on the quality of outpatient child health services at facilities in which the Integrated Management of Childhood Illness (IMCI) strategy had been implemented. The writer collaborated in all phases of the survey, from planning to surveyor training, observation of data collection and analysis of the results.

More specifically, the ‘IMCI health facility survey’ had the following objectives:

- (1) To assess the *quality of outpatient care*, including both clinical and counselling care, provided to sick children aged 2 months up to 5 years old¹ at health facilities implementing the IMCI strategy;
- (2) To describe *organizational and other ‘health systems support’* elements influencing the quality of care and identify major constraints to it;
- (3) To measure *key indicators* of quality care to monitor progress of the IMCI strategy at health facilities; and
- (4) To recommend *further approaches* to improving the quality of outpatient child health services.

2. BACKGROUND

This section summarizes information that was reviewed to discuss survey objectives, adapt the survey questionnaires, and develop country-specific survey rules. It served also as part of the background for the interpretation of the results of the survey.

2.1 SETTING

The population of Sudan, comprising some 19 major ethnic groups, was estimated at over 31 million in 2001, with 63% living in rural areas². The majority of the population is concentrated in six States of the Central Region and 60% live around the River Nile. The population is unevenly distributed: the population density in Khartoum and Gezira is five times as high as in the rest of the country³. Children below 5 years of age are estimated to be 16.4% of the total population. Delivery of care has been based on the primary health care (PHC) approach, with over 6000 PHC facilities delivering outpatient services usually through a three-tier system: a) the *PHC unit*, usually staffed by a community health worker, providing essential PHC services and serving a population of 1000–3000 people; b) the *dressing station*, commonly staffed by a nurse, providing curative care for common diseases and having the same catchment area as the PHC unit; and c) the *dispensary*, for the management of more serious cases, and the *health centre*. The latter may be equipped with laboratory, X-ray and patient lay-in observation facilities. Dispensaries serve a population of 5000–10 000 and health centres 10 000–15 000 people⁴. While dispensaries are staffed with medical assistants,

¹ The expression ‘*up to 5 years old*’ in this report refers to children less than 5 years old, therefore excluding the day of their 5th birthday. This expression, although not fully correct, is used here as it appears to be more easily understood by readers without epidemiological background.

² World Bank, World Development Indicators Database, April 2002.

³ Safe Motherhood Survey, 1999.

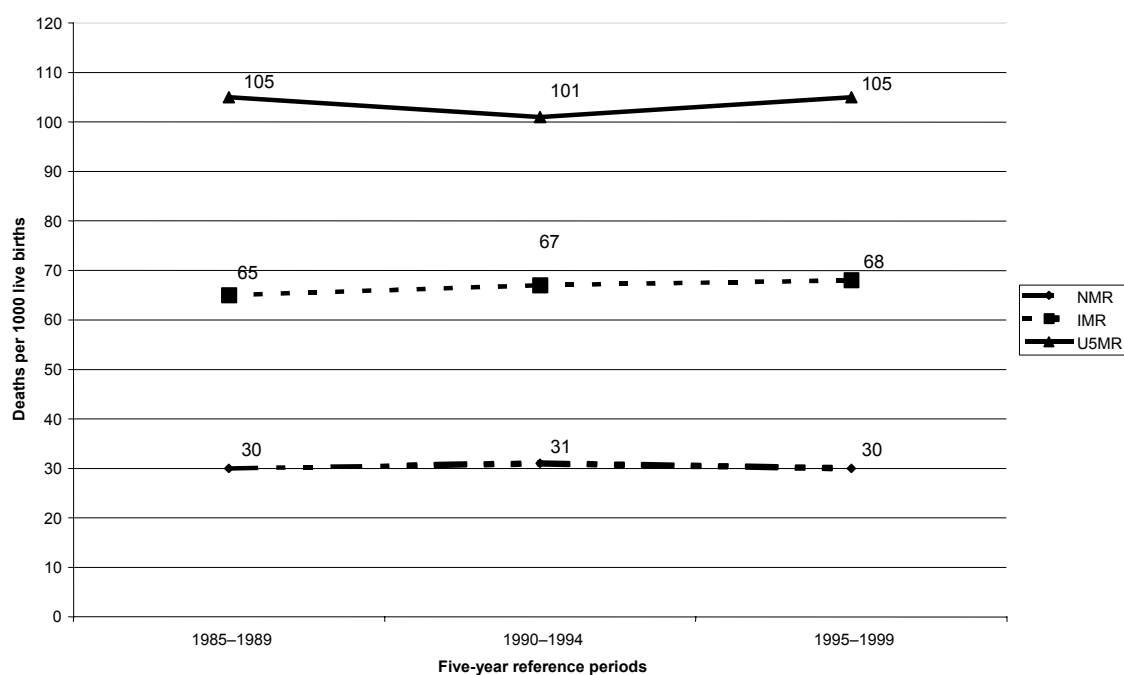
⁴ World Health Organization, Regional Office for the Eastern Mediterranean: Country Programme Statements – Sudan: Country situation and national health development objectives, WHO Programme Budget 2000–2001

health centres in urban areas are usually staffed also with doctors, in addition to other staff. Rural hospitals represent the first referral level. *Accessibility* to services varies considerably between areas and States. The health system in Sudan is decentralized and consists of 26 State Ministries of Health.

WHO estimates of national health accounts suggest that the percentage of the gross domestic product (GDP) for expenditure on health has been increasing over the past 5 years up to an estimated 4.7% in 2000⁵ (about US\$ 48 PPP per head⁶): almost 80% of the total health expenditure is private and the percentage coming from the government has been decreasing over time⁵.

2.2 CHILD HEALTH INDICATORS

Infant (IMR) and under-five (U5MR) mortality rates have remained at high levels in Sudan over the past 15 years. The IMR and U5MR were reported at levels of 68 and 105 deaths per 1000 live births, respectively, for the 5-year period preceding 1999 according to the ‘Safe Motherhood Survey’⁷ conducted in Northern Sudan in 1999 (Fig. 1)⁷. Out of all childhood⁸ deaths, two-thirds (65%) occurred in the first year of life and 29% occurred in the neonatal period.



Source: Safe Motherhood Survey, 1999

Figure 1. Neonatal, infant and under-five mortality in Sudan⁷

⁵ World Health Organization, *The World Health Report 2002*, Statistical Annex, National Health Accounts, Geneva, WHO, 2002.

⁶ At purchasing power parity (PPP) exchange rates, estimate for 1990–98, World Bank 2002. This is almost half of the average of US\$89 health expenditure per capita estimated by the World Bank for sub-Saharan Africa.

⁷ Estimates based on other data sources suggest a reduction in under-5 mortality by 12% from 1990 to 2000.

⁸ Childhood in this report refers to children below 5 years old.

Interestingly, no major differences were found in the IMR between urban and rural areas (67 vs 68). However, remarkable differentials in IMR and U5MR were observed by mother's education level: IMR was almost twice as high and U5MR two and a half times as high in children of illiterate mothers as in children whose mothers had completed junior secondary or higher education. Both IMR and U5MR were higher in boys than girls (73 and 108 in boys vs 62 and 99 in girls, respectively). Notable differences were found between States, with IMR about 50% higher in Red Sea (116), Kassala (101), Blue Nile (101) and Southern Kordofan (95) than the country average. This is important when prioritizing public health interventions designed to have impact on child mortality.

Diarrhoeal diseases (30%), acute respiratory infections (20%), malaria (16%), malnutrition (10%) and childhood preventable diseases, especially measles, were estimated to account together for more than three-quarters of the outpatient consultations for children under 5 years at health facilities in 1997⁹. The same conditions represented also 86% of hospital admissions in children under 5 years and were responsible for more than three-quarters of hospital deaths in under-5s in 1997. Seven per cent (7%) of children under 5 years were found to be severely wasted (<−3 SD for weight-for-height) at household level in 2000¹⁰.

2.3 THE RESPONSE: AN INTEGRATED CHILD CARE STRATEGY (IMCI)

The strategy on Integrated Management of Childhood Illness (IMCI) was formally introduced in Sudan in 1996 as a strategy appropriate for the situation in the country, as it addressed the most important causes of under-5 mortality and morbidity and represented an integrated approach that well suited the primary health care policy promoted in the country¹¹. The main steps of the IMCI process in Sudan from introduction through the early implementation phase are shown in Annex 2. An IMCI Task Force was set up in 1996 to prepare the introduction of IMCI in the country, followed by the establishment of an IMCI Working Group to coordinate activities. A high level IMCI Steering Committee was also formally established by ministerial decree (3/1997) in 1997, chaired by the State Minister of Social Planning, to set policies, revise and endorse the plan of action, monitor and supervise activities, and mobilize resources for IMCI. Since about 2000, the strategy has been expanding to cover about 500 health facilities in 71 (30%) out of 240 districts located in 10 States (Annex 3). Furthermore, four new States have introduced the strategy. Taking into consideration the marked differentials in IMR between States, the strategy has been expanding also to the States with the highest IMR (Red Sea and, more recently, also Kassala and Southern Kordofan). The main target for training has been the category of medical assistants, but doctors, nurses and other supportive staff such as nutritionists have also been trained in selected health facilities. Among the main adaptations to the generic WHO/UNICEF clinical guidelines, which were further revised in Sudan in 2001, are: the inclusion of wheezing, the requirement of laboratory confirmation for the diagnosis of malaria in facilities where laboratory services are available in low malaria risk areas, the separation of the management of anaemia and malnutrition, and the extension of the recommendation for exclusive breastfeeding to the first 6 months of life.

The main focus of the strategy has initially been on the health system.

⁹ Federal Ministry of Health, Primary Health Care: *Report on the Integrated Management of Childhood Illness Early Implementation in Sudan*, November 1999.

¹⁰ Federal Ministry of Health, Central Bureau of Statistics and UNICEF: *Multiple Indicator Cluster Survey*, Sudan, 2000

¹¹ See footnote (9)

- ❖ *Improving health providers' skills:* A total of 83 clinical training courses on IMCI has been conducted for almost 1400 people from PHC facilities and hospital outpatient departments, including over 200 facilitators, as of August 2002 (Annex 3). Nine training centres have been set up to decentralize IMCI training at State level. A large number of trained staff has been followed up after the training course ('IMCI follow-up visits'). PHC staff report that one important issue has been the high attrition rate of trained staff, which has made the training efforts more demanding. Finally, a well-coordinated initiative has been initiated to introduce the IMCI outpatient approach in the teaching of seven medical schools, four of which were selected for the pilot phase, to address the issue of long-term sustainability.
- ❖ *Improving the health system:* The essential drug list (EDL) has been reviewed: basically, all drugs needed for IMCI are included in the national list. However, injectable antibiotics and antimalarials (quinine), oral 2nd line antimalarial (sulfadoxine-pyrimethamine), diazepam, oral tetracycline, 2nd line antibiotic for dysentery (nalidixic acid) and salbutamol inhaler are not included in the EDL for outpatient facilities. Supplies (e.g. thermometers, weighing scales, nebulizers) have been provided to facilities implementing IMCI. IMCI recording form and supervisory checklist have been designed and are either being tested or distributed.
- ❖ *Improving family and community practices:* A multidisciplinary group was created within the IMCI Task Force in 2000 to review the level of key family practices in the community and existing community-based interventions related to child care, and to develop a comprehensive communication strategy. This followed the recommendation of a review of the IMCI early implementation phase that activities in this area should be stepped up. A plan of action was drafted at the intercountry workshop on the IMCI community component in Cairo in July 2002. The plan for Sudan focuses on conducting baseline and needs assessment surveys in selected communities, fostering partnership with medical schools, and strengthening the linkages between the health system and the community through community health workers and health facility support staff. Linkages have already been established with other initiatives, such as the basic development needs initiative (BDN).

3. SURVEY METHODOLOGY

The survey consisted of the following main phases (Annex 4): planning (1 week), conducted about 4 months earlier; training of surveyors and supervisors (1 week); data collection and data entry (2 weeks), data cleaning (3 days), data analysis (1 week), and presentation and discussion of the findings and recommendations. Box 1 summarizes the main features of this survey. This section highlights the main methodological aspects of the survey¹².

¹² For detailed survey plans, methodology and rationale, see Pieche S. *Planning for an IMCI health facility in Sudan*, Report of a mission, 25–31 October 2002, Cairo, WHO Regional Office for the Eastern Mediterranean, 2002.