

CHILD HEALTH

IN **SOMALIA:**
SITUATION ANALYSIS



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Table of Contents

Chapter 1. Introduction and background	page 18
1.1 Purpose and scope of the study	19
1.2 Methodology	21
1.2.1 Literature review	21
1.2.2 Interviews	21
1.2.3 Limitations of the study	21
1.3 Background: Somalia	23
1.3.1 Geography and demography	23
1.3.2 Economic and social development	25
1.4 Child health-related indicators for Somalia	26
1.5 Somalia's ratification of child health rights instruments	26
Chapter 2. Child mortality and morbidity in Somalia	page 28
2.1 Child mortality and morbidity in a developing context	29
2.2 Childhood mortality in Somalia	32
2.2.1 Pneumonia	36
2.2.1.1 Tuberculosis	37
2.2.2 Diarrhoea	38
2.2.3 Measles	39
2.2.4 Malaria	39
2.3 Common causes of morbidity among Somali children	41
2.4 Neonatal mortality	44
Chapter 3. Determinants of child morbidity and mortality in Somalia	page 46
3.1 Nutrition	47
3.2 Water, sanitation and hygiene (WASH)	50
3.3 Social and economic factors	52
3.4 Health system	52
3.5 Education	53
3.6 Conflict	54

3.7 Cultural and traditional aspects	55
3.7.1 Traditional health seeking behaviour	55
3.7.2 Educated vs. traditional attitudes	56
3.7.3 Gender issues	56
3.7.4 Birth spacing	57
3.7.5 Breastfeeding	58
3.7.6 Home deliveries	59
3.7.7 Female genital mutilation	60

Chapter 4. **Structure and performance of the health system related to child health** page **62**

4.1 Governance	63
4.2 Service delivery	65
4.2.1 Structure of health care delivery	65
4.2.1.1 Referral hospitals	66
4.2.1.2 District hospitals	66
4.2.1.3 Maternal and child health (MCH) clinics	67
4.2.1.4 Outpatient therapeutic programmes (OTPs)	68
4.2.1.5 Health posts	68
4.2.2 Delivery of preventive and supportive child health services	69
4.2.2.1 Antenatal care	69
4.2.2.2 Deliveries	69
4.2.2.3 Postnatal care	70
4.2.2.4 Extended programme of immunization (EPI)	70
4.2.2.5 Other child health promoting interventions	72
Vitamin A	
Deworming	
Growth monitoring and nutritional counselling	
4.2.3 Capacity for service delivery	73
4.2.3.1 Availability	73
4.2.3.2 Accessibility	76
4.2.3.3 Quality of care	76
4.2.3.4 Demand	78
4.2.3.5 Coverage	78
4.2.4 Outreach campaigns	82
4.2.4.1 Polio programme	82
4.2.4.2 Measles campaigns	83
4.2.4.3 Child health days (CHD)	84
4.3 Health-care workforce	87
4.3.1 Qualified health professionals	87
4.3.2 Unqualified health workers: traditional birth attendants	88

4.4 Health information systems	90
4.4.1 Health management information system (HMIS)	90
4.4.2 Communicable disease surveillance and response (CSR)	90
4.5 Medical products and vaccines	91
4.6 Financing and funding	92
4.6.1 Health expenditures and financial aid	92
4.6.2 Financial distribution of aid to the health sector	93
Chapter 5. Conclusions and recommendations	page 96
5.1 Neonates and infants	97
5.2 Nutrition	99
5.3 Water, sanitation and hygiene	100
5.4 Infectious diseases	101
5.5 School-aged children and adolescents	102
5.6 Support, guidance and management	103
5.7 Way forward	103
References	page 104
Annex I. Interview guide	page 106
Annex II. Articles 6 and 24 of the United Nations Convention on the Rights of the Child	page 108
Annex III. Lists of kits for medicines and equipment provided to Somali health care facilities from UNICEF Somalia (according to EPHS)	page 109

Tables and figures

Table 1.	Latest available data on selected child health indicators for Somalia	27
Table 2.	Health-seeking behaviour for children with pneumonia	36
Table 3.	Basic WASH-figures for Somali households	51
Table 4.	Number and types of health facilities in Somalia	65
Table 5.	Coverage rates for routine immunization with standard EPI vaccines by the age of 1 in Somalia	79
Table 6.	Interventions and target groups for the child health day campaign	84
Table 7.	Distribution of physicians, nurses and midwives in Somalia	88
Figure 1.	Map of Somalia	23
Figure 2.	Global causes of mortality for children under the age of five	30
Figure 3.	Under-five mortality rates for Somalia	32
Figure 4.	Underlying causes of mortality for Somali children under the age of five	34
Figure 5.	Morbidity pattern for under-fives attending Somali MCH clinics	42
Figure 6.	Global estimate of the distribution of conditions responsible for neonatal mortality	44
Figure 7.	Schematic structure of the zonal health systems in Somalia	64
Figure 8.	Regional availability of MCH clinics	75
Figure 9.	Regional immunization coverage of DPT3 and measles vaccine (MCV) through routine EPI during 2009	81
Figure 10.	Approximate distribution of international financial support to different parts and programmes of the health sector in Somalia in 2009	94
Box 1.	WHO definitions of anthropometric deviations due to malnutrition	48
Box 2.	Defining the characteristics of BEmOC and CEmOC facilities at the hospital level	67
Box 3.	Immunization schedule for Somalia	71

Acronyms

ACF	Action Contre la Faim
ACT	Artemisinin-based combination therapy
AFP	Acute flaccid paralysis
AMISOM	African Union Mission in Somalia
AMREF	African Medical Research Foundation
ARI	Acute respiratory infection
ART	Anti-retroviral therapy
AWD	Acute watery diarrhoea
BCG	Bacillus-calmette-guerin (TB-vaccination)
BEmOC	Basic emergency obstetric care
CEmOC	Comprehensive emergency obstetric care
CGS	Child growth standards
CHD	Child health days
CISS	Coordination of International Support to Somalia
COSV	Comitato di Coordinamento delle Organizzazioni per il Servizio Volontario (Coordinating Committee of the Organizations for Voluntary Service)
CHW	Community health workers
CISP	Comitato Internazionale per lo Sviluppo dei Popoli (International Committee for the Development of Peoples)
COSV	Coordinating Committee of the Organizations for Voluntary Service
CSR	Communicable disease surveillance and response
CSZ	Central South Zone
DALY	Disability-adjusted life-year
DOTS	Directly observed treatment short courses
DPT	Diphtheria-pertussis-tetanus
ECHO	Humanitarian Aid Department of the European Commission
EPI	Extended programme of immunization
EPHS	Essential package of health services
FSNAU	Food Security Nutrition Analysis Unit
GAVI	Global Alliance for Vaccines and Immunization
GDP	Gross domestic product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GNP	Gross national product
GPEI	Global Poliomyelitis Eradication Initiative
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)

HDI	Human Development Index
Hib	Haemophilus influenzae type B
HMIS	Health Management Information System
HP	Health post
ICRC	International Community of the Red Cross
IDP	Internally displaced person
IFRC	International Federation of Red Cross and Red Crescent Societies
IMC	International Medical Corps
IMCI	Integrated management of childhood illness
IU	International unit
KAPS	Knowledge attitude practices survey
MCH	Maternal and child health
MDG	Millennium Development Goal
MICS	Multiple indicator cluster survey
MoH	Ministry of Health
MSF	Médecins Sans Frontières
MUAC	Measurement of the upper arm circumference
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OPD	Outpatient department
OPV	Oral polio vaccine
ORS	Oral rehydration salt
ORT	Oral rehydration therapy
OTP	Outpatient therapeutic programme
RDT	Rapid diagnostic test
RUTF	Ready-to-use therapeutic food
SFP	Supplementary feeding point
SHSC	Somali Health Sector Committee
SRCS	Somali Red Crescent Society
TB	Tuberculosis
TFC	Therapeutic feeding centre
TFG	Transitional Federal Government
TFR	Total fertility rate
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNOPS	United Nations Office for Project Services
VCT	Voluntary counselling and testing
WASH	Water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization

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Wilhelm Zetterquist (WHO Somalia consultant)
MD PhD – Specialist pediatric medicine

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Executive summary

The last three decades of armed conflicts, lack of functioning government, economic collapse, and disintegration of the health system and other public services - together with recurrent droughts and famines - has turned Somalia into one of the world's most difficult environments for survival. This is bluntly reflected in the poor child health conditions, as twenty per cent of the children die before they reach the age of five, more than one third are underweight, and almost fifty per cent suffer from stunting.

This report assesses the child health situation in Somalia. It is based on a desk-review of existing reports and available data together with information gathered through interviews with key-informants and stakeholders providing assistance to the Somali health sector, including all major NGOs, UN-agencies and other multilateral/bilateral agencies.



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Child mortality and morbidity

The under-five mortality in Somalia is estimated at 200 deaths per 1,000 live births, which is one of the highest in the world. Approximately one third of these are neonatal deaths, occurring during the first month of life, predominantly caused by birth complications and neonatal infections. The high neonatal mortality is at least partly maintained by the fact that ninety per cent of deliveries take place at home, without professionally skilled attendance or mandatory follow-up at a health care unit. Infections are the main cause of death during remaining infancy and childhood. Pneumonia and diarrhea are the main killers, each contributing to 20-25 per cent of all under-five mortality. Measles, albeit decreasing through vaccination catch-up campaigns, still accounts for five per cent of the under-five deaths. The high mortality rate as a consequence of infections and neonatal disorders are largely due to the synergistic effect of malnutrition. On the good side, the prevalence and mortality from malaria and HIV/AIDS are actually lower than elsewhere in Sub-Saharan Africa.

Surveys reveal a generally high disease burden among Somali children, and malnutrition is over-represented among the sick. The main morbidities of Somali children largely follow the patterns for mortality. Data shows that under-fives most commonly seek health care for respiratory infections, followed by diarrhea, intestinal parasites, skin conditions, eye infections and anemia.

Main determinants for child disease and mortality

The most important determinant for morbidity and mortality of Somali children is undoubtedly the huge prevalence of malnutrition, including deficiency of important nutrients or insufficient breastfeeding. Malnutrition is the underlying cause of up to fifty per cent of all under-five mortality – making otherwise benign conditions fatal. The extent of malnutrition varies over time but current stable figures show that almost half of the Somali children are either underweight and/or stunted. Recent screening has shown that 60 per cent of the under-fives are anemic, mainly due to iron deficiency, and almost 40 per cent lack sufficient levels of vitamin A, causing impaired immune function and increased susceptibility to infections. In contrast to the universal recommendation of exclusive breastfeeding the first six months of life, more than ninety per cent of Somali mothers introduce alternatives - such as sugar water, tea or formula (prepared with unsafe water) at this stage, causing early onset of diarrhea, subsequent malnutrition and increased risk of mortality.

Only one third of Somalis have access to an improved water source. The availability and use of an appropriate sanitary facility is equally low and the overwhelming majority of Somalis practices open defecation. Poor Water, Sanitation, and Hygiene (WASH) standards and practices strongly accelerate the spread of infectious diseases, particularly diarrhea and intestinal parasites. An estimated 90 per cent of under-five mortality from diarrhea is caused by inappropriate WASH conditions, and even simple improvements, such as hand washing with soap, could make a big positive difference.

Other determinants of child mortality are widespread poverty, a poorly functioning health system, low level of education, and the ongoing conflict with all the insecurity and hardships that it brings. Approximately 40 per cent of the population lives in extreme poverty, and economic hardships have worsened with galloping inflation and elevated prices for food, fuel and transports. Only one of four school-aged children attend primary school and

less than 40 per cent of the adults are literate. For young adults that figure is even lower, due to the last decades deterioration of the educational system. The low level of education and knowledge not only counterfeits child survival, but it is also a huge problem for the health system in itself, as there is a severe lack of trained health professionals. In fact, more than half of the Somali health work force does not have any formal medical education or training.

Socio-cultural and traditional aspects also add to the high level of morbidity and mortality. There is a generally low propensity to seek conventional health care and in rural areas there is often a preference for traditional healers with potentially harmful practices. Gender inequalities often put the mother's, and thereby also the children's, interests aside. Family planning and deliberate birth spacing is literally non-existing, making the fertility rate of Somali women one of the highest in the world. Every child is therefore facing fierce competition for the already scarce resources and its own survival. The high proportion of home deliveries is not only caused by lack of better alternatives, but also by a cultural preference for giving birth in the family nest. Female genital mutilation is a deeply rooted and widespread cultural practice, endangering both the immediate health of the young girls and their future pregnancies and deliveries.

The health system

The health system is grossly underdeveloped and is unable to deliver adequate level and quality of care. The availability of public health facilities is generally low, especially in rural areas, and the service output from existing health units is generally unsatisfactory. The health sector of Somalia comprises three administratively separated systems; one for each operational zone (Somaliland, Puntland, and South-Central Somalia). These are similarly structured, but government management is more pronounced in the two northern zones. There is also a flourishing private health sector, of which the pharmacies often constitute the prime instance for consultation whereas the private clinics are mainly frequented by relatively better off Somalis in urban areas. The country's MCH clinics constitute the back-bone of maternal and child health care, particularly in terms of preventive and health promoting services, but some of them also offers in-facility deliveries. Here, staffing is under dimensioned, especially in terms of trained personnel. Their immunization output is very low with DPT3 and measles coverage consistently below 30 per cent. This partly reflects poor availability and service delivery from the MCH clinics, but it is also an effect of low utilisation and reluctance to seek conventional medical care.

Outreach campaigns for polio and measles immunization have been conducted to improve the poor coverage. In late 2008, the child health days campaign, managed by WHO and UNICEF, was launched to deliver a more comprehensive package of essential child health interventions to all the children in the country. The package offers the vaccines of the Somali immunization schedule (except BCG), vitamin A, deworming medicine, and water purifying tablets. The campaigns are scheduled to roll through the country on a twice yearly basis, but some pockets have been inaccessible for political reasons whereas others have enjoyed up to four rounds (June 2011). Coverage rates for measles and DPT3 have increased to over 50 per cent thanks to the campaigns.

Recommendations

Addressing neonatal mortality:

- Improve service delivery of maternal and obstetric care, both on primary and secondary level. Promote in-facility deliveries and up-scale designated MCH clinics to provide basic emergency obstetric care (BEmOC) and secondary units to meet the comprehensive standards of CEmOC. Align to Reproductive Health Strategy for Somalia 2010-2015 (WHO/UNICEF/UNFPA/UKAid, 2009).
- Up-scale training of traditional birth attendants and/or community midwives in basic neonatal care and implement system of structured follow-up visits to mother and newborn according to “female community health worker-model”; promoting exclusive breast feeding, appropriate hygiene, early vaccination, and screening for signs of infection.

Addressing infancy and malnutrition:

- Advocate for birth-spacing and promote family planning.
- Promote appropriate breast-feeding practices to the broader public, using all possible channels; exclusive breast feeding up to six months of age, followed by appropriate complementary feeding.
- Ensure vitamin A supplementation and deworming biannually through MCH clinics or outreach campaigns, from six months of age. Additionally, improve vitamin A supplementation to breast feeding mothers.
- Explore possibilities of routine iron supplementation (with possible exception for malaria endemic areas).
- Strengthen channels and logistics for nutritional emergency aid and food security efforts to the most exposed areas of the country.
- Ensure sufficient and functioning structures for primary level care of malnutrition; outpatient therapeutic programs (OTPs) and stabilization centres.
- Align child health interventions to the Somali Nutrition Strategy (WHO/WFP, 2010).

Addressing WASH:

- Support further WASH improvements, focusing on sanitation and access to safe water.
- Promote hand washing with soap.
- Distribute water-purification tablets on household level, prioritizing households with young children.
- Explore possibilities of broad-scale water chlorination, either on community or household level.

Addressing infectious diseases:

- Introduce new vaccines to the national immunization scheme; 1) exchange DPT for Pentavalent (adding Hib- and hepatitis B-vaccine), 2) pneumococcal vaccine, and 3) oral rotavirus-vaccine.
- Distribute zinc-containing sachets of oral rehydration solution (ORS) through MCH-clinics and community health workers.

- Introduce structured community case management of pneumonia and diarrhea, through community health workers.
- Ensure continued outreach campaigns of essential health packages (child health days); immunization, including TT 2 (to pregnant women), vitamin A, deworming, water purifying tablets, and possibly ORS.
- Support MCH clinics to increase routine immunization, from fixed sites as well as in outreach-mode, for future phasing out of child health days-campaigns.

Addressing school-aged children and adolescents:

- Promote timely and mandatory school enrolment.
- Promote abolition of female genital mutilation.
- Improve trauma care of children victimized of armed conflicts, both physical and psychological rehabilitation.
- Assess adolescent health needs and develop a focused strategy for this largely neglected age-group.

Addressing health systems:

- Develop a formal structure for community case management of newborn care, pneumonia, diarrhea, malnutrition and possibly other conditions; according to internationally successful models of community health workers.
- Strengthen primary health care services and their outreach activities. This includes development of simple and standardised guidelines for an integrated approach to the most common diseases; modified or full implementation of IMCI.
- Implement stepwise the “Essential Package of Health Services” (EPHS) to primarily strengthen maternal, obstetric and neonatal care.
- Promote interagency collaboration on child health issues.
- Develop a full Somali child health strategy.

Chapter 1.

Introduction and background



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1.1 Purpose and scope of the study

The present report contains an analysis of the child health situation in Somalia, with its principal focus on children in the under-five age group. It is mainly based on a review of existing literature and interviews with stakeholders responsible for the provision of health support to Somalia, most of them based in Nairobi. Notwithstanding the limited access to the country and its actual health care providers and the lack of reliable data, the report aims to present a comprehensive analysis of the main causes for child morbidity and mortality and their determinants, along with a situation assessment of existing child health structures and their performances. The ultimate aim is to use the outcomes of the situation assessment for the development of a comprehensive child health strategy designed to ensure a better response to the underlying causes of child morbidity and mortality that hamper child survival in Somalia.

Somalia is a very youthful country, as 50 per cent of its population is under the age of 15. The majority of Somali children live under very constrained conditions, with a high prevalence of malnutrition and morbidity and probably the lowest levels of school enrolment in the world. As the health system is disintegrated, with very limited influence from public authorities, there is no official or coherent child health strategy or functioning governance structure with responsibility for child health issues.

Data on child morbidity and mortality are scarce and of dubious quality. The official child mortality rates have varied considerably over the last two decades and the under-five mortality rate was recently revised from 135 to 200 per 1,000 live births¹, placing Somalia at the very bottom of the international child survival list. Goal 4 of the Millennium Development Goals, as it relates to Somalia, aims to reduce under-five mortality to 68 per 1,000 live births and that target was based on an estimated under-five death rate of 203 per 1,000 live births in 1990². Accordingly, it appears as if there have been no real improvements in child health conditions from the 1990 baseline and there is consequently a long road to be covered before the target is reached.

The high mortality rate of under-fives appears to be primarily attributable to pneumonia, diarrhoea and neonatal complications – with malnutrition and poor water and sanitary conditions as the strongest contributing factors and determinants. Malaria and measles also account for some child deaths, but probably to a much lesser extent.

The health sector is enormously underdeveloped and barely functional. It is largely dependent on international support and emergency humanitarian actions. The current child health days organized jointly by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), in collaboration with the Somali health authorities and other health partners, represent the largest health outreach campaign ever implemented in Somalia. The child health day campaign reaches out to 1.4 million Somali children under the age of five with a basic vaccination programme and a package of additional health support interventions.

¹ UNICEF (2009). *The State of the World's Children – Special Edition*; Statistical Tables.

² The present study is based on official United Nations figures (see the United Nations official website for the Millennium Development Goals www.un.org/millenniumgoals). A recent study by Knoll Rajaratnam et al.

The health of Somali children is also jeopardized by a number of other difficulties facing the country. Armed conflicts and insecurity have escalated, bringing with them an increase in mass displacements. The country is also experiencing an economic crisis with rocketing fuel and food prices, partly caused by severe drought and poor crop yields. Furthermore, the delivery of food aid from the World Food Programme (WFP) was recently discontinued (in January 2010) across large areas of the south and many health-related international agencies have been forced to withdraw from the politically unstable southern regions, leaving a huge hiatus in the provision of health services. Thus, the overall situation is very difficult and, without continued international support and the conduct of joint actions, large areas of the country and many of its children might face a humanitarian disaster.

1.2 Methodology

The methodology used for this report was a combination of literature review, semi-structured interviews with key informants from different non-governmental organizations and United Nations agencies involved in the health sector of Somalia and active participation in meetings of the Somali Health Sector Committee.

1.2.1 Literature review

Key publications such as health related reports, evaluations and scientific articles were scanned and statistical data gathered from informants from different United Nations agencies and non-governmental organizations based in Nairobi. The websites of the different United Nations agencies and non-governmental organizations have also been trawled for relevant information, along with newsletters, reports and links to other related sites.

Given the scarcity of reliable data and information in Somalia regarding such matters as child morbidity and mortality and evidence-based practice, searches were also made of reference literature from other settings available on the internet via PubMed and Google. The Lancet series on child and neonatal survival and on child and maternal undernutrition proved to be particularly helpful in this venture.

1.2.2 Interviews

Interviews were conducted with medical coordinators and country directors of the major non-governmental organizations that are implementing programmes in the Somali health sector. These are primarily the organizations which are regional focal agencies for the Somalia Health Cluster, together with a few other key organizations involved in the international collaboration effort (these are listed above, under Acknowledgements). The interviews followed a semi-structured format, using a questionnaire with a number of pre-set questions regarding the organization's child health related activities in the field and other child health issues in Somalia in general (see the questionnaire in annex I).

A number of interviews were also conducted with key informants of different United Nations agencies, such as WHO Somalia, UNICEF Somalia, the Food Security Nutrition Analysis Unit (FSNAU), the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) and the United Nations Office for Project Services (UNOPS). These interviews were less structured, since the agencies play more of a supportive role and do not provide regular health services on the ground.

1.2.3 Limitations of the study

There are many challenges involved in assessing the child health situation in Somalia. First, the health situation of children is embedded in a complex social and economic context and is influenced by a range of factors. Furthermore, there is no specific governance structure focusing on child health issues and no uniform strategic model that deals with child health in a comprehensive way; instead the current health care system is largely disintegrated and fragmentary. Another complicating circumstance is the fact that Somalia actually contains three parallel health systems with different conditions. Thus, what is described for

the system in South Central Somalia might not apply for the health sector in Somaliland or Puntland, or vice versa. Information gathered is also primarily of a second-hand nature and collected from afar and at times it has been difficult to evaluate its accuracy. In addition, there is as yet no well organized, systematic and cohesive health information management system, collating and storing health-related data from all levels of care. The information obtained may therefore be based on isolated observations or ad hoc data which do not necessarily reflect the overall picture.

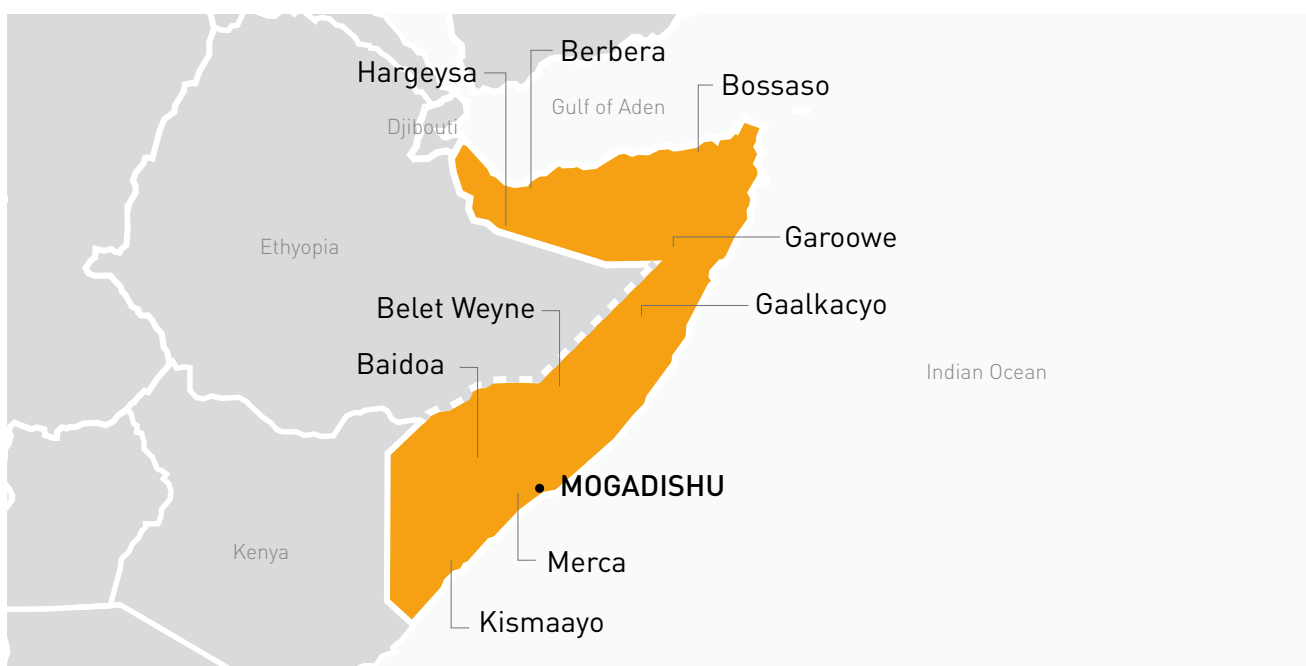
1.3 Background: Somalia

The country of Somalia was created in 1960, through the merger of a British protectorate and an Italian colony on the easternmost section of the Horn of Africa. Ever since the birth of the nation its development has been very slow, owing to a variety of political, cultural and geographical conditions. Over the last two decades, Somalia has staggered along without a central functioning government and witnessed endless armed conflicts and a total collapse of institutional and social functions. It has become a fragile State characterized by lawlessness and general disintegration. The recurrent fighting between rival warlords, Islamist groups and government forces, coupled with the inability to deal with famine and disease, have led to the deaths of more than 1 million Somalis, and to the emigration and internal displacement of an even larger number of people.

1.3.1 Geography and demography

The country of Somalia is geographically and politically divided into the three zones of South Central Somalia, Somaliland (the north-west) and Puntland (the north-east). These zones are further divided into a total of 18 administrative regions. Some 70 per cent of the population live in South Central Somalia, while 20 per cent are resident in Somaliland and 10 per cent in Puntland. According to estimates, one third of the population live in urban areas and two thirds in rural areas.

Figure 1. Map of Somalia



The country borders Kenya in the south, Ethiopia in the west, Djibouti in the north, and in the east it faces the Gulf of Aden and the Indian Ocean. Its multiple borders and extensive coastline, with numerous ports, have meant that Somalia has long been an important trade hub for the import and export of goods, including cross-border smuggling. Regulation and control of the flow of goods have always been very difficult, particularly with the current lack of any functioning authority.

The environmental conditions are arid and harsh with a warm and generally dry climate, which is, however, alleviated by two rainy seasons per year (Gu – the main rainy season from April to June, and Deyr – lighter and less predictable rains from October to December). These shifts, from one extreme to the other, regularly bring with them both droughts and floods. The central regions of South Central Somalia receive the least rain and are the most drought-stricken parts of the country, whereas floods occur mainly along Somalia's two rivers, the Juba and Shabelle. The northern parts of the country are mountainous, while the central and southern areas are dominated by plains.

The Somali population is of nomadic heritage and even today a large proportion of the population is essentially nomadic. This nomadic life-style is primarily practised by the pastoralists, as they follow their cattle to new grazing areas. The rural population can be divided, partly based on their livelihood, into pastoralists, agro-pastoralists and riverine populations (settled in more fertile conditions and mainly growing crops). In addition, some one third of the population is made up of urban residents and a large number of internally displaced people (IDPs), victims of the country's many conflicts. Current figures show that some 1.4 million Somalis are internally displaced³. These IDPs add to the traditional perception of Somalis as a migratory people, not settled in a specific village or area, a perception engendered by the life-style followed by the pastoralists.

The current size of the population is unknown, since the last census was performed 40 years ago, in the early 1970s. Estimates range from 6 million to 11 million. The current (2008) United Nations estimate, however, is 8.9 million⁴. The country also has a massive diaspora, with more than 1 million Somalis residing outside the country.

³ OCHA Somalia 2010, *Somalia Humanitarian Overview*. Vol. 3, issue 1 Dec.–Jan. 2010.

⁴ UNICEF (2009). *The State of the World's Children – Special Edition 2009*.

1.3.2 Economic and social development

Somalia is one of the poorest countries in the world. According to the World Bank (2002)⁵, over 40 per cent of the population was estimated to live in extreme poverty - that is, living on less than one US dollar per day - and about 75 per cent of the population lived on less than two US dollars per day in 2002. The overall economic and social development has barely improved since then, given the continuous conflicts and the deterioration of societal structures. International comparisons of the country's social and economic development are currently hampered by lack of reliable data. For several years Somalia has not been ranked in the United Nations Development Programme (UNDP) human development index (HDI) because of the lack of reliable data. In 2001, however, it was ranked among the world's least developed countries (with an HDI of 0.284)⁶.

The economy is mainly based on agriculture, with an emphasis on livestock. Livestock and fishing account for about 65 per cent of the country's meagre export earnings. Agricultural harvests and local food production only cover 40 per cent of national food needs and the country is largely dependent on food imports for the remaining 60 per cent. Given the widespread poverty, most people are unable to ensure their food supply and malnutrition is rampant. According to current estimates by FSNAU, some 3.6 million Somalis are in need of livelihood support or even emergency life saving assistance⁷.

A significant contribution to Somalia's economy comes from the Somali diaspora in the form of remittances. Many Somalis depend on this influx of money for their survival; the money is also invested in private enterprise and has helped create prosperity in some parts of the private sector. This has contributed to the establishment of an unregulated private health sector, which has certainly improved the health situation but is largely accessible and affordable only to relatively well off people in urban areas and thus fails to meet the basic health needs of the general public.

The health and educational systems and other social sectors are generally in a state of dilapidation and barely functioning, especially in South Central Somalia. The public health system is massively underdeveloped but also underused and does not meet the population's actual needs for health care. An outline and current overview of the health system in Somalia, with emphasis on child health issues, may be found in chapter 4 below.

Somalia's education system has suffered severely from the country's continuous internal conflicts. Only 23 per cent of children of primary school age (6–13 years) attend school and in South Central Somalia that figure is as low as 13 per cent⁸. The Somali school enrolment rate is the lowest in the world (the average school enrolment among the world's least developed countries is 76 per cent)⁹. Apart from the derelict school system, this is probably also attributable to the migrating lifestyle of many Somali families, namely, those who are pastoralists and IDPs. Illiteracy is widespread and only about 38 per cent of the adult population are literate¹⁰. The comparable figure for women in the age group of 15–24 is 25 per cent.

Children born in the 1980s and 1990s, when provision of education was particularly limited, now constitute a generation of adolescents that lack proper schooling and with poor future prospects. Efforts have been made, however, in particularly by some local communities, to rebuild an education system for their young people with support from the Somali diaspora. Current enrolment rates are slowly improving.

⁵ World Bank/UNDP 2004, *Somalia Socio-Economic Survey 2002*.

⁶ UNDP (2001), *Human Development Report Somalia*, 2001; page 198. The HDI is composed of statistics on life expectancy, education and GDP. It ranges from 0 to 1. The lowest ranked country in 2009 was Niger with an HDI of 0.340.

⁷ FSNAU *Technical Series Report Nutrition Situation*, September 2009.

⁸ UNICEF (2006), *MICS 2006*. Table ED.3: Primary school net attendance ratio, Somalia 2006.

⁹ MDG Info 2009, <http://mdgs.un.org/unsd/mdg>

¹⁰ CIA *World Fact Books*, 2003–2008.

1.4 Child health-related indicators for Somalia

As mentioned earlier, Somalia has one of the highest rates of under-five mortality in the world. With 200 deaths per 1,000 live births, Somalia occupies fourth position in the world ranking list of child mortality. In addition, Somalia scores poorly on most health-related indicators, as shown in table 1 below. Most of the data originate from the UNICEF 2006 Somalia multiple indicator cluster survey (MICS)¹¹. Figures on child mortality rates and vaccination coverage have been collected from the annually updated survey of the state of the world's children prepared by UNICEF. The rates for under-five, infant, and neonatal mortality were recently re-appraised and substantially upgraded by the Interagency Group for Child Mortality Estimation. Where immunization coverage is concerned, these rates are from 2008 and are drawn from the annual reports submitted by the Somalia offices of UNICEF and WHO to their respective headquarters.

1.5 Somalia's ratification of child health rights instruments

For a long time Somalia and the United States of America were the only Member States of the United Nations which had not ratified the 20 year old United Nations Convention on the Rights of the Child. In November 2009, however, the Transitional Federal Government of Somalia finally acknowledged the full text of the Convention with its ratification, and that decision was formally welcomed by UNICEF and several other international agencies. On that occasion the following message was posted on the UNICEF website: "Adherence to and application of the Convention will be of crucial importance for the children of Somalia, who are gravely affected by the ongoing conflict, recurrent natural disasters and chronic poverty"¹². The full version of the two articles of the Convention that address children's rights to enjoy adequate interventions for a healthy life, articles 6 and 24, may be seen in annex II below.

¹¹ UNICEF (2006), *MICS Somalia 2006*.

¹² Press release on the official UNICEF website; www.unicef.org/infobycountry/somalia.html. Consulted on 4 January 2010.

Table 1. Latest available data on selected child-health indicators for Somalia

INDICATOR	VALUE
Child health	
Under-five mortality rate	200 per 1,000 live births ^[a]
Infant mortality rate (0–1 years)	119 per 1,000 live births ^[a]
Neonatal mortality rate (0–1 months)	61 per 1,000 live births ^[a]
1 year old children vaccinated with DPT3	31 % ^[a]
1 year old children vaccinated against measles	24 % ^[a]
Fully immunized by the age of 1	5 % ^[b]
Neonatal tetanus protection	49 % ^[a]
Under-fives with suspected pneumonia taken to a health clinic	13 % ^[b]
Under-fives with suspected pneumonia receiving antibiotic treatment	32 % ^[b]
Under-fives with diarrhoea receiving ORT	21 % ^[b]
Under-fives sleeping under insecticide-treated nets	11 % ^[b]
Under-fives with fever receiving anti-malarial treatment	8 % ^[b]
Number of children (0–14 years) living with HIV	1,000 ^[b]
Reproductive health	
Child delivery performed in health institution	9 % ^[b]
Skilled attendance at delivery	33 % ^[b]
Nutrition	
Under-fives suffering from underweight	36 % ^[b]
Under-fives suffering from stunting	42 % ^[b]
Under-fives suffering from wasting	13 % ^[b]
Infants exclusively breastfed first 6 months of life	9 % ^[b]
WASH	
Use of improved source for drinking water	29 % ^[b]
Use of improved sanitation facility	23 % ^[b]
Education	
Net primary school attendance rate	23 % ^[b]
Literacy among women 15–24 years	24 % ^[b]
Child protection	
Child labour (5–14 years) – includes extensive household work and working for family business	49 % ^[b]
Prevalence of female genital mutilation	98 % ^[b]

Sources: [a] = UNICEF, *The State of the World's Children 2009*; [b] = *MICS Somalia 2006*.

Chapter 2. Child mortality and morbidity in Somalia



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2.1 Child mortality and morbidity in a developing context

The causes of child mortality in developing countries follow similar patterns with some regional disparities. The most common diagnoses leading to child mortality in the developing world are considered to be pneumonia, diarrhoea, neonatal causes, malaria, measles, and HIV/AIDS. In the case of a fatal outcome in the under-five age group, these conditions are often accompanied by acute malnutrition. Indeed, it has been estimated that about half of the world's child deaths can be attributed to undernutrition^{13,14}, as this has a clear synergistic effect on mortality from both infectious diseases and birth-related complications¹⁵. In other words, malnutrition is rarely the final cause of death but it paves the way for other serious infections whose course becomes fatal in the malnourished and immune suppressed condition.

As mentioned earlier, the under-five mortality rate in Somalia is among the highest in the world, while the prevalence of malnutrition has remained at record high levels for decades. It is therefore likely that malnutrition contributes to more than half of the under-five deaths in Somalia. The nutritional situation in Somalia has also deteriorated over the last couple of years. According to FSNAU reports from 2010, one in five Somali children is acutely malnourished¹⁶.

Pneumonia, diarrhoea and neonatal causes account for a large proportion of childhood deaths in all countries of sub-Saharan Africa, whereas the contribution from malaria and HIV/AIDS varies¹⁷. This is because the prevalence of the first three conditions is consistently high in all developing country contexts, while the prevalence and disease burden of malaria and HIV/AIDS differ largely between different parts of Africa. Somalia is one of the countries where HIV/AIDS is not very prevalent among children and does not account for any substantial part of the under-five mortality (<1,000 deaths per year, according to UNICEF, 2007)¹⁸. The disease burden of malaria also seems to be comparatively moderate in Somalia, except in the riverine areas in the Central-South region, and in general malaria should perhaps not be considered one of the main causes of child mortality in the country.

It is estimated that approximately 40 per cent of global under-five deaths occur in the neonatal period, i.e., during the first month of life. The majority of these deaths are caused by specific neonatal disorders, such as birth asphyxia or preterm birth, but many infections, such as sepsis, pneumonia and diarrhoea, also contribute to a substantial proportion of neonatal deaths¹⁹. Figure 6 below illustrates the distribution of global under-five deaths by cause.

¹³ Black, R.E., Allen, L.H., Bhutta, Z.A., et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008; 371: 243–260.

¹⁴ Fishman, S. M., Caulfield, L., de Onis, M. et al. (2004). Childhood and maternal underweight. In Ezzati, M. et al, eds. *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Major Risk Factors*. Geneva: WHO; 2004: 39–161.

¹⁵ Pelletier, D.L., Frongillo, E.A., Habicht, J.P., (1993). Epidemiologic evidence for a potentiating effect of malnutrition on child mortality. *American Journal of Public Health* 1993; 83: 1130–1133.

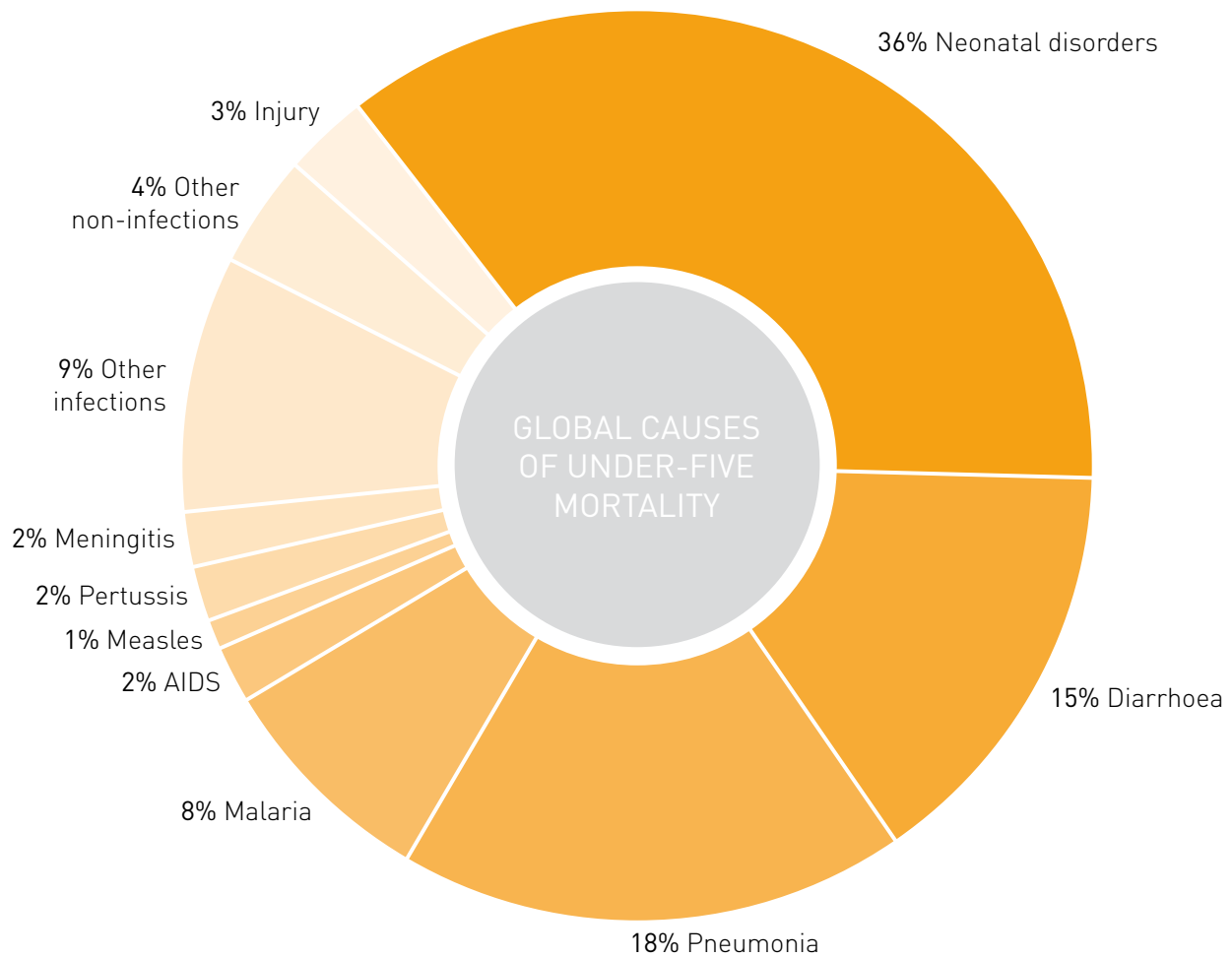
¹⁶ FSNAU *Technical Series Report Nutrition Situation*, Post Deyr 2009/2010. February 2010.

¹⁷ Black R, Morris S, Bryce J. (2003). Where and why are 10 million children dying every year? *Lancet* 2003; 361: 2226–2234.

¹⁸ UNICEF (2010). *The State of the World's Children*. Fewer than 1,000 children aged 0–14 were HIV-positive in Somalia in 2007.

¹⁹ Black R.E. et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. *Lancet* 2010; 375: 1969–1987.

Figure 2. Global causes of mortality for children under the age of five



Source: Modified by the author using data from Black et al. "Global, regional, and national causes of child mortality in 2008: a systematic analysis", *The Lancet* (2010).

Robust data on causes for child mortality and morbidity in Somalia are hard to come by. This scarcity can be attributed to the lack of functioning health information systems, in turn a consequence of the underdeveloped and poorly managed public health services. The situation is further exacerbated by the extremely low utilization rate of the health services and the service provider's lack of access to the general public.

The lack of data seems to apply in particular to the causes for child mortality. This could be explained by the fact that most children seem to die in obscurity, outside the health system. Or it could be that, if they become severely ill, they are referred to a hospital, and the reporting of morbidity and mortality by hospitals has been poor and fragmented. In fact, recent years reporting on morbidity and health activities has been more developed and regulated at the primary health care level, thanks to the UNICEF-managed health management information system (HMIS), in which data from maternal and child health (MCH) units are collected for official use (as further discussed in chapter 4 below). Although some hospital data have recently been added to the HMIS, there is still no official or coherent reporting system in place for the country's hospitals. From the scant hospital data available, it is clear that very little information is reported on child mortality. In interviews with representatives of hospital-operating agencies in Somalia it appears that children rarely die in such facilities, since they normally manage to save even severely sick children.

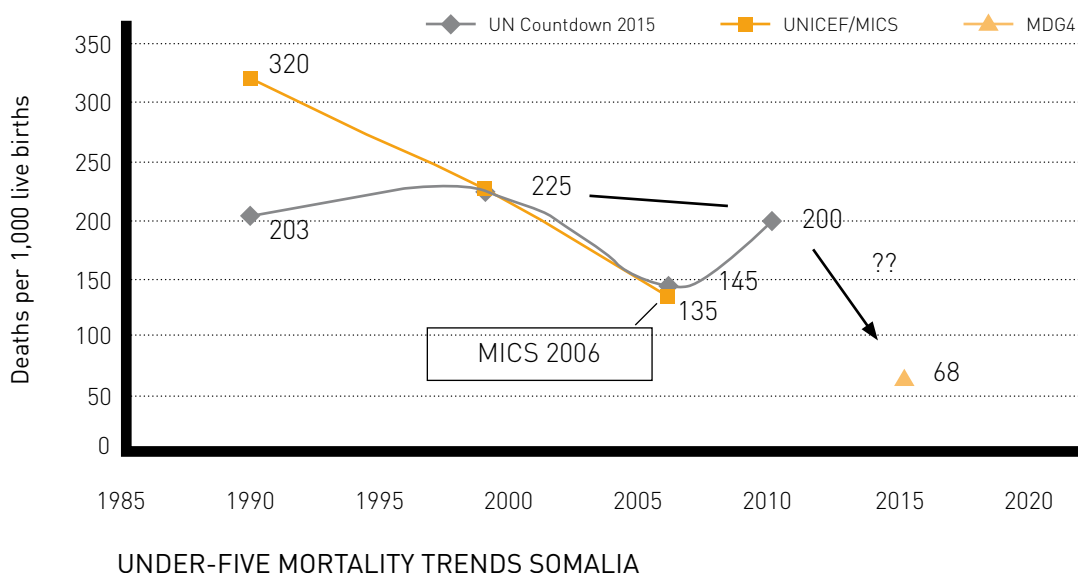
Practically no data on mortality can be retrieved from the reports by the primary health-care units to the HMIS, owing the practice of further referral and the fact that MCH clinics and outpatient departments do not seem to receive or collect any data on deceased inhabitants of their districts. However, the child morbidity data in the HMIS can provide some guidance on causes for mortality as these may be assumed largely to follow the same disease patterns. International surveys and research into the underlying causes of child mortality in other developing countries are also widely applicable to Somalia, as fatal conditions and their determinants are generally of universal scope.

2.2 Childhood mortality in Somalia

As mentioned earlier, the latest official figure for under-five mortality in Somalia is 200 per 1,000 live births. This is actually a revised figure from the most recent population-based survey, the Somalia 2006 MICS report, which reported an under-five mortality rate of 135 per 1,000 live births²⁰. The preceding survey, the 1999 MICS, had estimated the value for that same indicator at 225. The drop to 135 was surprising as no major health interventions had been carried out and there had been no substantial improvements in the overall situation in Somalia during that period. That temporary reduction in the country's official figure for under-five mortality could probably be attributed to difficulties in collecting reliable data and to the use of different sampling methods²¹ rather than to substantial improvements in survival conditions. As already noted, however, in a recent joint assessment by various United Nations agencies, the rates for under-five mortality have been adjusted upwards to 200 per 1,000 live births and those for infant mortality (i.e., the probability of dying between birth and the first birthday) to 119 per 1,000 live births²². In addition, the neonatal mortality rate (the probability of dying in the first month of life) has been adjusted to 61 per 1,000 live births, from the previous rating of 49 per 1,000 live births.

Figure 3. Under-five mortality rates for Somalia

(in relation to the 2015 target set in goal 4 of the Millennium Development Goals)



²⁰ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*. Table CM.1: Childhood mortality rates, Somalia 2006.

²¹ In contrast to the 2006 MICS, the 1999 MICS did not include a birth history so mortality rates were estimated through the so called Brass method. See *MICS 2006*, page 28.

²² UNICEF (2009). *The State of the World's Children – Special Edition*; Statistical Tables 2009. Under-five and infant mortality rates provided by the Inter-agency Group for Child Mortality Estimation (UNICEF, WHO, UNDP, and the World Bank).

As stated above, it is difficult to find any current and comprehensive data sets on the causes of child mortality in Somalia. The HMIS do not provide much mortality information and the MICS reports are population based surveys, which yield child mortality rates but do not contain any clinical data from health facilities, such as diagnoses and causes of mortality. Information of this kind has been collected in some individual hospitals and larger clinics, but these are managed by several different health-care providers, and have not been collectively compiled into clinical data usable by the health authorities or agencies involved in the joint international support effort for the health sector. Stand-alone information on diseases responsible for childhood deaths, as provided by individual hospitals managed by major health partners, will of course be useful for the operation of that facility but must be interpreted with care at the country level, as the determinants of illnesses vary considerably with the geographical, political, and economical environment.

For example, 2009 data on under-five mortality from a hospital managed by a non-governmental organization in South Galkayo shows a considerable number of deaths caused by measles, due to a local outbreak, whereas malaria was not reported in a single fatal case. The same organization runs another hospital in Marerey in the riverine area of Lower Juba, where the recorded data instead shows malaria responsible for several child deaths, but registers hardly any suspected cases of measles. It should be noted, however, that lower respiratory infection was by far the most widely reported cause of mortality in both the hospitals.

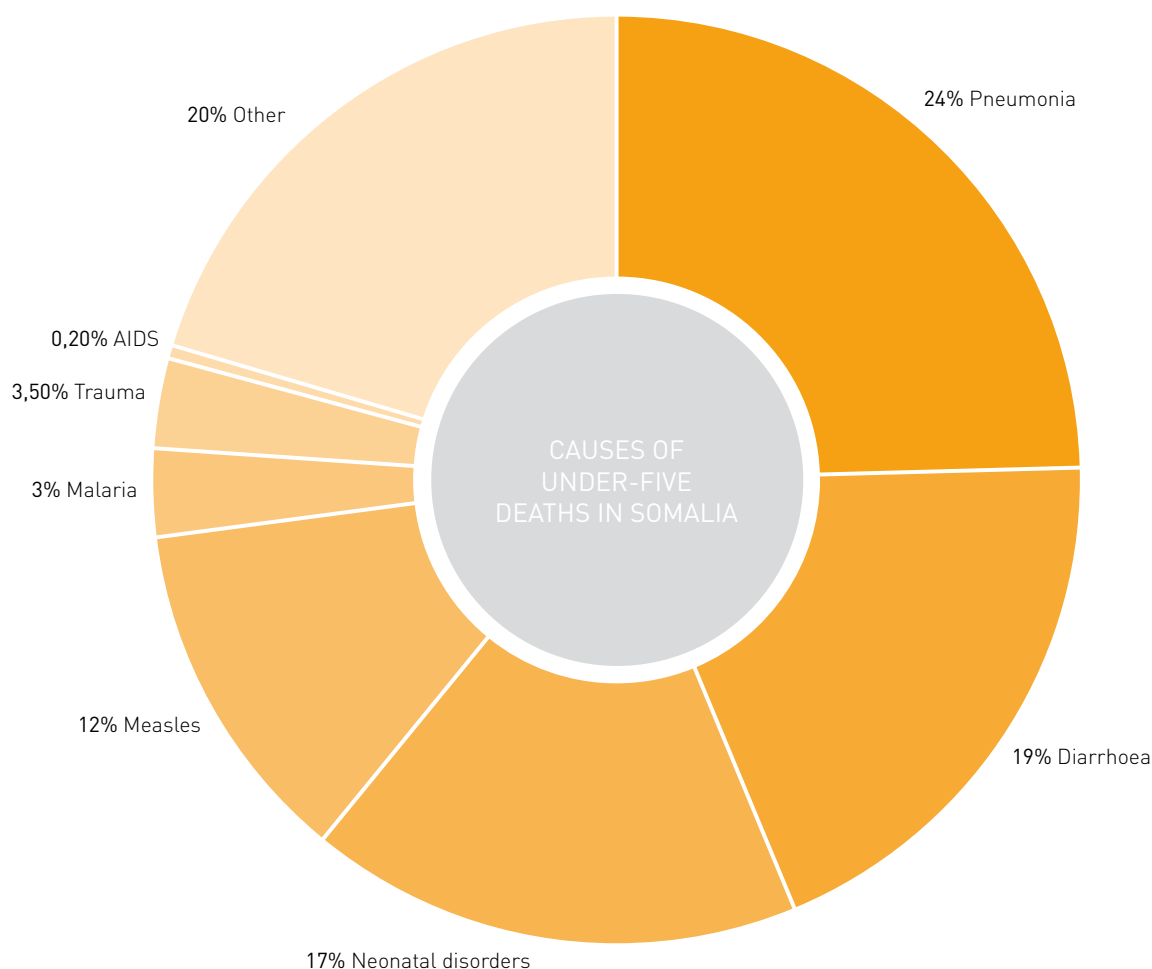
Since a large number of childhood deaths, especially among infants, occur outside hospitals, the spectra of fatal conditions may look much different and are less likely to be at all documented. Thus, mortality data simply based on hospital records is probably not very representative in capturing all the causes of child deaths. Data from the two hospitals above show for example almost no mortality due to acute watery diarrhoea or neonatal causes, since these conditions have been readily and successfully addressed in the comparatively well functioning clinical setting.

The aggregate view on the most important child killers in Somalia is therefore largely based on estimates and on the assumption that estimates follow the patterns studied in other developing countries. From this, and what has been stated above, it is reasonable to regard Somalia as a typical example of those developing States where there is wide-scale undernutrition and the majority of child deaths are caused by neonatal disorders, pneumonia and diarrhoea. In a *Lancet* article by Black et al. (2003), the first *Lancet* article in its series on child survival and the goal 4 of the Millennium Development Goals, Somalia was categorized as a “profile 1” country together with Afghanistan, Bangladesh, Ethiopia, India and Pakistan, i.e., the countries which together account for almost 50 per cent of the world’s under-five deaths. In these countries less than 10 per cent of child mortality is attributable to malaria and HIV/AIDS, whereas neonatal causes are estimated to account for 35 per cent of the under-five deaths, and pneumonia and diarrhoea are responsible for some 25 per cent each²³.

²³ Black R., Morris S., Bryce J. (2003). Where and why are 10 million children dying every year? *Lancet* 2003; 36: 2226–2234.

The limited national data available on the causes of under-five mortality seem to support this characterization. The figures from Somalia in the 2009 world health statistics report from WHO, World Health Statistics 2009, are based on reported causes of child mortality in 2004 and identify the main causes for under-five mortality as pneumonia (24 per cent), diarrhoea (19 per cent), neonatal disorders (17 per cent), and measles (12 per cent), while malaria and HIV/AIDS account for 3 per cent and 0.2 per cent respectively²⁴. Figure 4 below shows these reported causes of under-five deaths in more detail.

Figure 4. Underlying causes of mortality for Somali children under the age of five



Source: Author's analysis of 2004 data contained in the WHO *World Health Statistics Report 2009*.

²⁴ WHO (2009). *World Health Statistics 2009*. Table 2, Cause-specific mortality and morbidity.

In World Health Statistics 2010, a revised estimate of cause specific mortality for every country has been attempted, based on a range of data sources on mortality, and on the incidence and prevalence of different diseases and conditions. It is pointed out, however, that the uncertainty range of these figures for countries like Somalia, with very limited availability of quality data, is considerable. Nevertheless, a few modifications, which are probably in line with current trends and actual mortality patterns, are proposed. These increase the proportion of neonatal disorders among causes of under-five deaths of Somali children to 24 per cent and reduce that of measles to 5 per cent²⁵. The reduction of the measles mortality rate, which is made in response to intensive catch-up campaigns that have been implemented in recent years to increase measles vaccine coverage, has also been documented in the decreased incidence of measles infections, as reported to a specific communicable diseases surveillance system (see below). Pneumonia and diarrhoea are still estimated to account for more than 20 per cent each and “other”, or unknown, causes make up 21 per cent of such deaths.

Thus, according to these figures, unspecific causes account for more than one fifth of the child mortality in Somalia. In line with international estimates, we may assume that a substantial part of these unspecified causes should fall into the neonatal category if the data were of better quality and if the reporting health sector had more insight into child deliveries and children’s first period of life. About 90 per cent of child deliveries in Somalia are performed in households without any skilled attendance and unreported cases of neonatal complications are likely to be substantial²⁶. These aspects were probably taken in consideration in revising the 2010 cause-specific mortality estimates for under-fives in Somalia, as the proportion of neonatal disorders was increased. The figure of 24 per cent is still less than the globally estimated proportion (36 per cent), however. This discrepancy could be explained by the suggested underreporting, but it could also be that countries with particularly high child mortality, like Somalia, see a wider spread of child deaths, where the proportion of neonatal deaths is somewhat reduced by the high incidence of other fatal conditions.

The term “neonatal disorders” is the collective label for various potentially fatal conditions specifically related to the perinatal period, such as preterm birth, asphyxia, congenital abnormalities and typical neonatal infections, such as sepsis and tetanus. Thus, the most common single conditions responsible for child deaths in Somalia are pneumonia and diarrhoea, which together with measles and malaria are covered in more detail below.

²⁵ WHO (2010). *World Health Statistics 2010*. Table 2, Cause-specific mortality and morbidity

²⁶ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*.

2.2.1 Pneumonia

From documented evidence, it appears that pneumonia is the single most lethal child killer in Somalia, just above diarrhoea. Pneumonia and acute respiratory infection (ARI) together clearly represent the most common cause for children seeking health care at Somalia's MCH clinics. A substantial proportion of these deaths occur during infancy and even in the immediate postnatal period. The incidence of fatal pneumonia is particularly high among malnourished children, and as such it can also strike children in older age groups.

A contributing factor to the high mortality rate of pneumonia is the lack of access to adequate health care, but also the failure by sufferers actually to seek health care when it is needed. Yet of those caretakers who do take action in response to their child's illness the majority seek remedies from private pharmacies^{27,28}. A survey of private pharmacies in Somaliland showed that their clients were predominantly requesting a remedy for colds and respiratory symptoms, including clients seeking a remedy for their child. As a response to this, antibiotics for what may be broadly categorized as "pneumonia" constituted by far their best selling type of medicine²⁹. According to the 2006 MICS, some one third of children with symptoms resembling pneumonia would receive antibiotic treatment (see also table 2, below). This corresponds well with the proportion of Somali caretakers (about 30 per cent) who believe that fast or difficult breathing in their child is reason for a visit to a health facility (or private pharmacy). Only 15 per cent, however, would recognize these two symptoms as actually being potential pneumonia³⁰.

Table 2. Health-seeking behaviour for children with suspected pneumonia (figures represent % of respondents)

CHILD 0 -59 MONTHS	PUBLIC HOSPITAL	MCH	HP	CHW	PRIVATE HOSPITAL	PRIVATE PHYSICIAN	PRIVATE PHARMACY	RECEIVED ANTIBIOTIC TREATMENT
Urban	4.4	9.4	0,2	0	5.1	5.9	27.6	49.0
Rural	0.8	1.6	0.4	1.6	1.0	2.6	12.2	24.0
Total	2.0	4.2	0.3	1.1	2.4	3.7	17.3	32.4

Source: MICS [2006]

²⁷ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*.

²⁸ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia.

²⁹ UNICEF (2009). *The Private Sector and Health: A survey of Somaliland private pharmacies*.

³⁰ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*.

Another determinant of the high incidence of pneumonia could be the universal use of solid fuels for cooking in households (99.6 per cent, MICS Somalia 2006), in combination with poor ventilation. The smoke from these fuels has an irritating effect on the airways and creates a predisposition for airway infections.

To date there has been no community-based outreach programme in Somalia involving visits by community health workers to individual households for the treatment of pneumonia. Studies have shown that such programmes can reduce overall under-five mortality by as much as 24 per cent³¹. Furthermore, immunization of infants against pneumonia-causing bacteria, namely, pneumococcal infections (*S. pneumoniae*) and Hib (*Haemophilus influenzae* type b), is not routine and does not form part of the national extended programme of immunization (EPI) schedule.

2.2.1.1 Tuberculosis

The primary infection area of tuberculosis is in the lungs, where it causes a specific variant of pneumonia. The prevalence of tuberculosis is high in Somalia, affecting about 450 persons per 100,000 of the population (2008), and more than 10 per cent of these have a fatal outcome (54 per 100,000 cases in 2008)³². The incidence rate is consequently also high and there were over 11,000 new cases registered in 2009 (some 120 per 100,000 of the population). Even though some of these are small children, however, the incidence rate increases with age. For example, for Somali children in the 0–14 age group, the incidence rate in 2009 was 8 per 100,000, whereas for the population above 65 years of age that rate was 188 per 100,000³³. Accordingly, in the younger age groups, tuberculosis is hardly one of the main causes of death, but it should not be neglected and it is important that a further spread of tuberculosis is controlled. Malnutrition, along with HIV, creates a predisposition for tuberculosis infection and a more aggressive course of the disease. Nutritional treatment, often administered in therapeutic feeding centres (TFCs), is therefore commonly required prior to, and during, treatment of children with tuberculosis. The link to HIV infection has motivated a coordinated management of tuberculosis and HIV cases. Accordingly, most of the voluntary counselling and testing (VCT) and anti-retroviral therapy (ART) activities for HIV will be included in the package of care offered by tuberculosis sites.

There are currently 63 tuberculosis sites in the country providing directly observed treatment short courses (DOTS), the basic element of the Stop TB Strategy launched globally by WHO in 2006³⁴. The tuberculosis sites receive comprehensive support from the national tuberculosis programme, which in turn is supported with funds from the Global Fund to Fight AIDS, Tuberculosis, and Malaria. The national tuberculosis programme is led by WHO Somalia, but involves health authorities and different non-governmental organizations, for the implementation of DOTS and the Stop TB Strategy. The DOTS treatment implies a six month daily multi drug regimen, containing Rifampicin for the full course, according to current WHO guidelines³⁵. In addition, however, DOTS management includes the elements of political and financial commitment, case detection through quality-assured bacteriological methods, guaranteed provision of effective medicines, and a monitoring and evaluation system.

³¹ Sazawal S., Black R. Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials. *Lancet Infectious Diseases*, 2003; 3:547–556.

³² WHO 2010. *TB Country-Profile 2008–2009: Somalia*. TB Unit of the WHO Regional Office for the Eastern Mediterranean Region.

³³ *Ibid.*

³⁴ WHO Somalia 2010. *Biennial Report 2008–2009*.

³⁵ WHO 2010. *Treatment of Tuberculosis – Guidelines. Fourth Edition*. Geneva 2010. ISBN 978 92 4 154783 3.

2.2.2 Diarrhoea

Following closely behind pneumonia, diarrhoea is the second most common cause of under five mortality across the world, and in all likelihood also in Somalia. Infants in the under-1 category are particularly susceptible to severe diarrhoeal manifestations with fatal outcome, when given unsafe water to drink or when given substitutions for breast milk prepared with unsafe water. The fatal course of diarrhoea is very often combined with malnutrition. The malnutrition can be presented as “failure to thrive”, i.e. the child being underweight or stunted, or simply as a deficiency of micronutrients, such as vitamin A or zinc.

Rotavirus is the leading pathogen causing acute diarrhoea and accounts for 40 per cent of the diarrhoeal episodes that lead to hospital admission worldwide³⁶. According to unpublished WHO data, Somalia is among the seven most affected countries in the world in terms of mortality resulting from rotavirus-caused acute watery diarrhoea (AWD)³⁷. Addition of rotavirus vaccine to the routine EPI schedule in developing countries has recently been recommended by WHO³⁸ but has not been introduced in Somalia. Other pathogens seen in epidemic outbreaks are *E. coli*, *Shigella*, *Campylobacter*, *Salmonella*, and *V. cholera*.

Bloody diarrhoea, or dysentery, is primarily caused by *Shigella*. In terms of mortality, however, this form does not seem to be as severe as AWD. Of almost 17,000 cases reported from Somalia to the WHO communicable disease surveillance and response (CSR) system in 2009, only one had a fatal outcome. This can be compared with 435 deaths in 78,000 cases of AWD in 2008³⁹.

Apart from being a potentially fatal condition, because of rapid dehydration and disturbances of the salt balance, diarrhoea also causes malnutrition because of decreased food intake and impaired absorption, which in turn creates a predisposition to new diarrhoeal episodes, and launches a vicious cycle. Recurrent diarrhoea with insufficient food intake is the most common cause of stunting.

Almost 90 per cent of diarrhoeal deaths among under-fives can be attributed to unsafe water, poor sanitation and hygiene⁴⁰. Other determinants of the increased incidence and more severe progress of diarrhoea include undernutrition with the ensuing impairment of the immune function. Accordingly, the micronutrient status is also of great significance, particularly that of vitamin A and zinc. Insufficient, or non-exclusive, breastfeeding also causes a predisposition to diarrhoeal infections. Infants who are not breastfed have a seven-times higher risk of dying from diarrhoea during the first six months of life, as compared to those who are exclusively breastfed⁴¹. Infants who are only partially breastfed are two-three times more likely to die from diarrhoea, compared to those who have been exclusively breastfed. A recent nutritional survey from FSNAU reported that only 5.3 per cent of Somali women were exclusively breastfeeding their children under six months of age, and that they commonly gave their infants sugar water to drink⁴².

³⁶ UNICEF/WHO (2009). *Diarrhoea: Why children are still dying and what can be done*. ISBN 978-92-806-4462-3 (UNICEF)

³⁷ Information at EPI meeting of the Somalia Health Cluster, Nairobi 2 December 2009.

³⁸ WHO (2009). Meeting of the immunization Strategic Advisory Group of Experts, April 2009 – conclusions and recommendations. *Weekly epidemiological record*, No. 23, 2009, 84, 220–236.

³⁹ WHO/EMRO (2009). *CSR Surveillance Report of Somalia*, January – December 2009.

⁴⁰ Black R., Morris S., Bryce J. (2003). Where and why are 10 million children dying every year? *Lancet* 2003; 36: 2226–2234.

⁴¹ Black R.E., Allen L.H., Bhutta Z.A. et al. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008; 371: 243–260.

⁴² FSNAU (2010). *National Micronutrient and Anthropometric Nutrition Survey, Somalia*.

Given these prerequisites and the poor conditions in Somalia regarding clean water, sanitation, and hygiene, the high rates of malnutrition (one in five children is acutely malnourished and there is a 36 per cent prevalence of vitamin A deficiency, as will be discussed in greater detail later), and the low proportion of optimally breastfeeding mothers, it is safe to say that diarrhoeal disease has been given the best possible conditions to ravage the country and its children.

2.2.3 Measles

The high proportion of measles among the causes for under-five mortality in Somalia is not matched by other developing countries. Globally, measles is estimated to account for only 1 per cent of child deaths. The 12 per cent recorded in Somalia may, however, not be very representative for current conditions, given that measles campaigns are being implemented leading to a steady increase of measles vaccine coverage for children of all ages. According to CSR-data from WHO, the number of measles cases has dropped from 12,008 in 2004 to 2,477 in 2008 – an 80 per cent reduction⁴³. As already noted, according to estimates in the WHO report *World Health Statistics 2010*, measles account for a relatively limited 5 per cent of under-five mortality⁴⁴. The coverage through routine EPI of children under the age of one is still unsatisfactorily low, however; 24 per cent of under-ones were vaccinated in 2008⁴⁵.

Measles is a disease which strikes harder on individuals who are malnourished and suffer from vitamin A deficiency, which, as pointed out above, are two widespread conditions among Somali children. As the measles infections become more severe, the disease spreads more easily. The spread of measles is then further enhanced by poor living and sanitary conditions. Measles can in itself cause severe and potentially lethal diarrhoea and equally severe interstitial viral pneumonia, but it is also common with secondary complications in the form of bacterial pneumonia and other superinfections. The measles infected child is more susceptible to these secondary infections as the disease impairs the function of the immune defence system – which, in most cases, is already negatively affected by malnutrition. Thus, Somalia offers the perfect ground for the measles virus to maintain its vicious circle among the non-immunized. The twice-yearly child health day campaigns are currently expanding measles coverage through their massive outreach to Somali children with the full EPI schedule.

2.2.4 Malaria

Unlike many other sub-Saharan African countries, the burden of malaria and the resulting child mortality seems quite moderate in Somalia. According to the WHO figures above, it accounts for a mere 3 per cent of under-five mortality. Figures and trends for the incidence of malaria and its mortality vary depending on the source of data. Reports from malaria sentinel sites in Somalia indicate that the incidence of malaria is in a gradual decline, as there has been a marked reduction in the number of reported malaria cases (both clinical and confirmed) in recent years. In 2006 almost 50,000 cases of malaria were reported from these sites, while the same figure for 2009 was about 10,000⁴⁶. The WHO CSR-system provides somewhat contradictory figures, however. In 2006, there were approximately 15,000 cases of malaria reported to the CSR-system,

⁴³ WHO/EMRO (2009). *CSR Surveillance Report of Somalia*, January – December 2009.

⁴⁴ WHO (2010). *World Health Statistics 2010*. Table 2, Cause-specific mortality and morbidity.

⁴⁵ UNICEF (2009). *The State of the World's Children*, Table 3. Health [2008].

⁴⁶ WHO Somalia 2010. *Biennial Report 2008–2009*.

whereas in 2009 that figure was 27,000⁴⁷. This increase can probably be explained by the improved and more widespread reporting to the CSR-system over time, rather than an actual increase in incidence. The case fatality rate for malaria appears to measure some 0.1 per cent, regardless of reporting sites, which means that of the reported cases there were between 10 to 30 which had a fatal outcome in 2009.

Even though mortality and morbidity from malaria are comparatively low in Somalia, the disease is still a major health concern, especially in the less arid riverine areas. Children under five and pregnant women are also more susceptible to malaria and more affected by the disease than others. Substantial efforts have been made in recent years to combat malaria in Somalia, mainly through the UNICEF-WHO coordinated Roll Back Malaria initiative, funded by the Global Fund to Fight AIDS, Tuberculosis and Malaria. A large-scale distribution of insecticide-treated bed-nets has greatly improved vector control. These nets have been distributed free of charge, largely through different MCH clinics. More than 400,000 bed nets were distributed in 2008 and 2009 and in targeted areas of South Central Somalia there is now an approximately 75 per cent bed net coverage⁴⁸. In a recent survey by FSNAU the overall ratio of under-fives sleeping under insecticide-treated bed-nets was assessed at 15 per cent for Somalia⁴⁹.

Prompt treatment of febrile children with artemisinin-based combination therapy (ACT) has been promoted and implemented by WHO and UNICEF Somalia since 2006⁵⁰. Hospitals and MCH clinics (and even some health posts) have been furnished with ACT and rapid diagnostic tests (RDTs) or received training and equipment for improved microscopy diagnostics. Their staff have also received training in the new treatment guidelines. Given these efforts, it is quite credible that there has been a substantial decrease in the incidence of malaria, as reported above. New data, also from the above mentioned FSNAU survey, strongly support this, as the prevalence of malaria parasites (*Plasmodium falciparum*) in the blood of randomly selected Somali children under the age of five was not higher than 1.0 per cent⁵¹. The survey included children from all regions of the country and, contrary to expectations, there was no difference in the prevalence between children in the more malaria prone South Central Somalia and children in Somaliland and Puntland.

⁴⁷ WHO/EMRO (2009). *CSR Surveillance Report of Somalia*, January – December 2009.

⁴⁸ WHO Somalia 2010. *Biennial Report 2008–2009*.

⁴⁹ FSNAU (2010). *National Micronutrient and Anthropometric Nutrition Survey*, Somalia 2009.

⁵⁰ WHO Somalia 2010. *Biennial Report 2008–2009*.

⁵¹ FSNAU (2010). *National Micronutrient and Anthropometric Nutrition Survey*, Somalia 2009.

2.3 Common causes of morbidity among Somali children

A UNICEF report on Somali MCH activities in 2007, based on HMIS data, contains fairly comprehensive information on child morbidity⁵². The authors called for caution, however, in analysing this data, as the reporting system was rather new, the response rate still low and the quality of the information not fully controlled. Nevertheless, the data clearly show that acute respiratory infection (ARI), including pneumonia, is the most common condition for which children under five seek primary health care, followed by watery diarrhoea, intestinal parasites, skin conditions, eye infections, anaemia and malaria – in that order. It should be noted that what was referred to as “malaria” was unconfirmed or “clinical” malaria. The morbidity pattern for under-fives attending Somali MCH centres is illustrated in figure 5 below.

The impact of acute respiratory infections, pneumonia, diarrhoea and malaria on child morbidity and mortality has been explored earlier in this chapter. Intestinal parasites would not alone be responsible for under-five deaths. Infestations with intestinal worms, however, also known as soil-transmitted helminths (hookworms, roundworms, and whipworms), strongly contribute to the malnutrition, stunting and impaired development of children, which add to the overall health burden of many Somali children and could also play a role in the survival of the child. It is estimated that over 600 million children over the world are infected⁵³. The eggs are mainly spread through poor sanitation and contaminated foods and water, but the larvae can also penetrate the skin, especially through bare feet.

Data for the above-fives in the 2007 MCH report cover both children and adults and do not therefore help provide a specifically paediatric disease profile⁵⁴. In this rather mixed group of patients it is still ARI and pneumonia which represent the most common cause for visiting a health facility, followed by urinary tract (or sexually transmitted) infections, anaemia, intestinal parasites, skin conditions, and clinical malaria.

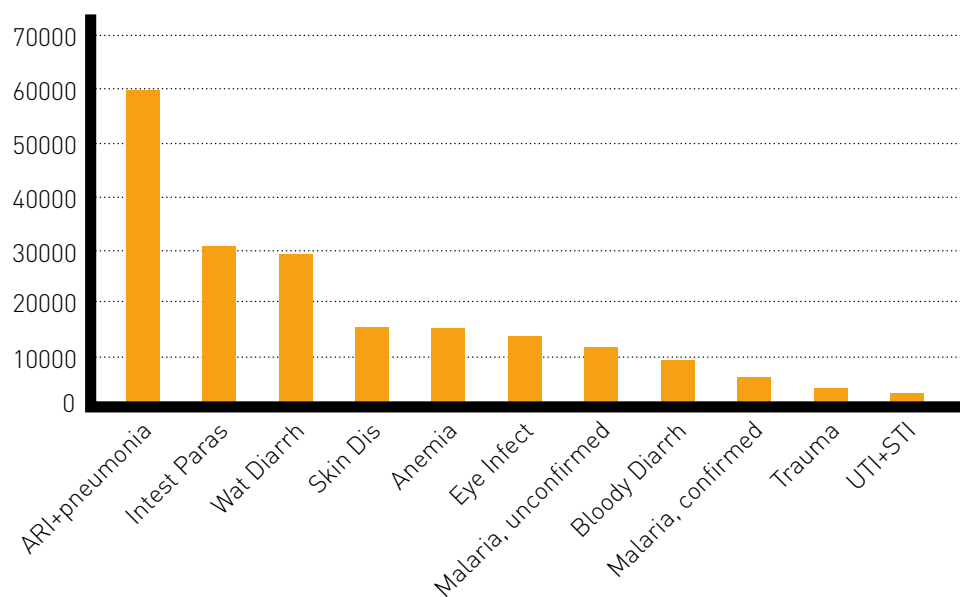
⁵² UNICEF (2008). *Exploring Primary Health Care in Somalia – MCH Data*, Somalia 2007.

⁵³ WHO (2006). *Neglected Tropical Diseases: Hidden Successes, Emerging Opportunities*. Geneva: WHO.

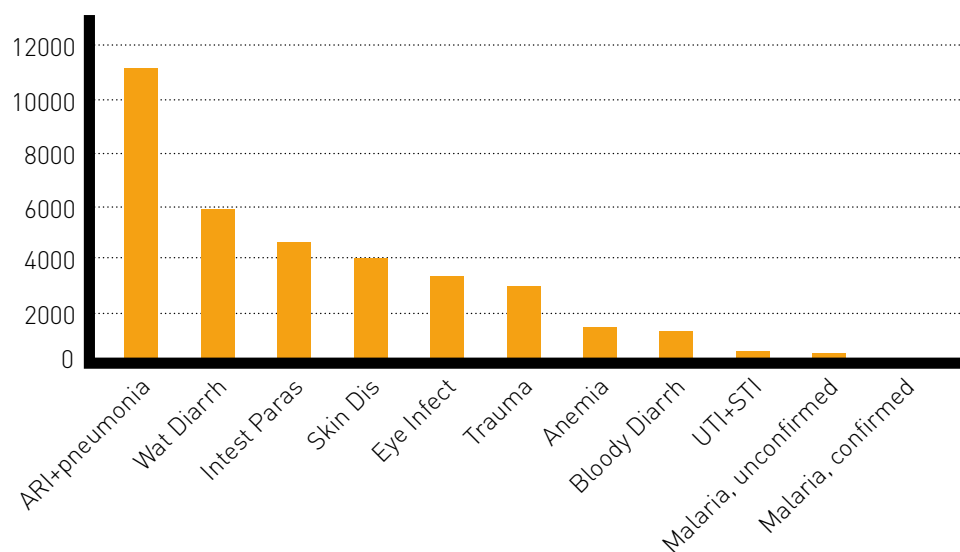
⁵⁴ The term MCH is widely applied and an MCH clinic is often not only providing maternal and child health care, but also serves men, adults, and elderly alike. The criteria for labelling a clinic MCH would be that they do provide antenatal and postnatal care, EPI activities, child growth monitoring etc. The term outpatient department (OPD) is normally applied to the outpatient clinic of a hospital. These are more profiled for the general public but could also provide the regular MCH services. However, many hospitals feature both an OPD and an MCH clinic. In these cases, it is customary that the MCH unit exclusively attend to mothers and their under-fives.

Figure 5. Morbidity pattern for under-fives attending Somali MCH clinics

CSZ



NEZ



Source: Data from UNICEF supported MCHs in Central South Somalia and Puntland. MCHs in Somaliland did not report under-fives and above-fives separately, and for that reason are not included. From the UNICEF report *Exploring Primary Health Care in Somalia – MCH Data, Somalia 2007*.

The CSR reporting system has, until now, only covered six communicable diseases with the potential of causing endemic outbreaks. In 2009 there were a total of 122,000 cases reported to CSR, of which about 82,000 were under-fives. Of these 82,000 cases watery diarrhoea accounted for 67 per cent, malaria for 17 per cent, bloody diarrhoea for 12 per cent, and measles for 2 per cent, while whooping cough, meningitis, and neonatal tetanus together accounted for 1 per cent⁵⁵. Only 219 of these 82,000 cases actually had a fatal outcome, and of those fatal cases 65 per cent (143 cases) had watery diarrhoea, 11 per cent malaria, 11 per cent neonatal tetanus, 9 per cent measles, and 4 per cent meningitis. Thus, a limited number of diagnoses with a low incidence account for a non-negligible number of under-five deaths; neonatal tetanus, for example, with only 53 cases reported, had a case fatality rate of 45 per cent (24 deaths). It can also be noted that the fatal outcome of watery diarrhoea had dropped considerably from its 2008 levels, probably because of better reporting and early response. In 2008 there were 435 fatal cases of watery diarrhoea, as compared to 218 in 2009 (all ages).

A complementary view of the morbidity situation among Somali children is given in a meta analysis report from FSNAU (2009). In this study over 105,000 children were assessed for their nutritional status over the period 2001–2008, and as part of the study questions were asked about possible illness and disease symptoms in the children during the two weeks preceding the survey. An analysis of all these responses revealed that the disease burden was high, as no fewer than 45 per cent of all the surveyed children were declared to have been ill in the preceding fortnight. Acute respiratory infection was the most commonly reported condition (25 per cent), followed by diarrhoea (21 per cent), fever (16 per cent), and suspected measles (5 per cent)⁵⁶. There was a significant association between the prevalence of illness and acute malnutrition, as those children with reported illness were 1.55 times more likely to suffer from acute malnutrition than children without a perceived illness. The strongest association was seen for diarrhoea, where acute malnutrition was 1.64 times more likely in patients with diarrhoea than in those without.

The same agency, FSNAU, published in April 2010 a study containing nutritional status, anthropometry and micronutrient data, which shows that there is a very high prevalence of anaemia among Somali children under the age of five⁵⁷. Almost 70 per cent of the children in South Central Somalia were anaemic. For the country as a whole, the prevalence was 59 per cent. There was an even higher prevalence of anaemia among Somali children below the age of two (74 per cent). Children in rural parts of the country were also more likely to be anaemic compared to children in urban areas (64 per cent and 44 per cent, respectively). The prevalence of iron deficiency anaemia was 42 per cent, i.e., three out of four children with anaemia were anaemic because of iron deficiency.

The prevalence of anaemia did not differ, however, when malnourished children were compared to well nourished children, which suggests that anaemia is caused by inappropriate food intake rather than lack of food. One explanation could be the predominant consumption of cereal based food, which has a low content of iron and other minerals, and the lack of more iron rich but expensive food such as meat, fish, eggs and vegetables in the diet. In addition to this, Somalis traditionally drink tea with almost every meal, and tea is widely known to reduce the intestinal absorption of iron. The high disease burden and prevalence of often untreated infections could also explain the frequent incidence of anaemia. The prevalence of anaemia (also among women of childbearing age) is well above the 40 per cent threshold which WHO has categorized as severe and posing an urgent public health problem⁵⁸. Anaemia is associated with impaired immune function and increased risk of infections and in children it negatively affects physical and cognitive development.

⁵⁵ WHO/EMRO (2009). *CSR Surveillance Report of Somalia*, January–December 2009.

⁵⁶ FSNAU (2009). *Malnutrition Trends (2001-2008) in Somalia – a Meta-analysis Study Report*.

⁵⁷ FSNAU (2010). *National Micronutrient and Anthropometric Nutrition Survey, Somalia 2009*.

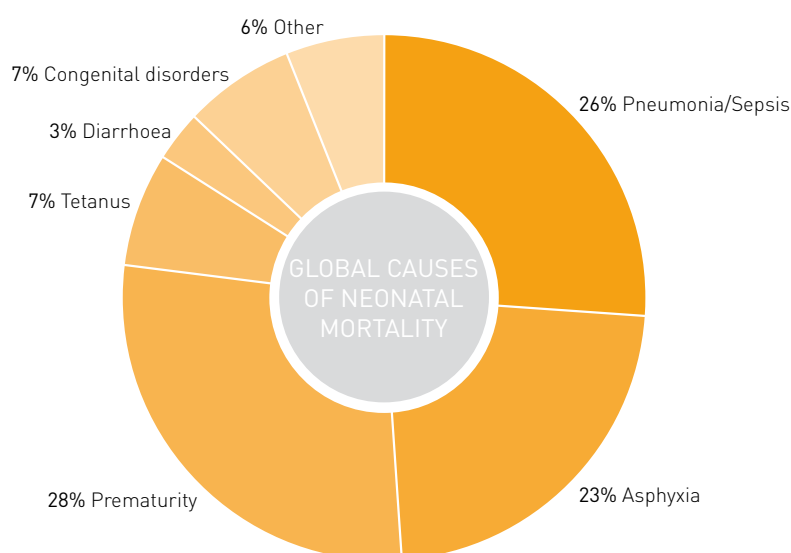
⁵⁸ WHO (2001). *Iron Deficiency Anaemia: Assessment, Prevention, and Control. A Guide for Programme Managers*.

2.4 Neonatal mortality

Neonatal causes of death, like the causes of under-five mortality, follow a uniform pattern in developing countries. The pattern is probably even more uniform for neonatal mortality, since neither malaria nor HIV/AIDS have a great direct impact on the child's survival in the first month of life. It is therefore unlikely that there will be any perceptible geographical differences in the prevalence of these two diseases.⁵⁹

Epidemiological data from other developing countries has shown that pneumonia and sepsis, asphyxia and prematurity account for some 25 per cent each of cases of neonatal mortality (death within the first month of life)⁶⁰. In these countries tetanus and diarrhoea also take their toll and account for about 7 and 3 per cent respectively. As these are infectious conditions, this means that more than one third of neonatal deaths are caused by infections. Global estimates have shown that up to 40 per cent of under-five mortality occurs in the neonatal period, i.e., during the first 28 days of life, and 75 per cent of these cases occur in the first week of life⁶¹. From these data it becomes clear that neonatal mortality and the conditions surrounding childbirth and the newborn baby are critical if the number of childhood deaths is to be reduced. Figure 6 below shows the distribution of global causes of neonatal mortality.

Figure 6. Global estimate of the distribution of conditions responsible for neonatal mortality
(death within the first month of life)



Source: Adapted from J Lawn et al, Four million neonatal deaths: when? where? why? *Lancet* 2005.

⁵⁹ It should be mentioned that maternal malaria can contribute to neonatal mortality by its increased risk of preterm births. Thus, it is possible that small increases of neonatal mortality due to prematurity, rather than malaria, can be reported from malaria endemic areas.

⁶⁰ Lawn J., Cousens S., Zupan J. (2005). Four million neonatal deaths: when? where? why? *Lancet* 2005; 365: 891–900.

⁶¹ Zupan J., Aahrman E. (2005). *Perinatal mortality for the year 2000: estimates developed by WHO, Geneva: WHO.*

The latest figures for Somalia estimate that 61 per 1,000 newborn infants die within the first month of life. That is, in fact, the highest neonatal mortality rate in the world, according to the WHO report *World Health Statistics 2010*⁶². Given that an estimated 200 per 1,000 live born children will die before the age of five, deaths in the neonatal period account for 30 per cent of the Somali under-five mortality figures. Internationally, this proportion is higher, as mentioned above, but the Somali rate corresponds well to figures for Africa as a whole, where neonatal mortality has been calculated to account for 29 per cent of all under-five deaths⁶³. In the average African country, however, malaria and HIV/AIDS make up 20 per cent of under five deaths, a proportion which does not apply for Somalia. It is possible, therefore, that neonatal disorders and death within the first month of life partly make up that share in Somalia and cause it to account for an even larger proportion than the 30 per cent of the under-five mortality. This assumption is partly based on the circumstance, discussed above, that only one out of ten deliveries in Somalia takes place in a health facility⁶⁴, which is likely to mean that the number of children who do not survive the delivery and the neonatal period is underreported. This is even more probable as household deliveries are not assisted by any skilled health professionals. The majority of home births are probably assisted by a traditional birth attendant, but any more skilled professional assistance for delivery would not be available in a Somali household. The data from the 2006 MICS which record that 31 per cent of deliveries have been performed with skilled birth attendance are therefore misleading. The traditional birth attendants might have a good deal of experience, but they have no formal medical or clinical training or assured knowledge of current good practice and cannot be categorized as skilled personnel, using WHO criteria⁶⁵.

⁶² WHO (2010). *World Health Statistics 2010. Part II, Global Health Indicators*; Table 1. Mortality and burden of disease.

⁶³ Black R.E. et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. *Lancet* 2010; 375: 1969–1987.

⁶⁴ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*. Table RH.5: Assistance during delivery, Somalia 2006.

⁶⁵ WHO/ICM/FIGO (2004). *Making Pregnancy Safer: the Critical Role of the Skilled Attendant*. Geneva.

Chapter 3. Determinants of child morbidity and mortality in Somalia



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In every society many different factors, or determinants, contribute to disease and mortality. These determinants can be found within the social, economic and physical environment, and also in individual characteristics and behaviour. In Somalia, where the disease burden and mortality rates are unusually high, there are several adverse conditions which have a particularly negative influence on the health and survival of the large proportion of children and young people in the country's population.

Chronic food insecurity and extremely high prevalence of malnutrition, coupled with limited access to safe water and poor systems for sanitary disposal and hygiene, are the most important determinants of the high incidence of morbidity and mortality among Somali children. There are, however, a number of other determinants of an economic, social and cultural nature which also strongly contribute to the poor health conditions. Some of these cannot be successfully tackled through medical interventions and might be beyond the reach of the health services, but it is nonetheless essential that they be taken into account and they will also be discussed in this chapter.

3.1 Nutrition

The level of malnutrition of the Somali population, and particularly of Somali children, has for several decades been among the worst in the world. Since the early 1990s, when civil war broke out and famine was rampant, food security has remained elusive owing to the incessant armed conflicts, social and economic instability, droughts, floods and other natural disasters. In several areas of the country, in particular South Central Somalia, the proportion of acutely malnourished children and people in need of livelihood assistance has almost constantly been above internationally recognized emergency nutrition levels.

The last couple of years have seen a deterioration in the food situation, mainly due to the failure of the economy with uncontrolled inflation and rapidly rising prices of food and fuel. Assessments from FSNAU during 2010 show that 3.2 million Somalis (about 42 per cent of the population) are in need of emergency livelihood and life-saving assistance. In February 2010 the proportion of children who were acutely malnourished was calculated to be one in six and about 63,000 Somali children were estimated to be severely malnourished⁶⁶. These high numbers of people in need of livelihood assistance and of children suffering from acute malnutrition confirm that Somalia represents one of the worst humanitarian emergencies in the world.

⁶⁶ FSNAU *Technical Series Report Nutrition Situation, Post Deyr '09/10*. February 2010. – This report described a prolonged critical nutrition situation, especially in the central areas of the country. However, improvements in the overall food security have been reported as a result of comparatively good harvest and increased water availability following above average *deyr*-rainfalls, particularly in southern Somalia. A warning has been issued, though, for parts of central Somalia (Hiraan and Galgaduud), where rainfalls were below average and the food security situation is already threatening

Malnutrition is the single most important determinant of childhood disease and mortality in Somalia, as it is in other developing countries. In fact, undernutrition has been estimated to be the underlying cause of more than 50 per cent of the world's under-five deaths⁶⁷. A small number of these could be directly attributed to severe protein-energy wasting malnutrition, but the majority of the cases are infectious diseases that have been aggravated by the individual's malnourished condition⁶⁸. Black *et al.* have, in a more recent study for the *Lancet*, somewhat revised the figures for the contribution of malnutrition as a determinant of childhood mortality, estimating that undernutrition is responsible for some 35 per cent of the current under-five deaths⁶⁹. Somalia is not an average developing country, however, but one of the countries with the highest prevalence of malnutrition in the world⁷⁰, and it is therefore likely that malnutrition plays an exceptionally important role as a determinant of disease and mortality among the under-fives in the country.

Undernutrition has several manifestations with somewhat different health risks. The typical form of wasting, due to protein and energy deficient malnutrition, with or without oedema (kwashiorkor and marasmus), is normally caused by poor food intake but can also develop through poor absorption (e.g., persistent diarrhoea) or increased nutrient needs (e.g., long term infection). Wasting would normally coincide with being underweight (see box 1 for definitions) but does not necessarily lead to stunting, whereas stunting is not a necessary consequence of being underweight or having suffered from wasting. It is more common for younger children (up to two years of age) to suffer from wasting and underweight, while stunting is a more common manifestation of long term malnutrition in children aged over two.

Box 1. WHO-definitions of anthropometric deviations due to malnutrition.

[Somalia-data from latest (2009) UNICEF State of the World's Children]

SD = standard deviations

	WHO DEFINITION:	PREVALENCE IN CHILDREN UNDER-5 IN SOMALIA:
Underweight	> - 2SD below median weight for age with WHO Child Growth Standards (CGS)	32%
Severe underweight	> - 3SD below median weight for age with WHO CGS	12%
Wasting	> - 2SD below median weight for height with WHO CGS	13%
Stunting	> - 2SD below median height for age with WHO CGS	42%

⁶⁷ Pelletier D.L., Frongillo E.A. Jr., Schroeder D.G., Habicht J.-P. (1995). *The Effects of Malnutrition on Child Mortality in Developing Countries*. Bull WHO 1995; 73: 443-448.

⁶⁸ Caulfield L.E., de Onis M., Blössner M., Black R.E. (2004). Undernutrition as an underlying cause of child deaths associated with diarrhoea, pneumonia, malaria, and measles. *American Journal of Clinical Nutrition* 2004; 80: 193-198.

⁶⁹ Black R.E., Allen L.H., Bhutta Z.A. et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008; 371: 243-260.

Malnutrition includes also deficiency of a single nutrient, such as a micronutrient like vitamin A, zinc or iron, and does not necessarily entail anthropometric effects (i.e. effects on weight or height). In addition, inadequately fed infants, such as those who are not exclusively fed with breast milk (or breast-milk formula) below six months of age, or who do not receive complements above six months of age, are considered to be malnourished. Given the high prevalence of underweight or stunted children, combined with the high prevalence of micronutrient deficiency and inadequately breastfed infants, it is evident that the under-fives in Somalia are struggling hard under the burden of malnutrition. The prevalence of vitamin A (36 per cent) and that of iron (59 per cent) deficiency are both considered very critical by WHO criteria. Furthermore, according to the micronutrient study recently (2010) published by FSNAU, referred to earlier, only 5 per cent of Somali children in the 0–6 month age group are exclusively breastfed. In the 2006 MICS, that proportion was 9 per cent and it also shows that only 10–15 per cent of children aged between six and twelve months received an adequate combination of breast milk and complementary foods⁷¹.

Adequate breastfeeding, i.e., the exclusive breastfeeding of the child during the first six months of life, followed by breastfeeding together with complementary foods until the age of at least 12 months, radically reduces the risk of the child becoming ill and suffering from serious infections, and it also significantly reduces the risk of infant mortality in diarrhoea, pneumonia and neonatal sepsis⁷². If the dietary intake of breast milk or formula is not complemented with appropriate food in children above six months in age, they will develop malnourishment with a deficiency of carbohydrates, proteins, iron, vitamin A and zinc. This in turn significantly increases the risk of morbidity and possible death in diarrhoea, pneumonia, measles and malaria⁷³, together with the incidence of stunting.

The deficiency in vitamin A, zinc and iron leads to suppression of the immune defence system and an increased risk of infections. An inadequate intake of vitamin A significantly increases the risk of mortality in diarrhoea, measles and malaria. Zinc deficiency is associated with an increased risk of mortality in diarrhoea, pneumonia, and malaria⁷⁴.

Malnutrition and food insecurity are, as mentioned, ever-present in Somalia and in some regions of South Central Somalia the situation is more or less constantly assessed as very critical. Unfortunately, the feeding practices of children are generally poor and inappropriate, regardless of access to food. The use of breastfeeding is far below the recommended level, as indicated above, and other deviations from recommendations are frequently reported, such as delaying the commencement of breastfeeding until several days after delivery and instead giving newborn babies sugar-water prepared with unsafe water⁷⁵. In this way the infant is exposed to harmful pathogens at an early stage and may soon suffer from acute diarrhoea: the journey towards severe malnutrition has started. Informants for this report attest to poor and non-diversified diets even for older children, which are generally deficient in, for example, vegetables and fruit. As mentioned in the previous chapter, food is also traditionally served with tea, which reduces the uptake of iron and might be a major explanation for the high prevalence of anaemia⁷⁶.

⁷¹ UNICEF Somalia (2006), *MICS 2006*. Table NU. 4: Adequately fed infants.

⁷² Black R.E., Allen L.H., Bhutta Z.A. et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008; 371: 243–260.

⁷³ Caufield L.E., Huffman S.L., Piwoz E.G. (1999). Interventions to improve intake of complementary foods by infants 6 to 12 months of age in developing countries: impact on growth and on the prevalence of malnutrition and potential contribution to child survival. *Food and Nutrition Bulletin* 1999; 20: 183–200.

⁷⁴ Black R.E., Allen L.H., Bhutta Z.A. et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008; 371: 243–260.

⁷⁵ FSNAU (2008). *Somali Knowledge, Attitude and Practices Study (KAPS): Infant and Young Child Feeding and Health Seeking Practices*. Somalia, Dec 2007.

⁷⁶ FSNAU (2010). *National Micronutrient and Anthropometric Nutrition Survey, Somalia 2009*.

3.2 Water, sanitation and hygiene (WASH)

Poor sanitary conditions and unsafe water are also significant determinants of childhood disease and under-five mortality. They are considered the second most important determinant of disease burden, after malnutrition. Inappropriate sanitary practices and poor hygiene, such as people defecating in the open and failing to wash their hands with soap and water, have more impact on health outcomes and the incidence of diarrhoea than the lack of safe drinking water, as most diarrhoeal pathogens are not water-borne, but spread through faecal-oral transmission. It is therefore considered more important to provide the necessary quantity of water, i.e., access to water, than the right quality. Almost 90 per cent of childhood deaths due to diarrhoea are believed to stem ultimately from poor sanitation, hygiene or unsafe water. Hand washing with soap has the potential on its own to reduce diarrhoeal infections by 40 per cent⁷⁷.

Nevertheless, the availability of safe drinking water is obviously also crucial, and it has been estimated that clean drinking water alone could reduce under-five mortality with 350,000 annual deaths by preventing diarrhoea⁷⁸. Unsafe water and poor sanitation are also responsible for much of the burden from infections with helminths (intestinal parasites) and schistosomiasis. In general, it is the youngest children who are most susceptible to diarrhoeal infections and hence affected by poor sanitary conditions and contaminated water. Recurrent diarrhoeal episodes during infancy, along with infestations by intestinal parasites, often lead to malnutrition. Accordingly, there is also a strong correlation between inadequate water, sanitation and hygiene (WASH) practices and malnutrition. The current child health days campaigns have acknowledged the need for supplementary interventions to tackle this problem and hence prescribe the administration of repeated doses (every six months) of albendazol for deworming and the distribution of Aquatabs for drinking water purification.

The situation regarding access to safe water and to an appropriate sanitation facility and the practice of hand washing with soap is unsatisfactory in Somalia. According to the 2006 MICS report, only 29 per cent of the population had access to an improved source of drinking water⁷⁹. In the rural areas that figure is as low as 11 per cent, with most people using surface water or water from an unprotected well for drinking. The practice of treating water in households is also not widespread: only 16 per cent of the households with an unimproved drinking water source employed an appropriate water treatment method, such as boiling, chlorination, filtering or solar disinfection.

The percentage of households with access to an improved water source or which make use of an appropriate water treatment method increases several-fold with education and wealth, conditions which are also associated with urbanization. For 15 per cent of the households covered in the Somalia 2006 MICS report, the improved water source was located within their premises (38 per cent for urban and 1 per cent for rural households); for the remaining households the average time spent reaching and returning from an improved water source was 70 minutes.

Where sanitary facilities are concerned, only 37 per cent of the households had access to some kind of an improved latrine or flush toilet connected to a sewage system, according to 2006 MICS data for Somalia. In

⁷⁷ Fewtrell L et al. (2005). Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: A systematic review and meta-analysis. *Lancet Infectious Diseases* 2005, 3; 5: 45–52.

⁷⁸ Marino D.D. (2007). Water and food safety in the developing world: global implications for health and nutrition of infants and young children. *Journal of the American Dietetic Association* 2007; 107(11): 1930–1934.

⁷⁹ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*. Table EN.1–8, pages 104–112.

rural areas that proportion was no more than 13 per cent. In all, 82 per cent of rural households reported that they practised so-called “open defecation”, i.e., in bushes, fields, rivers etc. In households with children in the 0–2 age group, 35 per cent were reported to be employing some sort of safe method of disposing of their child’s excreta, while 28 per cent threw such waste into the garbage and 20 per cent just left it in the open.

Conditions combining access to and use of safe drinking water and an appropriate sanitary facility for the disposal of excreta are only available to 4 per cent of rural households. Of urban households, 47 per cent have access to both safe drinking water and an appropriate sanitary facility. The low level of basic WASH conditions in the rural areas forms a breeding ground for the spread of water-borne and faecal diseases. The lower population density in the countryside means that the dissemination of these diseases is less rampant than if these figures had been attested in an urban context.

The practice of hand washing in association with such activities as eating, cooking, going to the toilet or cleaning babies’ bottoms also seems to be related to education, wealth or urban – as opposed to rural – residence. The Somalia 2006 MICS reports that 55 per cent of respondents claim that they wash their hands in connection with any of the situations listed above. There was a large discrepancy in the practice of hand washing between the two northern zones and South Central Somalia, as the rate for Somaliland and Puntland was around 80 per cent while for South Central Somalia it measured a mere 41 per cent. Contact with human excrement seems to be the strongest incentive for hand washing, as, according to the survey, half of all Somalis wash their hands in these circumstances.

Table 3. Basic WASH-figures for Somali households

INDICATOR	RURAL	URBAN	TOTAL
Improved source of drinking water	11 %	58 %	29 %
Appropriate water treatment method used*	10 %	40 %	22 %
Average time on foot to drinking water source (there and back)**	82 min	38 min	70 min
Use of any sanitary means for disposal of excreta	13 %	78 %	37 %
Safe disposal of stools from children ← 2 years	12 %	75 %	35 %
Combined access to and use of improved water source and sanitation facility	4 %	47 %	20 %

* Percentage of households applying appropriate water treatment method to water from all types of sources, even improved.

** Does not include households with drinking water source on premises

Source: MICS Somalia 2006.

3.3 Social and economic factors

Poverty and economic constraints are widespread in Somalia. As mentioned in chapter 1, data from 2002 showed that over 40 per cent of the Somali population lived in extreme poverty, i.e., existing on less than US \$1 per day⁸⁰. The majority of Somali households have also experienced increased economic difficulties over the last few years, owing to the current economic crisis, with globally increased prices for food and fuel, in combination with the collapse of the Somali shilling and uncontrolled inflation. The country's severe economic constraints obviously contribute to its acute food insecurity and high rates of undernutrition, but they also limit a family's ability to seek and acquire adequate health care. For almost all child health-related indicators – such as the number of received vaccinations, the percentage of children seeking health care and receiving antibiotics for suspected pneumonia and the proportion of children sleeping under insecticide-treated bed nets – huge differences may be observed in Somalia between low income and high income households⁸¹.

3.4 Health system

In its dilapidated and underdeveloped state, the health care system in itself constitutes yet another underlying cause for the country's poor child health and high mortality rates, as will be described in more detail in chapter 4 below. The system's poor performance and service delivery is largely attributable to the economic constraints within which it has to operate. The health services also suffer from lack of educated and skilled health workers, absence of management and the general deterioration of public infrastructures and functions, such as transports, deliveries of medicines and medical supplies, electricity, running water, etc. As a consequence, many areas in the country cannot provide their catchment populations with sufficient or adequate health services, as the facilities are ill equipped and inappropriately staffed. Furthermore, a functioning health system is also dependent on a certain demand for health services by the public. The demand for public health services and their utilization rate have been very low in Somalia, which could in turn be the consequence of its poor quality and availability but could also be due to a socially and culturally rooted lack of interest or demand for conventional medical interventions.

⁸⁰ World Bank/UNDP 2004, *Somalia Socio-Economic Survey 2002*.

⁸¹ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*. Tables CH.2–16, Somalia

3.5 Education

The general lack of education is also a determinant with vast negative implications for the child health situation. First, it is the underlying cause of many of the problems in the health system, such as it is: in particular, the huge shortage of educated health professionals and the lack of people with the competence to manage and administer health services. In fact, more than half of the Somali health-care workforce has no formal medical education or training. Second, the lack of education means lower levels of literacy, general knowledge and awareness, and this in turn has a negative impact on the health seeking behaviour of the individuals concerned. As for income levels, data from the 2006 MICS report shows that virtually all the child health-related indicators are strongly influenced by the educational level of the mother, i.e., the lower the educational level, the poorer the child health indicators. The latter also applies to children's nutritional status. For the nutritional indicators – such as child size at birth, prevalence of stunting or wasting, use of complimentary feeding, and vitamin A supplementation – the figures are clearly more favourable for children of mothers with higher education⁸². These outcomes could all be attributable to lack of education alone, but income and economy naturally act as contributing factors in determining a child's health situation. Since better education is normally followed by better income, and this in turn means that greater priority is given to the child's health and feeding. Given the strong relationships between health and education, it is clear that, if the situation regarding child morbidity and mortality is to be substantially improved, the Somali authorities must also put right the country's educational systems, with only 23 per cent of primary school-age children attending school and 75 per cent of young Somali women remaining illiterate⁸³.

⁸² *Ibid.*

⁸³ UNICEF (2006). *Multiple Indicator Cluster Survey 2006*. Table ED.8 Adult literacy (women aged 15-24), Somalia.

3.6 Conflict

The country's political unrest with its recurrent armed conflicts, violence and mass displacement constitutes another negative factor which indisputably contributes to the strained health situation, either directly or indirectly through disintegration of the health system, transport difficulties, economic constraints, and other repercussions. In the cause specific estimates for under-five mortality of Somali children, set out in chapter 2 above, some 3–4 per cent of the deaths are attributed to trauma. This is comparable with global figures⁸⁴, but it is quite possible that there are in addition a substantial number of unrecorded deaths due to armed conflicts which have not been accounted for, as some of these figures might have been extrapolated from the statistics of other developing countries with similar poverty levels but without the same extent of violent conflict.

Another consequence of the terrorist attacks and armed conflict is the high number of both physically and mentally traumatized children. In Somalia it is not uncommon to see children who have been chronically injured and mutilated from exposure to mines, bombs and other explosives. Many children as young as five years of age have even been victimized in the recurrent fighting during attacks against villages and civilian targets. Hospital records from a clash between rivaling militias in December 2009 show that some 25 per cent of the wounded victims were children. School-aged children are regularly recruited into the various armed factions, in which boys are used as front-line soldiers and the girls for cooking and ground services. Children have also been used by Somali militias for the secret detonation of explosives in strategic areas. Sexual violence against children and their sexual abuse are widespread, especially within IDP settlements. Over a mere three months in 2008, over 300 children were reported raped in IDP camps of Somaliland⁸⁵.

⁸⁴ Black R.E. et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. *Lancet* 2010; 375: 1969–1987.

⁸⁵ Information from the official website of Office of the Special Representative of the Secretary-General for Children and Armed Conflicts. www.un.org/children/conflict/english/Somalia.html

3.7 Cultural and traditional aspects

The low utilization rate of health care services in Somalia is also partially attributable to social and cultural considerations, as mentioned above. There is for example often a preference for traditional practices, coupled with a general scepticism about conventional modern medicine, which is probably due to lack of knowledge of its potential benefits. But there are also other social and cultural aspects, more or less specific to the Somali context, which affect people's attitudes towards contemporary notions of good health practices and their propensity to seek conventional medical services. Some of these aspects may thereby influence disease patterns and become negative determinants of both child morbidity and mortality.

3.7.1 Traditional health-seeking behaviour

Several sources bear witness to fatalistic beliefs among Somalis relating to illness, in particular those affecting infants, small children and women⁸⁶. The disease may be viewed as having been visited upon the child by the will of God, leaving the course of the illness entirely in God's hands⁸⁷. This view of disease obviously leads to a passive health-seeking attitude, in which the caretaker may wait with the child at home rather than readily seeking an appropriate health facility.

A number of informants consulted for this assessment perceive a lack of a fully caring attitude from parents towards children in terms of prioritizing children's health as promoted by the limited formal health structures available. Families tend to have many children with little attempt at birth spacing and every child has to prove to be strong enough to survive. It is also possible that the high risk of losing children may contribute to this apparent insouciance of parents, which is also encouraged by their limited knowledge of the benefits of the formal health system, coupled with the high costs of transportation, medicines and health care, together with its limited access. Taken together, these factors produce a situation in which formal health care may not be immediately sought when a small child shows symptoms of illness.

There are also beliefs that disease represents an evil force, the proverbial "evil eye", which can only be overcome by traditional cures⁸⁸. These cures can be less invasive and harmful, such as the saying of prayers and sprinkling of holy water by spiritual attendants, but they can also be painful and harmful to the child, such as, for example, the chest-burning procedures for respiratory infections (like pneumonia) conducted by the traditional healer⁸⁹. It is very common, especially in rural areas where there is limited access to conventional medical facilities but where traditional healers or spirit mediums are always available, that families primarily seek help for the sick child from one or the other of these, or even from both, before turning to modern medical treatment. Even then, many prefer to go to a private pharmacy for a quick remedy over the counter, rather than seek professional and properly informed help.

In general, it would seem that people in Somali communities have a flexible and easily changeable approach to disease and possible remedies. In any given situation, there is no single solution or preferred approach; instead people would rather draw from a range of different options⁹⁰.

⁸⁶ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia 2009.

⁸⁷ Ibid.

⁸⁸ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia 2009.

⁸⁹ FSNAU (2008). *Somali Knowledge, Attitude and Practices Study (KAPS): Infant and Young Child Feeding and Health Seeking Practices*. Somalia, Dec 2007.

⁹⁰ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia 2009.

3.7.2 Educated vs. traditional attitudes

The different health-care attitudes and help-seeking behaviours reported above are largely attributable to a lack of education and a lack of basic knowledge, information and previous exposure to modern medicine. People who have had no convincing proof of the benefits of formal health services find it difficult to understand their advantage over the more accessible and familiar traditional alternatives. Education and literacy have proved to exercise a strong influence over health-seeking behaviour in favour of modern medicine. From the Somalia 2006 MICS, it is clear that the higher the level of education of the mother the greater the probability that her child will receive appropriate medical care and monitoring for growth and health⁹¹. Figures show, for example, that in Somaliland 38 per cent of Somali women with secondary education gave birth in a health facility, as opposed to only 6 per cent of women without any education at all.

Data from the 2006 MICS also show that 30 per cent of mothers with at least primary schooling sought help for their child's suspected pneumonia in an appropriate health facility (not private pharmacy included), as opposed to only 10 per cent of mothers without education. Immunization data from the same survey show that some 49 per cent of children born to mothers with secondary education have received measles vaccine, as opposed to 24 per cent of children born to mothers without any education at all. These demonstrated associations may be observed in other areas as well. It should be noted, however, that education brings with it a higher standard of urban life and higher probability of earning a comparatively good income, which are also important determinants of appropriate health-seeking behaviour and good health. Nevertheless, the importance of education cannot be overlooked as a factor affecting attitudes to appropriate health behaviour and the preference for conventional medical services over the often harmful traditional practices.

Some informants attested that many Somalis, especially rural people without education, are even mistrustful or sceptical of modern medical practices. According to these informants, and also to the 2007 FSNAU knowledge attitude practices survey (KAPS) survey on child feeding and health-seeking patterns⁹², there is a fairly widespread idea that vaccines are poisonous medicines imposed on nations by the Western world. As mentioned below, primary sources also report a widespread resistance to seeking emergency help for complicated home deliveries, since surgical intervention would be considered to be against God's will or contrary to other cultural norms⁹³.

3.7.3 Gender issues

A number of surveys have looked at the distribution of decision-making power between males and females in the household as a determinant of health-seeking behaviour and morbidity (see Mazilli and Davis, 2009). The results point in different directions and it is not possible to say that fathers, for lack of better knowledge, consistently deprive mothers and children of appropriate health care. In fact, it seems more likely that mothers have the first say, or at least an equal voice, when it comes to decisions over health care and general nursing of the children, while the fathers have overruling power in terms of the mother's (i.e., their wives') health care and the children's vaccinations^{94,95}. In general, it seems that the more sophisticated the treatment, and the more it is perceived as imposed by modern medicine, the more the fathers want to be involved in making decisions about specific treatment⁹⁶.

⁹¹ UNICEF (2006). *Somalia Multiple Indicator Cluster Survey 2006*

⁹² FSNAU (2007). *Somali Knowledge, Attitude and Practices Study (KAPS): Infant and Young Child Feeding and Health Seeking Practices*. Somalia, Dec 2007.

⁹³ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia 2009.

⁹⁴ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia 2009.

⁹⁵ UNICEF (2006). *Somalia MICS 2006*.

⁹⁶ FSNAU (2008). *Somali Knowledge, Attitude and Practices Study (KAPS): Infant and Young Child Feeding and Health Seeking Practices*. Somalia, December 2007.

There is also a slight gender inequality in terms of parents' inclination to seek health-care services for their children. For example, a larger proportion of boys with symptoms of suspected pneumonia were taken to an appropriate health facility (14 per cent of boys compared to 11 per cent of girls) and treated with antibiotics (35 per cent and 29 per cent, respectively)⁹⁷. The differences are not highly significant, however, and it should be remembered, as mentioned earlier, that the interaction effects between urban residence and higher education of mothers may also be associated with a more equitable view of girls' and boys' rights.

3.7.4 Birth spacing

Somali households tend to have many children and hence the fertility rate of Somali women is very high. Current data show that, on average, Somali women give birth to 6.7 children during their reproductive years⁹⁸. That figure is based on the assumption that each woman will live through her reproductive years and give birth in accordance with her current age-specific fertility rate, known as the "total fertility rate" (TFR). According to international demographic rankings, the Somali TFR of 6.7 children per woman is the second highest fertility rate in the world⁹⁹. In rural areas of Somalia the TFR is even higher, at 7.1 children per woman. Age-specific fertility rates show that childbearing starts at an early age but peaks between 20 and 30 years of age. The TFR rises proportionately with poverty levels and lack of education, and is higher in rural areas, according to the Somalia 2006 MICS, which also shows that South Central Somalia has a higher TFR (7.1) than Somaliland (5.9) and Puntland (6.2).

Poor households with many children face difficulties in supporting the growing number of household members and tend to become locked into poverty. Most Somali children, who are born into poor families with many siblings, are therefore engaged in stiff competition for the families' limited resources and are likely to suffer from shortages of food and material provisions. They are also likely to be deprived of health-support measures and health services, along with education possibilities. The lack of birth spacing has direct negative effects on breastfeeding infants and smaller children, as each new pregnancy normally means that any current breastfeeding ends. This halting of breastfeeding may be the consequence of the new pregnancy or it could be a deliberate choice in order to enhance the prospects of a new pregnancy. Either way, it will deprive the breastfeeding child of valuable nutrition and the health-promoting properties of breast milk. A new pregnancy and the prompt birth of a younger sibling will also deprive this child of a substantial measure of general care and attention and expose him or her to a higher degree of competition for the family's limited resources, as mentioned above. At the national level, the lack of birth spacing and the large size of families are an obstacle to development and the country's high birth rates make it difficult to satisfy its demands for health, education and other social services.

⁹⁷ UNICEF (2006). *Somalia MICS 2006*.

⁹⁸ *Ibid.* Table FE.1: Current Fertility. The average figure of 6.7 children per Somali woman is calculated as TFR for the reproductive years between 15-49.

⁹⁹ UNICEF (2009). *The State of the World's Children – Special Edition*; Statistical Tables. Table 6. Demographic indicators. (The world's highest-ranaking country in terms of its TFR is Niger with 7.1 children per woman).

Family planning and active endeavours to practise birth spacing seem to be very limited in Somalia. The use of a contraceptive method was reported by only 15 per cent of married women assessed in the latest Somalia 2006 MICS¹⁰⁰, and of these only 1 per cent used a modern method such as contraceptive pills, intra-uterine devices, injections or condoms. The most widely used form of contraception is the comparatively unreliable method of sustained breastfeeding (lactation amenorrhoea), which 13 per cent of the women surveyed claimed to apply. The use of contraceptive methods among married women is higher in Somaliland (26 per cent) than in the rest of Somalia and it rises with the level of education. The demand for a contraceptive method – whether birth spacing or birth limiting – was also assessed in the 2006 MICS, and a fairly low total figure of 26 per cent was registered (including the 15 per cent already using a contraceptive method). It would therefore seem clear that Somali households are eager to have many children and that large families form part of the country's social and cultural make-up.

3.7.5 Breastfeeding

The breastfeeding practices of Somali mothers, as mentioned above, often lag far behind official recommendations. Some of these inappropriate feeding patterns are at least partly attributable to traditional beliefs or social and cultural attitudes. Thus only one out of every four newborn children in Somalia benefit from the early initiation of breastfeeding, i.e., putting the newborn infant to the breast within one hour of delivery¹⁰¹. This is widely attributed to the belief in traditional Somali culture that the colostrum is poisonous and unclean and therefore harmful to the baby¹⁰². However, that can hardly be the only reason for the delay in starting breastfeeding, as 60 per cent of newborn infants have initiated breastfeeding within the first 24 hours, when colostrums are still present. Early – and for the child unfavourable – termination of breastfeeding is also quite common: this could be explained by the prospect of a new pregnancy, but it could also be caused by other less compelling circumstances. The KAPS survey of infant and young children's feeding practices conducted by FSNAU reports that many Somali women refrain from breastfeeding out of fear of wearing out their bodies and becoming unattractive to their men¹⁰³. Furthermore, several of the informants for this report testified that breastfeeding in general is often considered less sophisticated and attractive than bottle-feeding with formula. One attested manifestation of this view is the propensity of fathers to buy formula powder and bring it home to their womenfolk. By doing so they can display their relative wealth, and also their generosity towards the mother, who is liberated from the labour of breastfeeding. The additional benefit of not wearing out the mother's body might be an equally strong driving force, however.

Exclusive breastfeeding is considered the only appropriate way of feeding an infant for the first six months of his or her life in a developmental context. Yet fewer than 10 per cent of Somali children below six months of age are exclusively breastfed. But the main issue does not seem to be a complete avoidance of breastfeeding, as, according to survey data, 50 per cent of children in the 12–15 month age group were partly breastfed¹⁰⁴. The problem is rather the inappropriate mixing, often at a very early stage, of breastfeeding with other foods and fluids.

¹⁰⁰ UNICEF (2006). *Somalia MICS 2006*. Tables RH.1–2. Pages 115–116.

¹⁰¹ UNICEF (2006). *Somalia MICS 2006*. Tables NU. 2–3. Pages 80–81.

¹⁰² FSNAU (2008). *Somali Knowledge, Attitude and Practices Study (KAPS): Infant and Young Child Feeding and Health Seeking Practices*. Somalia, December 2007.

¹⁰³ FSNAU (2008). *Somali Knowledge, Attitude and Practices Study (KAPS): Infant and Young Child Feeding and Health Seeking Practices*. Somalia, December 2007.

¹⁰⁴ UNICEF (2006). *Somalia MICS 2006*. Tables NU. 2–3. Pages 80–81.

As mentioned above, many infants are given formula, mixed with unsafe water, instead of breast milk. Children below six months of age are also often given tea or sugar-water in combination with breast milk (or formula). Sometimes the breast milk is even supplemented with complementary foods (i.e., solids) from the very beginning¹⁰⁵.

The readiness to replace breast milk with formula, if it can be afforded, can also be deduced from survey data. The figures from the 2006 MICS report clearly show that the proportion of breastfed children decreases with wealth and urban life. Within the households grouped in the two wealthiest quintiles only 2–3 per cent of the children up to six months of age were exclusively breastfed, whereas for children in the poorest households this proportion was 18 per cent. In urban households an average of 7 per cent practised exclusive breastfeeding during the child's first six months of life, while for rural households that figure was 10 per cent¹⁰⁶.

Where extended breastfeeding practices are concerned, the same pattern can be observed. Some 30 per cent of the mothers from households within the two wealthiest quintiles were breastfeeding their children between 12 and 15 months of age, whereas 75 per cent of the mothers from the poorest households continued breastfeeding their children of the same age. The proportion of mothers from urban households still breastfeeding their children between 12 and 15 months of age was 32 per cent, while for rural households the same indicator was as high as 60 per cent.

This observation runs counter to just about all other child-health-related indicators studied for Somalia. As pointed out above, the general pattern is the reverse, namely, that children born into wealthier – and therefore more educated and urban – households are subject to more and better health-promoting actions and interventions than children from poor and rural households. Thus, wealth and education bring with them a heightened awareness of practices that are beneficial for the child's health – with the notable exception of breastfeeding. There are other incentives which in this case outweigh the benefits to the child, such as the mother's freedom, vanity, and a desire by the parents to demonstrate their economic status. Commercial forces, promoting formula as a more attractive alternative to breastfeeding, could also play a role, by leading households with purchasing power to choose their product and reject breastfeeding.

3.7.6 Home deliveries

Some 90 per cent of Somali women give birth at home¹⁰⁷, in most cases with the assistance of a traditional birth attendant. This, at least in part, is attributable to the country's poorly developed health-care system, which in many instances is unable to offer a better environment for delivery than the conditions in the mother's own household. In many areas, however, there are both primary (MCH) and secondary facilities (hospitals) with obstetrically trained personnel and equipment for at least basic emergency obstetric care (BEmOC), and a few hospitals would even be able to provide comprehensive emergency obstetric care (CEmOC). More detailed definitions of BEmOC and CEmOC may be found below, in chapter 4. Attempts are made to boost the number of deliveries in health facilities and current figures show a slight increase of MCH-conducted deliveries (unpublished HMIS data), but there seems to be a general reluctance by mothers to give birth in health facilities. The reasons for this have not been widely explored, but cultural and traditional considerations, together with economic concerns and the lack of accessibility, are all likely to be contributing factors¹⁰⁸.

¹⁰⁵ *Ibid.*

¹⁰⁶ UNICEF (2006). *Somalia MICS 2006*. Tables NU.2–3. Pages 80–81.

¹⁰⁷ *Ibid.* Table RH.5. Page 120.

¹⁰⁸ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia 2009.

The cultural dimension of this reluctance was underscored by several of the interviewees, who are Kenyan Somalis. They report that Somali women living in Kenya also favour home deliveries over those in health facilities, in spite of the much better access to adequate health services and obstetric care available in Kenya. In general, these Kenyan Somali women follow prescribed antenatal care, yet when it comes to the actual delivery they still opt for the home environment. Thus, facility-based antenatal care also does not serve as an entry point to delivery in a health institution. The same pattern can be seen in Somalia too. Some 32 per cent of the women surveyed in the 2006 MICS report with a pregnancy during the preceding two-year period declared that they had made at least one visit to a facility for antenatal care. Yet, as stated above, only about 10 per cent of those women delivered in a health facility.

Home delivery imposes a considerably increased risk for both the child and the mother if anything goes wrong, such as obstructed labour. Transport is difficult and the distances to an appropriate health facility are often long. It is widely reported that many women undergoing labour complications are referred only after considerable delay and often too late to save the child and sometimes even the mother. Thus, the dominant practice of home deliveries represents one of the main causes for the high numbers of both neonatal and maternal mortality in Somalia. The current estimated figure for maternal mortality in Somalia is 1,400 deaths per 100,000 live births, which means that 14 out of every 1,000 births have a fatal outcome for the mother¹⁰⁹. That places Somalia among the top five on the global maternal mortality list.

As noted above, the causes of neonatal and under-five mortality in Somalia have not been carefully investigated, but it seems as if many children die in obscurity in the post-natal period and a substantial number of these deaths are certainly due to delayed and complicated deliveries. The time delay for the referral of complicated deliveries can also be due to a complicated decision process, where the traditional birth attendant might have incentives (often economic) to try to resolve the situation herself and approval for the referral has to be sought from the head of the family, or elders and clan leaders¹¹⁰.

3.7.7 Female genital mutilation

Female genital mutilation is widely practised in Somalia. This practice has been condemned by the United Nations and the international community for many years¹¹¹. The Somali Transitional Federal Government has ratified several international human rights treaties, including the International Covenant on Economic, Social and Cultural Rights, and has thereby joined the campaign against the practice of female genital mutilation. The health authorities in Somaliland and Puntland and the Somali Health Sector Committee (SHSC), with its members from United Nations agencies, non-governmental organizations and donor bodies, have also stated their determination to work for the eradication of female genital mutilation. The practice of female genital mutilation is even prohibited by law in both Somaliland and Puntland. Yet, among the general public the practice has not changed much, and there is a deep-rooted cultural tradition which pulls in the opposite direction.

¹⁰⁹ UNICEF (2009). *The State of the World's Children – Special Edition*; Statistical Tables. Table 8. Women.

¹¹⁰ WHO/UNFPA Somalia (2009). *Addressing Maternal and Neonatal Survival in Somalia – A Situation Analysis of Reproductive Health in Somalia*.

¹¹¹ Paragraph 49 of the Vienna Declaration and Programme of Action, adopted by the World Conference on Human Rights in Vienna, in 12003, states: "The World Conference supports all measures by the United Nations and its specialised agencies to ensure the effective protection and promotion of human rights of the girl child. The Conference urges States to repeal existing laws and regulations and remove customs and practices which discriminate against and cause harm to the girl child."

The 2004 report and strategy plan jointly prepared by the World Bank and the United Nations Population Fund (UNFPA) on female genital mutilation stated that some 98 per cent of Somali women have undergone some form of genital mutilation¹¹². This proportion of female genital mutilation among the female population is higher than anywhere else in the world, so high, in fact, that one could state that female genital mutilation is almost mandatory among Somali girls. They are circumcised between the ages of five and eight, and most frequently within the privacy of the family's home.

The most widely practised form of female genital mutilation in Somalia has also been the most extensive and mutilating one, the so-called "Pharaonic" type. In the literature, this is referred to as type III or IV (infibulation), which means excision of the external parts of the genitalia and the stitching and narrowing of the vaginal opening. In the case of infibulation (type IV), the external genitalia are also burned and the vaginal opening traumatized in order to promote scarring of the tissues and thereby additional narrowing. Until recently, as many as 80–90 per cent of Somali girls were subject to this extensive form of circumcision. Vigorous campaigning against this practice, however, and illumination of the issue, primarily through different initiatives by international non-governmental organizations, seem to have brought about a shift in public attitudes towards female genital mutilation. ICRC, the International Federation of Red Cross and Red Crescent Societies (IFRC) and the Coordinating Committee of the Organizations for Voluntary Service (COSV), among others, have conducted comprehensive campaigns against female genital mutilation, broadcasting their messages on the radio, displaying them on posters and so on. They have also run information and discussion groups for traditional birth attendants, women undertaking female genital mutilation activities and religious leaders.

Another campaign to raise awareness and change attitudes to female genital mutilation is currently being conducted by UNICEF and UNFPA in collaboration with the health authorities in Somaliland and Puntland. According to several of the informants, the procedure is now more commonly limited to the less mutilating "Sunna" type, or type II, which excludes stitching and narrowing of the vaginal opening. Some families, especially from the more educated, urban population, have even started to abandon the practice of female genital mutilation altogether.

The long-term negative consequences of female genital mutilation include the formation of cysts and keloid-scarring in the vaginal opening, urinary incontinence, obstructed labour and complicated deliveries, pain during intercourse and sexual dysfunction. A secondary consequence of obstructed labour is also the risk of developing fistulas, which in turn often cause urinary incontinence and infections. In the short term, the main risk is local infections with the chance of systemic dissemination and life-threatening septicaemia. Considering the young age of the mutilated girls, the potential risks and the extent of the practice, this is also a child health issue of major concern and magnitude in Somalia. Accordingly, continuous and multisectoral efforts are needed to work for the eradication of female genital mutilation in Somalia.

¹¹² World Bank/UNFPA (2004). *Female Genital Mutilation/Cutting in Somalia*. Nov 2004.

Chapter 4. Structure and performance of the health system related to child health



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The health system in Somalia is underdeveloped and heavily dependent on external funding. After almost two decades of conflict and lawlessness, the health system has become increasingly disintegrated and, with the education system, is one of the social sectors that has suffered the most.

According to WHO (2007), a health system is defined as all organizations, people and actions whose primary intent is to promote, restore or maintain health¹¹³. The different parts of a health system can be categorized into six separate building blocks: governance and leadership; service delivery; health-care workforce; information systems; medical products, vaccines and technologies; and finally health financing. In a description and assessment of the Somali child health situation particular attention attaches to those aspects relating to service delivery, but the present chapter provides information on child-health-related aspects of all the building blocks, starting with governance.

4.1 Governance

The management and organization of the public health system differ from one zone to the other. It is therefore more accurate to describe the Somali health sector as comprising three different health systems: Somaliland and Puntland have fairly structured public health systems, largely governed by their health authorities, while in South Central Somalia the provision of public health services is much more fragmented, with no effective central governance. The health facilities serving the public in Somaliland and Puntland are either operated by their respective health authority or by different non-governmental organizations (namely, non-profitable private establishments) – or in many cases by a combination of the two. The health authorities exercise some measure of governance over all such facilities and even wield a certain amount of control over the commercial health sector. In South Central Somalia the function of providing and managing public health services has been taken over by different non-governmental organizations and community or district health committees, with little or no involvement of the Ministry of Health. Each zone has a similar health system architecture, with the health facilities organised in tiers, ranging from health posts or MCH clinics at the primary level to regional or referral hospitals at the tertiary level. There is no structural referral system in place, however, and there are no mechanisms for monitoring and supervision between different levels of care.

Generally speaking, the level of use of public health services and the demand for such services is low in Somalia, while the private commercial health sector is extensive and thriving in all three zones, especially in urban areas, where it tends to be the option preferred by the public. Thus, public and private health care providers coexist within the three different zonal health systems. The private entrepreneurs are, as noted above, fairly well integrated into the central governance system in Somaliland and Puntland, but not in South Central Somalia. The commercial health sector also includes the numerous private pharmacies, which are widely used by Somalis as a substitute for a proper health clinic. Surveys have shown that more than 50 per cent of the population uses the private pharmacy as their first, and often only, entry point to conventional medical treatment¹¹⁴.

¹¹³ WHO (2007). *Everybody's Business – Strengthening Health Systems to Improve Health Outcomes*. WHO's Framework for Action.

¹¹⁴ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia.

Following the definition of a health system set out above, the Somali context also includes such traditional approaches as spiritual attendants, herbalists and traditional healers. Their interventions and activities are rarely consistent with notions of good practice as understood in contemporary medicine, but their intent is inarguably to provide a health service. As described in chapter 3 above, recourse to traditional healers is widespread and from the public perspective they represent an important alternative within the health system. These traditional alternatives are particularly popular in rural areas, where access to conventional health facilities is limited, and it is widely reported in such areas that parents primarily seek help for their sick children from both spiritual attendants and traditional healers, before turning to modern forms of medicine for a remedy¹¹⁵. Figure 7 shows the schematic structure of the zonal health systems, including private and traditional alternatives.

Figure 7. Schematic structure of the zonal health systems in Somalia



The health sectors in the three zones receive support in terms of coordination, management, procurement of medicines and medical materials, training, etc., from the international community through the Nairobi-based Somalia Health Sector Committee (SHSC), which includes among its members all United Nations agencies and most international and national non-governmental organizations operating in Somalia, except ICRC-IFRC and MSF¹¹⁶. This coordinating and supportive function is performed in collaboration with the health authorities in each zone, and is of particular importance for South Central Somalia with its relative lack of central governance. Health support from SHSC is controlled and administered either through the health sector, which focuses on developmental support – such as the strengthening of health systems – or through the health cluster, whose activities and support are more humanitarian and emergency-oriented in nature.

¹¹⁵ Caitlin Mazilli and Austen Davis (2009). *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia.

¹¹⁶ The ICRC/IFRC are the largest single primary health care providers in CSZ and Puntland. They both operate through the Somali Red Crescent Society (SRCS) which is the implementing agency. ICRC manage 36 MCH clinics in CSZ, while IFRC is responsible for 34 MCH clinics in Puntland and Somaliland. They are participating in the information sharing of the SHSC, but they are not members. The MSF operates 16 hospitals and about ten MCH clinics in CSZ and is thereby the single largest provider of hospital services in CSZ. They have chosen not to participate in the work of the SHSC.

4.2 Service delivery

In Somalia, children can be assured some kind of health care at every level and at just about every unit within the public health system, as child health is an integral part of the public health system and included in most of its services. In the private sector, however, the provision of the full range of preventive and promotional child health services is more limited. Children can always be admitted and treated by a private clinic for a given condition, but such clinics would not normally provide the full range of MCH services, such as EPI vaccinations, entailing the procurement of vaccines and their requisite cold-chain system, growth monitoring, nutritional screening and the doling out of supplementary feeding products, health education, etc. There are few economic incentives for private health providers to offer those services as there are a number of public MCH clinics – often run by non-governmental organizations – which provide preventive and promotional child health services free of charge.

4.2.1 Structure of health-care delivery

The current numbers of health facilities in Somalia where some kind of child health services are provided are shown in table 4 below. The health posts and MCH clinics are, as stated above, almost exclusively public establishments, or at most private non-profit establishments for the public, in other words, managed by non-governmental organizations, and are operated either by different international or national non-governmental organizations or community-based organizations or by the respective health authorities. The hospitals are also predominantly categorized as public institutions with the same range of operators, but some of these hospitals are private, for-profit clinics which can offer a range of medical services, including paediatric care.

Table 4. Number and types of health facilities in Somalia

(includes public, private non-profit, and private for-profit facilities)

ZONES	HEALTH POSTS	MCH	DISTRICT HOSPITAL	REFERRAL HOSPITAL
Somaliland	160	83	8	1
Puntland	120	47	4	1
Central South	264	130	15	5
Total	544	260	27	7

Source: UNICEF Somalia 2010 (HMIS)

4.2.1.1 Referral hospitals

In a well-functioning health system, the function of referral hospitals should be performed by hospitals aimed at providing a tertiary level of care¹¹⁷. In Somalia, however, the referral hospitals do not have the capacity to deliver the wide range of higher-level specialist care that characterizes a tertiary hospital. Hospitals are in general under-staffed and the country's referral hospitals do not normally include on their staff more than 10 medical doctors, yet they are required to offer the services of at least one paediatrician and to host a paediatric ward for in-patient care. Referral hospitals should also have a fully equipped delivery unit, with the availability of obstetric specialist care, and a maternity ward. Apart from performing emergency obstetric surgery, the hospitals would normally have the capacity to perform a wide range of other essential surgical services. Furthermore, they should be equipped with an X-ray department and a functioning laboratory facility¹¹⁸. Their bed capacity ranges from 100 to 200 patients.

In tandem with the general fragmentation of the health systems in Somalia there is no standardization of hospitals at different levels of care. Thus, some regional hospitals which function as referral hospitals for their region are relatively small with a limited capacity in several medical disciplines and they might have to refer complicated cases to yet another hospital with a higher capacity. Accordingly, some of the smaller regional hospitals function more as what might be termed "district hospitals" and are categorized as such in table 4 above, a categorization which is also supported by the fact that there are 18 regions in Somalia, but only seven specifically referral hospitals.

4.2.1.2 District hospitals

The majority of the district hospitals, especially in South Central Somalia, are operated by different international non-governmental organizations, such as ICRC, COSV and Trocaire. Some of these have a certain degree of surgical capacity, at least for acute obstetric surgery (CEmOC), and the ability to administer blood transfusions, but others lack this capacity. Those in this latter category should at least meet the requirements for basic emergency obstetric care (BEmOC) (see box 2 below).

The size and capacity of the district hospitals vary, but the number of in-patient beds normally ranges from about 30 to 100. In principal, all these hospitals have the capacity for in-patient paediatric care and most of them also have a specific paediatric ward. The number of physicians, and also of midwives, at these hospitals ranges between one and five, depending on the size of the hospital. In the larger facilities one of these physicians could be a paediatrician or at least a general practitioner with a paediatric profile. The district hospitals also normally contain a stabilization centre or therapeutic feeding centre (TFC) for malnourished children with a secondary complication, usually one such as pneumonia or diarrhoea. The entry points for the admission of patients for in-patient treatment include MCH units (for under-fives and their mothers) or outpatient department (OPD) (for over-fives), which also function as triage and emergency units. Health care and medicines are, as a rule, free of charge in the district hospitals operated by international non-governmental organizations. A few of these organizations, like ICRC and COSV, charge a subsidized fee (on a cost-sharing basis) for OPD patients but MCH activities are normally provided free of charge.

¹¹⁷ The term tertiary level of care..

¹¹⁸ WHO Somalia (2009). *Country Cooperation Strategy Somalia, 2010-2014*. Draft report.

Box 2. Defining the characteristics of BEmOC and CEmOC facilities at the hospital level

WHO DEFINITIONS OF BEMOC AND CEMOC

Basic Emergency Obstetric Care (BEmOC)

BEmOC implies the provision of following services:

1. Parenteral administration of Antibiotics
2. Treatments for eclampsia (provision of anticonvulsants)
3. Parenteral administration of Oxytocics
4. Assisted Vaginal delivery (vacuum extraction)
5. Manual removal of Placenta and removal of retained products of conception (MVA)

Comprehensive Emergency Obstetric Care (CEmOC)

CEmOC implies the provision of all the above six services along with the following 24-hour services throughout the year:

1. Availability of blood and blood transfusion facility
2. Facility for Caesarian section for delivery of foetus in emergency cases.

4.2.1.3 Maternal and child health (MCH) clinics

There are about 250 MCH clinics that constitute the backbone of primary health care for children and their mothers in Somalia. These as a rule are public health facilities, managed and run by either the health authorities or by a non-governmental organization, and they provide maternal and child health care free of charge. In many rural areas there is no primary health care facility available apart from the MCH clinic (and the health post), and this might also serve patients other than mothers and children under the age of five.

The size and capacity of MCH clinics vary greatly. Many of them are not staffed with more than one or two auxiliary nurses and provide only very basic MCH services, while others are larger and often staffed with one or several fully trained nurses, midwives, auxiliary midwives and regular auxiliary nurses, who together might offer a broader range of activities, including midwife-attended deliveries in a delivery room, an outpatient therapeutic programme (OTP) or TFC unit to tackle malnutrition, health care for the above-fives and adults, and possibly also EPI outreach services. Fewer than half the MCH clinics in Somalia claim to conduct normal deliveries within their facility¹¹⁹, and the proportion of MCH clinics that can provide an adequately assisted delivery in an enabling environment is likely to be much smaller.

Notwithstanding the wide variation in their capacities and prerequisites, each MCH clinic is designated for the provision of maternal care and care for newborn infants and under-fives. The maternal care comprises antenatal care, postnatal care, and possibly delivery services within the MCH facility. The services provided by MCH clinics will be described in more detail below.

¹¹⁹ WHO/UNFPA Somalia (2009). *Addressing Maternal and Neonatal Survival in Somalia – A Situation Analysis of Reproductive Health in Somalia*.

4.2.1.4 Outpatient therapeutic programmes (OTPs)

Outpatient therapeutic programmes (OTPs) constitute the primary level of care for malnutrition, which means that OTPs treat children on an outpatient basis, normally on a weekly schedule. Many of them are situated within an MCH clinic, but in drought-affected areas (mainly in the central regions) and in areas with many IDPs the OTPs outnumber the MCH clinics and also have their own infrastructure.

There are now more than 200 OTPs in Somalia supported by UNICEF with therapeutic food products, such as Plumpy'nut and Plumpy'doz¹²⁰. The OTPs are normally staffed with nurses, auxiliaries and nutritional staff.

Children with acute severe malnutrition are the primary target for OTPs, and the number of children in this category in Somalia is currently set at between 60,000 and 70,000¹²¹. Many malnourished children come to the OTP as a first point of entry, but some are also referred from an MCH or a supplementary feeding point (SFP). The SFPs work as ambulatory outreach services for the screening of malnutrition and are often set up in the same location for one or two days per month.

If a condition of severe malnutrition is complicated with a simultaneous threatening infection, such as pneumonia or acute diarrhoea, or if the malnutrition is of the worst protein-wasting type, outpatient care is generally not sufficient. In such cases there are therapeutic feeding centres (TFCs) or stabilization centres for in-patient medical care, with the capability to administer intravenous fluids and intravenous antibiotics, etc. Some of these TFCs are also separate entities, but most operate within district and regional hospitals.

4.2.1.5 Health posts

The health posts represent the first and very basic level of care in the public Somali health system. They are essentially situated in rural areas where the availability of other health facilities is limited, but they lack the capacity to provide any quality health services. The health posts are normally staffed with one community health worker and a traditional birth attendant, both of whom lack formal education or qualifications and normally operate without any managerial support. The traditional birth attendants receive some form of payment from the households where they assist deliveries. The community health workers do not normally receive any remuneration for their work, however, even though the community may provide some small reimbursement for their services. Without any economic incentives or supervision, the workload invested by the community health workers is often very limited and it is not unusual for the health posts to stay open only for a few hours per day.

Most health posts operate under the official auspices of some non-governmental organization or the health authorities, but in reality there is hardly any supervision or control over their activities. The density of health posts varies considerably from region to region. According to reports submitted to UNICEF and WHO Somalia, there are a substantial number of health posts in Somaliland and northern Puntland, almost exclusively managed by the health authorities, whereas there is not a single health post reported for the regions of Nugaal, Mudug, Middle Shabelle and Banadir. In the regions of Bay, Gedo and Hiraaan, on the other hand, the health posts are numerous and primarily supported by World Vision, Trocaire and International Medical Corps (IMC), respectively. In many cases the posts are supported with pre-packed essential medicine kits from UNICEF, but the distribution of such kits is reported to be erratic and inadequate.

¹²⁰ Plumpy'nut is a high protein and energy peanut-based paste, a ready-to-use therapeutic food (RUTF) for famine relief, and Plumpy'doz is rather a supplement.

¹²¹ FSNAU-Somalia (2010). *Nutrition Situation Post Deyr '09/10* – Technical Series Report VI.30, Feb 22, 2010.

4.2.2 Delivery of preventive and supportive child-health services

The majority of child-health services and interventions provided by MCH clinics and hospitals are curative and aimed at restoring the health of the individual child or mother. There is also a range of preventive and health supportive services, however, offered primarily by the MCH clinics, which are generally provided with a view to enhancing both the individual and general child health situation. These include perinatal care, vaccinations and vitamin supplementations and will be described in more detail in the following sections.

4.2.2.1 Antenatal care

By WHO standards antenatal care should cover from three to five antenatal visits, including tetanus toxoid vaccination, iron-folate and vitamin A supplementation, education on health and nutrition and, in endemic areas, intermittent preventive treatment for malaria¹²². The utilization rate of MCHs for the purpose of antenatal care has, however, been very low. According to MICS 2006 data, 20 per cent of pregnant Somali women had seen a doctor (a service which is not available in MCH units) for the purpose of antenatal care. Only 7 per cent had seen any type of MCH personnel (midwife, auxiliary midwife or nurse). Almost 70 per cent of the mothers surveyed had not seen anyone for antenatal care during their last pregnancy.

4.2.2.2 Deliveries

Delivery in the MCH or in another health facility is being promoted by health-care providers and authorities, yet, according to the 2006 MICS report, only about 10 per cent of deliveries are conducted in a health facility¹²³. The HMIS data from 2007 show that 3 per cent of expected deliveries take place in an MCH clinic. Thus, of the small proportion of deliveries that are facility-based, it would seem that deliveries conducted in a hospital are more common than the ones conducted in an MCH clinic. During a home delivery most Somali mothers are assisted by a traditional birth attendant, who does not have any formal medical training or competence to deal with birth-related complications.

These low figures for facility-based attendance are, in part, attributable to the limited capacity of MCH clinics to provide quality services. Most MCHs are only open for a limited period during the day, and their assistance would therefore be difficult to schedule for a woman in labour. Moreover, most of the MCH units cannot provide an enabling environment as they are poorly equipped and the birth attendants' level of competency is also very variable. An enabling environment for delivery care means the availability of support staff for the trained midwife or auxiliary midwife, and the availability of obstetric medicines (such as oxytocine) and medical equipment (a delivery bed, clean intravenous needles, and urine catheters), and access to clean water and light¹²⁴. The better staffed and equipped MCH facilities, with a midwife responsible for deliveries, would in theory probably also have the capability and equipment meeting the standards for BEmOC, including vacuum extraction, but in reality they are required to refer mothers with complicated and obstructed labour to the district or regional hospital¹²⁵.

¹²² If previous tetanus immunization is unknown, ideally two doses should be given during pregnancy to prevent neonatal tetanus of the child. Intermittent preventive treatment against placental malaria should be administered in two sessions in high transmission areas after the foetus first movements, according to WHO guidelines. With the low utilization rate of antenatal care follows also a poor implementation of the antenatal interventions; only 26 per cent of pregnant mothers received (or already had) full tetanus protection and not more than 1 per cent received adequate intermittent preventive treatment with at least two rounds of treatment (MICS 2006, UNICEF).

¹²³ UNICEF Somalia (2006). *Somalia MICS 2006*.

¹²⁴ WHO/UNFPA Somalia (2009). *Addressing Maternal and Neonatal Survival in Somalia – A Situation Analysis of Reproductive Health in Somalia*.

¹²⁵ In Lower Shabelle, for example, COSV is the focal agency for health care and operates 12 MCH units, each equipped with a fully trained midwife, two district hospitals, and one regional hospital. Their MCH clinics have the formal capacity for BEmOC, but in case of a complicated or obstructed labor they refer to either the district hospital (with up and running BEmOC) or the regional hospital (with CEmOC) – depending on the severity of the case and geographical position.

In an attempt to bring more delivering mothers to a health facility and away from home deliveries, several non-governmental organizations, such as ICRC-IFRC, COSV, the International Committee for the Development of Peoples (CISP) and WorldVision, have made specific efforts to improve the delivery service of their MCH units. To this effect, these units have been staffed with a fully trained midwife and equipped to provide the enabling environment described above. Pregnant women receiving antenatal care have been informed of the safety benefits of giving birth in a health facility under skilled attendance and local traditional birth attendants have been encouraged to refer delivering mothers rather than persevere with home deliveries.

In general, this has led to an increase in deliveries conducted at MCH clinics and, according to unpublished HMIS data from 2009, the MCH units of some regions have actually performed well above 10 per cent of the expected deliveries in their catchment area. If hospital deliveries constitute at least half of health facility-conducted deliveries, the ratio of health facility deliveries to home deliveries could soon approach 20 per cent, which is still low, but definitely a shift in the right direction.

4.2.2.3 Postnatal care

Postnatal care, which is another of the responsibilities of MCH clinics, seems to be largely neglected in Somalia, by both the health system and mothers.

Vitamin A supplementation should, according to WHO, be provided for the mother in the post partum period in countries with a high under-five mortality. The instruction is to give one dose (200,000 IU) within 60 days after delivery, to protect the breastfed child from vitamin A deficiency. In Somalia, however, this basic practice is far from mandatory and rarely applied. The 2006 MICS data show that only 9 per cent of mothers who had delivered a child over the preceding two years had received vitamin A supplementation within 60 days of the delivery¹²⁶. This neglect is particularly unfortunate in Somali conditions where, as noted above, breastfeeding practices are deficient and fewer than 10 per cent of infants up to six months of age are exclusively breastfed.

4.2.2.4 Extended programme of immunization (EPI)

Vaccination services of infants and smaller children, together with a few other child health promotional interventions, constitute the core of preventive health care within the MCH clinics. Somalia follows the original EPI-schedule prescribed by WHO with the aim of complete immunization before the age of one against tuberculosis (BCG), polio (OPV), diphtheria-pertussis-tetanus (DPT), and measles (see box 3 below for details). The MCH-based routine coverage of EPI and the administration of these vaccines before the age of one is, however, very low (see the section Coverage, under Performance of child health services, below).

¹²⁶ UNICEF Somalia (2006). *Somalia MICS 2006*.

Box 3. Immunization schedule for Somalia

SOMALI IMMUNIZATION SCHEDULE:

AGE	VACCINES	
Birth	BCG	OPV-0
6 weeks	DPT	OPV-1
10 weeks	DPT	OPV-2
14 weeks	DPT	OPV-3
9 months	Measles*	

* Second dose of measles vaccine may be given at any opportunistic moment during supplementary immunization activities as early as one month following the first dose.

The regular MCH service is to provide routine EPI, under which vaccines are given to eligible children upon visiting the MCH facility. Some primary health-care providers, such as MCH units operated by Trocaire in Gedo, WorldVision in Middle Juba, IMC in Hiraan, and IFRC-SRCS in Somaliland and Puntland, also provide, or aim to provide, outreach services, in which the full range of vaccines are brought out and given to children in villages and individual households to improve coverage.

In principle, all vaccines for the MCH units in Somalia are procured and provided for by UNICEF, which also ensures a functioning cold chain for storage and distribution. MSF constitutes an exception in this regard, as it provides vaccines for its own facilities and immunization activities.

The Somali immunization schedule follows the standardized vaccination schedule prescribed by WHO since 1984. Since that time, however, there have been several updates of the global recommendations for national immunization schemes, which prescribe the inclusion of more vaccines. Routine immunization against hepatitis B and *Haemophilus influenzae* type B (Hib) has been recommended by WHO since 1992 and 1998, respectively^{127,128}. These two vaccines are included, together with DPT, in the multivalent combination-vaccine Pentavalent, which has been available for almost 10 years and which has been, or is about to be, introduced in six out of seven low-income countries supported by the Global Alliance for Vaccines and Immunization (GAVI)¹²⁹. Hib is responsible for the majority of severe cases of bacterial meningitis and for about 25 per cent of bacterial pneumonia in under-five children in non-immunized countries and can also cause life-threatening epiglottitis. Routine immunization with Hib vaccine has proved highly effective in preventing these invasive infections and it is believed that global use of the vaccine could save the lives of some 400,000 children annually¹³⁰. The current WHO recommendations for routine immunization also include rotavirus and pneumococcal vaccine¹³¹. None of these new vaccines are included in the routine schedule for immunization in Somalia

¹²⁷ WHO. Expanded Programme on Immunization. Global Advisory Group – Part1. Weekly Epidemiol Rec 1992; 67: 11-15.

¹²⁸ WHO 2001. *Haemophilus influenzae type b immunization*. www.who.int/vaccines-documents/

¹²⁹ www.hibaction.org - The Hib initiative webpage, accessed 2010-11-24.

¹³⁰ WHO 2001. *Haemophilus influenzae type b immunization*. www.who.int/vaccines-documents/

¹³¹ www.who.int/immunization/policy/immunization_tables - Table 1: Recommended routine immunizations. Updated Oct 21, 2010.

4.2.2.5 Other child-health-promoting interventions

Vitamin A

Vitamin A deficiency increases the risk of child mortality in particular from diarrhoea, but also from measles and malaria. It also significantly increases the risk of corneal scarring and blindness if the child is infected with measles. Furthermore, lack of vitamin A compromises the immune system and makes the child susceptible to other infections. It has been estimated that vitamin A deficiency is responsible for the deaths of more than half a million of the world's under-fives annually¹³². Given the low cost of vitamin A supplementation and its huge impact on child health, the WHO guidelines insist that it is included in primary health-care systems in developing countries¹³³.

According to WHO recommendations, the MCH clinics should ensure vitamin A administration to every child at least every sixth month, from the age of six months until five years of age (from 6 to 59 months). In the event of severe malnutrition, suspected measles, persistent diarrhoea, respiratory infections or any other infectious disease an extra dose is expedient – unless it is less than one month since the last dose was administered.

Data from the Somalia 2006 MICS report revealed that within the last six months only 24 per cent of children aged between six to 59 months had received vitamin A supplementation. No fewer than 62 per cent of the respondents claimed that their children had never received a supplementary dose of vitamin A¹³⁴. The recently published micronutrient and nutritional survey on Somali children and women by FSNAU (2010) found that 36 per cent of Somali children suffer from vitamin A deficiency¹³⁵. This is well beyond the WHO threshold of 20 per cent that classifies the prevalence of vitamin A deficiency as “severe”.

Deworming

The mother and child health (MCH) clinics should also ensure routine deworming. In Somalia albendazole is primarily used for this and ideally it should be given every sixth months to children above the age of one. MCH data for Somalia show that a finding of intestinal parasites is one of the three most common diagnoses among under-fives seeking health care¹³⁶(see chapter 3). Infestations with intestinal worms largely contribute to children's malnutrition, growth retardation and impaired development.

There are no statistics available that show the coverage of routine treatment of intestinal worms in Somalia. From interviews with different non-governmental organizations that operate MCH clinics, it seems as if there is no general and fixed routine of deworming every six months. As noted above, however, the diagnosis is common and it could be that it is not strictly verified but is used instead as a way to label many different and unspecific complaints involving fatigue, stomach symptoms, etc., since the treatment is cheap and causes no harm. Thus, whether routine or not, treatment with albendazole is probably frequently administered, but perhaps not to the extent of international recommendations.

¹³² Black RE, Allen LH, Bhutta ZA et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008; 371: 243-60.

¹³³ WHO/UNICEF (1997). Vitamin A supplements: A guide to their use in the treatment and prevention of vitamin A deficiency and xerophthalmia – Second edition. Geneva, WHO, 1997.

¹³⁴ UNICEF Somalia (2006). *MICS Somalia 2006*.

¹³⁵ FSNAU (2010). National Micronutrient and Anthropometric Nutrition Survey, Somalia 2009.

¹³⁶ UNICEF (2008). Exploring Primary Health Care in Somalia - MCH Data, Somalia 2007.

Growth monitoring and nutritional counselling

The MCH units should also ensure facilities for growth monitoring and prepare action plans to tackle malnutrition of children under five. Apart from measuring weight and height, the screening method known as “measurement of the upper arm circumference” (MUAC) is widely used for malnutrition. In addition to nutritional counselling and support with nutritional products, malnourished children can be referred to the local OTP. Nutritional counselling includes the promotion of breastfeeding and provision of supplementary feeding to mothers of infants.

The provision of information on good hygiene and sanitation practices, besides promoting the use of clean water, is also a very important measure in promoting child health. There is no common, universally employed, standardized information package which is given to mothers and their families by MCH units. Much effort has been made, however, to train health facility staff and community health workers to pass on important health-related messages to the public.

4.2.3 Capacity for service delivery

The overall level of service delivery is very low within the health systems of the three zones. There is a shortage of all resources required for maintaining well-functioning health services. Financial and material resources are scarce, with a huge lack of infrastructure, medicines, materials, and equipment. There is a desperate need for effective management and supervision, and also for medically trained staff with the knowledge, capability and incentives to improve the health systems and the quality of care that they provide. The issue is more complex, however, than a mere question of low output. Poor service delivery can also be ascribed to a generally low demand and the often limited access to and availability of the different services.

4.2.3.1 Availability

There are far more health facilities and different service options available in the urban areas of Somalia than in the country’s rural districts. There are also more people to frequent these services, however, and this demand has to be anticipated with the necessary availability. In urban centres there are not only more public health-care establishments, there are also many private clinics and hospitals offering health services which are normally not available in the rural areas. The only private medical enterprises operating in rural areas tend to be drug outlets, which are rarely of the size, capacity or competence of a proper pharmacy.

Most health facilities in Somalia are somehow designated to serve children and to provide some degree of paediatric care, even though the competence and quality of service are often low. Thus, the availability of child health services is largely a function of the number and distribution of health facilities in the different regions of the country. However, the availability of proper child-health services can be estimated by looking at the number of MCH clinics within a given region in relation to the size of its population. The latter parameter is difficult to assess in Somalia, since official population figures are very outdated: the last proper census was carried out in the 1970s. Both the UNDP and WHO polio programmes in Somalia have unofficial estimates of the population per region and district, which constitute the basis for the availability estimates presented in figure 8.

The availability of an MCH clinic is generally higher in Somaliland and Puntland than in South Central Somalia, as shown in figure 8. On average there are approximately 27,000 people per MCH clinic in Somaliland and Puntland, whereas the same figure for South Central Somalia is 42,000. These numbers are well above the internationally recommended maximum of 10,000 people per MCH clinic. Hospitals and private commercial clinics are not included in this calculation and for regions with predominantly urban settlements they might constitute an additional option.

In addition, the MCH clinics established in urban-like settlements tend to have a larger capacity than their rural counterparts. Thus, the availability of health care is in general better in regions like Banadir, Galbeed, and Bari than that indicated in figure 12, even though the number of people per public MCH clinic might be quite high. The low availability demonstrated for rural regions like Middle Shabelle and Galgaduud, on the other hand, is of major concern, as there are hardly any appropriate options other than the MCH clinics in these regions.

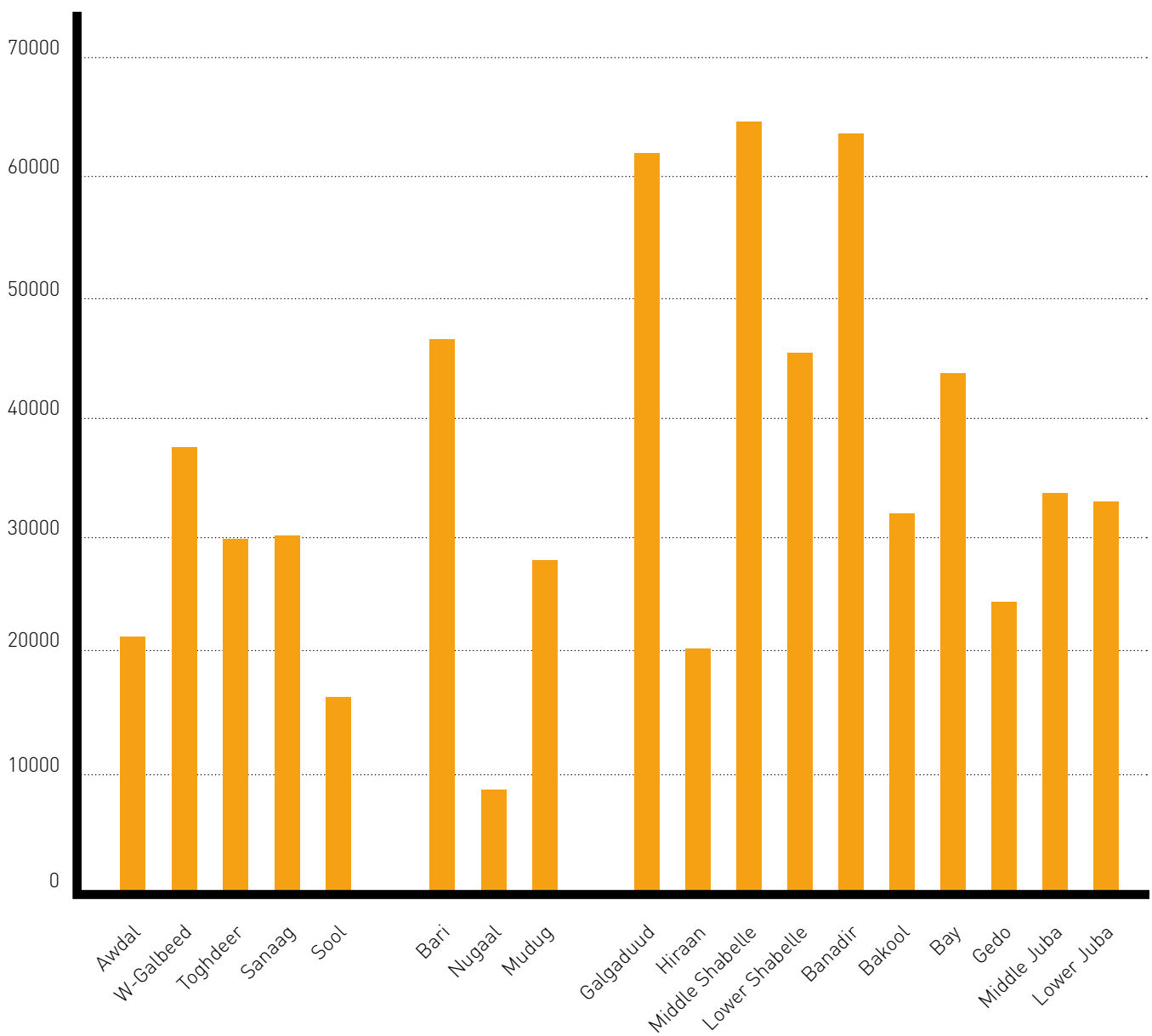
The recent rise to power in the south by the al-Shabaab faction, and to some extent the take-over of the central regions by Hizbul Islam, have resulted in the substantially reduced availability of many health facilities, including MCH clinics. The international non-governmental organizations have been particularly obstructed by the new administrations and therefore face great difficulties in providing their services. In 2008 al-Shabaab declared that no organization linked to the international community, and as such directly or indirectly supported by the United States Government, was allowed in its controlled areas. The faction demonstrated its seriousness by looting and vandalizing health facilities managed, or supported, by international organizations and agencies and threatened, and in some cases even abducted, their staff.

In the turmoil of 2008, a total of 40 health workers employed by international non-governmental organizations were killed. Many of the non-governmental organizations have therefore withdrawn all their activities from South Somalia and all such organizations and agencies have withdrawn their international staff from the whole of South Central Somalia; many have withdrawn from the whole of Somalia. ICRC, together with the Somali Red Crescent Society (SRCS) and a few other health partners, and also a few other agencies, are still able to provide their services, but under substantial constraints and with a largely increased workload, as they have to cover for the organizations that have been pushed out.

A good example of this can be seen in the region of Middle Shabelle, where the availability of MCH clinics is now very limited following the withdrawal of several facilities managed by non-governmental organizations. Over the last few years there is effectively only one international non-governmental organization that has remained operative. Since the provision of health care from other sources has been scarce, this non-governmental organization has become responsible for virtually all MCH care in the region. The region's population of approximately 580,000 has therefore been dependent on the services of only a handful of MCH facilities, managed by this organization.

Figure 8. Regional availability of MCH clinics

(expressed as the number of people per MCH clinic: the estimated values have been calculated from HMIS data and population figures from the WHO polio programme)



4.2.3.2 Accessibility

With more health-care providers available in urban areas, this should mean that health care has become more accessible for the urban population. In addition to a larger number of health-care facilities to choose from, the urban setting means that there are fewer constraints in terms of transport, as distances are shorter and the means of transport are cheaper and therefore more accessible.

The much frequented private pharmacies are also more abundant in urban areas. Private pharmacies, or drug vendors, are not an exclusively urban phenomenon, however. In fact, the Somalia 2006 MICS data show that, of the respondents who actually tried to find a modern medical remedy for their child's suspected pneumonia, a larger proportion of rural inhabitants than of the urban population turned to the private pharmacies (62 per cent, as against 50 per cent)¹³⁷.

As the availability to health care has recently been reduced in several regions, the public's access to health services has also been significantly worsened. This is mainly due to the increased risk that people will face being out on the road, travelling, and to the dramatic increase in transport costs. Again, it is the rural people that are most affected, since they have to cover longer distances to reach appropriate health care.

4.2.3.3 Quality of care

The quality of care provided by most health facilities in Somalia is very low by international standards and most units operate at a level far below their intended capacity. The difficult conditions associated with operating in a conflict situation with political instability and under severe constraints in terms of security and transport options have contributed to the health system's poor infrastructure, lack of maintenance and shortage of medical supplies and equipment. Economic constraints, caused by a shortage of financial resources and general absence of developmental activities, further inhibit the possibilities of providing good quality care, as does the extreme shortage of qualified health professionals.

The MCH clinics often fail to provide the services that they are expected to offer, such as immunizing children according to the EPI-schedule. The vaccines should be delivered by UNICEF, but the procurement of both vaccines and drug-kits tends to be erratic. Several health-providing agencies report a protracted lack of vaccines. For example, the MCH clinics of COSV in Lower Shabelle and CISP in Galgaduud have been unable to immunize the children in their catchment area for almost one year because of a shortage of vaccines and cancelled deliveries (information provided during interviews, 2010).

Many of the health facilities deliver poor-quality care because of a lack of basic infrastructure, such as running water and electricity. Such conditions, combined with the lack of trained personnel, inevitably result in the delivery of poor-quality services¹³⁸. An MCH clinic struggling with these constraints should be disqualified as a proper and safe health facility.

There are, however, some better performing facilities within the public primary health-care system. Some MCH clinics are well staffed with both qualified nurses and midwives and run a comparatively well managed and comprehensive health service, with deliveries, programmatic health education of the public, outreach activity for EPI, in-training of staff, etc. From the information gathered, it seems as if the best operated MCH facilities are those managed by an international non-governmental organization in a region which, in political terms, is comparatively stable and which customarily set fairly high targets and standards for their services.

¹³⁷ Calculation from UNICEF Somalia MICS 2006 data on careseeking behaviour for suspected pneumonia, Table CH.6.

¹³⁸ WHO Somalia (2009). *Country Cooperation Strategy – Somalia 2010-2014*.

The setting of high targets is characteristic in particular of one international non-governmental organization which manages the largest number of district and referral hospitals in the country. Its aim is to provide the same quality of health care and medical treatment as that available in the developed world. It procures all its medicines from Europe and undertakes to treat medical conditions in accordance with international treatment guidelines and good clinical practice. Current political conditions have also hampered its projects, however, and the organization is struggling to deal with insecurity, delayed deliveries, and an ever increasing queue of patients.

In this context, we should draw attention to the general lack of treatment guidelines. The quality of service also depends on a facility's basic standards, proper management and supervision and on the presence of clinical guidelines or treatment protocols. At the primary health-care level these characteristics are all very limited – and, from the information gathered, more often than not altogether non-existent. As a result, health staff often find themselves operating in a vacuum more or less without points of reference. Even though there are exceptions in terms of management and the regular use of treatment guidelines, as noted above, there are no universally applied clinical guidelines or any general consensus on how to manage different clinical cases at the level of either primary or secondary health care. The most widely applied clinical guidelines would seem to be the WHO Somalia Standard Treatment Guidelines (2007), which many non-governmental organizations claim to be using for their clinical practice in MCH units and hospitals.

From the standpoint of child health, however, there is also a lack of integrated management guidelines addressing both preventive health care and medical treatment. The guidelines on the integrated management of childhood illness (IMCI), issued by WHO and UNICEF, which have been successfully introduced in over 50 low-income and middle-income countries, have not been implemented in Somalia. In 2005 an IMCI pilot was undertaken in Hargeisa, Somaliland. The pilot was successful, according to an implementation report, but it was neither sustained nor further developed¹³⁹. Some interviewees (UNICEF staff) consulted for this report said that the IMCI guidelines were perceived as too complicated and not in line with the low capacity and clinical competence of the MCH clinics engaged in the project. Others have also expressed scepticism about the prospect of a new attempt, in view of the limited capacity of the health-care workforce within the primary health-care system. A few non-governmental organizations have, however, modified some parts of the IMCI for the management of some vital diagnoses. For example, International Medical Corps (IMC) applies the IMCI guidelines in its MCH units for the treatment of ARI-pneumonia, diarrhoea and dehydration. The IMCI guidelines have also been perceived as too complicated for full implementation at district and regional hospital level, but consideration is being given to the idea of introducing a modified or more focused form for paediatric services¹⁴⁰.

The MCH clinics managed by ICRC and IFRC, both using SRCS as their implementing agency, use combinations of clinical guidelines, derived from those of WHO and another major international non-governmental organization, in their child-health work. The international organization, which is managing the largest number of hospitals in the country, has its own clinical guidelines for just about every clinical setting and age group, which are themselves based on WHO recommendations. Nurses, midwives and physicians at these hospitals are instructed to follow the guidelines strictly, and they receive regular training and refresher courses in good clinical practice, some of which are provided over the internet by the African Medical and Research Foundation (AMREF).

¹³⁹ UNICEF Somalia (2005). *Review of IMCI Early Implementation Phase, Hargeisa/Somaliland*, August 2005.

¹⁴⁰ According to dr Renato Corregia, Health Advisor UNOPS, who is engaged in a project of supporting about ten Somali hospitals in management and clinical procedures.

4.2.3.4 Demand

The demand for conventional (i.e., modern) health care is generally low in Somalia. The public health-care system is particularly underutilized, as there is also competition from the comparatively strong commercial health sector. Data from the HMIS system (UNICEF 2007) indicates that the utilization rate for public primary health care facilities is as low as 0.13 per person per year¹⁴¹. This means, in plain language, that the average Somali visits a public MCH clinic or OPD once only every eight years. The rate is higher for children under the age of five, where the same source shows that each child has 0.28 MCH consultations per year, or visits an MCH clinic once every four years. For children in the under-one age group, the routine EPI-coverage rate for DPT can be used instead as a proxy for the utilization of MCH services. The figures for 2008 show a coverage rate of 40 per cent for DPT1 and 31 per cent for DPT3¹⁴². Where children covered with DPT1 are concerned, this means that they have made at least one visit to an MCH clinic. Thus, MCH clinics and OPDs are more frequently visited by mothers and young children than by the average Somali citizen, but the figures still show that the primary health-care establishments are not perceived as mandatory institutions for the support of a pregnancy or the child's first years in life.

Other data which underscore the low utilization rate for public MCH services in Somalia are, as mentioned above, the fact that fewer than 10 per cent of pregnant women seek antenatal care with primary health-care facilities and that only 5–10 per cent gives birth in an MCH unit¹⁴³. Another indication is that, according to the 2006 MICS, a mere 4 per cent of children under five years of age with suspected pneumonia were taken to an MCH or OPD – compared to 17 per cent who went to a private pharmacy and almost 70 per cent who received no health care at all.

4.2.3.5 Coverage

The degree of coverage in general reflects the ability of a health system to reach out to the public with its services. Together with output quality, coverage constitutes a primary contributing factor to the performance of the health service. Coverage can be restricted by low demand for the service, but it can also be limited by the inability of the health system to provide the service, owing, for example, to a shortage of medicines or vaccines. In the case of public child-health related services in Somalia it can be difficult to judge whether the often poor coverage of services is attributable to limited demand or limited service capacity. For most types of services it is probably a combination of the two.

The coverage rates for the vaccines included in the national immunization schedule are of importance for the child-health conditions of the country and are comparatively well monitored; they can therefore be used to assess the public health system's ability to provide service coverage. These figures may vary, depending on whether they are assessed through administrative data or community-based surveys (such as the UNICEF Somalia MICS). Administrative data here are based on the health providers' reports to UNICEF and WHO Somalia or to the health authorities (Somaliland) on their immunization activities. By Somali standards, the immunization rates have been fairly well registered, as the procurement and consumption of vaccines have been controlled by UNICEF (except for vaccines, which have been administered by one of the major international non-governmental organizations), but reporting from the health facilities has been erratic and of poor quality, as noted above. With the improved implementation in recent years and the strengthening of the HMIS, however, there has been a general improvement in the reporting on immunization activities.

¹⁴¹ UNICEF (2008). *Exploring Primary Health Care in Somalia - MCH Data, Somalia 2007*.

¹⁴² WHO/UNICEF (2009), *Review of the National Immunization Coverage 1980-2008 - Somalia*.

¹⁴³ UNICEF Somalia (2006). *MICS Somalia 2006*.

When using data on immunization coverage as a measure of the existing health system's ability to provide a service it is understood that one should use data from routine EPI, which are figures derived from fixed facilities, and that immunization data from supplementary vaccination campaigns should not be included. In fact, data from immunization campaigns are often not reported to national and international registers. Thus, the actual coverage rates for some vaccines might actually be higher than the official figures, as is the case, for example, with polio immunization in Somalia. The coverage rates presented in table 5 are estimates of the routine coverage of the vaccines included in the regular EPI schedule for 2008 based on HMIS reports to UNICEF and WHO, together with survey data for the same vaccines from the 2006 MICS.

Table 5. Coverage rates for routine immunization with standard EPI vaccines by the age of 1 in Somalia
(assessment of children 12–23 months)

ZONES	COVERAGE ESTIMATE ACCORDING TO UNICEF/ WHO REPORTING 2008	COVERAGE ESTIMATE ACCORDING TO SURVEY DATA – MICS 2006
1-year old children immunized against tuberculosis (BCG-vaccine)	36 %	26 %
1-year old children fully immunized against DPT; received DPT3	31 %	12 %
1-year old children immunised with DPT1	40 %	20 %
1-year old children fully immunized against polio; received polio vaccine no 3	24 %	35 %
1-year old children immunized against measles	24 %	19 %
1-year old children fully immunized	-	5 %

Sources: WHO/UNICEF (2009), *Review of the National Immunization Coverage 1980-2008 – Somalia and MICS Somalia 2006* (UNICEF).

Unpublished HMIS data from 2009 presented to health partners demonstrate no actual improvement in the routine coverage rates. The overall rates for Somalia show a coverage rate for DPT3 of 28 per cent and for measles vaccine of 26 per cent. In Puntland, however, there has been a substantial improvement in the figures, with an average coverage for DPT3 of 56 per cent and for measles vaccine of 59 per cent, but this is actually due to reporting of two supplementary campaigns conducted in six urban areas during 2009 and should therefore not be interpreted as a radical improvement in regular MCH performance (see also figure 9 below).

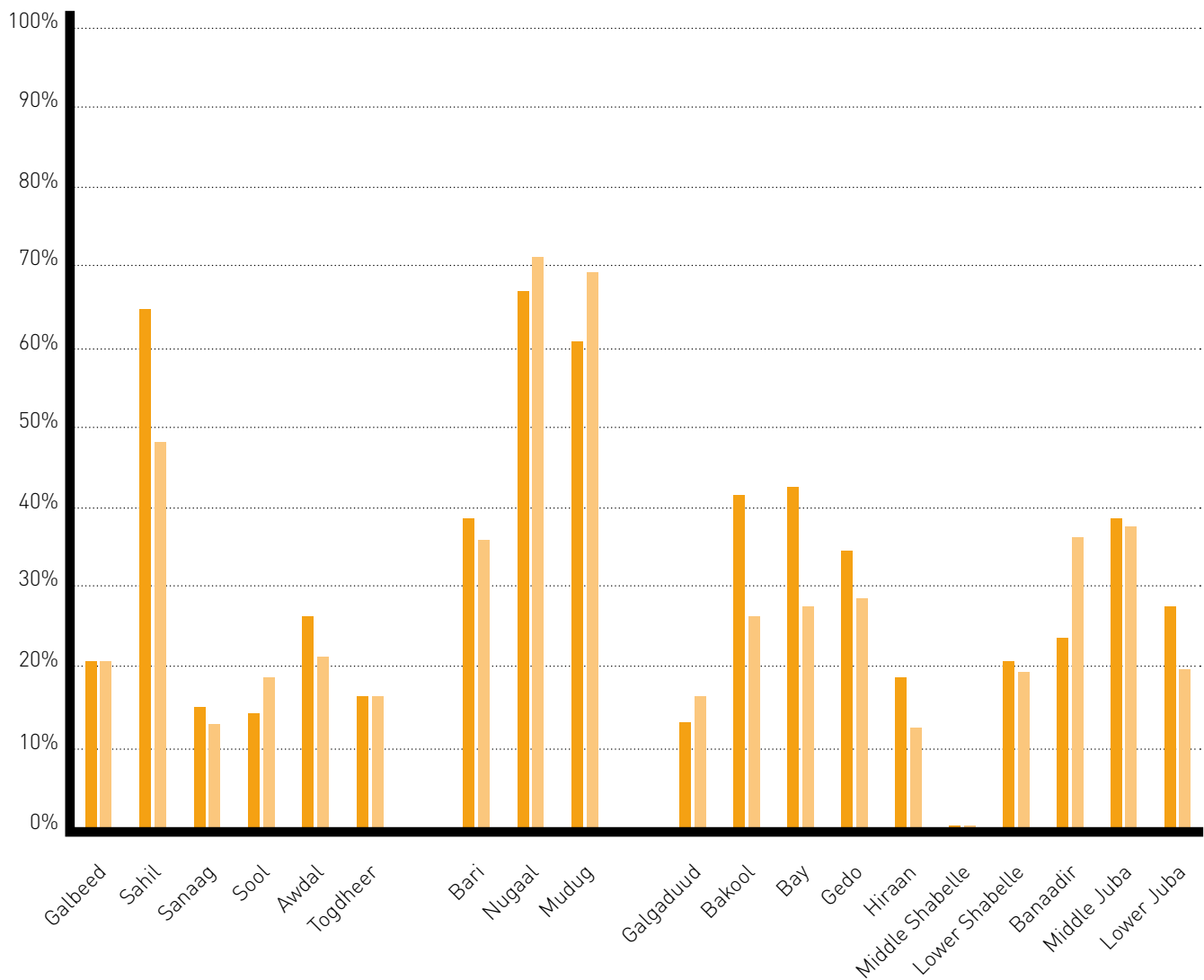
A breakdown of the coverage rates into different regions and zones reveals further interesting results in terms of coverage and performance. It could, for example, be expected that routine immunization was higher in Somaliland, with its comparatively stable political situation and more structured health system. On the contrary, however: the Somaliland coverage rates for DPT3 and measles vaccine are actually slightly lower than the corresponding rates for South Central Somalia (26 vs. 27 per cent and 24 vs. 26 per cent, respectively). The average for South Central Somalia also includes one region, Middle Shabelle, where the reported routine coverage is a meagre 1 per cent, which means that the other regions of South Central Somalia are correspondingly higher, and that their coverage is better than the regions of Somaliland. The regular health services in Middle Shabelle have suffered substantially from the political turmoil of recent years. The UNICEF Somalia office in Middle Shabelle was looted in 2008 and huge stocks of vaccines, medicines and other medical equipment were lost. Many health-providing non-governmental organizations have, as already noted, left the region and abandoned their facilities. The MCH services have basically been covered by a single international non-governmental organization which manages six MCH clinics in Middle Shabelle, but their data of EPI-activities are not reported to HMIS, UNICEF or WHO.

Another zonal comparison of coverage and performance can be obtained by examining average number of consultations carried out by MCH clinics. Naturally, this varies greatly and, according to HMIS data, there are some facilities which receive about 3,500 children under the age of five per month, while others report that not a single child had been seen. An average MCH clinic in South Central Somalia manages to see about 750 patients per month, while for Puntland and Somaliland that figure is some 400 and 250 patients per month, respectively. Somewhat fewer than half of these are children under five, as the reported average number of under-five children attended to per month per MCH clinic was 335 in South Central Somalia and 160 in Puntland (Somaliland has not reported specific figures on under-five children)¹⁴⁴.

¹⁴⁴ UNICEF (2008). *Exploring Primary Health Care in Somalia - MCH Data, Somalia 2007*.

Figure 9. Regional immunization coverage of DPT3 and measles vaccine (MCV) through routine EPI during 2009

Figure prepared by author on the basis of datasets provided by UNICEF Somalia (HMIS)



ROUTINE EPI COVERAGE FOR DPT3 AND MCV IN 2009

■ DPT3
 ■ MCV (measles)

4.2.4 Outreach campaigns

Several large-scale outreach programmes have been supported in Somalia by the international community, with the aim of promoting child health. These have been initiated in response to the poor performance of the existing health systems and their very limited service delivery and low coverage of health interventions, in particular their insufficient routine EPI coverage, as noted above.

Outreach campaigns imply that the delivering units of the health interventions extend their geographical reach to village/community level or literally knock on doors to offer for example polio vaccine. The principal campaigns previously conducted in Somalia focused on polio or measles immunization, whereas the current child health days campaigns cover both of these, in addition to a number of other health interventions. These campaigns have largely been launched and managed by WHO and UNICEF in collaboration with Somali health authorities and some international non-governmental organizations.

4.2.4.1 Polio programme

The polio programme in Somalia was implemented as a part of the Global Poliomyelitis Eradication Initiative (GPEI), which was launched by WHO in 1988 and which is the largest global public health initiative ever mounted. The programme is a combination of extensive outreach immunization with oral polio vaccine (OPV) and surveillance with an early response to suspected new cases. The last outbreak in Somalia occurred in March 2005 when a poliovirus strain from Yemen spread into the country and paralysed about 230 Somali children. Now the country has been polio-free for four consecutive years, with the last case confirmed in March 2007¹⁴⁵.

Among the vaccines included in the EPI-schedule, the highest coverage rates are those for OPV through routine EPI-activities, even though the routine coverage for full protection of children under the age of one (four doses; OPV 0–3) only occasionally exceeds 40 per cent¹⁴⁶. The target rate for sustained polio eradication has been set at 80 per cent by WHO. Additional outreach immunization campaigns have therefore been needed.

The polio outreach programme is managed by WHO Somalia, and it used to conduct about eight rounds per year of supplementary immunization activities (SIA), normally with national coverage, such as through the national immunization days, at which the polio team distributes OPV from door to door¹⁴⁷. This frequency has been reduced to four rounds per year, largely because of a lack of funding. Currently, the polio programme manages two annual separate rounds of national immunization days, while the remaining two rounds are incorporated in the child health days campaign (see below). Through the outreach activities of the polio programme the national coverage of OPV for children under the age of one is estimated to be above 90 per cent¹⁴⁸, although this coverage via outreach campaigns is not officially reported and has not been incorporated into the national vaccine coverage data, as pointed out earlier.

¹⁴⁴ UNICEF (2008). *Exploring Primary Health Care in Somalia - MCH Data, Somalia 2007*.

¹⁴⁵ WHO *Somalia Monthly Polio Bulletin*. Issue 9, Jan 2010.

¹⁴⁶ WHO/UNICEF (2009). *Review of National Immunization Coverage 1980-2008, Somalia*.

¹⁴⁷ The comparatively high frequency recommended for outreach immunization with OPV is explained by the relatively low sera-conversion rate; only about 25% of the immunized children acquire immunity from one dose. To ensure almost complete coverage repeated doses are required (4 doses are given in the routine EPI-schedule).

¹⁴⁸ Information from Dr. Abraham Mulugeta, Polio program coordinator WHO Somalia.

In addition to outreach with OPV, the programme supports a number of health facilities appointed for polio surveillance, such as acute flaccid paralysis (AFP)-surveillance sites¹⁴⁹, with the training and equipment for the early detection of and response to suspected new cases. In the event of a newly confirmed incidence of polio, the polio team will promptly mobilize and conduct a regional supplementary round of immunization, known as a “mop-up” campaign.

4.2.4.2 Measles campaigns

Where the campaign against measles is concerned, Somalia has not seen the same cohesive programmatic approach as with the polio programme. One large-scale national measles campaign was conducted in 2006 and 2007. That campaign was led by WHO and UNICEF and reached 450,000 children from 9 months to 15 years of age. In addition, there have been a few smaller catch-up operations, managed by other agencies, with more regional coverage. These campaigns have been implemented as part of the global measles initiative, which was launched to reduce measles deaths with 90 per cent from year 2000 until 2010. The measles initiative receives its major support from GAVI, and both WHO and UNICEF are two of the initiative’s leading agencies¹⁵⁰.

According to the EPI schedule, the measles vaccine should ideally be given as one injection at the age of nine months; if it is given before nine months of age there is a risk that maternal antibodies will interfere with the immunization. The current WHO guidelines also recommend a second dose, either as part of a scheduled routine or in a campaign mode, to cover for the 15 per cent who did not acquire sera-conversion with the first dose and for those who missed receiving their first dose before the age of one¹⁵¹. In Somalia this procedure has not yet been incorporated in the routine policy. The routine EPI coverage rates for Somali children under the age of one have been estimated at between 24 and 40 per cent over the last ten years¹⁵², well below the WHO target of 90 per cent routine coverage.

As a result of the campaigns described above, a marked reduction has been reported in measles cases during the last few years – from about 12,000 cases in 2004 to 2,500 in 2008¹⁵³, as reviewed further in chapter 3. The coverage for measles vaccine is unquestionably better than that suggested by official data from routine EPI, but the figures are again uncertain as outreach immunization is not reported to the authorities. An outreach campaign for the immunization of children under the age of five against measles forms part of the current child health days campaign.

On the lines of the AFP-surveillance sites for polio, WHO has started to put up measles surveillance sites for the early detection and confirmation of cases and for response to them. Currently there are nine active measles surveillance sites operating in Somaliland, but Puntland and South Central Somalia are still waiting for their first sites to be established.

¹⁴⁹ AFP = acute flaccid paralysis. Typical feature of the worst form of poliovirus infection; paralytic poliomyelitis.

¹⁵⁰ UNICEF Press release (Sept 2008). www.unicef.org/media/media_45677.html

¹⁵¹ WHO (2009). *Measles vaccines*: WHO position paper. WHO Weekly epidemiological record, No. 35, 2009, 84, 349-360.

¹⁵² WHO/UNICEF (2009), *Review of the National Immunization Coverage 1980-2008 – Somalia*.

¹⁵³ WHO/EMRO (2009). *CSR Surveillance Report of Somalia*, January – December 2009.

4.2.4.3 Child health days

The child health days campaign is by far the most ambitious and extensive outreach programme to promote child health that has ever been conducted in Somalia. The plan is to reach out to the whole of Somalia, on the community level, with a comprehensive health package to each and every Somali child under the age of five. It is a component of the Accelerated Young Child Survival Initiative mounted jointly by UNICEF and WHO Somalia in partnership with local authorities and non-governmental organizations that was launched in December 2008. The child health days are implemented through the polio infrastructure and its staff, as the polio network, represented in each district, was considered the best available platform for this large-scale campaign.

The immunization package consists of a range of vaccines included in the standard EPI schedule, except BCG, along with vitamin A supplementation, deworming, distribution of oral rehydration salt and water purifiers (Aquatabs), and finally tetanus vaccination for mothers of childbearing age (see table 6 below). The aim is to protect children under five from the main preventable diseases and water-borne illnesses.

Table 6. Interventions and target groups for the child health day campaign

INTERVENTION	TARGET GROUP
Polio vaccination (OPV)	Children 0–59 months
Measles vaccination	Children 9–59 months
DPT 1-3 vaccination	Children 6 weeks–11 months
Vitamin A supplementation	Children 6–59 months
Deworming (Albendazol)	Children 12–59 months
Oral rehydration salt (ORS)	Children 0–59 months
Aquatabs	Children 0–59 months
Tetanus toxoid 1–5 vaccination	Women of childbearing age

The campaign was launched in early 2009 in Somaliland, and from there it has gradually moved south, with the aim of covering the whole of Somalia. When the first round was completed the campaign was resumed in Somaliland, with another round. The plan has been to conduct a new round of the child health day campaign in each zone every sixth month. In the first quarter of 2010, the whole of Somalia, except for Lower Shabelle and the Kismaayo area of Lower Juba, had been covered by two rounds of the child health days campaign. The regions of Lower Shabelle and Kismaayo have not been included, because permission was not granted by the local authorities. A third round should have been completed in the accessible parts of South Central Somalia by the end of 2010, and a fourth round should commence in Somaliland.

The child health days campaign covers several different parts of a region, with field teams operating simultaneously in each region, setting up their immunization posts in various communal areas, such as schools and mosques, and also MCH clinics or health posts, for a period of five days at each site. By ensuring continuous outreach in this manner, the campaign can provide each child full immunity against the included antigens within a reasonable time, even if the child is never immunized for anything at a fixed EPI site, such as an MCH centre.

The national immunization coverage of children under the age of one has been boosted considerably through the child health days campaign. Recently reported data for the combined coverage of the child health days campaign and routine EPI show a current DPT-3 coverage level of 51 per cent for children under the age of one in Somalia (as compared with the routine EPI coverage of DPT-3 in 2008 of 31 per cent).

The combined coverage of DPT-1 is estimated at some 90 per cent after the first two rounds of child health days. The measles vaccine coverage for children under the age of one is calculated at 58 per cent, through the child health days campaign alone (EPI coverage for 2008 was 24 per cent)¹⁵⁴. Information was never requested on any previous measles vaccination, but the vaccine was given to all children under five. It is therefore not possible to give a current combined coverage rate from routine EPI and child health days, but it is evident that at least 58 per cent of the children under one have been immunized.

The substantially increased coverage rates for the standard vaccines in children below the age of one, together with the increased coverage of measles and polio immunization for all children under five and the delivery of other health-promoting interventions, clearly indicate that the child health days campaign has been successful in improving the health and survival of the children in Somalia. The campaign is criticized, however, for its heavy cost, as the budget for one round is some \$9 million. That said, it might still be the most cost-effective way of delivering so many health-promoting interventions in a single strike, since the campaign targets almost 1.5 million children. The average cost for the combined interventions per child and round is calculated at around \$7, compared to \$60 for the full immunization of one child through routine EPI¹⁵⁵.

An economic evaluation of the child health days campaign in Somalia was undertaken in November 2010 by the Centre for Disease Control in Atlanta, United States of America. Preliminary data from this evaluation show a very good cost-effect ratio, as the child health days operation can avert one so-called "disability-adjusted life-year" (DALY) for a cost of \$36, which should be compared with the per capita gross national product (GNP) for Somalia of \$140¹⁵⁶. This means that each Somali generates on average \$140 per year: thus, for each \$36 spent on the child health days campaign, there is a return of \$140 for the productive year generated thereby¹⁵⁷.

¹⁵⁴ Information presented by Dr. Imran Izha, UNICEF immunization expert, at the SHSC monthly EPI meeting.

¹⁵⁵ WHO Somalia (2010). *Child Health Days Report – Somalia*, March 2010.

¹⁵⁶ UNICEF 2009 *The State of the World's Children – Special Edition*; Statistical Tables

¹⁵⁷ Information from CDC shared with partners within the SHCS on a briefing Nov 19, 2010.

In parallel to these positive outcomes, there is a fear, particularly among non-governmental organizations involved in running MCH centres, that the child health days will erode the regular activities of the MCH clinics. Several informants from locally active non-governmental organizations report a decline in the activity of their own MCH facilities during the periods of the child health days campaign. This could have been caused by competition for the health-care work, in which the regular staff of the MCH facility chose temporary employment with the better-paid child health day operation, which apparently occupied them not only during the days of the campaign but also during its preparation and dismantling. The shift away from the fixed MCH facilities could also be due to reduced demand for their services, as the attention of the public is drawn to the child health days. In fact, scrutiny of the latest performance figures for routine EPI (2009, unpublished HMIS-data) will also reveal a slight decline in the coverage rates, especially in South Central Somalia, which could have been caused by these competing factors and a concurrent failure to beef up the MCH services as immediate needs and service delivery were more easily taken care of by the child health day campaign.

In the longer term, there might be other more sustainable solutions than the child health day campaigns. A transition to more outreach activities from existing health units and increased community-based services could possibly provide equivalent interventions. For the time being, however, and given the poor service delivery from existing health systems, the child health days campaign must be considered a very valuable contribution to the health situation of Somali children.

4.3 Health-care workforce

The majority of the health-care workforce in Somalia lacks any kind of formal medical education or clinical training. In South Central Somalia, over 50 per cent of the health-care staff is unskilled and most staff do not receive any structured in-service training. A recent inventory of the personnel in the MCH clinics of Somaliland showed that 70 per cent had no formal training or certification¹⁵⁸. Somali public health professionals are in general also operating without any structured guidance or work directives. Moreover, they often lack economic and career incentives to improve their output and possibilities for training and professional development are scarce.

4.3.1 Qualified health professionals

According to latest estimates from the different health authorities, there are about 250 practising physicians in the whole of Somalia¹⁵⁹. This means that there are no more than three physicians per every 100,000 inhabitants. Moreover, many of these do not work in the public health sector, but in private practices and clinics. In Puntland, where the private sector is particularly strong, the majority of doctors work in private health facilities. It is evident that South Central Somalia, with 70 per cent of the population, has the most alarming shortage of medical doctors, as only 94 of the 250 registered physicians are practising in South Central Somalia¹⁶⁰. The number of paediatricians is very limited. Most regional (referral) hospitals and larger private hospitals do, however, have one on their staff. A 2006 assessment from Somaliland and Puntland reported that six hospitals in Somaliland and five in Puntland had a practicing paediatrician¹⁶¹.

Recent data from the health authorities show that there are some 860 registered nurses across the whole of Somalia, which gives a ratio of 11 nurses per 100,000 inhabitants¹⁶². In addition, many of the nurses are employed in the private health sector, especially in Puntland. The shortage of qualified nurses is again most pronounced in South Central Somalia, where there are fewer than 200 registered nurses, giving a ratio of no more than 3.6 nurses per 100,000 inhabitants.

There are medical schools (but no university hospitals) and several training institutes for nurses in the capitals of each zone, from which newly trained physicians and nurses graduate. Most of them find work in the private sector or even emigrate.

¹⁵⁸ WHO Somalia 2009. *Country Cooperation Strategy – Somalia 2010-2014*.

¹⁵⁹ *Ibid.*

¹⁶⁰ *Ibid.*

¹⁶¹ WHO/UNFPA Somalia (2009), *Addressing Maternal and Neonatal Survival in Somalia – A Situation Analysis of Reproductive Health in Somalia*.

¹⁶² WHO Somalia (2009). *Country Cooperation Strategy – Somalia 2010-2014*.

Table 7. Distribution of physicians, nurses and midwives in Somalia

	CENTRAL SOUTH SOMALIA	SOMALILAND			PUNTLAND			TOTAL SOMALIA
	Total	Public	Private	Total	Public	Private	Total	
Physicians	94	43	42	85	32	42	74	253
Qualified nurses	189	240	96	336	128	208	336	861
Midwives	10	44	15	59	29	18	47	116

Source: Zonal MoH 2007

The number of registered midwives is very low, with only 116 in the whole country. Again, the shortage is most acute in South Central Somalia, where there are just 10 registered midwives. In the interviews for this report, however, several of the non-governmental organizations operating in South Central Somalia said that they have MCH units staffed with qualified midwives, and based on those reports alone (which do not reflect the situation across the whole country) the actual number is much higher than the officially reported figure of 10. Thus, while this actual total is indisputably alarmingly low, it is still better than this official figure. Another source – a 2007 inventory of primary health care services compiled by Save the Children–United Kingdom in collaboration with several United Nations agencies – put the number of midwives in South Central Somalia at 200. This discrepancy could perhaps be attributed to the inherent ambiguity in the definition of a “midwife”. The function of “midwifery” is performed by qualified midwives, auxiliary nurses or midwives, and also by traditional birth attendants. Some of the latter may have received some formal training and may therefore be considered “trained birth attendants”.

4.3.2. Unqualified health workers: traditional birth attendants

Approximately half the health-care workforce is unqualified and lacks formal medical education or training. These practitioners might nevertheless have gained considerable and valuable experience from working in the health sector, but no formal requirements are made of them nor are their skills and clinical competence monitored in any way. This professional group includes auxiliary nurses, assistant nurses, auxiliary midwives, community health workers and traditional birth attendants. The former largely work within conventional health institutions, such as MCH clinics and hospitals, whereas the community health workers normally run the health posts. Traditional birth attendants may also work at the health posts but they primarily assist delivering mothers at home and therefore have exceptional access to Somali families. This vantage point enjoyed by the traditional birth attendants could be put to better use by the health services in order to bring health interventions to mothers and newborn children and to give them health-promoting advice and education.

According to 2006 MICS data, 90 per cent of deliveries take place at home¹⁶³, and it is widely testified that home deliveries are almost always assisted by traditional birth attendants. The attendants could therefore play an important role in the critical neonatal period, which many children in developing environments do not survive. Their role in taking care of the newborn and in essential neonatal practices is traditionally limited, however. The traditional birth attendants have no formal training and they are usually illiterate with an uncertain knowledge of good clinical practice, hygiene, obstetrical complications, etc¹⁶⁴. They usually only participate in the actual labour and delivery, and are not involved in antenatal and postnatal care¹⁶⁵.

Traditionally, they are paid by the family upon delivery of the newborn child, a practice which has been recognized as a problem and which contributes to the often long delayed referrals of mothers with complicated or obstructed labour to an appropriate health facility. Indeed, if the mother is referred to a health facility before the baby is born, the traditional birth attendant will not receive her reimbursement and therefore has a strong incentive to complete the delivery herself. The decision to refer and to bring the mother into a health facility is not exclusively in the hands of the traditional birth attendant, however; other family members, clan leaders, traditional healers and others also need to be consulted, which delays the process even further.

Some non-governmental organizations have recently started to give the traditional birth attendants some monetary compensation when they refer a woman in labour to their MCH units. For example, in Lower Shabelle, COSV pays the attendant the standard sum for a home-based delivery if she brings the mother in to deliver in their MCH facility instead of at home. According to oral testimony, this has increased their MCH-conducted deliveries substantially.

Given the key position occupied by traditional birth attendants in maternal and child health, several attempts have been made by non-governmental organizations and United Nations agencies both in Somalia and in other developing countries to improve their skills and knowledge of good delivery care. Studies of the impact of such interventions have not, however, been able to show any significant improvements in either maternal or neonatal mortality¹⁶⁶. The focus has therefore now shifted to promoting deliveries within appropriate health facilities, as noted above, and to training traditional birth attendants in the recognition of complications and early referral, along with neonatal practices¹⁶⁷. Several non-governmental organizations have also started to engage the attendants in their EPI activities, to help out in such areas as defaulter tracing and the mobilization of mothers and children prior to outreach immunization.

¹⁶³ UNICEF Somalia (2006). *Somalia MICS 2006*.

¹⁶⁴ WHO/UNFPA Somalia (2009). *Addressing Maternal and Neonatal Survival in Somalia – A Situation Analysis of Reproductive Health in Somalia*.

¹⁶⁵ *Ibid.*

¹⁶⁶ Sibley LM et al. *Traditional birth attendance training for improving health behaviours and pregnancy outcomes*. Cochrane Database Systems Review. 2007 July 18; (3):CD00546.

¹⁶⁷ WHO/UNFPA Somalia (2009). *Addressing Maternal and Neonatal Survival in Somalia – A Situation Analysis of Reproductive Health in Somalia*.

4.4 Health information systems

The Somali health services lack functioning systems for reporting and sharing health-related information. Such information systems are absolutely crucial in evaluating the public health situation and its short-term and long-term needs. They are also essential, however, for evaluating the health system's own performance and for coordinating and planning its different facilities and levels of care. Thus, to strengthen the disintegrated health system of Somalia, at a time when so many of its services are remotely managed and coordinated, the development of functioning health information systems is of particular importance.

4.4.1 Health management information system (HMIS)

The to date best developed system for health-related data is the health management information system (HMIS) referred to above, developed by UNICEF in collaboration with partners. It is primarily used and designed for the country's MCH clinics, which in return for vaccines and medicine kits have been obliged to report back to UNICEF on their services. The facilities should report on the three main service areas of morbidity patterns, EPI-services and maternal and reproductive health services¹⁶⁸. The HMIS reporting process started around 2005, but the initial response rate was low and the quality of reporting very poor with much information left out; a sample audit of data collected in Somaliland showed for example that the accuracy of reported information was lower than 25 per cent¹⁶⁹. Unpublished information on 2009 HMIS data shared within the Somali Health Cluster showed, however, that the response rate was now above 90 per cent and that the quality of data had improved. In 2010, HMIS started collecting information from the country's hospitals as well.

4.4.2 Communicable disease surveillance and response (CSR)

Morbidity data on infectious diseases is collected by WHO Somalia through the communicable disease surveillance and response (CSR) system. This system collects and processes data on a set of communicable diseases from around 200 Somali health facilities (including MCHs, OPDs and hospitals) on a weekly basis. The reporting exercise has thus far been limited to six health conditions with endemic outbreaks for which the system also oversees management and emergency preparedness. Watery diarrhoea, bloody diarrhoea, malaria, measles, meningitis, whooping cough, and neonatal tetanus are the diagnoses covered in the CSR system. Thus pneumonia, which appears to be the most common cause of child morbidity and mortality in Somalia, is not reported. The system is currently under revision, however, with a view to its expansion to the integrated disease, surveillance and response (IDSR) system, which will in the future cover 16 diseases, including ARI and pneumonia¹⁷⁰.

¹⁶⁸ UNICEF (2008). *Exploring Primary Health Care in Somalia - MCH Data, Somalia 2007*.

¹⁶⁹ *Ibid.*

¹⁷⁰ Information from Dr Collins O. Owilli, Public Health Officer - *Communicable Disease Surveillance*, WHO Somalia.

4.5 Medical products and vaccines

The primary health-care facilities, namely, MCH clinics and health posts, are supplied with medicines and equipment by UNICEF. These come in pre-packed drug kits that are uniformly made up of medicines and medical supplies considered essential for that level of care. Hospitals with MCH services can also be furnished with pre-packed drug kits and vaccines by UNICEF. Apart from this, hospitals normally procure most of their medicines and equipment through other channels and should ideally apply a customized, consumption-based system designed to help them monitor their stock of medicines and to acquire those which are about to run out.

Many of the MCH clinics managed by non-governmental organizations also procure their own supplies of medicines and equipment, since they might have larger consumption than that provided for in the medical kits. Informants surveyed for this assessment also explained that their MCH services have been suffering from the often erratic and insufficient distribution of vaccines and drug kits by UNICEF, because of logistical problems, and that they have therefore been forced to procure their own supplies of medicines and equipment. UNICEF is able to take a more centralized approach to the procurement of vaccines, however, and these are often not available through other channels. Accordingly, the shortages of vaccines or problems with their distribution normally have more profound effects on the provision of services at the MCH clinics.

UNICEF and its partners intend to launch a modified version of the internationally approved essential package of health services (EPHS) in Somalia, a health sector development programme that aims to develop adequate standards for training, staffing, medicines and facilities. A pilot of the programme is due to be launched in Gedo region and in Somaliland. The standards in EPHS for the procurement and management of medicines are intended in the long run to replace pre-packaged kits. Within this concept the primary health-care units are encouraged to procure and order their own medicines and equipment, based on their specific consumption and needs. This would optimize the availability and minimize the waste of medicines and medical materials. The EPHS proposal for Somalia states, however, that the current functioning capacity of MCH clinics and health posts, together with the transport problems around the country, necessitates the continued distribution of standardized pre-packed medicine kits to the primary health care units¹⁷¹.

In order to obtain drug kits from UNICEF, the health facilities have to meet certain quality and operational standards. The MCH clinics are also required to report on their activities to the joint information system of HMIS. UNICEF has a number of drug kits composed and provided for different levels of care and operational capacity. Currently – in 2010 – these kits are distributed to MCH centres and health posts to meet the needs of EPHS. The basic drug and medical equipment kits in the EPHS, the A1 and A2 primary health unit kits, are intended for use in both functional health posts and in MCH clinics. The additional B1 and C1 medical supply kits are intended for use in high capacity MCH clinics and hospitals. These units are also furnished with an additional equipment kit, B2. The content of these kits as at November 2010 is set out in annex III. The provision of vaccines is a separate system, which requires cold-chain facilities, including refrigerators for the storage of vaccines.

¹⁷¹ UNICEF Somalia (2009). *Essential Package of Health Services – Somalia 2009*. Report 2.

4.6 Financing and funding

Given the poor and fragile conditions in Somalia and its typical demographic pattern of a low-income country, where almost half of the population is under the age of 15, it is the children who are the most numerous and important beneficiaries of public primary health-care services. Since child health care is often an integrated part of the general health services, however, it is difficult to obtain any information or figures on the health expenditures and financing specifically for the country's children. The costs of and funding for many of the services intended for children are lumped together with all the other health expenditures.

4.6.1 Health expenditures and financial aid

The health sector receives comparatively small proportions of the budgets of the three zonal governments; approximately 3 per cent of the gross national income. Most health expenditures are financed by external aid from international agencies and organizations and by private donations and support from non-development funds and donors (mostly Islamic charities from other Arab countries), and also through remittances from the Somali diaspora. Financial aid from international agencies and organizations accounts for the largest share of this external funding and these donors comprise bilateral¹⁷² and multilateral¹⁷³ agencies, international non-governmental organizations, GFATM and GAVI.

Development aid from the international community to the Somali health sector has increased substantially over the last decade, amounting to more than \$100 million in 2009¹⁷⁴. In 2000, the corresponding figure was \$23 million. This increase in funding is partly explained by added support from GFATM, and larger economical inputs from the Humanitarian Aid Department of the European Commission (ECHO), but it is also attributable to the increased number of donors in general. The contribution of a major health partner to the financial aid of the health sector was as high as 25 per cent in 2009, while ECHO and GFATM contributed 18 and 13 per cent respectively. International aid for health per capita has, accordingly, also increased approximately four-fold over the same period, from \$3.20 in 2000 to \$11.20 in 2009¹⁷⁵. The aggregate amount spent on health per capita is substantially more, however, perhaps twice as much, if remittances from the diaspora, private donations, out-of-pocket funds and health expenditure by the zonal governments are taken into account¹⁷⁶. If we assume a total annual health expenditure per capita in the range of \$15–\$20, this is a comparatively high figure for sub-Saharan Africa, and does not really explain the country's extremely poor health indicators. These could at least partly be attributed to the very high operational costs due to the conflict and security constraints.

¹⁷² Bilateral agencies are government managed country specific agencies for development support, such as DFID, SIDA, and USAid.

¹⁷³ Multilateral agencies are all the UN-agencies, EU, ECHO, and development banks.

¹⁷⁴ The World Bank 2011. *A decade of aid to the health sector in Somalia (2000-2009)*

¹⁷⁵ *Ibid*

¹⁷⁶ WHO Somalia 2009. *Country Cooperation Strategy – Somalia 2010-2014*.

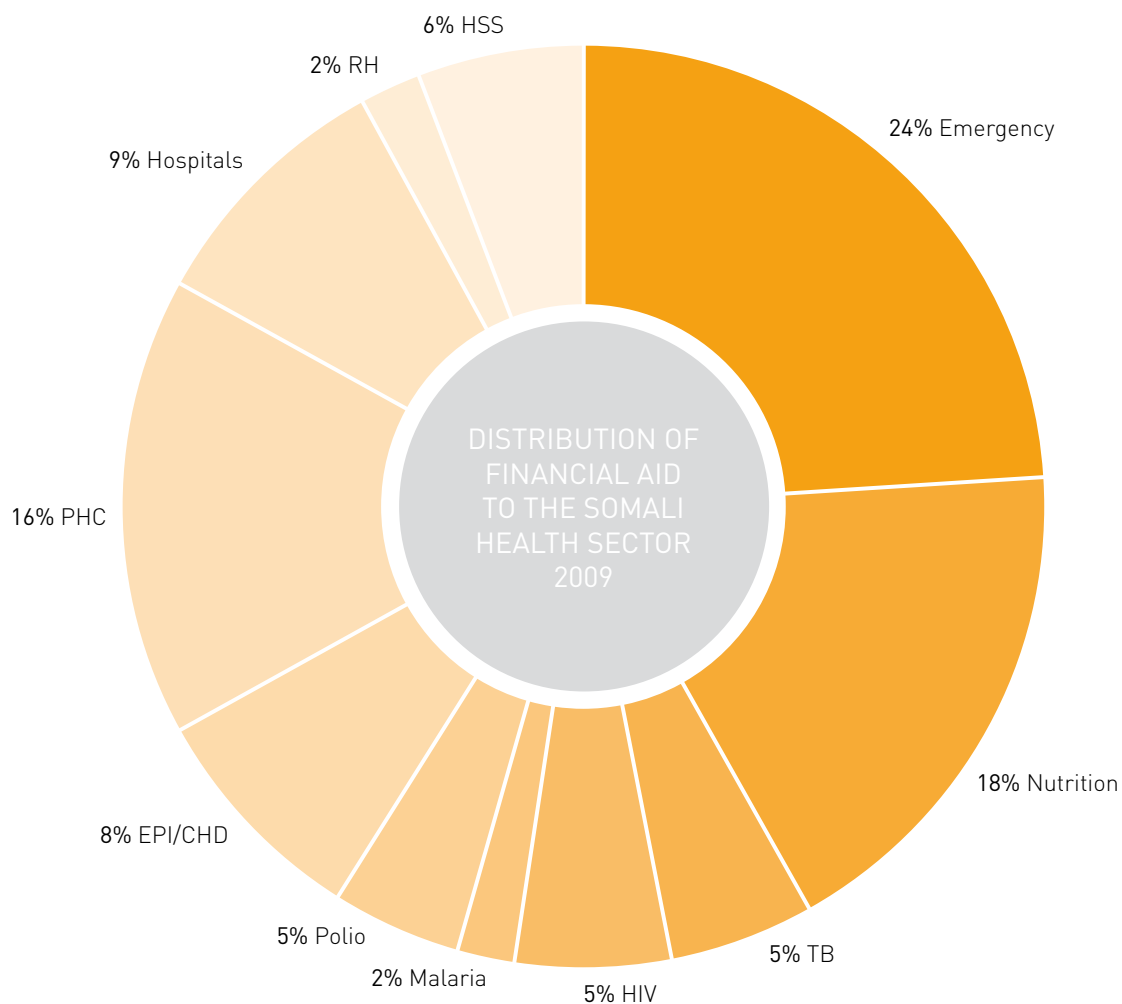
4.6.2 Financial distribution of aid to the health sector

In the World Bank review of international aid to the health sector over the last decade (2000–2009), it is clear that there has been an emphasis in funding and preference by donors for vertical rather than horizontal programmes, a tendency that was even more pronounced in the second half of the decade¹⁷⁷. In particular, the GFATM-sponsored programmes against HIV/AIDS, tuberculosis and malaria have enjoyed a massive increase in funding. Over those ten years, these three programmes have received about 15 per cent of the financial support allocated to the health sector, as compared to a mere 5 per cent in 2000. The share of the polio programme, however, which received about 20 per cent of international health support at the beginning of the decade, has gradually declined. Together, these four programmes have received almost one fourth of the financial support, a proportion which could well be challenged because of the relatively limited amount of people affected by those diseases, as described in previous sections of the present report. Funding for the nutritional programmes, which cover over 1 million children affected by underweight and stunting, accounts for 13 per cent of the total. Various emergency programmes received the largest allocation of financial aid to the health sector during this period (21 per cent). Horizontal health development programmes received about 14 per cent of the funding for primary health care, 6 per cent of that for improving hospital care, and 10 per cent of that for the strengthening of health systems.

¹⁷⁷ The World Bank 2011. *A decade of aid to the health sector in Somalia (2000-2009)*

Figure 10. Approximate distribution of international financial support to different parts and programmes of the health sector in Somalia in 2009

(Figures adapted by the author from World Bank 2010 data. PHC = primary health care; HSS = health systems strengthening; RH = reproductive health)



The focus of foreign aid on vertical programmes has, however, shifted slightly in recent years. The nutritional programmes have received a larger share as a consequence of the severe drought and famine in 2008. The HIV/AIDS programme has received approximately 50 per cent of the funding from GFATM since its introduction in 2005, but there has now been a certain levelling out of its share of funding with that allocated to the programmes for tuberculosis and malaria. Considering the poor health indicators and overall high morbidity and mortality in the country, on the one hand, and its relatively low HIV burden, with a prevalence of only 0.5 per cent¹⁷⁸, on the other, this adjustment is justified. That said, however, the other vertical programmes – with the exception of the nutritional operations – also do not cover the diseases that are currently responsible for high child mortality. The incidence of and mortality from malaria seem to be on the decline; tuberculosis is not responsible for many child deaths; and there has not been a single case of polio in the country since March 2007. This is clearly thanks to the enormous effort and massive financial support put into the health programmes, in particular those for polio and malaria, yet it might still call for a revision and re-allocation of the aid to the health sector of the country, as there are so many other competing needs.

Figure 10 gives an updated picture of international aid to the health sector in Somalia, illustrating the approximate distribution of financial support in 2009. In comparison with the distribution of financial aid to the health sector over the last decade, the estimates for 2009 show an increased share not only for nutritional programmes, but also for emergency activities and EPI. Vaccinations and EPI have long been underfinanced and insufficient, resulting in the poor coverage rate for routine immunization. Activities in this area, including the supply of EPI, used to receive about \$2 million annually, but with the implementation of the child health days campaigns there is now more financial support allocated to this fundamental component of child health. According to World Bank figures for 2009, about \$9 million was distributed to the child health days and EPI campaigns. The increased funding allocated immunization is paying prompt dividends, with a substantial increase in the coverage rates for vaccines in the routine schedule. As noted above, the documented coverage for DPT3 and measles in Somali children below 12 months of age more or less doubled in 2009, exceeding 50 per cent for both vaccines for the first time ever. The estimated \$9 million for the EPI and child health day campaigns in 2009 is, however, a moderate figure, as it reflects the approximate cost of only one round of the child health days. Since late 2008, two rounds of child health days have been scheduled per year. UNICEF and WHO Somalia plan to proceed with two rounds annually until 2013, provided sufficient funding can be guaranteed.

¹⁷⁸ WHO (2010). *World Health Statistics 2010*. Part II, Global Health Indicators; Table 1. Mortality and burden of disease.

Chapter 5. Conclusions and recommendations



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The present report has assessed issues related to children's health in Somalia and the services of the health system with a specific focus on child health. As stated elsewhere, child health is, however, a very broad subject area that stretches all the way from pregnancy and delivery, to nutrition and WASH, and includes vaccination schemes for potentially fatal infections, in addition to social and economic conditions and cultural practices. In addition, the hardships and afflictions endured by such fragile States as Somalia also fall hardest on the most vulnerable and exposed segment of the population, i.e., the Somali children.

Drawing on a comprehensive review of available data and a range of reports and scientific articles on child health in Somalia and other developing countries, and also on numerous interviews with stakeholders involved in the international health support effort to Somalia, a much clearer picture has emerged and certain findings are self-evident. It is clear, for example, that it is the children in the under-five age group, and in particular infants, who are at the highest risk where morbidity and mortality are concerned. Undoubtedly, older children also suffer from poor living conditions, malnutrition, insecurity, violence, lack of schooling and an absence of future prospects, and young girls are vulnerable to other specific perils, such as female genital mutilation and early pregnancies. These children and adolescents are an almost totally neglected group in Somalia today and there is a pressing need also to look at their health situation and to develop a separate adolescent health strategy, paying careful attention to the health needs of both girls and boys. The present review clearly shows, however, that the most urgent need is to focus primarily on very young children as the age group which dominates child morbidity and mortality. The conclusions set out below summarize the child health-related priorities that need to be addressed in a Somali child health strategy.

5.1 Neonates and infants

Neonatal complications contribute to about one third of under-five mortality in the developing world and 40 per cent of under-five mortality is estimated to occur before one month of age. This situation is probably representative for Somalia as well, even if the official data present a lower proportion (17–24 percent and 61 of every 200 under-five deaths). In all, 90 per cent of child deliveries take place at home under poor conditions and without skilled birth attendance. The majority of the estimated 200 deaths per 1,000 live births in Somalia occur outside health facilities and they are rarely reported. The proportion of this figure constituted by newborn infants is in all probability in line with international standards, if not even higher.

Half of all neonatal deaths occur within the first 24 hours of a child's life. Many of these are directly attributed to birth complications (i.e., asphyxia) and could be substantially reduced with an improved system for delivery care. A large proportion of these early deaths, however, are caused by infections, immature breathing, hypoglycaemia and poor temperature control, where early and simple interventions could make a significant difference. Several studies have shown that simple home-based interventions with newborn infants can prevent between 30 and 60 per cent of neonatal deaths¹⁷⁹. These significant

¹⁷⁹ WHO/UNICEF 2009. WHO/UNICEF Joint Statement – Home visits for the newborn child: a strategy to improve survival.

reductions in neonatal deaths have been obtained through the relatively simple expedient of programmatic home visits from days 1 to 3 by community health workers, or others performing a comparable function, who promote the early initiation of breastfeeding and its exclusive practice, temperature control and general stabilization of the baby through skin-to-skin contact, and good hygiene practices in the form of hand-washing with soap and umbilical cord care.

Focus areas:

- Maternal and obstetric care must improve. This would entail efforts to enhance obstetric services at the primary and secondary levels, along with the upscaling of BEmOC and CEmOC capacity. This is also a focus area identified in the recently formulated 2010–2015 reproductive health strategy for Somalia, jointly developed in 2009 by WHO, UNICEF, UNFPA and the United Kingdom’s Department for International Development, and one of the main objectives of the planned essential package of health services (EPHS).
- In-facility deliveries must be promoted, by conducting awareness-raising campaigns for mothers and provided incentives to traditional birth attendants to make referrals.
- The training of traditional birth attendants and community midwives must be upscaled, to strengthen their understanding of basic initial neonatal care; efforts must be made to promote skin-to-skin contact and the early (in the first hour of life) initiation of breastfeeding.
- Repeated home visits must be made to the newborn child by community health workers or traditional birth attendants and community midwives from the first day of life:
 - To promote appropriate hygiene practices, including care of the umbilical cord
 - To promote exclusive breastfeeding
 - To assess the newborn infant for danger signs of infection
 - To promote early vaccination.
- The practice of vitamin A supplementation of breastfeeding mothers (within two months after delivery) should be improved.

5.2 Nutrition

The prevalence of malnutrition is exceptionally high in Somalia. Malnutrition is the underlying cause of about 50 per cent of under-five deaths. It is partly due to food insecurity, but malnutrition is also caused by inappropriate feeding practices, micronutrient deficiency and infestations with intestinal parasites. Fewer than 10 per cent of Somali children under the age of six months are exclusively breastfed and the proportion of children above six months of age receiving an adequate combination of breast milk and complementary foods is almost as low. Inappropriate breastfeeding substantially increases the risk of under-five mortality through pneumonia, diarrhoea and other infections and, on a global scale, is estimated to account for between 1.2 million and 1.5 million child deaths annually¹⁸⁰.

There is a very high prevalence of anaemia and vitamin A deficiency among Somali children. Vitamin A deficiency is in itself believed to be responsible for about half a million child deaths per year. Given the benefits of vitamin A supplementation and its comparatively low cost, it is widely considered to be the single most cost-effective child survival intervention¹⁸¹. Iron deficiency impairs the immune defence and predisposes for other infections, but it also has negative effects on children's physical and mental development. Iron substitution is, however, controversial in malaria-endemic areas. Zinc deficiency has not been evaluated in Somalia, but it has been shown to increase child mortality from diarrhoea, pneumonia and malaria. It is estimated to account worldwide for between 300,000 and 400,000 under-five deaths per year¹⁸² and it is an important contributing factor to stunting. Zinc supplementation can significantly reduce mortality and the severity of diarrhoea in children¹⁸³.

Focus areas:

- Child-related health interventions must be aligned with the recently developed 2010 Somali nutrition strategy.
- Exclusive breastfeeding should be promoted in the first six months of life and efforts made to improve general breastfeeding practices and attitudes among Somali mothers through campaigns and other promotional means, using all possible channels.
- Birth-spacing and family planning should be advocated.
- Appropriate complementary feeding of infants above six months of age should be promoted.
- Vitamin A supplementation and deworming every six months should be ensured through MCH clinics or outreach programmes, such as the child health days campaign.
- Better feeding practices should be promoted in general and, in particular, for children above the age of one, involving:
 - More diversified foods, more vegetables
 - Proper intake of iron-rich foods.
- Possibilities of routine iron supplementation should be explored (with a possible exception for riverine areas) or general efforts made to fortify diets.
- Continued support should be provided for OTPs and stabilization centres.
- Nutritional and food security efforts to the most exposed central regions and IDP settlements (Afhoye corridor and Banadir, Lower Shabelle, Galgaduud, Hiraaan and Mudug) should be prioritized and stepped up.

¹⁸⁰ Black RE, Allen LH, Bhutta ZA et al. (2008). Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet* 2008; 371: 243-60.

¹⁸¹ The World Bank (2004). Public Health at a Glance – Vitamin A. <http://www.worldbank.org>

¹⁸² Black RE *et al*, *ibid*.

¹⁸³ Bhutta ZA, Ahmed T, Black RE et al (2008). What works? Interventions for maternal and child undernutrition and survival. *Lancet* 2008; 371: 417-440.

5.3 Water, sanitation and hygiene

Diarrhoea is the second most important single cause for under-five mortality in Somalia, and deficient WASH conditions have been estimated to account for 90 per cent of under-five mortality in diarrhoea. Poor sanitary and hygiene practices are of greater importance than unsafe water as determinants of diarrhoeal disease. Routine hand washing with soap has the potential to save 40 per cent of under-five deaths in diarrhoea.

The adequate treatment of diarrhoea with oral rehydration, prepared with safe water, has the potential to save virtually every child affected with diarrhoea. Treatment with oral rehydration salt or other appropriate fluids, known as oral rehydration therapy (ORT), is not very widespread in Somalia; about 25 per cent of children with diarrhoea were given ORT according to the 2006 MICS, but only 7 per cent were adequately provided with both ORT and continued feeding¹⁸⁴. Correctly used, it has been estimated that ORT could reduce annual under-five mortality by 15 per cent¹⁸⁵.

Access to water is generally low in Somalia and sanitary practices are poor; for example, open defecation is widespread. Fewer than 30 per cent of the Somali population have access to safe drinking water and a sanitary facility. In some rural areas that figure is as low as 10 per cent. Inappropriate disposal of excreta is also conducive to the extensive transmission of intestinal worms and schistosomiasis. Intestinal worms are highly endemic in the whole of Somalia, whereas the spread of schistosomiasis is more confined to South Central Somalia.

Focus areas:

- A broad WASH approach which focuses on improved sanitation along with access to clean water should be applied.
- Hand-washing with soap in the home environment should be promoted.
- Soap should be delivered through MCH centres, health posts and outreach programmes
- The broad distribution of oral rehydration salt packages should be ensured and the appropriate home treatment of children's diarrhoea promoted (i. e., by administering more fluids and ensuring their regular intake).
- Zinc supplementation with oral rehydration salts should be introduced during episodes of diarrhoea.
- Water-purification tablets should be provided to family households, in particular to households with under-one infants.
- Possibilities should be explored for increased water chlorination at community and household levels.

¹⁸⁴ UNICEF (2006). *Somalia MICS 2006*. Tables NU. 4-5.

¹⁸⁵ Jones G, Steketee R, Black R, Bhutta Z, Morris S. 2003. How many child deaths can we prevent this year? *Lancet* 2003; 362: 65-71.

5.4 Infectious diseases

Acute respiratory infections are by far the most common cause of disease among under-fives in Somalia. Pneumonia is the single most common cause of mortality among Somalia's children; it accounts for at least one in four under-five deaths. Studies from other developing countries have shown that the community-based treatment of pneumonia, managed by community health workers, could reduce under-five mortality in pneumonia by some 40 per cent¹⁸⁶.

Diarrhoea is the second most important condition underlying under-five mortality, as noted in section 5.3 above. Some 40 per cent of these diarrhoeal cases are caused by rotavirus and the incidence of rotavirus infections in Somalia has been demonstrated to be very high. Accordingly, standardized immunization with rotavirus vaccine is currently recommended by WHO, and it may prove necessary to include this procedure in the Somali routine EPI schedule.

The incidence of measles has declined in recent years thanks to the increase in immunization coverage. The levels of poverty, malnutrition, and vitamin A deficiency in Somalia, however, make measles a constant threat. Cases of measles with a fatal outcome often include pneumonia and diarrhoea.

The burden of malaria seems to be moderate, but is still endemic in riverine areas of South Central Somalia. A recent study has shown only 1 per cent prevalence of malaria parasites in Somali children. The use of insecticide-treated bed-nets and RDTs and the prompt case-management treatment of children with fever are steadily increasing and could, to some extent, account for this positive trend.

Focus areas:

- Integrated management of childhood infections and diseases should be practised. A modified or full version of the IMCI guidelines should be applied at facility and community level, after pilot testing.
- Hib-vaccine (Pentavalent) should be included in routine EPI and possibilities explored for administering pneumococcal vaccine.
- Possibilities should be explored of introducing community-based pneumonia management model through community health workers.
- Rotavirus vaccine should be included in routine EPI procedures.
- Outreach campaigns should be held to promote EPI-vaccines, TT2 and health-boosting products (vitamin A, zinc tablets, albendazole, Aquatabs, oral rehydration salts and soap).
- Support should be given for efforts by MCH units to boost outreach immunization services.
- A gradual transition should be effected from child health day campaigns to MCH outreach and community-based services.

¹⁸⁶ Sasawal S., Black R.E. Effect of pneumonia case management on mortality in neonates, infants, and preschool children: A meta-analysis of community-based trials. *Lancet Infectious Diseases* 2003, vol 3; 9: 547-556.

5.5 School-aged children and adolescents

The burden of infections and malnutrition, and also of social, economic and cultural afflictions, remains. Somali school enrolment rates are the lowest in the world. The practice of female genital mutilation is almost universal (98 per cent) and is performed at an early age (between five and eight years). Many children and adolescents are physically and mentally traumatized by the interminable civil war. The use of child soldiers is common and many children are the victims of violence and rape.

Focus areas:

- Adolescent health needs should be assessed and a Somali adolescent health strategy developed.
- Awareness should be raised at the community level and among decision-makers of the harmful practices of female genital mutilation (with a link to UNFPA and UNICEF initiatives).
- Campaigns should be mounted to eradicate female genital mutilation in Somalia.
- Trauma care should be upscaled and improved, in terms of both physical and psychological rehabilitation, for children and adolescents.
- Applicable parts of trauma care should be brought in line with the proposed Somali mental health strategy.
- Early and mandatory school enrolment should be promoted, especially for girls (with a link to the education strategy).

5.6 Support, guidance and management

The Somali public health system is disintegrated and underdeveloped. Its level of service delivery is very low, owing to its limited capacity, the low quality of its services and the low demand for them. Health support to Somalia is currently still characterized by vertical programmes for immediate humanitarian actions which are often short-term in nature. A more sustainable approach is needed, with recovery and development programmes for longer term health sector development. There is also a need for local capacity-building and the strengthening of community child health services, which should be integrated in the primary health-care services.

Focus areas:

- EPHS should be implemented, with a view to strengthening maternal and neonatal care.
- Simple national guidelines should be developed for primary health-care units on the integrated approach to the most common child health conditions (both for prevention and treatment, possibly a modification of the IMCI and community IMCI approaches).
- Trained units of community health workers should be set up for the community case management of pneumonia, diarrhoea, malaria, newborn care and, possibly, outreach immunization.
- Primary health care services should be strengthened, along with their outreach activities to communities, with the focus on rural settings.
- Interagency collaboration should be strengthened between stakeholders involved in child health-related activities in Somalia.

5.7 Way forward

The present desk review has highlighted the need to develop a comprehensive child health strategy in Somalia. The strategy should reflect existing child health policies and related strategies and the specific needs identified in the assessment. Furthermore, it should be aligned with the recently developed Somali strategies for reproductive health and nutrition, and hence form part of a cohesive and strategic approach. Taken together, these efforts would radically improve maternal and child health in the country and contribute to the attainment of goals 4 and 5 of the Millennium Development Goals.

References

- Bhutta Z.A., Ahmed T., Black R.E. et al. 2008. "What works? Interventions for maternal and child undernutrition and survival". *Lancet* 2008; 371: 417–440.
- Black R., Morris S., Bryce J. 2003. "Where and why are 10 million children dying every year?" *Lancet* 2003; 361: 2226–34.
- Black R.E., Allen L.H., Bhutta Z.A. et al. 2008. "Maternal and child undernutrition: global and regional exposures and health consequences". *Lancet* 2008; 371: 243–60.
- Black R.E. et al. 2010. "Global, regional, and national causes of child mortality in 2008: a systematic analysis". *Lancet* 2010; 375: 1969–87.
- Caitlin Mazilli and Austen Davis. 2009. *Health Care Seeking Behavior in Somalia – A Literature Review*. UNICEF Somalia.
- Caulfield L.E., Huffman S.L., Piwoz E.G.. 1999. "Interventions to improve intake of complementary foods by infants 6 to 12 months of age in developing countries: impact on growth and on the prevalence of malnutrition and potential contribution to child survival". *Food and Nutrition Bulletin* 1999; 20: 183–200.
- Caulfield L.E., de Onis M., Blössner M., Black R.E. 2004. "Undernutrition as an underlying cause of child deaths associated with diarrhoea, pneumonia, malaria, and measles". *American Journal of Clinical Nutrition* 2004; 80: 193–8.
- CIA World Fact Books, 2003–2008.
- Fewtrell L. et al. 2005. "Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: A systematic review and meta-analysis". *Lancet Infectious Diseases* 2005, 3; 5: 45–52.
- Fishman S.M., Caulfield L., de Onis M. et al. 2004. "Childhood and maternal underweight". In Ezzati M. et al, eds. *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Major Risk Factors*. Geneva: WHO; 2004: 39–161.
- FSNAU 2008. *Somali Knowledge, Attitude and Practices Study (KAPS): Infant and Young Child Feeding and Health Seeking Practices*.
- FSNAU 2009. *Malnutrition Trends (2001–2008) in Somalia – a Meta-analysis Study Report*.
- FSNAU 2009. *Technical Series Report Nutrition Situation*, September 2009.
- FSNAU 2010. *National Micronutrient and Anthropometric Nutrition Survey, Somalia 2009*.
- FSNAU 2010. *Nutrition Situation Post Deyr '09/10– Technical Series Report VI.30*, Feb 22, 2010.
- Jones G., Steketee R., Black R., Bhutta Z., Morris S. 2003. "How many child deaths can we prevent this year?" *Lancet* 2003; 362: 65–71.
- Lawn J., Cousens S., Zupan J. 2005. "Four million neonates death: when? where? why?" *Lancet* 2005; 365: 891–900.
- Marino D.D. 2007. "Water and food safety in the developing world: global implications for health and nutrition of infants and young children". *Journal of the American Dietetic Association* 2007; 107(11): 1930–4.
- Millennium Development Goals Indicators 2009, <http://mdgs.un.org/unsd/mdg>
- Pelletier D.L., Frongillo E.A. Jr., Schroeder D.G., Habicht J.-P. 1995. "The effects of malnutrition on child mortality in developing countries. *Bulletin of the World Health Organization* 1995; 73: 443–8.
- Pelletier D.L., Frongillo E.A., Habicht J.P. 1993. "Epidemiologic evidence for a potentiating effect of malnutrition on child mortality". *American Journal of Public Health* 1993; 83: 1130–33.
- Sazawal S., Black R. 2003. "Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials". *Lancet Infectious Diseases*, 2003; 3:547–556.
- Sibley L.M. et al. 2007. *Traditional Birth Attendance Training for Improving Health Behaviours and Pregnancy Outcomes*. Cochrane Database Systems Review. 2007 July 18; (3):CD00546.

- UNDP 2001. *Human Development Report Somalia*, 2001.
- UNICEF 2008. *Exploring Primary Health Care in Somalia – MCH Data*, Somalia 2007.
- UNICEF 2008. Press release (Sept 2008). www.unicef.org/media/media_45677.html
- UNICEF 2009. *The Private Sector and Health: A Survey of Somaliland Private Pharmacies*.
- UNICEF 2009. *The State of the World's Children – Special Edition; Statistical Tables*.
- UNICEF Somalia 2005. *Review of IMCI Early Implementation Phase, Hargeisa/Somaliland*, August 2005.
- UNICEF Somalia 2006. *Multiple Indicator Cluster Survey 2006*.
- UNICEF Somalia 2009. *Essential Package of Health Services – Somalia 2009*. Report 2.
- UNICEF/WHO 2009. *Diarrhoea: Why Children are Still Dying and What Can Be Done*. ISBN 978-92-806-4462-3 (UNICEF).
- UNOCHA Somalia 2010. *Somalia Humanitarian Overview*. Vol. 3, Issue 1 Dec–Jan 2010.
- WHO 1992. Expanded Programme on Immunization. Global Advisory Group – Part 1. *Weekly Epidemiological Record* 1992; 67: 11–15.
- WHO 2001. *Iron Deficiency Anaemia: Assessment, Prevention, and Control. A Guide for Programme Managers*.
- WHO 2001. *Haemophilus Influenza Type b Immunization*. www.who.int/vaccines-documents/
- WHO 2006. *Neglected Tropical Diseases: Hidden Successes, Emerging Opportunities*. Geneva: WHO.
- WHO 2007. *Everybody's Business – Strengthening Health Systems to Improve Health Outcomes*. WHO's Framework for Action.
- WHO 2009. "Measles vaccines: WHO position paper". *WHO Weekly Epidemiological Record*, No. 35, 2009, 84, 349–360.
- WHO 2009. "Meeting of the immunization strategic advisory group of experts, April 2009 – conclusions and recommendations". *WHO Weekly Epidemiological Record*, No. 23, 2009, 84, 220–236.
- WHO 2009. *World Health Statistics 2009*.
- WHO 2010. *World Health Statistics 2010*.
- WHO 2010. *TB Country-Profile 2008-2009: Somalia*. TB Unit of the WHO Regional Office for the Eastern Mediterranean Region.
- WHO 2010. *Treatment of Tuberculosis – Guidelines*. Fourth Edition. Geneva 2010. ISBN 978 92 4 154783 3.
- WHO Somalia. 2009. *Country Cooperation Strategy Somalia, 2010-2014*. Draft report.
- WHO Somalia. 2010. *Child Health Days Report – Somalia*, March 2010.
- WHO Somalia. 2010. *Monthly Polio Bulletin*. Issue 9, Jan 2010.
- WHO Somalia 2010. *Biennial Report 2008-2009*.
- WHO/EMRO 2009. *CSR Surveillance Report of Somalia*, January–December 2009.
- WHO/ICM/FIGO 2004. *Making Pregnancy Safer: the Critical Role of the Skilled Attendant*. Geneva.
- WHO/UNFPA Somalia 2009. *Addressing Maternal and Neonatal Survival in Somalia – A Situation Analysis of Reproductive Health in Somalia*.
- WHO/UNICEF 1997. *Vitamin A Supplements: A Guide to Their Use in the Treatment and Prevention of Vitamin A Deficiency and Xerophthalmia* – Second edition. Geneva, WHO, 1997.
- WHO/UNICEF 2009. *Review of the National Immunization Coverage 1980-2008* – Somalia.
- WHO/UNICEF 2009. Joint Statement – *Home Visits for the Newborn Child: A Strategy to Improve Survival*.
- World Bank 2004. *Public Health at a Glance – Vitamin A*. <http://www.worldbank.org>
- World Bank 2011. *A decade of aid to the health sector in Somalia (2000-2009)*
- World Bank/UNDP. 2004. *Somalia Socio-Economic Survey 2002*.
- World Bank/UNFPA. 2004. *Female Genital Mutilation/Cutting in Somalia*. Nov 2004.
- www.hibaction.org: Hib initiative webpage, as consulted on 24 November 2010.
- www.unicef.org/infobycountry/somalia.html: as consulted on 4 January 2010.
- www.who.int/immunization/policy/immunization_tables – Table 1: Recommended routine immunizations. Updated 21 October 2010.
- Zuphan J., Aahrman E. 2005. *Perinatal Mortality for the Year 2000: Estimates Developed by WHO*, Geneva: WHO.

Annex I.

Interview guide

Child Health Somalia Questionnaire

Organization:

1. Specific child health interventions?

2a. Supported health facilities (number, names/locations, what activities, no. of beneficiaries)

Hospitals:

Clinics:

MCH / PHC / HP:

TFC / OTP:

2b. Local partner on the ground? (Who is conducting the actual health work?)

2c. Close cooperation with other international agency?

2d. Role of MoH (public health care system) in the projects?

2e. Funding?

2f. Health care free of charge?

2g. Support with drugs, vaccines, nutritional products? From whom?

2h. Immunization activities

- What, how, when, and to which extent?
- How is it documented and reported?
- Data on immunization coverage?
- Interaction with CHD?

3a. Documentation and reporting of health activities?

3b. Collected data on causes for child morbidity / reasons for seeking health care?

(Non-documented picture?)

3c. Collected data on causes for child mortality?

(Non-documented picture?)

4. Guidelines for paediatric medicine / child health activities?

5. Training activities?

6. Health related activities? (food aid, WASH, education etc)

7. View/data on major determinants of child morbidity / mortality?

8. Are there any major obstacles for improved child health within the Somali cultural context?

9. Which are the major current needs / emergencies regarding child health?

10. Which is the way forward? Which major improvements concerning child health are most called for?

Annex II.

Articles 6 and 24 of the United Nations Convention on the Rights of the Child

Article 6

1. States Parties recognize that every child has the inherent right to life.
2. States Parties shall ensure to the maximum extent possible the survival and development of the child.

Article 24

1. States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services.
2. States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures:
 - (a) To diminish infant and child mortality;
 - (b) To ensure the provision of necessary medical assistance and health care to all children with emphasis on the development of primary health care;
 - (c) To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution;
 - (d) To ensure appropriate pre-natal and post-natal health care for mothers;
 - (e) To ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, the advantages of breastfeeding, hygiene and environmental sanitation and the prevention of accidents;
 - (f) To develop preventive health care, guidance for parents and family planning education and services.
3. States Parties shall take all effective and appropriate measures with a view to abolishing traditional practices prejudicial to the health of children.
4. States Parties undertake to promote and encourage international co-operation with a view to achieving progressively the full realization of the right recognized in the present article. In this regard, particular account shall be taken of the needs of developing countries.

Annex III.

Lists of kits for medicines and equipment provided to Somali health care facilities from UNICEF Somalia (according to EPHS)

Primary health unit (PHU) kit A1 - intended for MCH units and HPs:

	Item – description	Unit	Quantity
1	Albendazole tablets 400mg tabs/PAC-100	PAC-100	4
2	Amoxicillin 250mg caps/PAC-1000	PAC-1000	6
3	Amoxici.pdr/oral sus 125mg/5ml/BOT-100ml	BOT-100ml	40
4	Chlorphenamine 4mg tabs/PAC-1000	PAC-1000	1
5	Promethazine elixir 5mg/5ml/BOT-250ml	BOT-250ml	10
6	Ferrous fum + folic acid 60mg+0.4mg tabs/PAC-1000	PAC-1000	6
7	Ibuprofen 400mg tabs/PAC-100	PAC 100	10
8	Magnesium trisilicate compound 250mg/PAC-1000	PAC-1000	1
9	Micronutrient, film-coated tabs/PAC-1000	PAC-1000	6
10	Nystatin oral suspension 100,000 IU/ml, 30ml	BOT-30ml	10
11	ORS, new formula, 1L sachet, carton of 1000	PAC-1000	4
12	Paracetamol 100mg tabs/PAC-1000	PAC-1000	2
13	Paracetamol elixir 125mg/5ml, 60ml	BOT-60ml	40
14	Paracetamol 500mg tabs/PAC-1000	PAC-1000	4
15	Phenoxymethylpenicillin 250mg tabs/PAC-1000	PAC-1000	1
16	Retinol (Vit.A) 200,000 IU soft gelatin caps/PAC-500	PAC-500	4
17	Retinol (Vit.A) 100,000 IU soft gelatin caps/PAC-500	PAC-500	2
18	Zinc 20mg tabs/PAC-100	PAC-100	20
19	Chlorhexidine concentrated solution 5%, 100ml bottle	BOT-100ml	2 bottles
20	Clotrimazole 500mg pessaries/applicator	PAC-20	2
21	Gentian violet powder, 25g pack	25g	1
22	Hydrocortisone cream/ointment 1%, 15g tube	TBE-15g	10
23	Miconazole nitrate cream 2%, 30g tube	TBE-30g	10

24	Permethrin shampoo/sol. 1%, 100ml bottle	BOT-100ml	30
25	Silver sulfadiazine 1% cream, 50 g tube	50g	10
26	Tetracycline eye ointment 1%, 5g tube	TBE 5 g	50
27	Zinc oxide ointment 10%/TBE-100g	100g	5
28	Notepad, plain, 100 sheets, A6 size/PAC-10	PAC-10	1
29	Pen, ball-point, black, BOX-10	BOX-10	1
30	Envelope, plastic, 10x15cm/PAC-100	PAC-100	20
31	Gauze, roll, 90cmx100m, non-ster	EA	1
32	Gloves, exam, latex, medium, disp/BOX-100	BOX-100	2
33	Compress, gauze, 10x10cm, n/ster/PAC-100	PAC-100	2
34	Soap, toilet, bar, approx. 110g, wrapped	EA	2
35	Bandage, elastic, 7.5cmx5m, roll	EA	20
36	Tape, adhesive, Z.O., 2.5cmx5m	EA	5
37	Tongue depressor, wooden, dispos./BOX-500	BOX-500	1
38	MUAC 11.5 Red/PAC-50	PAC-50	1
39	MUAC, adult, w/colour code/PAC-50		1

PHU kit A2 – intended for MHC units and HPs

Item – description	Quantity
Towel, huck, 430 x 500mm	2
Bag, UNICEF, blue nylon	1
Drawsheet, plastic, 90 x 180cm	4
Scissors, bandage, 200mm, str	1
Basin, kidney, stainless steel, 825ml	2
Tray, instr, ss, 225x125x50mm, w/cover	2
Thermometer, clinical, digital 32-43C	5
Bottle, plastic, 250ml, wash bottle	1
Bottle, plastic, 1L, w/screw cap	1
Bowl, stainless steel, 180ml	2
Drum, sterilizing, 165mm diam	2
Pail w/bail, handle, polyethylene, 10 litre	1
Water cont, PVC/PE, collaps., 10l, 1.8m test	2
Brush, hand, scrubbing, plastic	2
Surg. inst., dressing/SET	2
Sterilization set, KIT C	1

Health centre (HC) kit A1 – intended for hospitals and referral health centres (= upgraded MCH unit)

Item – description	Unit	Quantity
Azithromycin 500mg tablets/PAC-10	PAC-34	7
Cefixime 200mg tabs/PAC-56	PAC-100	2
Erythromycin 250mg tabs/PAC-100	PAC-1000	10
Ferrous fum + folic acid 60mg+0.4mg tabs/PAC-1000	PAC-1000	2
Metronidazole 250mg tabs/PAC-1000	PAC-1000	1
Promethazine 25mg tabs/PAC-100	PAC-500	5
Quinine sulfate 300mg tabs/PAC-100	PAC-100	1
Salbutamol 4mg tabs/PAC-1000	PAC-1000	1
Salbutamol syrup 2mg/5ml, 150ml	BOT-150ml	10
INJECTABLES		
Benz.benzylpeni.pdr/inj 1.44g vl/BOX-50	BOX-50	1
Benzylpenicillin pdr/inj 3g vial/BOX-50	BOX-50	1
Diazepam inj 5mg/ml 2ml amp/BOX-10	BOX-20	2
Gentamicin inj. 40mg/ml, 2ml amp/BOX-50	BOX-50	1
Hydralazine powder for inj. 20mg amp./BOX-5	BOX-5	2
Magnesium sulfate inj. 500mg/ml, 10ml amp/BOX-100	BOX-10	1*
Lidocaine inj. 1%, 50ml vial/BOX-5	BOX-10	2
Oxytocin 10IU/ml inj., 1ml amp/BOX-10	BOX-20	2
Water for injection, 5ml amp/BOX-50	BOX-50	2
Water for injection, 10ml amp/BOX-50	BOX-50	1
TOPICAL USE		
Beclometasone oral inhalation, 0.05mg/dose, 200 doses	EA	10
Calamine lotion, 500ml bottle	BOT-1000ml	1
Item – description	Unit	Quantity
Chlorhexidine 5% solution for dilution 1000ml [disinfection and antisepsis – must be diluted]	BOT-1000ml	1
Povidone iodine soln 10%, 500ml bottle	BOT-500ml	1
Salbutamol oral inhalation 0.1mg/dose, 200 doses	EA	20
SUPPLIES		

Apron, protection, plastic, disposable/BOX-100	BOX-100	1
Bandage, elastic, 7.5cmx5m,roll	EA	3
Bandage, gauze, 8cmx4m, roll	EA	3
Scalpel blade, ster, disp, no.22	PAC-100	1
Catheter, Foley, CH14, ster, disp	EA	10
Catheter, urethral, CH12, ster, disp	EA	20
Cannula, IV short, 18G, ster, disp	EA	15
Cannula, IV short, 22G, ster, disp	EA	15
Cannula, IV short, 24G, ster, disp	EA	20
Extractor, mucus, 20ml, ster, disp	EA	20
Compress, gauze, 10x10cm, ster/PAC-5	PAC-5	20
Gloves, surg, 6.5, ster, disp, pair	EA	100
Gloves, surg, 7, ster, disp, pair	EA	200
Gloves, surg, 8, ster, disp, pair	EA	50
Gloves, gynaeco, medium, ster, disp, pair	EA	5
Gloves, exam, latex, small, disp/BOX-100	BOX-100	2
Gloves, exam, latex, large, disp/BOX-100	BOX-100	2
Needle, scalp vein, 25G, ster, disp	EA	300
Safety box f. used syrgs/ndls 5lt/BOX-25	EA	2
Pin, safety, medium size/PAC-12	PAC-12	5
Sut,abs,DEC2,need 3/8,26mm,tri/BOX-36	PAC-12	3
Item – description	Unit	Quantity
Sut, abs, DEC3, need 1/2 30mm, round/BOX-36	PAC-12	3
Two piece syringe, 2 ml, sterile, with bi-packed needle, 21G (0.80 x 38-40 mm), disposable, sterile, box of 100.	BOX-100	4
Two piece syringe, 5 ml, sterile, with bi-packed needle, 21G (0.80 x 30-40 mm), disposable, sterile, box of 100.	BOX-100	1
Tape umbilical, 3mmx50m, non-ster	EA	1
Test strips, urinan., gluc/prot/PAC-100	PAC-100	2
Bag, urine, collecting, 2000ml	PAC-10	1
Battery, drycell, alkaline, ' AA', 1.5V/PAC-4	EA	12

HC kit B2 – intended for hospitals and referral HCs

Item – description	Quantity
Surg. inst., suture /SET	4
Surg .inst., delivery /SET	4
Tray, instr, ss, 225x125x50mm, w/cover	8
Measuring tape 1.5m, flexible, vinyl-coated	5
Otoscope, set.	2
Torch	2
Baby/infant L-hgt mea.system/SET-2	2
Basin, Kidney, 825ml ss	1
Scale (only), infant, spring, 25kgx100g	2
Weighing trousers f.scale 0145555/PAC-5	2
Scale, electronic, mother/child, 150kgx100g	1
Drawsheet, plastic, 90x180cm	2
Sphygmomanometer, (adult), aneroid	4
Stethoscope, foetal, Pinard	2
Stethoscope, binaural, complete	4
Resuscitator, hand-oper., infant/child, set	1
Tourniquet, latex rubber, 75cm	2

HC infusion kit

Item – description	Unit	Quantity
Sodium lactate compound inj. 500ml + g set/BOX-20	BOX-20	2
Glucose isotonic inj. 5%, 500ml +/g. set/BOX-20	BOX-20	2
Sodium chloride isotonic inj. 0.9%, 500ml+g set /BOX-20	BOX-20	2

