

Capacity building for the future primary health care of mothers and children in Iraq



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Preface

"Education is the most powerful weapon which you can use to change the world."

Nelson Mandela

This thesis is the conclusion of my Masters studies in business administration, but it is simultaneously also the start of something new.

The research process that preceded this result was like a navigation system. The destination, the purpose of the study was clear from the point of departure. The road was sometimes difficult. It is fairly easy to take a wrong turn. When this happened I just had to make time and re-calculate the route. Fortunately, I came back on track every time and now I have arrived at the final destination.

Why did I choose this research topic? To tell you the truth, I have very little bonding with the situation in Iraq. Celeste introduced me to her husband Sam and his initiatives for the capacity building project. I was inspired by his enthusiasm to work on a project whereby I could both finish my studies, while contributing to a project of benefit to the Iraqi society.

I would like to thank several people for their support and guidance during my research. First of all, Sam, your unstoppable enthusiasm and criticism kept me on my toes. I really enjoyed the stories and experiences you have shared with me. Celeste thanks for introducing me to Sam's capacity building project and for guidance during the research and writing process. Magda, your input of knowledge and guidance in the field of health (care) was crucial.

I want to thank you all very much for your hospitality, to reserve time for me outside the regular class hours. This gave me the feeling of being part of a project group instead of being a student.

I would not have been able to conduct this research without the input of the experts who participated in the Delphi study and the survey research. Thank you very much, I really appreciated the input to the study, as well as all the other feedback I have received.

Finally, I want to thank my mother, sister and friends for their indefinite support and many inspiring discussions during this sometimes stressful period.

Stefanie Kleine

Summary

Currently, Iraq is rebuilding and developing a primary health care (PHC) focused health system. Knowledge plays an important factor and is really needed. This study focuses on the current knowledge needs. The goal of the study is to identify relevant opportunities for Iraq, in terms of knowledge capacity building, in order to achieve an effective and efficient PHC system for mothers and children.

The study consists of a two round Delphi study, supplemented with literature. In the first round PHC needs were identified by a questionnaire. The second round consisted of telephone interviews with experts in order to identify educational themes and available educational programmes.

An important conclusion is that the educational programmes have to focus on two different target groups: the Iraqi (medical) students and the (to be) trainers. In order to fulfil the educational needs of the (medical) students, medical curriculum developments are needed. The Iraqi (to be) trainers (who disseminate their knowledge to the workers in the field) need capacity building and training the trainers programmes. Not only is medical (intervention) knowledge needed for both target groups, but also service delivery management knowledge is required in order to deliver effective and efficient PHC's.

Based on the current PHC needs, it is recommendable to focus the educational training projects on the following themes: Prevention and follow-up services; Proper care before, during and after giving birth; Mentally and/or physically disabled children; PTSD mental health care; Health service delivery management; Medical record keeping and collecting health service data.

Cooperation with institutions like universities and centres of excellence could contribute to knowledge capacity building. But also cooperation with governmental bodies and an extensive group of experts would improve the success of the educational programmes.

Further research should, among other things, investigate further funding sources for developing and providing the proposed educational training programmes but also identify Iraqi scholars and experts who would like joint cooperation.

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Table of acronyms/ abbreviations

GP	General Practitioner
HCNA	Health Care Needs Assessment
HNA	Health Needs Assessment
IMCI	Integrated Management of Childhood Illness
MNCH	Maternal, Newborn and Child Health
MoH	Ministry of Health
NGO	Non-Governmental Organization
PH	Primary Health
PHC	Primary Health Care
PTSD	Post Traumatic Stress Disorder
QDA	Qualitative Data Analysis
TBA	Traditional Birth Attendants
UN	United Nations
WHO	World Health Organization
WFP	World Food Programme

1. Introduction

Iraq covers an area of 438,317 sq km, with a population of almost 29 million people. Previously Iraq was known as Mesopotamia which has a cultural history of over 10,000 years. It was inhabited by the earliest known civilizations in the world and is therefore also known as the cradle of civilization (Hamilakis, 2003).

Before the recent Gulf wars and the following years of sanctions, Iraq had a good state-of-the-art health system. It even had one of the best systems in the Middle-East. The medical education in Iraq was known for its high quality. During that period, half of the medical students came to Iraq from neighbouring countries to study and practice medicine (Medact, 2008).

After the Gulf wars, years of sanctions and the war to destroy Saddam Hussein's regime, Iraq has struggled to rebuild the country. There has been no formal war for several years but Iraq is still an insecure and violent area.

Currently, Iraq has to deal with a weakened health care sector. The infrastructure of the health care system is in a critical condition as a result of years of under investment and lack of maintenance, compounded by sanctions. The functional capacity of the health care services is further weakened by the unpredictability of electricity and water supply and the general insecurity for all health personnel which has led to immense emigration and a brain drain (WHO, 2004). Iraqi medical schools struggle to stay open and their safety and educational continuity are often under threat (Medact, 2008). Gaps in relevant health knowledge have been established as a consequence of years of isolation.

Investment in the health care sector is an important component of post conflict work as a healthy population is essential to establishing a base for rebuilding the economy of Iraq (Kreimer, Eriksson, Muscat, Arnold, & Scott, 1998). At the moment, Iraq is not only concerned with rebuilding health services but it is also changing the health system from a hospital based system into a primary care focused system.

In 2004 the Ministry of Health (MoH) developed, in partnership with the WHO, UNICEF, UNFPAP and WFP, as the first necessary political step, a strategy to foster the health of Iraqi people. In that document the ministry of health formulate their vision on public health for the forthcoming years: *'Establish a robust primary health care system centred on strengthening general practice in the short term and develop a family physician model in the long term'* (WHO, 2004).

The fact that Iraq has to deal with a large group of health workers who are inadequately trained and a lack of resources makes the re-establishment of a good working health care system even harder. In order to establish a good working health care system, (knowledge) capacity building is urgently needed.

1.1 Capacity building

European universities can play a role in health knowledge capacity building for Iraq. The University of Twente is investigating various facets and sectors of Iraq's present reconstruction problems (capacity building in health, infrastructure, higher education and in the gas and oil sector) with European participation. This particular project's goal is to investigate capacity building to improve primary health care and the educational programmes needed to train Iraqi health professionals to achieve that. The subject of the educational programmes will be determined once the present knowledge gaps in health care have been identified. The educational programmes will be based on best practices in more developed countries, those which are the most suitable regarding the conditions in Iraq.

The project is especially focused on primary health care (PHC) for Iraqi mothers and children. Primary care is the central point of any health system. First there has to be contact, continuous, comprehensive and coordinated care, provided to populations undifferentiated by gender, disease or specific organ disorders (Starfield, 1994). Primary care is an important point of focus particularly for Iraqi health care for several reasons. The policy of the Iraqi ministry of health is especially focused on PHC. Moreover, according to previous research, a well-developed PHC system could reduce many causes of mortality, improve health status, reduce hospitalization, and be cost saving (Lee, Kiyu, Milman, & Jimenez, 2007). Children and their mothers are the most vulnerable group in Iraq and need extra support. Besides, children are the future in every society.

1.2 Research objective

This research will support an application for an intended research capacity building proposal to be submitted for Iraq funding and will function as a background study. It has to make recommendations for the creation of educational programmes in order to build the knowledge capacity up and for a good working PHC system for mothers and children in Iraq.

To be able to develop and offer educational programmes, the educational focus on specific health areas has to be determined. These areas could be identified by analysing the current health care needs of mothers and children in Iraq. This project is especially focused on needs which are caused

by knowledge gaps and thus imply educational needs. That is why the selected needs have to be fulfilled by education.

When the focus on specific health areas has been determined the outlook of the educational programmes will have to be determined. Relevant questions are 'How could the educational programmes contribute to satisfying the needs?' and 'What does the educational programme have to look like and what are the minimum conditions?'.

When the outlook of the educational programmes are clear, the county or institution which can offer educational programmes, according to a best practice in (one of) the specific health areas, could be determined.

1.3 Research questions

The goal of this study is to provide insight into the current primary health care needs of Iraqi mothers and children as well as the educational programmes which could satisfy these needs.

This goal is to answer the following research question:

What are the relevant opportunities for Iraq, in terms of knowledge capacity building, in order to achieve an effective and efficient PHC system for mothers and children?

In order to answer this research question, three supporting sub questions are:

1. What are the PHC needs of mothers and children according to the new PHC system?
2. Which educational themes, in order to fulfil the Iraqi PHC knowledge needs, can be identified?
3. Which available and suitable training programmes, according to the Iraqi PHC knowledge needs, can be identified?

1.4 The report's structure

This report consists of six chapters. After this first introductory chapter, the second chapter will state the research design and the used methods. The third chapter offers a literature study. In chapter four the analysis and results of the empirical Delphi study and survey research are presented. In chapter five the results are discussed. In the sixth and final chapter the results of the entire study are summarized, with conclusions and recommendations.

2. Theoretical framework

Theoretical concepts that are important for this research will be discussed in this chapter. First the concept of needs is presented, followed by the related research concept of needs assessment. In the second half of the chapter attention will be given to PHC and the current Iraqi PHC situation in particular.

2.1 Needs

The concept of needs is a key concept in this study since the objective is to identify needs and therefore requires an explanation. There are different approaches to the concept of needs especially to the health approach (Asadi-Lari, Packham, & Gray, 2003). There is also more than one correct definition of the concept. In this research a need could be best described as 'a condition marked by the lack of something requisite'.

Various forms of need can be distinguished. These forms characterize a need. There are felt needs (what people say they need), expressed needs (expressed in action), normative needs (defined by experts), and comparative needs (group comparison). Other distinctions include individual versus organizational or group needs, clinical versus administrative needs, and subjective versus objectively measured needs (Asadi-Lari, Packham, & Gray, 2003).

Besides the various forms of needs there are also different types of needs. Two types of needs are especially important in this study, health care needs and learning needs, therefore we will now focus on these types.

2.1.1 Health care needs

Health care needs are often differentiated as needs, demands and supply. Need is quite different from supply and demand, and is commonly defined as the capacity to benefit while demand is what patients ask for. Supply entails the health care provided by health professionals (Wright, Williams, & Wilkinson, 1998).

A need differs from demand because (the size of) a need cannot always be identified by an individual. This is caused by the difference between expressed needs (demand) and actual needs. Previous studies even indicate a poor correlation between perceived deficiencies (demand) and actual deficits (needs) (Pakenham-Walsh & Bukachi, 2009). This interrelation between needs and demand does not only hold for health care needs but also for the hereafter discussed learning needs.

The most ideal situation is when there is a balance between need, supply and demand, when assessing health needs. Ideally, the provision of health care services should meet most of the populations' needs but the latter may not be constant (Asadi-Lari, Packham, & Gray, 2003).

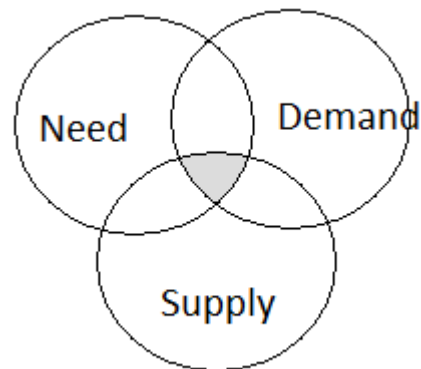


Figure 1 Balance between need, demand and supply

2.1.2 Knowledge needs

Doctors cannot practice high quality medicine without constantly updating their medical knowledge (Smith, 1996). Identifying learning needs and conducting learning needs assessments is a crucial stage in the educational process that leads to improved treatment of the patient and management of the practices, and it also becomes part of government policy for the continuation of professional development (Grant, 2002).

Information needs is a complex, heterogeneous concept that encompasses several different perspectives (Pakenham-Walsh & Bukachi, 2009), including:

- information needs or "wants" as perceived by health care providers
- information needs inferred by assessment of knowledge
- information needs inferred by assessment of health care practice

2.2 Needs assessment

In general, needs assessment is a tool for determining and addressing needs, or gaps between current conditions and desired conditions, and is often used for improvement projects.

Needs assessment in healthcare is a necessary tool in health service planning. This instrument becomes very important during periods of changing perspectives and health care reform (Stevens, Raftery, & Mant, 2010). Health needs, are those that can benefit from health care or from wider social and environmental changes (Wright, Williams, & Wilkinson, 1998).

Because needs assessment could be a multi-purpose tool, it is unlikely that a single method is sufficient for all purposes. As a consequence there are various approaches to needs assessment. There is not a single, all-purpose needs assessment technique because evaluation planners have different goals and have different data resources available (Stevens, Raftery, & Mant, 2010).

In literature two approaches of needs assessment in health care are used: health needs assessment (HNA) and health care needs assessment (HCNA). Although these two approaches are almost irreplaceable there are small differences between the two concepts.

HNA is a systematic method of identifying unmet health needs of a population and making changes to meet these unmet needs (Wright, Williams, & Wilkinson, 1998). Accordingly, HCNA is specifically focused on the need for health care. HCNA is the systematic approach to ensure that the health services use their resources to improve the health of the population in the most efficient way (Wright, Williams, & Wilkinson, 1998).

In spite of some differences between the two approaches, they both focus on identifying gaps in health (care) in order to improve the health status of the population. They are both also a tool to help to decide how much of what type of service is required in a given community or region (WHO, UNDCP, & EMCDDA, 2000).

Although the literature generally reports only the more formal methods of needs assessment, doctors use a wide range of informal ways of identifying knowledge and learning needs as part of their ordinary practice (Grant, 2002).

In order to develop a good health service or intervention one must understand properly the real needs of the population. To be able to understand the PHC needs of Iraqi mothers and children an outline of the current Iraqi health care situation will be given in the next paragraphs. First, the importance of a properly functioning PHC system will be explained. This will be followed by an extensive description of both the Iraqi view on PHC and the current PHC situation.

2.3 Primary health care (PHC)

For decades, health systems were centred around the care given to patients in medical facilities. The introduction of primary health care systems changed this emphasis from the larger hospital to that of community-based delivery of services with a balance of cost-effective preventive and curative programmes (De Maeseneer, Willems, De Sutter, Van de Geuchte, & Billings, 2007).

Primary health care is the first point of contact with the health care system, often through a family physician. First there has to be contact, continuous, comprehensive and coordinated care provided

to populations undifferentiated by gender, disease or specific organ disorders (Starfield, 1994). This is where short-term health issues are resolved and the majority of chronic health conditions are managed. It is also where health promotion and education efforts are undertaken (De Maeseneer, Willems, De Sutter, Van de Geuchte, & Billings, 2007).

Primary care should not be seen as a set of activities, but as a level of care, as a strategy for organizing health care and as a philosophy that permeates health care (De Maeseneer, Willems, De Sutter, Van de Geuchte, & Billings, 2007). Primary care is the central level of a health care system. Secondary and tertiary care are distinguished by their duration as well as by the relative uncommonness of problems that justify them. Secondary care is consultative, usually short-term in nature, for the purpose of helping primary care physicians with their diagnostic or therapeutic dilemmas (Starfield, 1994). Tertiary care is care for patients with disorders that are so unusual in the population that primary care physicians can not be expected to see them frequently enough to maintain competence in dealing with them (Starfield, 1994).

The original principles of PHC were first described in the Alma-Ata Declaration. In 1978, the WHO and UNICEF organized an international conference on PHC which was held in Alma-Ata. In the following Declaration of Alma-Ata the WHO defined an approach under which health systems should focus on essential services, including preventive services and those promoting health, and make them accessible to all (WHO, UNICEF, 1978). The declaration even affirmed access to basic health services as a fundamental human right.

The declaration of Alma-Ata describes PHC as: *'Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally **accessible to individuals and families in the community** through their full participation and at a cost the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination. It forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system **bringing health care as close as possible to where people live and work**, and constitutes the first element of a continuing health care process. Alma Ata Declaration'* (WHO, UNICEF, 1978).

Today, this strategy is still the main foundation on which most health care systems are built. Whatever the circumstances and political environment, the emphasis is on ensuring universal access to essential health services. However, these days the PHC strategy must be adapted to new health problems (HIV/AIDS did not yet exist when the Declaration of Alma-Ata was drafted), to

demographical changes (the elderly population poses specific problems in developed countries), to changes in national health policies, which are increasingly reliant on the private sector, and so forth (ICRC, 2006).

2.3.1 PHC services

The offered PHC services differ across countries. The offered services are targeted depending on the situation in a country. In countries which have to deal with major emergencies, the selected services will be those with a potential for immediate impact on what are usually the common medical problems such as the risk of measles, diarrhoeal illnesses, lung infections or malaria (ICRC, 2006). Such services might include mass immunization campaigns, outpatient consultations in quickly set up clinics, etc. In stable situations the range of services is often wider and more focused on chronic illnesses (ICRC, 2006).

Despite the differences between the offered PHC services in countries, the Declaration of Alma Ata sets a list of core activities (Hall & Taylor, 2003). The declaration proposed that PHC should include at least:

1. Education concerning prevailing health problems and the methods of preventing and controlling them
2. Promotion of food supply and proper nutrition
3. An adequate supply of safe water and basic sanitation
4. Maternal and child health care, including family planning
5. Immunization against the major infectious diseases
6. Prevention and control of locally endemic diseases
7. Appropriate treatment of common diseases and injuries
8. Provision of essential drugs

Preventive services play a major role in PHC. Several levels of prevention have been distinguished: primary, secondary and tertiary prevention. Primary prevention is focused on avoiding the development of a disease. Primary preventive services are for instance immunization programmes. Secondary prevention is disease prevention, and is made up of activities aimed at early detection of diseases where maximum recovery is still possible. Screening programmes cover this form of prevention. Finally, tertiary prevention services are all activities focused on treating and reducing the consequences of a health problem, illness or accident (Boot & Knapen, 2001).

2.4 PHC in Iraq

2.4.1 The Iraqi view on PHC

In 2004 the Ministry of Health developed in partnership with the WHO, UNICEF, UNFPAP and WFP, as the first necessary political step, a strategy to foster the health of Iraqi people. In this document the MoH formulate their vision on health care in Iraq: *'Provision of accessible, affordable, available, safe and comprehensive quality health services of the highest possible standard that is financially sound and founded on scientific principles in order to meet the present and future health needs of the Iraqi people regardless of their ethnicity, geographic origin, gender or religious affiliation'* (WHO, 2004).

Besides the general vision on health care, the MoH also formulated a vision for public health: *'Establish a robust primary health care system centred on strengthening general practice in the short term and develop a family physician model in the long term'* (WHO, Maternal, Child and Reproductive Health Strategy in Iraq 2005-2008, 2004).

PHC and public health differs from each other in their focus level. PHC is primarily focused on services at an individual level while public health focuses on services at the population level. As described above, the research, but also the Iraqi setting and view is focused on public health in a PHC setting. The population health approach has been adopted here. The goal of a population health approach is to maintain and improve the health status of the entire population and to reduce inequalities in health status between population groups.

Before 1991 the health system in Iraq was an evolving network of primary, secondary and tertiary care facilities that provided free, good quality services. The system was based on a hospital-oriented, capital-intensive model of care that required large-scale imports of medicines, medical equipment and even health workers (WHO, 2004). The system ran fairly well but little health service data was collected which is crucial to effective decision making. As a consequence this also led to a lack of cost-effective public health interventions (Eastern Mediterranean Region World Health Organization, 2006).

The health system was dramatically affected by the 1990-1991 Gulf war. Damage to the economy and the regressive effect of economy sanctions drastically reduced revenues available to central government, and thus state governance of the health sector declined (Medact, 2004). During 1990 the budget for the health care sector decreased by 90% (Eastern Mediterranean Region World Health Organization, 2006).

Despite some habilitation efforts, the provision of health care has become increasingly difficult since 2003. The physical health infrastructure is in a very bad condition as a result of years of under

investment and lack of maintenance, compounded by sanctions. The functional capacity of health care services was further weakened by the unpredictability of electricity and water supply and the general insecurity for all health personnel has led to an immense emigration and brain drain (WHO, 2004).

The renewed approach to PHC requires the need to shift the health care system from hospital-based to primary health care based, with a focus on community outreach and community participation (WHO, 2004).

2.4.2 Current PHC situation in Iraq

Facility and infrastructure

Although there are initiatives for changing the primary health care system there is still no formal GP or family practice system. As a result patients can still visit any health centre or hospital without any referrals. The absence of a PHC system as a gatekeeper for the rest of the health system makes health care inefficient and overly costly (Eastern Mediterranean Region World Health Organization, 2006).

PHC in Iraq is currently being offered by the public sector in primary care centres, the private sector in private practice clinics or through the initiatives of NGO's like the WHO or the Red Crescent organisation.

According to the literature the public primary health care centres provide preventive and primary health care to citizens. The literature varies regarding to the number of PHC centres across Iraq. But it can be assumed that there are approximately 1,453–1,570 primary health care centres. These PHC centres are, however, often private health care centres. In rural areas small health centres operate mainly in the morning; however clinics treating chronic diseases also operate in the afternoon (Godichet & Ghanem, 2004). Each PHC centre has to provide care to around 35,000 people. Approximately 55% of the centres have at least 1 doctor present. This percentage varies between the urban and rural areas. PHC centres in the cities are more or less overstaffed compared to the rural PHC centres where they have to deal with large shortages (Eastern Mediterranean Region World Health Organization, 2006).

According to the Ministry of Health, maternal, child health and reproductive health services are provided by all levels of the health care system (WHO, 2004). At the primary level the following services are provided:

- Antenatal care
- Postnatal care
- Growth Monitoring of under fives
- Management of acute respiratory infections and diarrhoea using the standard case management charts
- Promotion of breastfeeding through health education
- Immunization programmes according to the national schedule
- Curative services to mother and children (WHO, 2004)

Currently there are none or almost no mental health services at the primary health care level while war and insecurity have had a major impact on mental health especially on children. In particular they influence the emotional and cognitive development of children which could lead to serious emotional and behavioural disorders (Medact, 2008). Those mental health services which are available are situated in general hospitals. There are 23 hospitals that provide mental health services but there are no children's or community-based services.

Unfortunately many people receive little or no expert care or support. This is not only caused by the few available services but also by the stigma associated with mental disorders. This stigma means that families keep their ill or disabled relatives hidden at home (Medact, 2008).

Management & organization

Most public primary health care centres operate during the morning hours. Physicians work from 8.00-13.00 hours. During these hours physicians see between 30 and 100 patients, this means that every patient has a consultation time of two to five minutes (WHO, 2006a). Beyond the morning hours physicians often work in private clinics because health providers in the public sector are allowed by law to practice their profession in the private sector after their working hours for the public sector.

Iraqis have open access to primary health care centres (also to hospitals) on payment of 500 Iraqi Dinars (0.35 – 0.50 US cents) and they receive free drugs and vaccinations but which are severely restricted in terms of quantities. Drugs have been provided without payment since the May 2003 War (Godichet & Ghanem, 2004).

Generally there are drug shortages soon after opening (around 9:30 h). Thus patients who come later in the day can avoid paying consultation fees by obtaining the drugs that he or she thinks they require, from the pharmacy (Godichet & Ghanem, 2004).

Currently access to primary care is inadequate while before 1980 (Iran-Iraq war) there was guaranteed equal access to health care. Access problems emerged due to the years of violence. Currently Iraq has to deal with access problems caused by:

- An overall lack of capacity of doctors and nurses to deliver health services. This topic will be discussed in more detail below.
- Poor security conditions
- The poor cannot afford private centre care
- Medical facilities and equipment, except the one located in the northern part of Iraq, are in need of repair and upgrading
- Low health service quality because the skills of the medical workers urgently need to be updated (ICRS, 2008).

The MOH is funded by the Ministry of Finance. This is hardly enough to cover the salaries of staff members especially as during the 1990's, funds available for health were reduced by 90%. Therefore the MOH relies even more on help from UN agencies and International NGO's (Eastern Mediterranean Region World Health Organization, 2006).

Personnel

Currently Iraq has to deal with two problems when it comes to medical personnel. First there is a great capacity problem, especially in the field of nursing. Second the personnel are poorly trained.

According to Saddam Hussein's policies in the 1990s, the field of nursing was unnecessary and Iraq did not need nurses. A couple of years later he reversed this approach, probably because he realized that nurses are an important factor in the health care system. Saddam forced a mandate onto agricultural school graduates who had to do six months of nursing service to get their titles. In some areas army personnel or criminals were pressed to function as nurses. The consequence was a poorly qualified nursing situation. In many ways nursing in Iraq looked like pre-Nightingale nursing in the UK two centuries earlier (Garfield & McCarthy, 2005)

Saddams' policy is one of the several reasons why many medical personnel left their job or even the country. During the 1990s the outflow turned into a flood. Since 2003, 75% of doctors, pharmacists and nurses have left their jobs, and half of these have fled abroad. There are only as few as 9,000 doctors and 15,000 nurses left who have to serve 28 million people. This means that for every 10,000

citizens there are only 6 physicians, 12 nurses and less than one midwife (Medact, 2008). This rate is very low compared to developed countries like Ireland with a physician density of 30.8 (per 10,000 inhabitants) and the Netherlands with a physician density of 39.2 (per 10,000 inhabitants) (WHO Global Health Observatory, 2009).

Dentists, pharmacists and managers are also in short supply. Such health professionals are almost completely absent from remote and rural areas (Medact, 2008).

Other reasons for the decreasing number of medical workers are the poor security circumstances and the very low income level. Although the income levels increased through the 1990s it is still low. Doctors can earn more money by maintaining a private practice. This is not possible for nurses; the private hospitals employ only about 500 nurses. Many nurses have emigrated or simply stay at home (Garfield & McCarthy, 2005).

Furthermore, Iraq is currently the world's deadliest country for aid workers. As a consequence most NGO's and international organisations have left central and southern Iraq which decreases the number of health workers even more.

Treatment by a poorly trained health worker is not an exception in Iraq these days. Because of the deficits and need for health workers, the staff is not fully or even not at all professionally trained. Junior staff frequently performs procedures beyond their competence, while families usually provide nursing care. Professional expertise is in even shorter supply in remote and rural areas. Many routine treatments are not available, including for chronic conditions like asthma and diabetes (Medact, 2008).

It is reported that 45% of the births occur outside health institutions. The proportion of women delivering without trained assistance rose during the 1990s, to 30% in urban areas and 40% in rural areas because of a shortness of qualified staff, while 15%–20% of deliveries are high risk and need advanced medical support (WHO, 2006a).

A good example of inadequately trained and lack of staff, especially in birth services is presented in the study by Siziya, Muula & Rudatsikira (2009). These researchers studied if socio-economic status and demographic factors are associated with giving birth at home supervised by traditional birth attendants (TBA's) in Iraq. Traditional midwives usually learn their trade through apprenticeship although some may be wholly self-taught. They are not certified or licensed so TBA's tend to provide lower quality maternity care compared to professional health workers. The absence of a proper medical education could lead to maternal and prenatal death from the inability to detect complications.

Women may choose to be delivered by TBA's because of the culturally appropriate and respectful care that traditional birth attendants provide but they may also choose TBA's because health facilities and professional trained staff may not be readily available.

About one in five women is assisted by TBA's. The study indicates that having a delivery supervised by traditional birth attendants was associated with young maternal age, low education and being poor. However, women who have only one or two children were less likely to be delivered by TBA's. These factors should be considered in the design of interventions to reduce the rate of deliveries assisted by TBA's in favour of professional midwives which will consequently, reduce maternal and prenatal mortality rates and other adverse events (Siziya, Muula, & Rudatsikira, 2009).

Medical education

In 1933 the first formal nursing programme began in Baghdad. From the start nursing programmes had difficulty recruiting well qualified students because the cultural norms restricted nursing as a typical feminine profession (Garfield & McCarthy, 2005). The medical education in Iraq was known to be high quality.

In 1975 the free educational law was established which promoted access to study abroad. Half of the medical students in Iraq came from other countries and after graduating only a few provided services to the Iraqi people (Garfield & McCarthy, 2005). On the other hand, most Iraqi physicians had masters or doctorates from developed countries.

During the sanctions, the intellectual isolation of the country was extensive. Iraqi citizens and education programmes had almost no access to books and journals from the last 10 years. Moreover, the government limited telecommunication facilities. Very strict limitations on permission to participate in regional and international scientific activities compounded this problem (Garfield & McCarthy, 2005).

Currently medical schools struggle to stay open and face many threats to their safety and educational experience (Medact, Rehabilitation under fire, health care in Iraq 2003-7, 2008). There is a strong educational base for nursing education in three Iraqi universities, but it relates little to other schools or hospitals (Garfield & McCarthy, 2005).

More than 60 high school programmes train the largest number of skilled nurses in three year programmes. 19 post-high school institutes train technical nurses in hospital schools for two years. Four nursing colleges train high school graduates in four year professional nursing programmes (Garfield & McCarthy, 2005). The used training materials are traditional with almost all instructions in

the classroom. There is practically no clinical practice or supervision of students. Midwifery education only exists at the secondary school level (Garfield & McCarthy, 2005).

Military nurses, now being integrated into the public system of hospital care, are considered to have far more technical skill levels than non-military nurses. There is no structure to take advantage of their higher skill levels and the resources they represent may be lost to the health system (Garfield & McCarthy, 2005).

Moreover, all levels of graduates from nurse's aides to professional nurses may do the same job in a hospital. To date there is no licensing procedure and virtually no system of discipline for poor professional behaviour which affects the quality of care negatively (Garfield & McCarthy, 2005).

Child mortality rate

Probably the main current health problem is the enormous child mortality rate. In 1990 the under five child mortality rate was 53/1000. In 2007, 17 years later the under five mortality rate has decreased to 44/1000 (UNICEF, 2007a). During this period the infant mortality rate also decreased from 42/1000 in 1990 to 36/1000 in 2008. Unfortunately, the infant mortality rate increased again to 43.82/ 1000 live births in 2009 (WHO Global Health Observatory, 2008).

These mortality rates are enormous compared to other countries in the world (WHO Global Health Observatory, 2008):

Country	Infant mortality rate (probability of dying between birth and age 1 per 1,000 live births)	Under 5-mortality rate (probability of dying by age 5 per 1,000 live births)
Canada	5	6
Iraq	36	45
Ireland	4	5
Netherlands	4	5
United Kingdom	5	6

Table 1 Infant mortality 2008

Limited information is available from the civil registration system about the epidemiology and causes of under five mortality. The registration system is deficient in its coverage because the cause of deaths goes unreported particularly in rural areas where most deaths occur at home, outside the health system (Awqati, et al., 2009).

Awqati et al. (2009) did a study into the causes of under five mortality. To determine the cause structure of child deaths, a simplified verbal autopsy questionnaire was used in interviews conducted in the Iraqi Child & Maternal Mortality Survey (ICMMS) 1999 national sample. All the

mothers/caregivers of the deceased children were asked open-ended questions about the symptoms within the two weeks preceding death (Awqati, et al., 2009).

During the studied years, 1994-1999, illness was the leading cause of death in children under five years of age. 81.2% of the children died because of illness. Deaths due to illness were more prevalent in urban areas (57.5%) compared to rural areas (42.5%) (Awqati, et al., 2009). The specific cause of death differs by age group. Children dying during their first month die mainly because of cough and/or difficulty with breathing or prematurity. Death during the first 1-11 months of a child is especially caused by diarrhoea, cough and/or difficult breathing, vomiting and fever. Causes of death during the 12-59 months do not deviate much from the causes of the 1-11 months deaths (Awqati, et al., 2009).

The congenital malformation rate in the middle Euphrates region (9.2%) is more than double compared to the Northern region (3.9%). This could be explained by the widespread economic hardship and environmental factors which have had a negative effect on the population's health. A large environmental cause was the use of mustard gas during the 1991 Gulf war (Awqati, et al., 2009).

Children living in the Southern and Middle Euphrates region are at a higher risk of dying before reaching the age of five because of a variety of factors, like the declining economic well-being of the population, its effect on mother and child nutrition levels, as well as the declining access to health care and food availability (Awqati, et al., 2009). Compared to the Southern region, children living in the Northern region benefit from improved socio-economic conditions.

The researchers conclude, because of the fact neonatal deaths account for more than half of under five children deaths, health interventions need to be improved. Priority needs to be given to prevention, early and effective treatment of neonatal conditions, diarrhoeal diseases and acute respiratory infections (Awqati, et al., 2009).

UNICEF (2007b) also performed a study to investigate the causes of child mortality. According to UNICEF, mortality and morbidity is not only caused by illness and malnutrition but also by the poor conditions of the health services. The condition of the health services decline because of the falling number of health professionals and the absence of funds and money. UNICEF also indicated the causes of illness and malnutrition as being poor water and sanitation conditions, poor diversity and inadequate feeding and health care access problems (UNICEF, 2007b).

Based on the previously discussed current PHC situation in Iraq, one could conclude that Iraqi people do (not yet) have universal access to essential health services. In 2004 the Iraqi MoH formulated the

vision for public health. According to this vision the health care system would change to a primary health care based system. Currently there are some PHC centres in Iraq but they suffer from a lack of capacity of doctors and nurses and from a low health service quality because the skills of medical workers need to be updated. The enormous child mortality rates forms one of the biggest health problems. In order to decrease these mortality rates several effective and efficient basic PHC services should be developed.

In order to identify relevant opportunities for Iraq, in terms of knowledge capacity building, in order to achieve an effective and efficient PHC system for mothers and children, a needs assessment should be conducted. This chapter has already discussed the theory of needs assessment. The next chapter will explain the methodology of the study and the implementation and design of the needs assessment.

3. Methodology

In this chapter the methodology of the research will be described. First the research design will be discussed followed by a discussion of the used research methods.

3.1 Research design

The main criterion for choosing a research approach is that the approach should match the problem (Creswell, 2009). Given the research question and the sub-questions a "qualitative" type of research design for this study is most appropriate (see Figure 2 research design, below).

This study consists of three phases; the first two stages are closely aligned. The first phase involves an exploratory qualitative research whereby the PHC needs of Iraqi mothers and children were identified. The second phase is a qualitative in-depth research which will determine the outlook of the educational programmes. The third phase also includes a qualitative in-depth study, whereby the characteristics of the providers of the educational programmes are identified. The character of the whole research is descriptive and exploratory in nature.

Research question	What are relevant opportunities for Iraq, in terms of knowledge capacity building, in order to facilitate the implementation of a PHC system?		
Sub questions	Needs indentification	Outlook of educational programs	Characteristics of educational programme providers
Type of research	Descriptive research (phase 1)	Descriptive and exploratory research (phase 2)	Descriptive and exploratory research (phase 3)
Research design	Delphi research	Delphi research	Delphi research
	Literature study		
Samples	Iraqi PHC experts	Participants first round Delphi and other Iraqi PHC experts	
Data collection	Self-administrated questionnaire	Semi-structured interview	
Data analysis	Qualitative data analysis	Qualitative data analysis	
Conclusions	Answers to the research question and sub questions Discussion and recommendations		

Figure 2 Research design

3.2 Literature study

A literature study was used to understand the current (PHC) situation in Iraq. Unfortunately, the available literature is not sufficient for a reliable and comprehensive overview of the current PHC needs of Iraqi mothers and children. In addition the literature has been used as a complement to the Delphi research and the qualitative survey research.

Journals, conference proceedings and documents prepared by organizations such as the WHO, UNICEF, Iraqi ministry of Health, health departments of the governments of the selected countries were consulted. Recent information was sought from within the last 10 years and preferably (for the current health situation) after 2003. These limitations are not entirely arbitrary as changes in PHC are taking place very fast in western countries and in Iraq an already outdated medical system has nearly collapsed after 2003. During the literature search the snowball method was used. In the snowball method, references in books and articles have to lead to new relevant and valuable information. Also organisations, mainly NGO's are approached for information about the current PHC needs/ situation in Iraq.

Because scientific information is very scarce and a lot of information from organizations is collared and influenced by the goal and focus of the organization, reliable needs identification could not be made primarily based on literature. Therefore we chose to also acquire the knowledge of experts by means of the Delphi research method.

3.3 Delphi research

The Delphi research method originated in a series of studies that the RAND Corporation conducted in the 1950s. The objective was to develop a technique to obtain the most reliable consensus of a group of experts. It attempts to achieve this by a series of intensive questionnaires interspersed with controlled opinion feedback (Dalkey & Helmer, 1963). The Delphi method originated in the American business community, and has since been widely accepted throughout the world in many sectors including health care, defence, business, education, information technology, transportation and engineering (Skulmoski, Hartman, & Krahn, 2007).

The Delphi technique is a structured, iterative process that uses a series of questionnaires or 'rounds' to gather information which are continued until 'group' consensus of opinion, judgement or choice is reached (Keeney, Hasson, & McKenna, 2006). The questionnaires are presented to a panel of informed individuals in a specific field of application whereby expert opinion is combined into a group consensus.

The majority of the Delphi efforts during the first decade were for pure forecasting, including both short- and long-range forecasts. Concept/framework development represents a second type of application of the Delphi method. These study designs typically involve a two-step process beginning with identification/elaboration of a set of concepts followed by classification/taxonomy development (Okoli & Pawlowski, 2004).

There are no formal, universally agreed guidelines on the use of the Delphi technique nor does one standardized set of methods exist. Consequently, flexibility exists in the design and format of the technique and this often depends on the study's aims and objectives (Keeney, Hasson, & McKenna, 2006).

A Delphi process usually starts with an open-ended set of questions (round one), to generate ideas to uncover the issues pertaining to the topic under study. To do this, the panellists should put forward as many relevant issues as possible in round one (Keeney, Hasson, & McKenna, 2001). After the answers are returned, the data are summarized and a new set of questions is designed based on the responses from the first round. This second-round questionnaire is then returned to each participant showing the overall group response and the participant's own response from round one. Participants are asked to reconsider their initial response in the light of the first round's overall results (Keeney, Hasson, & McKenna, 2006). The process stops when the research question is answered, for example, when consensus is reached, theoretical saturation is achieved, or when sufficient information has been exchanged (Skulmoski, Hartman, & Krahm, 2007).

3.3.1 Methodological Choices

The Delphi method was used in this study because experts can reside anywhere in the world and it does not require meeting experts in person. The experts who were approached came from different countries, like Iraq and the UK and they also have different clinical and academic backgrounds.

The use of experts is especially important because they can judge, based on their expertise, the needs of a country. Iraqi citizens (non health specialists) can only indicate their personal and family health needs or even only their health demands. The expertise and associated knowledge of experts is also a requirement to determine best practices for Iraq. This choice indicates that the study is based on normative needs because they are defined by experts.

The Delphi study consists of two phases. The first phase should give a better understanding of the current PHC service needs of Iraqi mothers and children. The goal is to identify the needs which are caused by a poorly functioning PHC system. The identified needs will form the basis for a proposal for the development of educational programmes, which is the second part of the Delphi study. In this phase the focus of the educational programmes are determined and also the requirements to develop a targeted intervention are identified (the educational programmes truly address the needs).

Figure 3 shows the process of the Delphi study schematically. The problem has already been defined in the first chapter. The second step, the selection of the experts will be discussed in the next section. After the preparation of the questionnaire an invitation letter was sent to the experts. When the completed questionnaires were returned and analyzed the participating experts received an invitation for the second round which consisted of a telephone interview.

A Delphi study can entail qualitative, quantitative or mixed methods. This study has a qualitative character. The questionnaires contained open-ended questions in order to collect rich, contextual and detailed data for a deeper understanding of the fundamental research questions (Okoli & Pawlowski, 2004).

The number of Delphi rounds is variable and dependent upon the purpose of the research. Delbecq, Van de Ven and Gustafson (1975) suggest that a two or three iteration Delphi is sufficient for most research. In this study there were two data gathering rounds. An evident answer does not have to mean total agreement between the different experts, so a two round design was sufficient for our exploratory purpose.

3.3.2 Description of the sample

A Delphi does not depend on a statistical sample that attempts to be representative of any population. It is a group decision mechanism requiring qualified experts who have deep understanding of the issues. Therefore, one of the most critical requirements is the selection of qualified experts (Okoli & Pawlowski, 2004).

To be selected as an expert for this study the person had to meet certain criteria. An expert needed to be a specialist in the field of PHC (in Iraq). This could be a specialist either practising in health care,

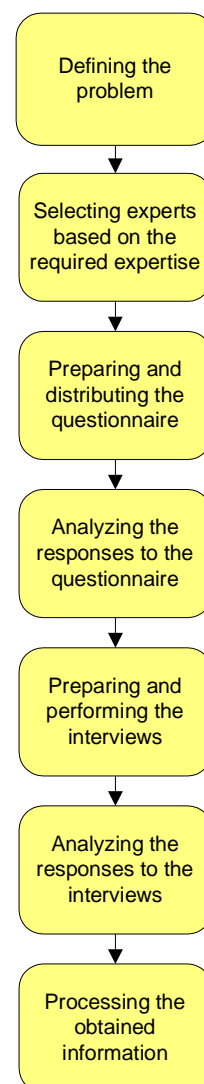


Figure 3 Delphi Process

health care management, health care policy or health education. Besides the specialism in PHC the expert preferably has to also be a specialist in mother and child care. Finally, an expert needs to be aware of the current health care situation in Iraq.

In total, 38 experts were approached by e-mail; they received an invitation letter which is also enclosed in appendix A. Because few experts responded to the invitation e-mail, all the selected experts received the first round Delphi questionnaire. In order to increase the response, all respondents received two reminders, by means of the invitation and questionnaire.

All the approached experts are involved or have knowledge of the Iraqi health care situation. Part of the group of invited experts is working in Iraq, the other part of the experts live and work in European countries. Also, Deans of Iraqi medical schools were invited to participate as an expert.

A selection of experts made use of the "snowball" sampling technique. The first group of experts received an invitation letter in which they were asked to identify other useful informants (Hardon, et al., 2001). The first round of respondents then participated in the second round.

3.3.3 Characteristics of the experts

Six experts reacted. All six of the participating experts are medical specialist and have a medical degree; their specialty area differs. Two experts work for an Iraqi university and are respectively the President and the Dean of a medical college. Two experts are paediatric consultants. Another member of the expert panel is an orthopaedic surgeon and one expert is a psychiatric consultant.

Two experts work and practice in Iraq, the others left the country years ago but they all have a practising history in Iraq. They also all graduated with their first medical degree in Iraq.

The average age of all participating experts is 52.8 years. This theoretically means that the experts could speak from a wide experience.

The familiarity of the respondents varies. Based on the characteristics of the experts, the experts could be classified according to their degree of familiarity with the current health care situation in Iraq and thus the current PHC needs of Iraqi mothers and children (see figure 4).

All respondents are more or less familiar with the Iraqi medical situation because they all studied and practised medicine in Iraq. Familiarity and bonding with the current situation is important for the reliability of the outcomes of the Delphi research. 'Not so familiar' means that the experts left the country many years ago and the information about current situation is second hand from colleagues. 'Quite familiar' means that the expert left the country but still visits the country occasionally which means that these experts could speak from their own experience. 'Very familiar' experts are those

who are still living and working/ practising in Iraq. These experts could also speak from a wide range of experience.

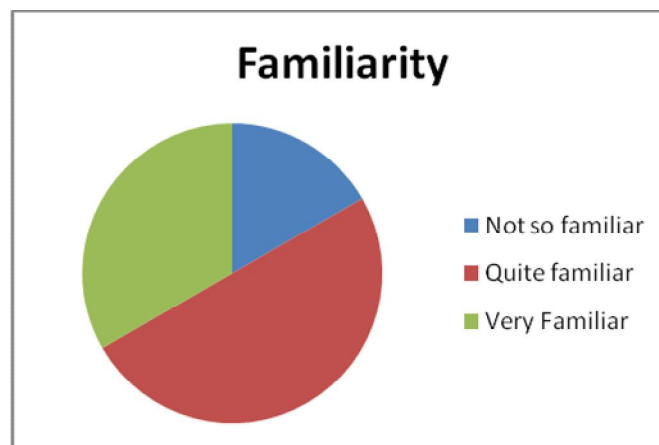


Figure 4 Familiarity of respondents with current situation

3.3.4 Delphi rounds

As discussed in the previous chapter, this project is focused on identifying knowledge gaps which could be decreased by educational programmes and could lead to more effective and efficient PHC services for Iraqi mothers and children. This means that not all present needs are suitable for this project. The goal of the Delphi study is to identify the knowledge gaps and the outline of the educational programmes.

First round: the Delphi questionnaire

The questionnaire was developed according to the health care needs assessment model. The questions were formulated in such way that the PHC services' needs of Iraqi mothers and children were identified. In order to identify these needs, the questions were grouped around five themes. The themes served as different approaches to meeting the needs. The five themes used were: current PHC services, PHC services in planning, health problems, and management of PHC and training shortages. The first round Delphi questionnaire is enclosed in the appendix.

The questionnaire was sent by e-mail to avoid the time of transmission by post. Often, respondents did not answer questions which were focused on the organization of educational programmes and their requirements. It is likely that this was due to a lack of information on the subject.

Second round: the Delphi interview

The concept of 'learning needs assessment' forms the basis of the second round Delphi telephone interview. With respect to the first round Delphi questionnaire, these questions were primarily

focused on knowledge needs (identified in the first round) and the outline of the educational programmes in order to fulfil these needs. The knowledge is needed in order to deliver the required services efficiently and effectively.

Experts who participated in the first round questionnaire were invited for the second round telephone interview. Moreover, a couple of 'new' experts participated only in the second round interview. A couple of days before the interview the experts received the outcomes of the first questionnaire because this formed the basis of the interview.

The interview did not follow a prepared list of questions. First, the respondent was asked about their opinion of the outcomes of the first round questionnaire. Second, the six recommended topics from the first round questionnaire were discussed individually.

3.4 Data analysis

The method of qualitative data analysis (QDA) was used to analyse the outcomes of the Delphi research. QDA is usually based on an interpretative philosophy. The idea is to examine meaningful content of the qualitative data in its context (Gibbs & Taylor, 2010).

With the coding techniques used during data processing, in order to look for patterns and trends in the responses, we can reach some conclusions as to what we are seeing (Gibbs & Taylor, 2010). Coding is the process of combing the data for themes, ideas and categories and then marking similar passages of text with a code label so that they can be easily retrieved at a later stage for further comparison and analysis. Coding the data makes it easier to search the data, to make comparisons and to identify any patterns that require further investigation (Gibbs & Taylor, 2010).

In this study the inductive coding approach was used. This means that the data generates the categories that are going to be used. Naturally we have also used the theoretical framework (Hardon, et al., 2001). An advantage of inductive coding is the fact that the grounded codes or new insights emerge from the data because potential prejudices and presuppositions are screened out (Gibbs & Taylor, 2010).

The type of coding used in this study is called descriptive coding because the created codes essentially form a summary description of what is in the transcript or text (Gibbs & Taylor, 2010).

This current chapter not only focused on the Delphi study process but it also focused on the participating expert and outlook of the first round Delphi questionnaire. The following chapter will present and discuss the results of the first Delphi round. The results will form the foundation for and direction of the second Delphi round.

4. Results: Delphi round 1

As discussed in the previous chapter the questions in the Delphi questionnaire were grouped around five themes. The outcomes of the questions will be discussed per theme: current P(rietary) H(ealth) C(are) S(ervices), PHC services in planning, health problems, management of PHC and training shortages. A detailed discussion of the most important findings follows at the end of this chapter.

4.1 Outcomes

4.1.1 Current P(rietary) H(ealth) C(are) S(ervices)

Mothers and children receive primary health care services in Primary Health Care Centres (PHCC). All the respondents referred to these PHCC's, one respondent also named NGO's like the Red Crescent Society as a PHC services source.

Several respondents gave examples of services which are functioning well, such as immunization. Statistics of the WHO confirms high immunization coverage (WHO, 2010b). But there is also data available showing that (in 2010) in 11 of the 20 Iraqi provinces there was a measles outbreak. So there is still a need for urgent steps to improve routine (measles) coverage (EMRO, 2010). Although high immunization coverage has been confirmed, vaccination programmes should receive constant attention.

There are a couple of PHC services in Iraq not functioning optimally. Services which are not functioning properly are inefficient. Efficient services have, compared to inefficient services, a positive effect on health status and mortality rate. Dr. Abbas, who is a consultant community paediatrician, specialist in paediatric neurodisability & child protection and one of the respondents, gave a good example of an inefficient service delivery: 'Maternal care during labour and postnatal care in rural areas, used to be either at home with the help of a midwife or, for complicated deliveries they would send them to small hospitals, which in most of the cases is too late for the poor mother and/or child resulting in severe complications or death'.

For the questions 'What are the most needed PHC services?' and 'What are the needs in a more general context?' the answers were pretty much the same. Iraqi mothers and children currently need proper care before, during and after giving birth, functional basic PHC services and universal screening programmes for children and mothers. The screening programmes for children have to be focused on child development as well as on disabilities. For mothers the focus has to be on screening for (breast) cancer. Finally, the population needs to be educated on health topics like breastfeeding.

4.1.2 PHC services in planning

According to the respondents, there are several PHC services under development. The following services have been mentioned: basic PHC, cancer screening, family planning, skilled attendance during labour, vaccination programmes, antenatal care, paediatric services, pre-marital counselling and educating the population. The named services in planning varied which is probably caused by the fact that Iraq is a large country with a number of initiatives in different places by different organisations. However basic PHC services and attendance during labour were also considered to have problems. Although the questions in this subcategory were not focused on identifying problems, the respondents came up with additional problems during development and implementation. Dr. Shukur, previously a surgeon in a children's hospital in Baghdad, commented that the government is trying to offer regular vaccination programmes and that the public sector is providing some antenatal care to expectant women in the main urban areas but that the security situations and the lack of personnel and equipment makes it very inadequate and certainly non-existent for rural areas and the poor (shanty towns) neighbourhoods of the inner cities.

The characteristics of the neediest group of children compared to mothers were more or less the same. Being poor is by far the most important factor, followed by living in a rural area and being disabled. Important for mothers is also the factor of being widowed. One respondent named women with high risk pregnancy (younger than 18 years or older than 45) as a factor, belonging to the group of the neediest mothers. This factor is different because high risk pregnancy is not directly associated with economic status or geographic factors.

4.1.3 Health problems

Infectious diseases are by far the most important treatable causes of the enormous child mortality rate. One respondent also named mental health problems in young people as a cause. The most important cause of mortality of mothers is related to giving birth.

On the question about educational programmes and their minimum requirements, the answers were very diverse. Dr. Al-Bazzaz, the president of Hawler Medical University Iraq, was very clear in his answer. He mentioned 'educational programmes for mothers and the community as well as training nurses and midwives and TBA's in proper management and making correct referrals'. Most of the other answers were focused on educating the population, the subject/speciality of education or on the profession. Probably the question was not specific enough.

According to the respondents, the most needed services for mentally and/or physically disabled children are rehabilitation programmes. One respondent stated that a few services for disabled children are offered in PHCC's on a small scale. Another respondent stated that these services do not

exist yet. In order to improve services for disabled children, educational programmes need to focus on diagnosis and treatment. Dr. Abed proposed that PHC services have to be closely liaised with the primary school system. Meanwhile Dr. Abbas proposed the setting up of a one stop clinic or shop where the service could be offered. However, Dr Alahmed answered this question by summarizing the needed services: 'Iraq needs to have a tool to recognize and screen problems caused by disabilities. First identify the size of the problem which I think is huge and then provide the services needed like physiotherapy, speech and language therapy, special teaching programmes and special schools etc'.

4.1.4 Management of PHC

When it comes to organisational issues, Iraq has to get the PHC system up and running whereby the system has to shift from a secondary care focus to a primary care focus. This corresponds with the focus of the MoH on changing the PHC system. Getting the system up and running includes the provision of good and qualified personnel, health resources like equipment and medicines and being able to staff the PHC in rural areas.

In order to deliver high quality PHC efficiently and effectively, new posts such as health visitors and community midwives need to be created. Training and revised protocols are very important because these factors establish and sustain the health workforce. Dr. Aras reflected not only on training but also on the importance of changing protocols for women who give birth to their first child: 'Good training of TBA (Traditional Birth Attendants) under the supervision of specialized personnel and encouraging the first labour to be in hospital (must) and giving children with diarrhoeal diseases oral rehydration solutions before they are brought to a hospital'. Also attention should be given to the geographical distribution and availability of PHC services in order to tackle problems of accessibility.

In order to decrease organisational and management problems, educational programmes need to include: informing the community on topics like using the family doctors system and informing mothers on self examination of their breasts.

4.1.5 Training shortages

The largest training shortages have been in the following areas:

- Mental health
- Childhood disabilities
- Skilled (community) midwives, skilled nurses, obstetricians, health visitors, GP's and specialised paediatricians

Half of the respondents were not sure or gave no answer to the question about how the training shortages could be improved through educational programmes. The option that was mentioned is to train health visitors and midwives separately from the general nursing training, in order to develop 'mini' specialists - specialists in one particular field.

The Iraqi regions with the highest needs are:

- All rural areas 2x
- Basra city 3x (South)
- Sadr city Baghdad 2x (Central)
- Baghdad 2x (Central)
- Nasriya city 2x (South)
- Amara city 2x (South)
- Kirkuk 2x (North)

Medical academic centres that would ideally give priority attention to improved PHC for mothers and children are:

- Baghdad 2x
- Basra 2x
- Mosul
- Babel
- Mutanserya
- Tikrit
- Kufa
- Ammara
- Ramadi
- Diyala
- Kirkuk



Figure 5 Map of Iraq

The last question in the first Delphi round asked the respondents whether there were additional important elements not named in the questionnaire. The respondents mentioned the following:

- Organisation and leadership
- Finance: social insurance for the poor and increased funding needed for reproductive health services

- Equipment, tests and medicine: more delivery rooms needed, availability of contraceptive pills, screening tests for cancer, transvaginal sonography
- Ignorance, poor economic standards, and corruption

4.1.6 Summary of the results of the first Delphi round

Next follows an encompassing summary of the key findings of the first Delphi round followed by a discussion.

There are a couple of PHC services in Iraq not functioning properly. This is, amongst other things, caused by a lack of public (PHC) personnel, facilities and technologies. However, in the field of PHC, different services are working on development. The initiatives are not only by the MOH but also by a large number of NGO's such as the WHO, UNICEF, Medecins sans Frontiers (Doctors Without Borders) and the World Bank.

PHC services are less developed in the southern regions compared to northern regions, like the Kurdistan region. This could be due to the fact that the northern regions are currently more stable.

Iraqi mothers and children currently need proper care before, during and after childbirth. Basic good functioning PHC services and universal screening programmes for children and mothers are a priority. The screening programmes for children have to be focused on child development as well as on disabilities. For mothers the focus has to be on well equipped breast cancer screening and birth related medical services. The population at large also needs to be educated on health topics like breastfeeding, healthy pregnancy, etc.

The neediest mothers and children are almost all poor, often live in rural areas, and are in many cases disabled and/or widowed.

The greatest needs of mentally and/or physically disabled children are rehabilitation programmes closely liaised with the primary school system and PHC.

The enormous health related child mortality is mainly caused by infectious diseases. The mortality of mothers is especially related to giving birth. An important intervention to reduce these high rates is educating the population at large on subjects like hygiene, healthy feeding and pregnancy.

In the field of health management, the Iraqi health care system has to shift from a secondary care to a primary care focused health system. Intervention, like separation of midwifery training from the general nursing training, in order to develop 'mini' specialists and new posts are necessary to decrease the present training shortages and to deliver efficient and effective PHC. Courses outside

Iraq are important to solve health management problems, in the long as well as in the short term, such as the lack in PHC innovation and knowledge transfer.

4.2 Discussion of the first round of Delphi findings

The most commonly reported needs which could be supported by educational programmes can be categorized as: PHC workforce, universal screening and monitoring programmes, and care for mentally and for physically disabled children. These points will be discussed in more detail in the following section.

4.2.1 PHC workforce

Iraq has to deal with a major health workforce problem. Currently, there are 0.7 physicians per 1,000 population. This is a very low physician density compared to the other Middle East countries. It even equals the level of developing countries like India, which has an occupation of 0.6 physicians per 1,000 population (Abyad, Al-Baho, Unluoglu, Tarawneh, & Al Hilfy, 2007).

The imbalance of the workforce is static in nature. It will take years to solve the problem simply because educating (new) physicians and nurses will take years. Zurn et al. (2004) developed a framework focused on the imbalances of human resources in the health sector. They conclude that the mismatch between demand and supply could be caused by different factors. In order to get insight into the mismatch they developed a typology of imbalances. This typology of imbalances is a suitable instrument to describe imbalances in the Iraqi health workforce.

Iraq has to deal with an imbalance in profession and specialty. There is a shortage of family doctors and nurses in PHC. Moreover, there is also geographical imbalance. Most health care professionals prefer to settle in urban areas. This implies a growing shortage of workforce in the rural areas which increases the problem of accessibility to basic health care for people in the rural areas. As a final point, Iraq has to deal with institutional and service imbalances. The shortages in public health and PHC are bigger compared to private clinics. Compared to the small amount of available curative services, there are currently almost no preventive services on offer (Zurn, Dal Poz, Stilwell, & Adams, 2004).

The described health workforce problems are caused by different factors. Doctors are leaving the country and move abroad because of the violence they experience, the perspective of better opportunities and better payment. There is also a shortage of equipment which makes practising health care and treating patients quite hard (Hongoro & McPake, 2004). Another problem regarding the health workforce, is the absence of decent education, especially education focused on prevention. The currently available training strategies are focused on highly skilled but easily exportable workers and consequently there is a decline in the investment in training (Hongoro &

McPake, 2004). It could be concluded that Iraq has a need for innovative approaches to improve training capacity in the short term.

In the last couple of years there were several initiatives to deal with the workforce problems. The government raised the salary of health workers in order to make a career and/or stay in health care more attractive (WHO, 2006a). There were also promising beginnings on developing a policy for human health resources but unfortunately little further progress has been made. Several NGO's like the WHO developed training projects (WHO, 2006a). But also some smaller NGO's like Emma Nicholson's AMAR foundation provides training programmes. This organisation, amongst other things, teaches and disseminates best practice through in-service training, external courses and conferences to Iraqi health professionals (AMAR, 2010).

Worldwide problem

Iraq is not the only country in the world that has to deal with workforce problems in the health sector; this is a common problem of middle and low income countries. Even developed countries, like the United Kingdom, need to develop strategies to increase their health workforce in order to meet the demand for care. In order to add more doctors, the UK had 57% more medical students between 1998 and 2005. They created several interventions to educate the increased number of students: shortened programmes were created which were open to science graduates, twinning arrangements and four entirely new schools. These four new medical schools also implemented key reforms in medical education. Curriculums were changed, and junior doctors were created for the purpose of working as part of multidisciplinary teams that included contact with the patients. This implies not only an increasing number of health workers but also early contact with patients, which has a positive effect on the education of the student (Howe, Campion, Searle, & Smith, 2004).

The article by Rieselbach, Crouse and Frohna (2010) corresponds to the English setting. The authors proposed the establishment of primary care teaching health centres in expanded community health centres in the United States. Residents would receive their final year of training in these centres, and then have the incentive of National Health Service Corps debt repayment if they subsequently practice in an under-served area. Primary care residents being trained in this setting would immediately increase the clinical capacity of community health centres and ultimately expand the primary care physician workforce. This proposal addresses the primary care physician workforce crisis and the associated key problems of limited access for the under-served and suboptimal primary care graduates in medical education (Rieselbach, Crouse, & Frohna, 2010).

Iraq needs to use similar strategies in order to increase their health workforce. This strategy is particularly suitable for the Iraq setting because it increases the workforce in the long run as well as in the short term.

Training health workers

NGO's also develop programmes to increase the health workforce. The WHO developed a treat, train and retain programme for African countries dealing with HIV/AIDS problems. One of the foci of this project was to increase the health workforce (WHO, 2006b). According to this programme there are several different possibilities for training health workers:

- **In-service training**, which has the advantage of building on the existing work force or strengthening existing services and of providing career development for health workers. Positive models are provided by some country experiences such as that of Uganda where members of the clinical team were trained together in on-site, part-time training programmes, so that participants were able to continue to work. This in-service training resembles the English strategy which was discussed above.
- **Task-shifting**, or shifting of tasks to less-specialised cadres, enables the rapid expansion of the health workforce and has the advantage of building bridges between the health facility and the community. It also creates job opportunities in the community, expands the human resource pool and maximizes the availability of more skilled workers (WHO, 2006b). The task-shifting option was mentioned in the questionnaire by several respondents. A standardized and systematized programme for training non-professional cadres to guarantee minimum standards of care must be considered. For instance, services provided by nurses can be safe and effective in place of doctors. This construction could be especially suitable for PHC/public health services because these services do not include highly specialised medical interventions.
- **Pre-service training** implies an increasing number of graduates and the need for more training facilities. It has the advantage of expanding the health workforce, which is a global goal. On the other hand pre-service training is expensive and it takes several years to produce skilled health workers (WHO, 2006b).

None of the above, on their own, appears to be the best or most suitable training strategy for Iraq in order to increase the workforce. This is partly caused by the fact that Iraq needs an increased workforce in the short term but also a well educated and qualitatively high workforce in the long run. Currently there is an urgent need for health workers in the short term. Thus, in-service training and task-shifting methods would be suitable in order to train people and to use their capacity directly.

Furthermore, pre-service training is a suitable training method in order to develop a highly skilled and specialized workforce in the long run.

Al-Dabbagh and Al-Tae (2005) recommend the implementation of a task-based community oriented teaching model in family medicine for undergraduate medical students in all Iraqi medical schools. Family medicine is an important specialism so establishing a department of family medicine has priority. This department of family medicine should develop and manage family medicine training modules.

Another possibility which was proposed by the WHO is the development of twinning medical schools, a cooperation between medical schools in Iraq (developing country) and Europe or the USA (developed countries). The developed countries could provide training support in neglected areas of the developing countries (WHO, 2006b). Iraq particularly needs knowledge, based on developing and managing PHC services in a PHC based health system. Western countries could serve as an important source of knowledge because they have years of experience in this subject. Western universities could also share their knowledge on family medicine because currently there are no specified departments for teaching family medicine in any of the Iraqi medical colleges (Al-Dabbagh & Al-Tae, 2005). All current medical schools in Iraq seem to ignore the concept of family medicine as a separate entity. Besides, the clinical teaching component is almost entirely hospital-based. These factors make students unprepared for the complexities in general practice, after completing their medical training.

In order to solve the Iraqi health workforce problem on both the long and short term, interventions should be implemented aimed at improving education quality. The development of twinning school arrangements is a must. Educational curriculums of the not yet sufficiently developed professions (like family health) should be reviewed. Only then will a workforce that satisfies the enormous demand be developed.

4.2.2 Universal screening and monitoring programmes

Iraq needs universal screening and monitoring programmes, focused on children as well as on mothers. Pregnant woman need to be screened and monitored during their pregnancy by a midwife. The midwife needs to estimate if a normal birth is possible and if there is a chance of problems. This estimation could be done by monitoring and screening the position of the child, the blood pressure of the mother, pre-eclampsia, infections and growth delays. After childbirth, universal developmental child screening and monitoring programmes are very important. There has to be a programme designed in order to identify children who should receive more intensive assessment or diagnosis of potential developmental delays or defects. The focus should be especially on birth defects,

monitoring of growth and development, screening for developmental problems, hearing and visual defects. It can allow for earlier detection of delays and improve child health and well-being of identified children.

Developmental screening can be done by various professionals in healthcare, community, or school settings. But also, the goal of these programmes is to support (early) detection of dangers and health problems and to treat them as early as possible. Moreover supporting and empowering the parent needs special attention.

Screening and monitoring services are not entirely absent in Iraq. There are some initiatives but these are inadequate and underdeveloped, as shown for instance in the Iraqi Multiple Indicator Cluster 2006 (Central Organization for Statistics & Information Technology and Kurdistan Regional Statistics Office, 2007). The study data was collected in the Kurdistan Region on the monitoring of the growth of children aged three years. The results showed that only about one fifth of children aged three were regularly weighed. Growth monitoring and regular weighing was far less common in rural areas than in urban areas and less among children of less educated women (Central Organization for Statistics & Information Technology and Kurdistan Regional Statistics Office, 2007).

In western countries universal screening and monitoring programmes are well developed and are accessible to everyone. The design and organisation of these services could serve as a model for Iraq.

In the Netherlands screening and monitoring is part of the youth health care programme. Youth health care and other public health services are performed in the primary health care setting and are regulated by the Ministry of Public Health, Welfare and Sports. This ministry also monitors the accessibility so that everyone in the Netherlands has access to this type of care (Ministerie VWS, 2002).

In the Netherlands monitoring and screening services start during pregnancy with prenatal care. Pregnant women are supervised by a midwife, who estimates the possibilities of problems during the pregnancy and the health of the mother and child. After the birth of the child there are several contact moments for screening and monitoring, especially during the first four years. Youth health care focuses also on early identification of risk factors that operate, develop and threaten health (secondary prevention). These screening and monitoring services are a part of a wider range of primary preventive services like providing information, advice, instruction and coaching for a healthy, as possible, development and to try to avoid risks (primary prevention) (Ministerie VWS, 2002).

The United Kingdom and Canada also have a comprehensive range of primary youth health services, focused on prevention. In the UK the Children's National Service Framework sets standards for children's health and social services (Department of Health, Department for Children, Schools and Families, 2009).

The Canadian government introduced Healthy Babies Healthy Children as a policy statement on January 1st 1998, as a way to ensure that every child in Ontario has the opportunity to achieve his/her potential through healthy development in childhood. Families need access to alternate screening and assessment tools at different points in their children's early years so the health and social service system can provide appropriate interventions, when required, until the child reaches school age (Ontario Ministry of Health and Long-Term Care, 2009). For this reason, Public Health Units and the Ministry of Community and Social Services, Regional Offices, jointly planned and conducted provincial consultations on processes to introduce universal screening and assessment at critical developmental points for children after birth to school age (Ontario Ministry of Health and Long-Term Care, 2009).

The research of Dr. Tremblay, who is a Professor of Paediatrics, Psychiatry and Psychology at the University of Montreal, Professor of Child Development at University College Dublin and co-director of the International laboratory on children's mental health (Inserm, France), is, in the context of monitoring and screening for mental health problems, of great importance. Dr. Tremblay has been conducting a programme of longitudinal and experimental studies on physical, cognitive, emotional and social development from conception to adulthood. He noticed that there is increasing evidence that the origins of mental health problems diagnosed in later childhood, adolescence and adulthood can be found during pregnancy and very early childhood (Tremblay, 2010). Mental health problems will be discussed in more detail in the next section, but these results show that screening and monitoring are important tools to child development. When a disease can be detected earlier, treatment can take place and probably bigger problems, not only to individuals but to society at large, may be avoided.

As mentioned before, the goal of screening and monitoring is to support (early) detection of dangers and health problems. In order to treat them as early as possible these services need to be integrated into the PHC setting. The preventive characteristic of screening and monitoring could lead to a decrease of the mortality rate as well as a decrease in morbidity and health costs for disabled children. Current international research shows that children with disabilities benefit greatly from programmes that begin from birth or first diagnosis. This also saves governments millions of dollars,

as children and families are later able to add to the family income and are less likely to have expensive hospital visits (Maulik & Darmstadt, 2007).

Iraq has to deal with a high number of disabled children who need special attention. Identifying these children is the first step, treat them and support the parents are other important tasks. The next section will focus on disabled children.

4.2.3 Mentally and/or physically disabled children

According to the outcomes of the Delphi questionnaire, being disabled is one of the characteristics of the most vulnerable mothers and children in Iraq.

According to the WHO, a disability is an umbrella term, covering impairments, activity limitations, and participation restrictions. Impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in life situations. Thus disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives (WHO, 2010a).

The Multiple Indicator Cluster Survey was conducted by the Iraqi government. Its focus was, amongst other things, on the disability prevalence in Iraq. According to the results about 15% of children in Iraq aged 2-14 years have at least one reported type of disability. The prevalence of disabilities was more in metropolitan areas (18%) compared to other urban areas (15%) and rural areas (12%).

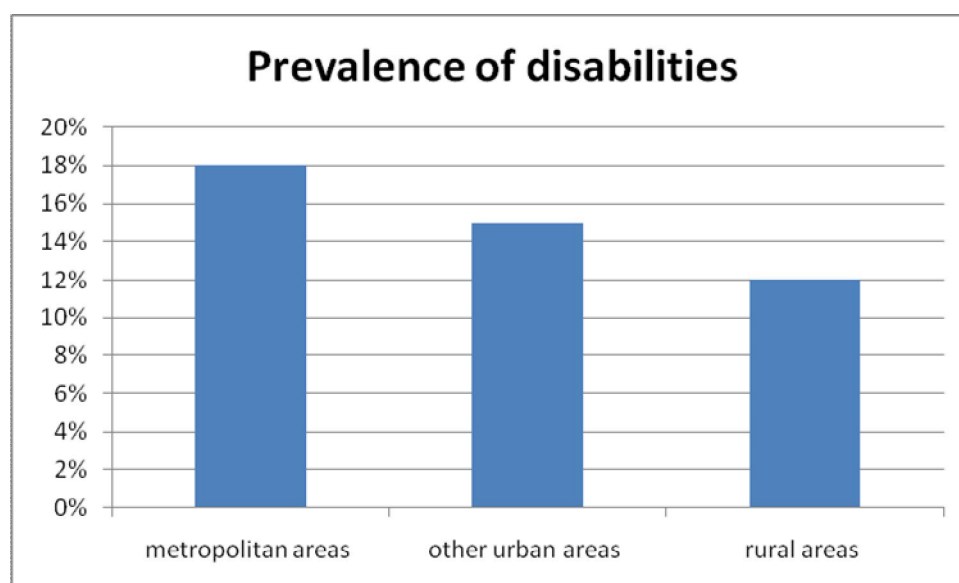


Figure 6 Prevalence of disabilities in Iraq

The most prevalent types of disabilities are speech and language disorders and motor skills disorders (both 5%). This percentage varied largely by governorate and was higher in the Kurdistan Region governorates (19%) than in the South/Centre Iraqi governorates (14%). The prevalence of disability was highest in the 2-4 year age group (20%), most of whom had speaking disorders (Central Organization for Statistics & Information Technology and Kurdistan Regional Statistics Office, 2007).

The above rates do not, at first glance, seem to deviate much from the percentage of disabled children in the more developed world. In the UK approximately 17% of children aged 0-19 years have to struggle with a mild type of disability (long-standing illness or disability) (Nessa, 2004). Despite the fairly equal percentage of children with disabilities, the type of disability is different. In the UK, the majority of children with disabilities have a behavioural disorder or autism (25%) (Nessa, 2004). Moreover, disabilities in children who live in a western world country are usually detected earlier; children start treatment earlier because of the presence of more and qualitative better screening and treatment services.

Currently, no special PHC services are available for these children in Iraq. These services are needed given the relatively high numbers of disabled children and the development of the future society.

There is disparity between the different disabilities, which can be grouped into four types: mental retardation, physical disabilities, sensory disabilities and mental disabilities (Maulik & Darmstadt, 2007). The Multiple Indicator Cluster Survey was primarily focused on physical and sensory disabilities. The problem of mental disabilities (especially those affected by war) is also big in Iraq. This factor was, in the outcomes of the Delphi (round 1) study, often named less than expected but according to literature not likely to be less absent. Therefore mental disorders need special attention.

In Iraq the availability of mental health services is still poor while there is a high demand. Al-Jawadi and Abdul-Rhman (2007) studied the point prevalence of mental disorders among children 1-15 years of age in the city of Mosul, Iraq. The subjects of the study were children of mothers who came to the PHC centre for vaccination. The chosen mothers were included by systematic sampling randomization. All the children (aged 1–15) of the mothers were taken into consideration in the interview and examination.

The researchers found mental disorders in more than one third of the children. They concluded that childhood mental disorders are a highly prevalent condition amongst children and early adolescents in Mosul.

The most frequently found disorders were post-traumatic stress disorders (PTSD), enuresis, separation anxiety disorders and specific phobia. Overall, the highest prevalence was among children

10-15 years old, followed by 5-9 year olds. The lowest figure was among those 1-4 years old. PTSD was the most described disorder in all three age groups (Al-Jawadi & Abdul-Rhman, 2007).

Neuner and Elbert (2007) commented on the research by Al-Jawadi and Abdul-Rhman and concluded that the Mosul study adds two new frightening dimensions to the mental health disaster: (1) a combination of stressors, including traumatic stress, but also poverty, unsafe living conditions and poor nutrition comprise an unhealthy mixture that prevents normal development in a significant proportion of the children, (2) the observation that if children are inhibited from normal development it leads to the prediction that society at large will become less functional in the future.

There have only been a few small studies on mental health care needs of people living in traumatized regions. Intervention programmes that have been implemented are seldom evidence-based and have not been tested for their effectiveness. Why? Probably because of the lack of rewards, as the opinion of rigorous scientific standards cannot be met in developing countries or conflict regions (too few qualified researchers, no reliable sources and the insecurity in those regions at large). Also there is an absence of a major funding agency that would support such epidemiological research in mental health in Iraq (Neuner & Elbert, 2007).

Given the present Iraqi culture, it is hard to fulfil the health service needs of disabled children. In this culture disabled children are often kept hidden from society and are hard to reach because of stigma. People want to avoid the label mental illness and the harm it brings. This harm can impede and diminish self-esteem and robs people or families of social opportunities (Corrigan, 2004). Many people in Iraq are not treated because of the existence of both public stigmas and self-stigma. It is extremely important for Iraq to first develop strategies that diminish stigma. Structural stigma develops during historical epochs. So it is not easy to change them in a short period of time (Corrigan, 2004). Subsequently, it is recommendable to offer easy accessible screening, diagnostics, parental support and treatment for disabled and mentally ill children in PHC. This would lower the threshold which could possibly decrease the public stigma and decrease the number of untreated children.

The article by Ahmad et al. (2007) describes the signalling of child mental health problems with a screening tool in the Kurdistan region. Children who needed treatment for their psychiatric illness were referred to a specially designed team within the teaching hospital in Dohuk for appropriate treatment (Ahmad, Abdul-Majeed, Siddiq, Jabar, Qahar, & Rasheed, 2007). The writers concluded that the Reporting Questionnaire for Children (RQC) is a valuable first-stage screening instrument. Besides the tested tools, their study also discovered findings of extremely high problem scores among their studied individuals which emphasizes the need to establish child mental health services

in the region. And the results also suggest a need for greater clinical awareness of potential mental problems among children who seek help for somatic complaints (Ahmad, Abdul-Majeed, Siddiq, Jabar, Qahar, & Rasheed, 2007).

Because prevention is better than cure, it is important to pay attention to preventive measures. Mental disorder prevention focuses on reducing incidence, prevalence, recurrence of mental disorders, the time spent with symptoms, or the risk condition of a mental illness, preventing or delaying recurrences and also decreasing the impact of illness in the affected person, their families and the society (WHO, 2002). According to a study by the WHO, preventive strategies are usually directed against risk factors; they need to be implemented at specific periods before the onset of the disorder in order to be maximally effective. However, once the disorder has developed, it is still possible to reduce its severity, course, duration, and associated disability by taking preventive measures throughout the course of the disorder (WHO, 2002). This means that although many Iraqi children already struggle with a mental health problem it is still effective to develop preventive services. Also because prevention and promotion programmes in mental health within overall public health strategies reduce stigma, increase cost-effectiveness, and provide multiple positive outcomes (WHO, 2002).

Finally, some attention must be given to the increased prevalence of birth deformities and cancer rates among the country's children. In 1989 the rate of birth defects was 11 per 100,000 births. This number was tenfold to 116 per 100,000 births in 2001 (Cogan, 2005). It is assumed that this increase is directly blamed on the widespread use of depleted uranium munitions by the US and British forces in southern Iraq during the 1991 Gulf War, and the even greater use of depleted uranium during the 2003 invasion (Cogan, 2005). The College of Medicine at Basra University carried out a study into the rate of cancer among children under the age of 15 in southern Iraq from 1976 to 1999. In the province of Basra, between the years of 1990 and 1999 the incidence of cancer of all types rose by 242 percent, while the rate of leukaemia among children rose 100 percent (Yacoup, Al-Sa' doun, & Hassan, 2010). Iraqi physicians need improved and state-of the art knowledge in order to treat all these sick children. This probably implies (again) that knowledge of screening, but also knowledge and availability of new treatments and use of technologies are important.

4.3 Recommendations

The outcomes of the first part of the Delphi study highlighted some PHC topics and services which are badly needed and currently underdeveloped in Iraq. State-of-the-art knowledge is needed in order to develop and improve health care services in these areas. This knowledge is not only medical

in nature but also management knowledge, focused on developing such programmes and health services.

As well as the recommended topics, there are many other underdeveloped PHC services for mothers and children in Iraq. This study will focus especially on the hereafter discussed topics because these interventions could provide health benefits on a relatively large scale.

The following topics are recommended for the educational programmes:

- *Universal screening and monitoring programmes*

The goal of universal screening and monitoring programmes is early identification and detection of children and mothers who need extra care. Universal screening and monitoring programmes are preventive services; diseases and disorders will be prevented or detected as early as possible. Therefore treatment is started as early as possible and may prevent worse from happening.

This form of intervention has many different services at different stages of life. This study will primarily focus on screening and monitoring programmes from pregnancy and birth until the end of adolescence.

In the first Delphi questionnaire a couple of specific screening and monitoring focal points were put forward: monitoring during pregnancy, monitoring child development (early detection of delays and undesirable behaviour), screening for disabilities and screening for (breast) cancer.

The outcome of this first round is that universal screening and monitoring programmes should be implemented in PHC and especially in poor rural areas because mothers and children who live here make relatively little use of the health care services.

Currently almost no preventive services are offered in Iraq to mothers and children. Education especially focused on prevention is absent. Yet there is much to be gained from preventive measures. Early identification and intervention could prevent worse. As discussed earlier, international research showed that children with disabilities benefit greatly from programmes that start after birth or first diagnosis. Moreover, prevention has a large economic benefit. Early identification and intervention imply lower health care costs in the long run because expensive hospital visits are less likely and children and families are later able to add to the family income.

- *PHC services for mentally and physically disabled children*

As discussed before, a disability is an umbrella term, covering impairments, activity limitations, and participation restrictions. Therefore many disorders could be considered as a disability. Iraqi disabled children are the most vulnerable children and need extra support.

According to the first round Delphi questionnaire physically disabled children need rehabilitation services. The context and content of these services is not yet clear and need to be clarified in the (next Delphi round) interviews.

Because of the high number of birth deformities and children with cancer, further research is necessary. First of all, knowledge is necessary in order to treat these children as well as possible. Besides, research could point out if there are detection measures or case finding methods/programmes in order to learn about the background of these deformities and cancers.

More than one third of the Iraqi children suffer mental health problems like post-traumatic stress disorders. These children need extra attention and mental health services. Mentally ill children are threatened or endangered from normal development which could easily lead to the prediction that society at large will become even less functional in the future.

Not only treatment of disabled Iraqi children is needed, also preventive measures such as screening (in order to identify disabilities) are important. As discussed before, preventive strategies are especially important because once the disorder has developed, it is still possible to reduce its severity, course, duration, and associated disability by taking preventive measures throughout the course of the disorder. Prevention and promotion programmes would also reduce stigma, provide multiple positive health outcomes and reduce costs.

- *Proper care before, during and after giving birth*

During the first Delphi round the subject of care before, during and after giving birth was discussed several times by all respondents when answering the different questions. Although this report did not pay much attention to this subject because various other sources have already done so, health services around birth are especially important because they could lower the mothers' mortality rate which is strongly related to giving birth. The second round Delphi interviews should reveal more on the outlook of these needed services. It is already clear that these services are related to monitoring and prevention.

- *Educating the population*

In the first Delphi round all respondents recommended educating the population in the field of hygiene. This could lead to a lower child mortality rate because the enormous child mortality is mainly caused by infectious diseases which could be easily prevented by basic hygiene and vaccinations. Programmes focused on breastfeeding could also reduce the number of sick children and the use of health services.

The specific topics on which the public has to be educated are not clear yet. This should be reflected in the second round Delphi interviews.

Educating the population is, as with screening and monitoring, a type of primary prevention.

- *New posts and mini specialties*

A solution to the health workforce problem in the long run is developing new posts and mini specialties. This solution would decrease the present training shortages but would also improve efficient and effective PHC service delivery.

As discussed before, the health workforce problem is twofold. Developing new posts and mini specialties are likely to address both problems: it decreases the lack of trained personnel as well as the general lack of health personnel.

New post and mini specialties could be developed by different types of training, but in-service training would probably be the most suitable.

- *Medical record keeping and collecting health service data*

Although this topic was not discussed in the questionnaire it is an important topic for developing effective and efficient health policy in the long run. The educational programme should also pay attention to such issues. Since the first years of war Iraq has not updated its figures, at least not punctually. This should be restarted according to the standards and knowledge.

In the light of the research questions, the six previously discussed PHC topics and services are highly needed and currently underdeveloped in Iraq. Therefore, these six topics functioned as the basis for the second Delphi round. The second Delphi round consisted of a telephone interview. As discussed in the methodology section, the six recommended topics were discussed without a prepared list of questions. The following chapter will discuss the results of the second Delphi round.

5. Results: Delphi round 2

In this paragraph the results of the Delphi round 2 (telephone interviews) will be discussed. The interviews have shown that the Iraqi PHC situation is complicated and developing effective educational programmes and services is not that easy. There are many constraints that must be taken into consideration like the Iraqi culture and politics. The most important points which have emerged in the interviews will be discussed. Also two theoretical concepts (continuum of care and Integrated Management of Childhood Illness (IMCI)) have been selected and will be discussed because of their consistency with the information from the interviews.

All respondents agreed with the six recommended educational topics (Universal screening and monitoring programmes, PHC services for mentally and physically disabled children, Proper care before, during and after giving birth, Educating the population, New post and mini specialties, Medical record keeping and collection of health service data) in the first round. These topics are closely related to each other and to basic universal health care services. Because of their close relatedness it was suggested that the topics need to be included in new educational programmes. Dr Abbas's innovative advice is to develop new educational programmes around age groups, not around topics or subjects: 'If they are developed around age groups it will be easier to identify the knowledge and service needs'. In addition to Dr. Abbas' well argued suggestion, is the fact that when the basic universal service becomes the point of focus and not the available knowledge on a particular subject, the educational programmes will be more effective because new obtained knowledge will be more focused on the most needed health services.

Preventive PHC services have priority compared to curative PHC services currently in Iraq. However, this should be viewed in perspective, as both Dr. Shukur as well as Dr. Jamil indicated that almost the whole healthcare sector needs to be reconstructed starting with the availability of clean water. Preventive services are not of higher priority but these services are currently of great health benefits for the population as are the basic PHC services.

5.1 Continuum of care

One of the most discussed topics during the interviews was the organization, interconnection and continuity of PHC services. Currently, the available PHC services in Iraq are at a loose end. There is no multidisciplinary collaboration between different health services, health service organizations or the levels of the available health services, according to Dr. Abbas. And there is also no follow-up or continuity of care.

A concept which is closely related and very important for the Iraqi PHC setting is the concept of continuum of care. The goal of this approach is to avoid dichotomies, between both mothers and children, places of service delivery, or single health issues. Within the continuum, care has to be provided as a continuum throughout the life cycle (see figure 7): all women should have access to reproductive health choices and care during pregnancy and childbirth, and all babies should be able to grow into children who survive and thrive (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007). In addition, care has to be provided in a seamless continuum that spans the home, the community, the health centre and the hospital (WHO, 2005).

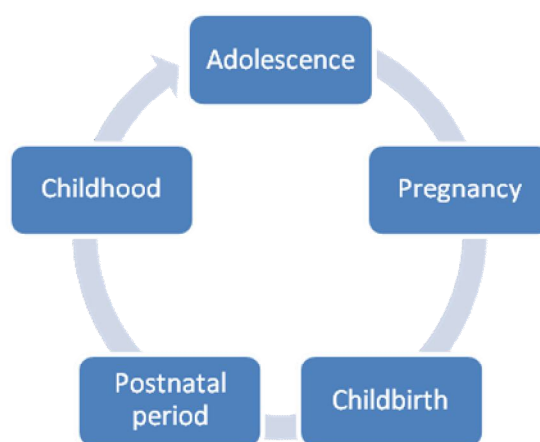


Figure 7 Life cycle periods of maternal, newborn and child health (MNCH) care

In order to provide a continuous stream of PHC services throughout the life cycle in the Iraqi situation some things must change.

In order to deliver effective and efficient PHC services to mothers and children, different specialized health workers should work together in a multidisciplinary team and provide and organize care around a child and mother. Not only cooperation within PHC is necessary, but cooperation between the levels of care is important as well. If necessary, mothers and children need to be referred to more specialized (secondary) care.

In order to increase the accessibility of the health services, services should be coupled to and should complement (existing) moments of contact like the immunization milestones and the (primary) school health system.

Survival of the mothers and children is the priority, so medical screening and interventions are absolutely necessary, but the aim is a healthy child that grows and develops harmoniously and so their well-being is also a very important factor.

Dr. Abbas stated that during each PHC consultation contact moment, attention should be paid to the following three elements of care:

1. Medical screening and monitoring and if necessary medical intervention or follow-up;
2. Checking the well-being of the mother and/or children;
3. Providing information/ educating the population

5.2 IMCI

The response to this new awareness is to integrate care according to the concept of “Integrated Management of Childhood Illness” (IMCI). IMCI combines a set of effective interventions for preventing death and for improving healthy growth and development. It is more than just adding further subsets to a single delivery channel; IMCI has transformed the way the health system looks at child care, going beyond the mere treatment of illness.

IMCI has moved beyond the traditional notion of health centre staff providing a set of technical interventions to their target population. It is bringing health care closer to the home, while at the same time improving referral links and hospital care; the challenge now is to make IMCI available to all families with children, and create the conditions for them to avail themselves of such care whenever needed.

Required (preventive) health services are often tied to an age group or milestone. Therefore the age determines to a large extent the content of a contact moment.

Now, the age groups/milestones will be discussed as they are classified in scientific literature (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007). Attention is specifically focused on required key services in the Iraqi setting in order to improve the continuity and quality of the maternal, newborn and child health (MNCH) care services.

Antenatal care/ pregnancy

Pregnancy should be the starting point of MNCH care services because antenatal care is vital for both mother and baby. There needs to be a minimum of four visits, at specific times and with evidence-based content. This could be based on the UK model where the pregnant woman has her first appointment with a GP after twelve weeks of pregnancy.

During these visits many preventive services should be provided. First of all early screening of amongst other things common communicable diseases and diabetes should take place. Danger signs of maternal, neonatal, and child illnesses should be noted and follow-up care should be provided to those who suffer these illnesses (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007).

It is very important for the Iraqi PHC to pay extra attention to genetic birth defects screening. Genetic birth defects will be discussed in more detail later in this chapter because it needs extra focus especially in Arabic countries.

In the field of well-being, needs have to be identified and the social situation have to be examined. Raising children should include both parents, according to Dr. Abbas, and examining and stimulating paternal support should be started in this phase.

More can be made of the potential of antenatal care by using it as a platform to promote healthy lifestyles and family planning as well as for programmes that tackle malnutrition, HIV/AIDS, sexually transmitted infections, malaria and tuberculosis. Information should be provided about smoking, diet and breastfeeding in a proactive way. This information could be given verbally or by flyers (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007).

Antenatal care also has to lay the basis for continued care during and after childbirth, by building a relation of trust between mother and the health services, by planning to give birth in safe circumstances and by helping the family prepare for good parenting. There remains a huge unmet need for investment in information, in education and in access to family planning (WHO, 2005). Trust is one of the most important factors in Iraq before the society asks for medical help. The society does not make use of the health facilities because of ethnic or governmental (political) differences. These differences act as barriers.

Dr. Baraznji highlighted the problem of birth defects, which is often overlooked. After years of a decreasing health care sector, Iraq is sliding back into old traditions. According to Dr. Baraznji religious leaders and religious habits are experiencing a growth in popularity. A new risky phenomenon is early pregnancy (whereby the mother is 12-18 years), often after early marriage especially in the rural countryside. Early pregnancy is of high risk, like elder pregnancy and needs extra screening. However, not only should the environmental influences and the body of the mother be considered but also the inter village marriages (genetic influence because of endogamy) resulting in a higher risk of complications and disabled children. Because genetic birth defects are of such importance, this subject will be discussed in more detail at the end of this paragraph.

Childbirth

Every Iraqi woman should receive skilled birth attendance, as culturally natural as possible, during normal childbirth. Women with complications during childbirth need access to facilities where care can be provided by midwives, nurse-midwives, doctors or other professionals with midwifery skills (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007). This means that professional first level childbirth care has to be available 24 hours per day, every day, to attend to all mothers and newborns, with the back-up of a hospital that can provide referral level care 24 hours per day, every day for those who need it (WHO, 2005).

Postnatal period

Large gains in maternal health can be made by improving postnatal care, a period that has traditionally been neglected. The professionals attending to childbirth all too often neglect the fact that the hours, days and weeks after childbirth remain a critically dangerous period, for both mother and newborn. It is a period during which up to 70 percent of all maternal deaths occur, and up to 40 percent of all deaths of children below the age of five (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007).

The universal postnatal health services for mothers and babies should include routine visits in the first few days after birth, when risk is high, to promote healthy behaviours, to identify complications, and to facilitate referral. Delivery strategies for postnatal care should be context-specific. If a woman gives birth in a facility, she and her baby should receive a pre-discharge postnatal visit, with an early follow-up visit at home and return visits to the facility (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007). Currently, despite some encouraging initiatives, the control of genetic disorders and congenital abnormalities is generally not given the importance it deserves in Iraq and the other countries of the Eastern Mediterranean Region (Hamamy & Alwan, 1997). Statistical data focused on metabolic screening in Iraq is not available but it is a certainty that not all newborns receive metabolic disorder screening like heel prick blood tests, which is a standard procedure in developed countries.

Even in settings where births do happen in a facility, most mothers and babies go home within a few hours and are unlikely to return in the first few days because of transport, costs, and cultural constraints (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007).

The postnatal period is the period where the continuum of care is most often interrupted, because there is often no clear delineation of professional responsibilities. In many settings there are simply no mechanisms for establishing communication and handover between maternal and child programmes. The adjustment of programmes to bridge this gap is then a priority (WHO, 2005).

Childhood

During childhood attention should be paid to immunisation and child development, not only physical development but also behavioural and mental development. During childhood, special attention should be given to mental health problems. Many children living in Iraq suffer from mental health problems which are mainly caused by the many years of war.

Dr. Abdulbaghi Ahmad, a professor at the University of Uppsala developed a co-operation with the University of Dohuk in the field of mental health care. This project could serve as a good example for the knowledge capacity building project initiative by Dr. Karim, the University of Twente, for which this study will form the basis.

Childhood care can be divided into two phases: pre-school age and school age. The contact moments of pre-school aged children could be integrated into the immunization moments and the contact moments for school-aged children could be integrated into the school health system.

During late school age attention could be given to health education and promotion to adolescent girls because contraception and family planning make up a cost-effective and life-saving intervention that can improve both child and maternal health (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007).

5.3 Genetic birth defects

As has already been mentioned, genetic birth defects are a health problem which should not be underestimated. Screening services and treatments for genetic birth defects are highly recommended for pregnant Iraqi women and children. Congenital and genetic disorders are responsible for a major proportion of infant mortality, morbidity, and handicap in Arab countries.

The causes of genetic birth defects are varied. Birth defects are caused by a high level of inbreeding with consanguinity but also by risk factors like uranium weapons used during the Gulf wars. Dr. Jamil pointed out that the growing number of birth defects is being caused by risk factors other than inbreeding. The number of genetic birth defects caused by inbreeding is stable and has not increased in recent years. Nevertheless, attention to this problem is necessary. This knowledge capacity building study will further focus on birth defects caused by inbreeding and consanguinity because screening and treating birth defects caused by other risk factors requires more sophisticated services which are less applicable at the PHC level.

The population of Iraq is characterised by large family size, high maternal and paternal age, and a high level of inbreeding with consanguinity rates in the range of 25-60%. Certain disorders are common throughout the Arab world, including haemoglobinopathies, glucose-6-phosphate

dehydrogenase deficiency, different congenital malformations caused by recessive genes, and several metabolic disorders. Other recessive disorders cluster in certain groups and sub-populations (Al-Gazali, Hamamy, & Al-Arrayad, 2006).

Generally, prevention of genetic and congenital disorders can be addressed at three levels:

- Primary prevention: premarital screening and counselling and preconception counselling
- Secondary prevention: prenatal counselling, screening, and testing with the option of termination of the affected fetus or prenatal and neonatal management.
- Tertiary prevention: newborn screening like heel prick screening can be considered as secondary or tertiary prevention. Care of the affected and prevention of complications and rehabilitation of the handicapped can be done at the primary health care or at higher levels of care (Hamamy, Al-Hait, & Alwan, 2009).

Education of the public is a definite priority since ignorance and misconceptions could be barriers to the implementation of community genetic programmes. Organized information, education and communication need to be addressed to the population in general through different channels that include school curricula and media messages (Hamamy, Al-Hait, & Alwan, 2009).

Services for the prevention and control of genetic disorders are rather sensitive in Iraq. These services are restricted by certain cultural, legal, and religious limitations, such as the cultural fear of families with genetic diseases being stigmatised within their community and the legal restrictions on selective termination of pregnancy of an affected fetus (Al-Gazali, Hamamy, & Al-Arrayad, 2006).

It would be very useful if Iraq were to introduce and develop a birth defect registry in order to improve services in the field of genetics. In general, to strengthen the continuum of care, attention must focus on tracking relevant data and on country-level capacity to use such data to design and improve integrated services, especially at district level (Kerber, de Graft-Johnson, Bhutta, Okong, Starrs, & Lawn, 2007).

The best world-class centre on genetic birth defect research is the King Faisal Specialist Hospital & Research Centre in Riyadh. Given the high rate of birth defects and need for treatment in Iraq, it would be very interesting to explore a possible partnership with this world-class centre. The department of medical genetics is the largest referral centre for patients with known or suspected genetic diseases in the Arabic region. The department has a registry and database, which is an integral part of the function of the department and is important for the planning of services by identifying the scope and magnitude of the problem. They also have a national programme of neonatal screening and premarital screening. This is the only centre that can train counselors for the

Ministry of Health and other governmental agencies in the Kingdom of Saudi Arabia (KFSH&RC, 2008).

5.4 Cooperation project: Uppsala University and Dohuk University

As has already been discussed the University of Uppsala in Sweden and the University of Dohuk in the Kurdistan region of Iraq have developed a cooperation project focused on child mental health and knowledge capacity building.

At the University of Dohuk educational programmes are offered at three different levels:

Postgraduate

Two physicians a year can start this two year education programme after one year of paediatric residency. The programme consists of theoretical and clinical elements. At the end of the two years the physicians have to write a subject related thesis in order to receive their Masters degree.

The educational objectives of this programme are: advanced theoretical proficiency, independent clinical work, teaching and research skills and to learn ethical scientific attitudes.

Undergraduate

The undergraduate programme is an obligatory intensive course developed for fifth-year medical students and is part of the paediatric curriculum. Just like the postgraduate course, this course is also theoretical and practical based.

The goal of the undergraduate course is to teach the students the basic understanding of the child. The central topics are: mental and psychological development; adjustment at home, school and society; psychopathology and common disorders and prevention and treatment methods.

Community based

The community based course is focused on training the people in the field: training of the trainers, teachers, social workers, nurses, etc.

The activities of this project aim at starting a new and modern system capable of being applied to primary care but which are outside the established health and medical care system. The cooperation project was inspired by the Swedish mental health model.

As a result of the increasing activities of education programmes at all the three levels, the public awareness of child mental health problems is increasing in the society of Kurdistan (increased awareness was followed by an increase in health demand). The campaign through media such as TV programmes, radio and special seminars on child mental health issues has had an important role in this aspect.

The increasing awareness among the population has been leading to increased demands for education and treatment programmes which have led to the establishment of the Mental Health centres in Duhok, and they are extending activities to other parts of Iraq according to the needs.

A positive aspect of the project is that as the educational programmes developed, the awareness of the society grew naturally. The 'trust' element played an important role. The society became aware of mental health problems and the availability of mental health services; they trust it and make use of it. This is, given the Iraqi situation and culture, and effective procedure.

Offering educational programmes at different educational levels implies a better and faster collaboration between health workers as intended in the concept of continuum of care. The community based educational package is less time consuming so these health workers can apply their new knowledge relatively quickly.

Collaboration with an Iraqi university will be necessary, but which one? The selected university must be interested of course. Most ideal will be a university in the south or east of Iraq, like the University of Basra. There is still a lot of violence, but most of the needy children live in the south and east. The University of Basra would be suitable because they have a college of medicine and departments of paediatrics, medicine, gynaecology & obstetric and community medicine. The first Delphi round already confirmed the suitability of cooperation with the University of Basra.

There is also a critical note when it comes to cooperation with an Iraqi university. Dr. Shukur pointed out that Universities are positioned in cities while the greatest needs exist in rural areas. In addition, universities focus on higher education but it is basic health education that is needed. The presence of a PHC training with a clear vision is very important. Otherwise experts will focus their teaching on their own specialty, often from a highly specialized perspective. They should start with formulating educational goals which should be followed by the development of a PHC education. However, Dr. Shukur thinks that universities should play a facilitating role.

5.6 Government involvement

The opinion of the second Delphi round respondents about the degree of government involvement in the project was remarkable. The views on this topic were sharply divided.

Iraqi political (financial) involvement could be important to the success of the project because otherwise it is too expensive. It is hard to develop a project on a large scale financed by 'private' institutions. Besides, governmental bodies could get some organizational issues sorted out because of their influence. The question is whether the current Iraqi government has so much influence. And do people make use of services which are ruled and provided by the government? Governmental

services might become associated with politics which could keep people away from using these medical services.

The governmental system is quite new and there are new policies but these do not work satisfactorily yet. Currently there is no system which offers the possibility to develop and implement a new (to Iraq) health care system. This has been more or less the goal of the cooperation project between the University of Uppsala and Dohuk. The ambition of this project was to implement a new (to Iraq) system of organising health care services. They first implemented it and it proved to be a success, and then the governmental support and interest followed.

The previous chapter highlighted the importance of good health care management and organisation. Attention must be particularly paid to the interconnection and continuity of PHC services. In addition, the importance of cooperation with both a university and the government is discussed. Both institutions are important stakeholders to the Iraqi knowledge capacity building project and they both should play an important role.

5.7 Strong elements and shortcomings of the Delphi study

Before we continue to the next chapter we need to pay some attention to the shortcomings but also to the strong elements of this knowledge capacity building study.

This knowledge capacity building study made use of the knowledge and opinions of experts. This is a strong element of the study because experts have a broader view on the situation compared to citizens. As discussed before experts are better at determining present PHC needs for mothers and children compared to, for instance, mothers. Moreover, this study focused on identifying the needs of an entire country and not of a particular region. Experts have a better country overview and in addition, it is almost (organizationally) impossible and very expensive to interview/question mothers from different parts of an Iraqi region.

Another benefit of this study compared to other publications on this topic is the fact that this study does not only study the needs but also took the Iraqi cultural habits and situation into account. It is very important (for the success of the knowledge capacity building project) to look at the whole situation in perspective.

Finally, this knowledge capacity building study made use of a two round Delphi study with two different interrogation methods. By performing both a questionnaire and a telephone interview the situation could be studied more in-depth.

As with all studies, this knowledge capacity building study also had to deal with some shortcomings. A total of eight experts entered the expert panel. This is not so many compared to the size of the country. Moreover, not all of the respondents are practicing or working in Iraq currently. It is advisable to invest time in gathering a large and representative group of experts for any future studies. This phase costs a lot of time and work, and should not be underestimated.

As a final point, the knowledge capacity building study has been partly influenced by the opinion and preferences of the participating experts. This is because experts talk about issues they think are interesting and they are focused on their expertise. This weakness is difficult to overcome because everyone likes talking about his own interests. A possible solution could be to develop a tight interview scheme from which the interviewer can not deviate.

After having discussed all the outcomes, the strong elements and shortcomings of this study we are ready for the next and last chapter which will discuss all the results, link conclusions and give recommendations to the Iraqi knowledge capacity building project.

6. Conclusions and recommendations

This research consisted of a Delphi study (in two rounds) in order to identify relevant opportunities for Iraq, in terms of knowledge capacity building, in order to achieve an effective and efficient PHC system for mothers and children. The identified knowledge needs are linked to and derived from the PHC needs. This knowledge is necessary to be able to offer the needed PHC services effectively and efficiently.

6.1 PHC needs

Based on the research, we can conclude that the following PHC services for mothers and children in Iraq are the most needed:

- Proper care before, during and after giving birth;
- Basic and functioning preventive services like universal screening programmes;
- Educating the population on healthy lifestyle topics;
- Mental health services at the PHC level for children suffering from a PTSD;
- PHC services for mentally and/or physically disabled children.

The described needed PHC services should be available for all Iraqi mothers and children. It is recommended to try and reach (high risk) mothers and children who are poor, living in rural areas, disabled and are in the high risk pregnancy group (younger than 18 or older than 45 years) since the health benefits for members of this sub-group would be large.

As well as the PHC service needs, it is also important to be able to distinguish the PHC delivery management services.

Currently the PHC sector is, in some aspects, inefficiently organised. First of all, an increasing health workforce is really needed. The development of mini specialist and junior doctors is probably one of the options in order to increase the health workforce. Moreover, the health workforce needs to be proportionally distributed all over the country. A better geographical distribution would also improve the accessibility of PHC services.

The organization of the PHC services itself should be refurbished. PHC should be managed according to the scientific concepts, continuum of care and IMCI. It is not only important to connect services but it is also important to pay attention to the organizational content of the services with substantive attention to the service encounter.

During every health consultation, the health worker should focus on three components. Of course, attention should be given to medical prevention and intervention of a problem first of all. However, the health workers should also pay attention to the well-being of the patient and the wider social context. Finally, every health consultation is a suitable moment to educate the patient and family personally. It could be concluded that the PHC services need to be integrated and interrelated in order to improve the efficiency and quality of the PHC services and making the best use of available resources and opportunities.

6.2 Recommendations for educational training programmes

The previously described PHC needs should be fulfilled and therefore supported by educational programmes. The recommended educational training programmes are described below. First, attention will be given to the target groups followed by six recommended educational themes.

It is recommendable to develop educational programmes for different target groups. The Delphi study revealed that there are two training target groups with high educational needs, namely, the student and the (to be) trainers (who disseminate their knowledge to the medical workers).

In order to fulfill the educational needs of the (medical) student, medical curriculum development programmes are needed. These programmes could be developed, among others, by cooperation projects with Universities who work according to, and do research on best practices. An example is the need of an increased health workforce in the short term. In order to increase this workforce, the educational curriculum for medicine and nursing studies should be changed in order to benefit from more health professionals with (up-to-date) medical knowledge in the short term. This could be achieved by, for instance, introducing junior doctors and mini specialists.

The Iraqi trainers (who disseminate their knowledge to the medical workers) need capacity building and training the trainers programmes. The training the trainer programmes could be best developed in collaboration with a centre of excellence or the programmes could be a part of an existing training programme at a centre of excellence. Appendix G contains a list of existing courses focused on the six recommended topics; some of these courses are given at centres of excellence. A centre of excellence provides medical, paramedical and nursing care in the most optimal way. These centers pay special attention to knowledge transfer, particularly through publications, symposia, education and training (Rotterdam eye hospital, 2009).

Now the (six) recommended educational training themes will be discussed. These themes differ by subject.

1. Prevention and follow-up services

The number and scale of available preventive interventions in Iraq is too low and should be extended. The educational programmes should therefore focus on the development, implementation and management of preventive interventions.

Special attention should be paid to (knowledge) development of (universal) screening programmes, for example newborn screening and developmental screening. But also attention to less common problems, like genetic birth defects for high risk pregnant woman is important.

Another preventive intervention is informing and educating the population. The population should be educated on universal health topics like hygiene and breastfeeding but also on more specific topics like the possibility of genetic birth defects among family related parents.

The educational programmes should, as discussed before, pay attention to all three levels of prevention. They should not only focus on (universal) primary prevention but also on secondary and tertiary prevention.

In addition to the preventive intervention programmes, medical students should be trained to practice medicine from a more preventive point of view. In this way prevention receives a more central place in PHC. To achieve this more preventive aspect, an adaption of the study curriculums is required.

As a supplement to secondary and tertiary screening, interventions and treatment should be available and accessible for the patient. This is mainly a management matter and will be discussed later in this conclusion.

2. Proper care before, during and after giving birth

In order to decrease the child mortality rate, improvements must be inflicted on the knowledge and provision of care before, during and after giving birth. Educational training programmes should pay special attention to paternal support and young (and risky) pregnancies. During birth all women need trained assistance. In the Iraqi rural areas women prefer assistance from a TBA but unfortunately the current TBA's are not officially trained. A good option to this problem could be providing TBA's with a short course focused on better decision making when it comes to high risk deliveries. Care during the postnatal period needs to be improved urgently. The educational programmes should focus on the development, implementation and provision of more and qualitative better services for newborns.

3. *Mentally and/or physically disabled children*

Screening and rehabilitation programmes for mentally and/or physically disabled children need to be developed. There is also a lack of knowledge when it comes to screening and treatment of these children. Developmental problems need extra attention. Children who develop physical and behavioural problems need early identification and treatment.

4. *PTSD mental health care*

Iraq has almost no PHC mental health services available while a lot of Iraqi children need these services. Educational training programmes need to focus on knowledge and help by developing, implementing and using screening instruments, diagnostics and treatment programmes for children who suffer from a PTSD. The programmes should pay extra attention to the support and empowerment of the parents during the child's treatment because this partly determines the success of the treatment services.

5. *Health service delivery management*

The health service delivery management programmes should focus on increasing the knowledge in the field of PHC service management and organization. When this knowledge is imparted it could be used and applied to the delivery of the service.

When the current situation is taken into account the focus should be on integration of services (developing follow-up by connecting the levels of care which implies training nurses, midwives and TBA's on proper management and correct referral), connecting delivered services to existing PHC contact moments, and using multidisciplinary teams in order to create continuity of care around the patient.

6. *Medical record keeping and collecting health service data*

In order to manage health care needs in the future efficiently and effectively there is a need for medical record keeping and collection of health service data.

The educational training programmes should specifically focus on the development and implementation of (patient) medical record systems in PHC. Developing countries are currently developing and implementing electronic record systems. Iraq should also focus on electronic record keeping in order to participate in the development of the future.

In order to plan and forecast the future health care needs, educational training programmes should pay attention to the management of collecting health service data and use this for forecasting.

The above discussed recommended educational programmes were mainly focused on the content and interpretation of the educational programmes. There are also a number of recommendable preconditions which are important for all educational programmes. These preconditions are mainly focused on the organization of the programmes and will be discussed next.

Iraqis, especially those who live in rural areas, put much value on cultural and religious habits. This cultural aspect should be integrated into the educational programmes. Medical education must also pay attention to these elements of care. Trust is very important for Iraqis before they make use of (new) medical services. The method used by the project between the University of Uppsala and Dohuk is very effective: when the awareness of the population begins to increase, the trust and demand for services will increase automatically.

Cooperation with an Iraqi university, as was proposed in the first round Delphi questionnaire, is recommendable. This cooperation should be based on a twinning (medical) school concept. Developing cooperation would guarantee continuity which would lead to a long term effect compared to a one time offer of educational programmes. As discussed before, the University of Basra would be a suitable partner.

For a study and project like this it is important to keep the scale in mind. There are already several projects on rehabilitation of Iraqi services, especially in the field of health care where several projects and initiatives have been developed. These projects are not only provided by the bigger and well-known organisations like the WHO, UNICEF and USAID but also by some smaller agencies. The goals of these projects also differ. Some are primarily focused on providing help, while others are focused on development in the longer term. Therefore it is difficult to compare these projects. Not only do the (financial) resources differ, but also the influence of the different organisations. The WHO will get much more done by the power and the image they have, compared to smaller and more unknown organizations. Therefore, this project cannot be compared to projects such as USAID.

Nevertheless, the results of the work by the bigger organisations suggest that Iraq should not focus directly on introducing countrywide interventions or services because it isn't achievable right away. It is recommended to focus on a specific area or city. When it is successful there, it could be increased on a larger scale.

The success and effectiveness of the educational programmes and the rehabilitation of the health care sector specifically is influenced by environmental factors which could be influenced by governmental regulations. Most ideally the MoH should increase the budget of the health care sector because financial resources are required to achieve a qualitatively good and working PHC system. Another major problem the government has to deal with is the continuous brain drain. It is not easy to stop this outflow of professionals. Nevertheless, the government should start thinking about initiatives to decrease the outflow of professionals. Since Iraq is not unique in this problem, they might base interventions on countries with similar problems.

A comment on the capacity building project is required here. It was noted that Iraq has many opportunities in terms of knowledge capacity building in order to achieve an effective and efficient PHC system for mothers and children. In order to develop health services according to a PHC system, expert knowledge is needed, in both the medical and health management field. Institutions like universities and centres of excellence, from developed countries, could contribute to this knowledge capacity building. The expert panel with experts who participated in this Delphi study should be expanded for the capacity building project. Appendix F contains a list of names and contact information of those who could be invited to participate in the capacity building project.

Knowledge capacity building in the field of PHC means a qualitative increase in easily accessible basic care. When knowledge and service can grow, especially when it comes to major health issues, the state of health will improve. An improved state of health will also affect the economy as well as the wider state of well-being in Iraq in a positive way.

6.3 Further research directions

In the context of the capacity building project, this study could be considered as a background study in which an initial inventory was made. This study was not supposed to be comprehensive. Further research is definitely recommended and some directions for further research will be proposed.

This study should form the basis for a further inventory of needs and availability of educational courses and programmes. First of all, the table of available educational courses and programmes (appendix G) should be expanded with evaluations of ongoing PHC projects in Iraq. The goal is to develop a comprehensive “list of PHC suppliers” and a “shopping list” for needed Iraqi training programmes. These lists could form the basis in selection and cooperation policies and future research or for funding applications. The previous six recommended programmes and the two theoretical concepts (continuum of care and IMCI) could form the starting point for further research.

Next, the list of experts, shown in appendix F should also be expanded. Decision makers like directors of medical and PHC programmes as well as Ministers, should be included.

Another important point is that future studies should also be partly done in the field (in Iraq). It should involve the users of PHC, like mothers and children, and so not only will the opinion of experts count but also the opinion of the population.

Thereafter, a research should focus on intertwining and joint Iraq-EU funding through special matching funds and EU fellowships, and joint research funds should be further investigated. A programme like the Erasmus Mundus exchange should be investigated. The aim of the Erasmus Mundus programme is to fund projects that want to promote European higher education and, among other things, also promotes intercultural understanding through cooperation with third world countries, in accordance with EU external policy objectives in order to contribute to the sustainable development of third world countries in the field of higher education (European Commission, 2010).

It should be noted that there are, besides the international institutes and programmes, plenty of Iraqi scholars and specialists who would like joint cooperation. They would like to offer services (setting up special PHC courses and programmes) and jointly apply for EU funding together with their sister organizations in Iraq to provide the needed capacity and trainers.

An equivalent study focusing on allocating a special scholarship to Iraqi students shuttling between Iraq and the Netherlands, to ensure that all the elements fit together nicely in place is also recommendable.

After these additional studies the work should be translated into a training proposal with EU-IRQ or UN-IRQ funding, since there is potential for continuation, and with new substantial funding for current programmes in the coming years, such as health care, mothers, children and youth programmes.

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Appendix A: Participating experts in the Delphi study

- Dr. Mrs. I. Abbas, Consulting community pediatrician, specialist in pediatric neurodisabilities and child protection, United Kingdom

Contact information: elhamabbas24@hotmail.com, mobile: 07500004815

- Dr. A.A. Aras, Dean of the medical college, Suleimani university, Kurdistan Region, Iraq

Contact information: aras62@gmail.com

- Dr. R.T. Abed, Consulting psychiatrist at Rotherham District General Hospital, Sheffield and honorary lecturer Sheffield University, United Kingdom

Contact information: abedrt@btinternet.com

- Dr. A. Ahmad, IACAPAP Ambassador, Assisting Professor and Founding Director Department of Child Mental Health College of Medicine, University of Dohuk Kurdistan Region Iraq, Associate Professor Dept. Neuroscience, Child and Adolescent Psychiatry, Uppsala University Sweden

Contact information: abdulbaghi.ahmad@neuro.uu.se, mobile: (+46) 702212155, Uppsala University - Sweden Office Phone: (+46) 186112555, fax: (+46) 186112565

- Dr. Mrs. S. Al-Ahmad, Consulting pediatric specialist in the UK, United Kingdom

Contact information: suhailaal@yahoo.co.uk

- Dr. D. Baraznji-Sassoon, Research Associate at Spinoza & Sassoon Foundation UK for Cognitive Medicine, Judgement, and Technology, Researcher at Amsterdam University, Netherlands

Contact information:

Academy work address: Spinoza & Sassoon foundation: baraznji@hotmail.com, tel. (+31) 613705606, mobile: (+31) 614804190, Zeedijk 50-B, 1012 BA, Amsterdam, The Netherlands, www.spinoza-sassoon.web.officelive.com, www.baraznji.com

Home work address: baraznji@Gmail.com: tel. (+44) 7733733033, mobile: (+44) 7766985399,

- Dr. P.H. Al-Bazzaz, F.I.C.M.S., Assistant Professor of Urology, President Hawler Medical University, Iraq

Contact information: pish_hs65@yahoo.com

- Dr. N. Shukur, Partner, Bishops Park Health Centre, Stortford and consultant orthopedic surgeon Princess Alexandra Hospital, Harlow , United Kingdom

Contact information: nabeilshukur@hotmail.com, tel. (+44) 1279721181, mobile: (+44) 7855312566.

- Dr. H. Jamil, President of the International Society of Iraqi Scientists, Michigan, USA. Professor, Director of the Occupational & Environmental Medicine Courses, Division of Occupational & Environmental Health, Department of Family Medicine & Public Health Sciences, School of Medicine, Wayne State University, Detroit, Michigan, USA.

Contact information: hjamil@med.wayne.edu, tel. (+313) 5772048, fax: (+313) 5772744, School of Medicine, Wayne State University, Detroit, <http://www.med.wayne.edu/fam/faculty/jamil.asp>

Appendix B: Letter for information sent to contact organizations

Dear Sir, Madam,

I am working on my masters research dissertation in business administration of the health sciences at the Dutch University of Twente. My study supervisors are Prof. M. Boere-Boonekamp (Health Sciences), Prof. Prof. C. Wilderom (Service Management) and Prof. U. Karim (Project Coordinator),

The study is focused on primary health care (PHC) services in Iraq for children and mothers. It forms a background study for a capacity building project in which a proposal on educational programmes for PHC will be developed and offered by a number of European universities to Iraqi partners.

In the dissertation I will discuss the state of PHC in Iraq at present and compare it to best practices in PHC in several other countries (The Netherlands, Great-Britain, Ireland). This will form the basis for suggesting new academic and capacity building programmes to support the PHC projects developed by Iraq's Ministry of Health.

An important part of the study is to outline the current services of primary health care for mothers and children in Iraq, and the type of academic training programmes needed to improve these services.

Unfortunately information on this subject is very scarce, unreliable or out of date.

A literature study and inventory of ongoing PHC projects in Iraq (from the UN, EU, NGO's etc.) will provide the main data needed to carry out this study. Project information (reports, publications, etc.) on PHC for the youth and women are of relevance.

An international panel of experts on child, women, and related primary health care, including health care practitioners inside and outside Iraq, will be asked to respond to questionnaires to provide additional data. The questionnaires will be designed using scientifically-based methods.

Your organisation is active in areas related to the subject of this study.

I would really appreciate your help to assemble sufficient data by:

1. Sending me by e-mail/post information/documents on your primary health projects.
2. Referring me to other sources of information on the subject.
3. Answering forthcoming questioners designed to collect additional data.
4. Suggesting names of other experts from your organisation or outside it to whom we could e-mail the questionnaires.

The end results of this research will be sent to you in the form of a dissertation.

Awaiting your reaction,

Yours faithfully,
Stefanie Kleine

Appendix C: Letter inviting experts to participate in the Delphi study

Dear Sir, Madam,

I am working on my masters research dissertation in business administration of the health sciences at the Dutch University of Twente. My supervisors for the study are Dr. M. Boere-Boonekamp (Health Sciences), Prof. Prof. C. Wilderom (Service Management) and Prof. U. Karim (Project Coordinator),

The study is focused on primary health care (PHC) services in Iraq for children and mothers. It forms a background study for a capacity building project in which a proposal on educational programmes for PHC will be developed and offered by a number of European universities to Iraqi partners.

In the dissertation I will discuss the state of PHC in Iraq at present and compare it to best practices in PHC in several other countries (The Netherlands, Great-Brittan and Ireland). This will form the basis for suggesting new academic and capacity building programmes to support the PHC projects developed by Iraq's Ministry of Health.

An important part of the study is to outline the current primary health care services needs for mothers and children in Iraq, and the type of academic training programmes needed to improve these services.

In order to obtain this information an international panel of experts on child, women, and related primary health care, including health care practitioners inside and outside Iraq, will be asked to respond to questionnaires to provide additional data. The questionnaires will be designed using the Delphi method, a scientifically-based research method.

The Delphi technique is a structured, iterative process that uses a series of questionnaires or 'rounds' to gather information which are continued until 'group' consensus of opinion, judgment or choice is reached. This study will use three rounds to reach consensus. The time for completing the questionnaires of each round will not exceed 30 minutes.

I would really appreciate your help to assemble sufficient data by participating in the expert panel and contributing to the Delphi study.

The end results of this research will be sent to you in the form of a dissertation.

Awaiting your reaction,

Yours faithfully,

Stefanie Kleine

Address: Kerkweg 54
 8024 AN Zwolle
 The Netherlands
Tel.: 0031-657579571
E-mail: s.m.kleine@student.utwente.nl

Appendix D: DELPHI Questionnaire Round 1

faculty **Management and Governance**

Department of Health Technology and Services Research

UNIVERSITY OF TWENTE.

DELPHI Questionnaire Round 1

Introduction

We would like to thank you in advance for your participation in the Delphi study of the future Primary Health Care (PHC) system for mothers and children in Iraq.

With this questionnaire we would like to identify, from experts like you, the most important Primary Health Care elements. What we are after, ultimately, is a good functioning PHC system in Iraq, based on a family physician model. We are focusing on such a model for Iraq because of the vision of Iraq's Ministry of Health. The key elements to be identified in the below questions focus on the organization and infrastructure of the improved healthcare sector, the services on offer, the used technologies, etc.

In this Delphi study we would also like you to identify the educational programmes needed for fulfilling the family-physician model, based on the assumed health care needs in 2020. In what follows, now, we will first query you on the current primary health care service needs for mothers and children. These needs will form the basis for developing improved educational programmes.

This first questionnaire round consists of explorative questions. Please answer the questions according to your own ideas and experiences. The answers will be processed anonymously and a draft copy of your collective answers will be offered to you first for your added suggestions. Then, we hope you will remain engaged and respond to the second and final round as well. We are carrying out this study in order to try and contribute something positive to the people of Iraq and also in partial fulfillment of a Master of Science.

We would be grateful for your response before the 20th March 2010.

Kind Regards,

Stefanie Kleine (s.m.kleine@student.utwente.nl), and her

Exam committee:

Dr. U.F.A. Karim, Initiator and coordinator of this study, University of Twente

Dr. M.M. Boere-Boonekamp, Health Technology & Services Research, University of Twente

Prof. Dr. C.P.M. Wilderom, Management & Organizational Behavior, University of Twente

DELPHI Questionnaire Round 1

The definition of primary health care used in this study matches the definition of the declaration of Alma-Ata: *'Primary health care is essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.'*

Current P(rietary) H(ealth) C(are) S(ervices)

1. How does Iraq currently offer primary health care services to its mothers and children?
2. Which currently available PHC services are functioning properly at the moment in Iraq?
3. What PHC services for mothers and children are currently most needed in Iraq?
4. What would mothers and children currently need in the general context of PHC in Iraq?

PHC services in planning

5. Which PHC services are under development or planned to be implemented? What is your opinion about them?
6. a. What are the neediest groups of children needing PHC in Iraq?
b. What are the neediest groups of mothers needing PHC in Iraq?

Health problems

7. a. What is the most important treatable cause to the enormous child mortality rate in Iraq?
b. What is the most important treatable cause to the mortality rate of mothers in Iraq?
c. How could those rates be reduced through educational programmes? And what minimum requirements are needed for such programmes?
8. a. What are the most needed health care services and facilities for mentally and/or physically disabled children in Iraq?

- b. What kind of educational programmes would be needed for these Iraqi children? And what minimum requirements are needed for such programmes?

Management of PHC

9. What are the current most important organizational issues in rendering health care to mothers and children in Iraq?
10. a. Which organizational or infrastructural elements should be improved in order to deliver high-quality primary health care efficiently to mothers and children in Iraq?
- b. How could this be improved through educational programmes? And what minimum requirements are needed for such programmes?

Training shortages

11. a. In which field that is the key to good primary health care for Iraqi mothers and children does Iraq have the largest training shortages at the moment?
- b. How would this situation be improved through educational programmes? And what would be the minimum requirements of such programmes?
12. Could you state 5 Iraqi regions requiring priority attention to improved PHC for mothers and children?
13. Could you state 5 Iraqi medical academic centers that would ideally give priority attention to improved PHC for mothers and children?
14. Are there additional elements important to PHC for mothers and children in Iraq that are not yet dealt with in the above? *Elements like finance, used technologies, infrastructure, etc.*

This was the last substantive question of the questionnaire. Would you please now fill in the following biographical questions? This is also important for analyzing the results.

- 15a. How familiar do you consider yourself to be with the current health-care situation in Iraq?
- 15b. What is your profession/ educational career?
- 15c. Do you have work and/or study experiences in Iraq? If so when, in which field and for how long?
- 15d. Age:
- 15e. Gender:
- 15f. Any literature or reports relevant to this study that you recommend us to read?

Thank you very much for your participation and sharing of your knowledge!

A draft analysis report of the first and second Delphi questionnaires is to be expected sometime in October, 2010.

Appendix E: DELPHI Telephone interview Round 2

Interview protocol for Delphi round two telephone interview

Opinion of first round Delphi

1. Do the results of the first Delphi gave a good overview of the current most important PHC issues/needs in Iraq? Why?

Prevention

2. Both universal screening and monitoring programmes and programmes to inform the Iraqi population are preventive interventions. Could it be assumed that preventive interventions/care is currently more needed than curative interventions/care?
3. Which other preventive services are also needed/important?
4. Does a particular age group have the highest preventive needs? If so, which services do they need?
5. Where and how should the population be educated on topics like hygiene and breastfeeding?

Proper care, before, during and after birth

6. Which services are specifically needed before, during and after birth?
7. Which knowledge and skills are necessary for a health worker in order to deliver proper care?

Mentally/ physically disabled children

8. What do you think is the main cause of the high rate of birth defects?
9. Which services or interventions could decrease this rate? Could these services be delivered in a PHC setting?
10. Are there other disabilities needing attention?

Government involvement

11. What role could and should the Iraqi government play in a project like this?

Appendix F: List of possible other panel experts, listed by sector

Experts from medical colleges:

- College of Medicine Al Nahrain University, col_med_nahrain@yahoo.com, med_dean@alnahrain-university.org, <http://www.alnahrain.site40.net/>
- Dr. A. Khalifa, Dean College of Medicine Amara University, physiologist_khalifa@yahoo.com
- Prof. Dr. N. H. al A'araji, President University of Babylon, unibabylon@yahoo.com
- Dr. A.K.D. Al-Shaali, Dean faculty of Medicine University of Babylon, alzubaidi62@yahoo.ca, Dean office: medicin@babylon-uni.com, babil_medcoll@yahoo.com, babil.medcoll@gmail.com
- Prof. Dr. N.A. Alwash, Manager of scientific affairs department, University of Babylon, babil_elmeaa@yahoo.com
- Dr. H. Baey, Specialist consultant expert on primary health in the city of Babil and the Medical College University of Babylon, hassanbaey@yahoo.com, tel.: (+964) 07801422158
- College of Medicine University of Baghdad, dean office: dean.comed@uobaghdad.edu.iq, assistant dean for scientific affairs: ads.comed@uobaghdad.edu.iq
- Dr. S. Noor, Dean Medical College University of Basrah, saadenoor@yahoo.com, <http://www.comed.uobaghdad.edu.iq/>
- Prof. M. Hassan, Head department of Pediatrics University of Basrah and professor in pediatrics, drm_hassan@yahoo.com
- Dr. A.H. Akram, Specialist and professor of Medicine University of Basrah, dr_akram_a@hotmail.com,
- Dr. F.J. Khayat, Dean Hawleer College of Medicine, Surgeon in the Kurdistan Region, farhadkhayat@yahoo.com
- Dr. M. Said, Dean Medical College, University of Kufa, mohammads40@yahoo.com, tel.: (+964) 07801019641
- Dr. K. Ihsan, President University of Mustansiriya, ihsank@uomustansiriyah.edu-iq, mustansirya@yahoo.com, pressident@uomustansiriyah.edu-iq, tel.: (+964) 07801636377
- Dr. F.B. Al-Sawaf, Dean Nineveh College of Medicine, farisalsawaf@yahoo.com, tel.: (+964) 07701622709
- Dr. E. Al-Jawahiri, President University of Qadisiye, emadaljawahiri@yahoo.com, tel.: (+964) 07801024027
- Dr. M.S. Ali, Dean University of Sulaimani and consultant physician, zankmed@yahoo.com
- Dr. A. Salman, Dean Tikrit University, tikmed89@yahoo.com or abidahmad60@yahoo.com
- Dr. B. Nawal, Senior lecturer in paediatrics and consultant paediatrician, Tikrit University, nawalbahjat@yahoo.com
- Dr. A. Allawe, Dean Medical College, University of Wasit, attaallawe@yahoo.com

Political Experts:

- Prof. D. Ala' Aldeen, Minister of Higher Education and Scientific Research, Kurdistan region, Iraq, dlawer@gmail.com

- Dr. Ammar Hasan, Deputy Minister of Higher Education and Scientific Research, Iraq, deputy.minister@yahoo.com, tel.: (+964) 7901108725
- Dr. S. Al-Mustawfi, Executive R&D Director, contact person Ministry of Health, iraqhp@yahoo.com, tel.: (+964) 7901910914
- Prof. M. Al-Saraj, Director General of Research & Development, Iraq, mohatiya1965@yahoo.com
- Dr. A. Melkert, Head of the UN mission in Baghdad
- Dr. M. Al-Doreky, Iraq Ambassador to the EU, Brussels, ambassade.iraq@skynet.be
- Dr. T.E. Westerhuis, Coordinator Middle East Affairs, Directorate-general for foreign economic relations, t.e.westerhuis@minez.nl
- Dr. R. von Seydlitz Kurzbach, Attaché Embassy of the Kingdom of the Netherlands in Baghdad, bad@minbuza.nl
- Prof. A.H. Al-Khalili, Cultural attache in Washington DC, togetherforiraq@gmail.com

Experts practicing in Iraq:

- Dr. Al Ahmad, Pediatric specialist consultant practicing in UK and Iraq, suhailaal@yahoo.co.uk and nadaaiub@hotmail.com
- Prof. M. Al-Rubeai, Head of bio-medical chemistry research institute at the University college of Dublin, advisor to Iraqi PM on higher education and chairman of NISA (Network of Iraqi Scientists abroad), m.al-rubeai@ucd.ie
- Dr. A. Sarhat, Pediatrician practicing in Iraq, ashoor.sarhat@gmail.com
- Dr. H. Al-Maliki, Child Psychiatrist practicing in Iraq, dr_haiderabduhmuhsin@yahoo.com
- Dr. N. Abu Khumrah, Partner of Bishops Stortford Health Clinic and Consultant orthopedic surgeon at Harlow hospital. Dr. Nabil was previously a surgeon at the children's hospital of Baghdad, asmaakarim@hotmail.com
- Dr. R. Shawis, Pediatric surgeon practicing in UK and Iraq, shwan@shawis.freesevice.co.uk

European experts:

- Baroness Emma Nicholson, Member EUP, Lord, and advisor on Health to the Iraqi prime Minister, nicholsone@parliament.uk, Siddik Bakir: Political Assistant Baroness Emma Nicholson
- AMAR foundation, with offices in Iraq, Iran, Lebanon contributing to health and Education, london@amarfoundation.org
- Prof. R. Tremblay, Professor at the University of Montreal and at the University College of Dublin with a research chair in child development, tremblar@GRIP.UMontreal.CA, 7, place de Fontenoy, 75352 Paris 07 SP, FRANCE
- Prof. Dr. C. Ince, Specialist in medical technology and Professor in the Department of Anaesthesiology, University of Amsterdam - Amsterdam Medical Centre, c.ince@amc.uva.nl, tel.: (+31) 205662533 or (+31) 205664826, Meibergdreef 9, 1105 AZ, Amsterdam or Postbus 22660, 1100 DD, Amsterdam
- Dr. S. Gentle, Consultant Paediatrician at Sheffield's children hospital, Sue.Gentle@sch.nhs.uk
- Dr. M.H. Jawad, Pediatrician practicing in UK, mhjawad@btinternet.com
- Dr. M. Al-Zarrad, General Practitioner practicing in UK, malzarrad@nhs.net
- Dr. M. Lutfi, Working for WHO in Iraq, mouayad.lutfi@yahoo.com, tel.: (+964) 079044281394
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Appendix G: Available course and programme overview

	Capacity building and training the trainers programme
Prevention	<p>University of Sheffield Medical School: Department Infection & Immunity, Neuroscience and Oncology http://www.sheffield.ac.uk/medicine/, suggested by Dr. Ilham Abbas</p> <p>University of Michigan Medical School: department of pediatrics & communicable diseases http://www.med.umich.edu/pediatrics/edu/index.html</p> <p>University of Michigan School of Nursing: Master's and Post Master's Programmes Infant Child and Adolescent Health: Pediatric Nurse Practitioner http://www.nursing.umich.edu/academics/masters/pediatric_primary.html</p> <p>Wayne State University School of Medicine: Msc of public health degree http://www.med.wayne.edu/fam/mph/index.asp suggested by Dr. Hikmet Jamil</p>
Health service delivery management	<p>University of Warwick Medical School: MSc Health Services Management, http://www2.warwick.ac.uk/fac/med/study/cpd/subject_index/hsm/</p> <p>University of Twente: Health technology and services research http://www.utwente.nl/mb/htsr/</p> <p>University Münster & Twente: Münster & Twente: a cross-border European University http://www.uni-muenster.de/en/about/partners/index.html suggested by Prof. van Harten</p>
Mentally and/or physically disabled children	<p>Vilans: Centre of Excellence in Long Term and Social Care in The Netherlands http://www.onderzoekinformatie.nl/en/oi/nod/organisatie/ORG1237275/</p> <p>Centre of excellence for early childhood development (Canada) http://www.excellence-earlychildhood.ca/home.asp Dr. Tremblay is the director of this centre of excellence</p> <p>Prince Salman Center for Disability Research (Saudi Arabia) http://www.pscdr.org.sa/en/research/Pages/activities.aspx</p> <p>King Faisal Specialist Hospital & Research Centre (Saudi Arabia) http://bportal.kfshrc.edu.sa/wps/portal/bportal!/ut/p/c1/04_SB8K8xLLM9MSSzPy8xBz9CP0os3g3M393Y3dHYwMLSwsLA6MQ1zDP0FAnIwMTA6B8JJK8gb-IG1A-OMLZ0ijYyMDRjIDucJB9-PWD5A1wAEcDfT-P_NxU_YLcCIMSdE0dFAGKLEDo!/dl2/d1/LOIDUmITUSEhL3dHa0FKRnNBL1ICUlp3QSEhL2Vu/</p>
Mental health care	<p>Centre of excellence for early childhood development (Canada) http://www.excellence-earlychildhood.ca/home.asp Dr. Tremblay is the director of this centre of excellence. This centre also collaborates with Junta nacional de jardines infantiles (JUNJI) http://www.junji.cl/junji Joomla/</p> <p>Kurdistan child mental health programme (Sweden-Iraq)</p>

	<p>http://www.anst.uu.se/abduahma/KCMHP.doc suggested by Dr. Abdulbaghi Ahmad</p> <p>London school of Hygiene & Tropical Medicine: Short study programme International Mental Health Research - Methods & Applications http://www.lshtm.ac.uk/prospectus/short/simh.html</p> <p>The Provincial Centre of Excellence for Child and Youth Mental Health at CHEO (Canada) http://www.onthepoint.ca/index_e.htm</p>
Proper care before, during and after birth	<p>British Columbia Centre of Excellence for Women's Health http://www.bccewh.bc.ca/</p> <p>Centre of excellence for early childhood development (Canada) http://www.excellence-earlychildhood.ca/home.asp Dr. Tremblay is the director of this centre of excellence</p>
Medical record keeping and collecting health service data	<p>University of Amsterdam (Netherlands), Master of Science in Medical Informatics, http://www.mastersportal.eu/students/browse/programmeme/859/medical-informatics.html</p> <p>Bristol University, School of Social and Community Medicine, Academic Unit of Primary Health Care http://www.bristol.ac.uk/primaryhealthcare/</p> <p>Northwestern University, Master of Science in Medical Informatics http://www.scs.northwestern.edu/grad/medical-informatics-online/</p> <p>Ohio State University, School of Allied Medical Professions, Division of Health Information Management & Systems http://amp.osu.edu/hims/1358.cfm</p>