FOCUS: GLOBAL HEALTH AND DEVELOPMENT

Toward a Healthier Iraq

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Health care in Iraq is the sector most influenced by variables such as political, cultural, social, and economic environments. The current status of national security, the deterioration of infrastructure, difficulty in accessing clean water and sewage services in some areas, and the national levels of poverty, malnutrition, and social fragility are all factors that negatively affect the health of the Iraqi people [1].

There is a real need for a solid national health policy that is able to match the available resources against the health needs of a growing population, as provided in the Constitution of Iraq and National Development Plan, and oriented to a set of strategies and objectives that can drive development of the Iraqi health sector in the future [2].

Establishment of a fair and comprehensive national health system requires sustainable commitment to this policy by all stakeholders and partners in order to focus efforts and achieve synergy in the optimal investment of available resources and to provide health care services and attain maximum effectiveness and efficiency of systemic response to the health needs of the Iraqi people and society.

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†Abbreviations: BHSP, Basic Health Service Package; GDP, Gross Domestic Product; IDP, Internally Displaced Population; I-PSM, Iraq Public Sector Modernization; MMR, Maternal Mortality Ratio; MICS, Multiple Indicators Cluster Survey; MoH, Ministry of Health; MDGs, Millennium Development Goals; UN, United Nations; NHA, National Health Account; NHP, National Health Policy; NCD, Non Communicable Disease; NIC, National Influenza Center; NSP, National Strategic Plan; NTP, National Tuberculosis Program; TB, tuberculosis; UHC, Universal Health Coverage; RTA, Road Traffic Accident; UNICEF, United Nation International Emergency Fund; UNHCR, United Nation High Commission for Refugees; UNFPA, United Nation Population Fund; WHO, World Health Organization.

Keywords: Iraq health system, Iraqi Public Sector Modernization
INTRODUCTION

The objective of this paper is to provide readers with an understanding of the health status of the Iraqi people, the health system in Iraq, and the current efforts to speed up with improving the health system through Iraqi Public Sector Modernization Project (IPSM†) and other health reform steps.

In the last 25 years, three wars and a decade of sanctions have severely crippled large parts of the Iraqi infrastructure, including its health facilities and services. Iraq is a country facing a huge burden of both communicable and non-communicable diseases, with diarrheal diseases, respiratory tract infections, and communicable diseases, especially among children. Child malnutrition is common, with incidence of low birth weight exceeding 10 percent [3].

To meet Iraq Millennium Development Goals (MDGs) 4 and 5 by 2015 (reduction of child mortality by two-thirds and maternal mortality by three-quarters between 1990 and 2015), unprecedented progress has been made toward the accomplishment of MDG goals through recent developments at national as well as regional levels [2,4].

A National Health Strategic Plan for 2013-2017 is currently being implemented. The main strategic goals of the plan are to establish the culture of governance, develop a health information system, and shift toward the concept of family medicine in providing health services to the Iraqi community. There is an extensive network of primary health care facilities (one primary health care centre/10,000 to 45,000 citizens) and hospitals. Public health sector expenditure has shown sustained growth, and there are continuous annual increments in the budget allocated for the Ministry of Health from the central government. Current per capita health care expenditure by the government is US $267.5, amounting to US $5 billion (5 percent of GDP) in 2013 [2].

Iraq has a wealth of human resources for health care and a network of medical, nursing, and paramedical colleges distributed throughout all governorates of the country. The private health sector plays a small but an increasingly important role in delivering personal health care. There are 92 private hospitals in the country, mostly in larger cities such Baghdad, Erbil, and Basrah [4].

Maternal and child health contribute to healthy families and form the backbone of a prosperous and economically productive society.

The Iraq Maternal Mortality ratio was 291/100,000 live births in 1999, according to the Iraqi Maternal Mortality Survey (IMMS). In 2006-2007, the figure was estimated by the World Health Organization (WHO) to be 84/100,000 and adjusted to 67/100,000 by WHO’s World Health Statistics in May 2014 [5].

While considerable debate surrounds the current number, the MDG 5 set for Iraq is 29 by the year 2015. The Ministry of Health and others are concerned that additional steps need to be taken to put Iraq firmly on target to reach the MDG goal. On the other hand, it is likely that some degree of under-reporting of maternal deaths may be occurring, either through misclassification or failure to affix the correct diagnosis, which may make the true value different than current estimates [5,6].

POPULATION DEMOGRAPHICS AND HEALTH INDICATORS

In 2012, the general population of Iraq was estimated to be 34 million, 68.3 percent living in urban areas and 31.7 percent in rural areas. The population growth rate reached 3.4 percent, and the total fertility rate was 5.2 percent, categorizing Iraq as a society of adolescent age. Children and adolescents constituted approximately 50 percent of the general population. The average life expectancy was 72 years, 69.7 years for males and 74.3 years for females [7].

For several decades, the economy of Iraq has suffered many political, social, and economic stressors. The resulting decline in production capacity and infrastructure is evident in the decrease in per capita GDP from US $2,741.5 (in 1983) to US $455.5 (in 2000). Although it increased to approximately US $3,500 in 2011, about 20 percent of Iraqi people still live below the poverty line [8].
Iraq is prioritizing the achievement of MDGs, primarily MDG 4 (reduce child mortality) and MDG 5 (improve maternal health). The National Acceleration Plan for Maternal and Child Health established for 2013-2015 delineates high-priority, cost-effective, high-impact interventions to achieve these goals [8].

In 2012, maternal mortality was reported to be 35 deaths per 100,000 live births, while infant mortality rate was estimated to be 21.9 deaths per 1,000 live births [9].

The percentage of births supervised by skillful midwives was reported at 87 percent, and 70.9 percent of births were registered from government and non-government health institutions. The remaining 29.1 percent were registered outside of health institutions, suggesting an immediate avenue in which the accessibility of health care services can be improved [4].

Recently, in 2014, the MMR is reported to be 67/100000 live births [5].

In addition, the rate of child vaccination in infants younger than 12 months was 78 percent, while 40 percent of pregnant women did not receive tetanus vaccines in time [4]. Only 20 percent of children younger than 6 months were exclusively breast fed, a level considerably lower than recommended. It is worth mentioning that adequate feeding was more common among women who were uneducated and below the poverty line [10].

Prior to 1990, Iraq was ranked among the group of middle-income countries. Malnutrition was virtually unheard of, as almost all households had affordable access to a balanced diet. However, according to the Multiple Indicators Cluster Survey 2011, the national rates of malnutrition in Iraq were estimated to be 7.4 percent for wasting, 22.6 percent for stunting, and 8.5 percent for being underweight. The prevalence of anemia, iron deficiency, and iron deficiency anemia for non-pregnant women aged 15-49

### Table 1. Iraq key health indicators [4].

| Key Indicators                                                                 | Value                                      |
|-------------------------------------------------------------------------------|--------------------------------------------|
| Total population (in millions ) (2012)                                        | 3,4207,248                                 |
| Population proportion under 15 years of age (2012)                           | 40.51%                                     |
| Life expectancy at birth (2012)                                              | 69.5 years                                 |
| <5 mortality rate per 1000 live births (2012)                                | 37                                         |
| UN/WHO estimates of maternal mortality rate per 100,000 live births (2014)   | 67 *The verbal autopsy study estimates 35 per 100,000 live births |
| Neonatal mortality rate per 1000 live births (2012)                          | 19                                         |
| Population proportion over 60 (2012)                                         | 4.95%                                      |
| Health care expenditure as a percentage of total government expenditure (2011)| 10.2%                                      |
| Health care expenditure as a percentage of GDP (2011)                        | 8.3%                                       |
| Private sector health care expenditure as a percentage of total health care expenditure (2011) | 19.3%                                      |
| Human development index rank (2012)                                          | 131                                        |
| Gender inequality index rank (2012)                                          | 120                                        |
The incidence of tuberculosis (TB) is still on the rise. This increase may be explained by improvements in diagnosing and examining diseases, but may also be a sobering reflection of the emergence of multidrug-resistant cases and the increase in the number of defaulters in some areas, mainly in governorates affected by security instability or those in which DOTS (Directly Observed Therapy, Short-Course) is not well implemented. Current case detection rate is 56 percent, which is still below the global target rate of 70 percent [4,12].

High levels of stigma surrounding TB (resulting in reluctance of infected persons to approach health care providers due to social pressure) have resulted in significant challenges to treatment and care services in Iraq. In addition, the prolonged recent conflict due to terrorist acts in some Iraqi governorates has resulted in significant reductions in the infrastructural and human capital capacity of the NTP (National Tuberculosis Program), operating under the auspices of the Ministry of Health, to deliver effective diagnosis, treatment, and prevention campaigns in many parts of the country [12,13].

Epidemic control and monitoring of contagious diseases are successful systems that have enabled Iraq to effectively control different epidemics such as the current polio virus outbreak [1]. In addition, public health labs on the national level contribute to public health issues by controlling water, sewerage, and food processing according to national safety standards. The Iraq National Influenza Center (NIC) joined the network of international influenza labs in 2010 and is affiliated with the virology department at the central public health lab in Baghdad.

HEALTH SYSTEM EVOLUTION

The major challenges facing the health system in Iraq stem from the current political and security situation, which affects national stability and hinders the country from reaching the strategic goals required to implement UHC (universal health coverage). These challenges include:

1. Ongoing technical problems in identifying and deploying the workforce required to overcome shortages in health labor;
2. Internal as well as external brain drain (the majority being external) among professional health service providers affecting quality of performance and quality of services provided;
3. Developing and improving the capacity, skills, and education of government leadership as well as health professionals (especially in nursing and allied health) to meet the needs of a population in which the annual growth rate (3.5 percent) and total fertility rate (4.3 percent) are both high [4];
4. Facing a competitive (rather than integrated, coordinated, and innovative) relationship between the Ministry of Health and other partners and stakeholders;
5. Adverse effects of both high youth unemployment and child labor, though no accurate statistics are provided yet;
6. Escalating numbers of internally displaced persons (around 350,000 in the Kurdistan Regional Government);
7. Previous health strategies that focused more on clinical services rather than public health problems like the increase in morbidity and mortality of non-communicable diseases, which affected the accessibility and equity of health services provided, especially for hard-to-reach areas; and
8. Health care financing and elucidating the financial role of the private sector [14].

The key strategic steps to overcome some of these challenges can be illustrated as follows:

1. Developing a national health policy with a clear vision for tangible health sector reform;
2. Movement toward decentralization, giving more authority and autonomy provisions to the Iraqi governorates. This will help avoid bureaucratic procedures in dealing with health priority emergencies;
3. Developing a national strategic plan for the health care workforce; developing and strengthening the nursing education sys-
tem; adopting and implementing the final version of National Policy Related to Health Technology and Medicine; and using new approaches related to the Health Account 2011 System [14];

4. Strengthening various Ministry of Health departments and units, especially in health economics; scaling up family health and family practice programs in all governorates to ensure proper implantation of an approved, essential health service package; and moving on with the process of accreditation and clinical governance that will ensure better health service quality provision in both PHCCs (primary health care centers) and hospitals [15];

5. Developing a health professional regulation system; reinforcing the hospital information system (including referral system, civil registration, and monitoring of health system performance); and strengthening national regulatory authorities in addition to defining the administrative and functional structure of KIMADIA (State Company for Marketing Drugs and Medical Devices) to the ensure safety, efficacy, and quality of all technologies available [1];

6. Addressing the need for NCD strategic planning, supervision, and strengthening based on approved United Nations (UN) interventions; and

7. Promoting a strategy for removing the financial barriers to access to health care, including a health insurance system.

Discussions are currently in progress on ways in which change can be brought about through the formation and monitoring of a budget to respond interactively to top priority health needs. While Iraq possesses considerable resources, a key issue for the country is the need for proper planning, implementation, and associated capacity building to undertake these tasks.

Challenges to Universal Health Coverage

The lack of political stability and national security in Iraq hinders the nation from achieving the goal of universal health coverage. There is a strong bond between universal health coverage (UHC) and health system strengthening. We cannot achieve one without the other. It takes more than 20 minutes on average for Iraqi families to get to the nearest health center when a family member is ill. This period slightly exceeds half an hour (32 minutes) for rural families.

Cases of recourse to primary health care centers vary in governorates, but they generally increase in rural areas. Fifty-eight percent of families will encounter at least one obstacle that prevents access even to primary health care centers (PHCC). The main obstacle to utilizing PHCC can be attributed to low capacity of the PHCC in relation to community health needs. Forty-eight percent of Iraqi families go to public hospitals (relying on secondary health services and adding more burdens on the public hospitals), and 24 percent resort to public clinics when one of their family members is affected by illness. Twenty-one percent of families turn to private hospitals or private clinics, and 71 percent of these families noted that they were unable to pay their medical expenses [4].

In spite of expansion of coverage in health care services, the quality of care is still limited in remote areas. Only 53 percent of the general population beneficiaries reported satisfaction with health care services provided by public sector hospitals and primary health care centers. The quality of health care services provided by the public sector was better than the quality of those provided in private hospitals at the same standard, according to staff notes on the public health sector upgrade program [5].

After 14 Years Polio-Free, Polio Outbreak in Iraq

Iraq has been polio-free since 2000; however, the events of the last 14 years have badly affected all civil sectors, infrastructures, and life activities, especially the health system. The economic sanction and military operations during the war in 2003 had a tremendous negative impact on all aspects of health services. Immunization was one of the major services affected. Immunization services had undergone a long period of regression in the routine coverage that targets children younger than 5, resulting in a de-
clining quality of vaccination campaigns. The resulting gap in community immunity led to increased possibilities of infectious diseases outbreaks.

In October 2013, WHO declared a state of poliomyelitis outbreak in the Republic of Syria (Deer Al Zoor district, adjacent to the western border of Iraq). This event, coupled with a massive influx of refugees from Syria into Iraq, raised concern about the real possibility that importation of the wild poliovirus into Iraq would jeopardize the polio-free status of the country. On March 2014, Vacsera (Regional Reference Laboratory, Giza) declared that a stool sample was confirmed positive for the wild poliovirus. On March 19, genomic sequencing through the Centers for Disease Control (CDC) revealed that the wild poliovirus was similar to the strain circulating in Syria. WHO immediately declared a state of polio outbreak in Iraq due to wild poliovirus importation from Syria.

In an urgent response to this situation, the Iraq Ministry of Health, in collaboration with UN agencies, recruited and mobilized all human, logistical, and financial resources to set up and implement a plan of action to contain the virus and prevent re-establishment of virus circulation [16].

NCD Burden in Iraq

The global burden and threat of non-communicable diseases constitutes a major public health challenge that undermines social and economic development throughout the world [17]. Iraq has one of the highest rates of non-communicable disease (NCD) morbidity and mortality in the world. The following facts regarding the national figures need to be considered. NCDs are becoming the number one cause of mortality and morbidity affecting people under the age of 60. More than 50 percent of the disease burden is due to NCD and injuries, and communicable diseases (tuberculosis, measles, enteric fever, hepatitis, etc.) still pose a major challenge. It is estimated that more than 38 percent of people die due to an NCD before reaching the age of 60 [18].

Iraq suffers from high rates of diabetes (10.4 percent) and high blood pressure (40.4 percent), as well as high prevalence of different cancers compared to other countries in the region such as Iran, Lebanon, and Jordan. Physical inactivity (which affects more than 60 percent of the population), together with unhealthy diet and the high prevalence of smoking (mostly among men) and obesity (more than 60 percent of men and more than 70 percent of women being overweight or obese) comprise the major risk factors for high NCD morbidity and mortality. The primary cause of such a high burden of non-communicable disease in Iraq is the chronic lack of a well-developed strategic plan for NCDs to combat diseases and assist in preventive measures. The Ministry of Health finally succeeded in November 2013 in launching the Iraq NCD Strategic Plan in close collaboration with WHO. Even now, NCD prevention and control lack proper surveillance, guidelines, implementation of “best buys,” resources, and capacity building [18].

For example, the tobacco control law is still not properly implemented in public places and public offices even though the law has been officially approved and endorsed. In addition, prevalence of violence, mental health disorders, psychological traumas, and disabilities remain high due to the current social and political instability.

N CD Burden in Iraq

In order to overcome this critical situation, the adoption and launching of the Iraq NCD Strategic Plan by the Ministry of Health is a success story in this regard. The document is based on the fact that society as a whole and the government as a whole are both part of the designing and implementing the NCD strategy, which consists of:

1. policies and plans developed to facilitate NCD control and prevention;
2. political commitment toward control and prevention of NCD on the national and international level;
3. developing norms and standards regarding maternal and child nutrition (to combat stunting, wasting, and anemia), and encouraging breast-feeding programs;
4. improving the food supply by working with the food industry to steadily reduce sodium levels in food;
5. implementing the Framework Convention on Tobacco Control;
6. strengthening health system strategies and interventions regarding alcohol and substance abuse;
7. mental health promotion through prevention, advocacy, and service provisions that are in line with the WHO Comprehensive Mental Health Action Plan 2013-2020;
8. addressing violence against women and children, road traffic accidents (RTA), and injuries; and
9. implementation of world disability report recommendations for better strategic planning and to improve the quality of services provided.

**Internally Displaced Population in Iraq**

The health system is also overburdened by 250,000 Syrian refugees and more than a million Iraqi internally displaced persons (IDPs). The number of displaced persons continues to increase rapidly. As of February 2014, the Ministry of Displacement and Migration confirmed that there were more than 62,679 IDPs registered. Families are especially vulnerable in the Anbar Governorate due to security instability caused by military operations. It is reported that 14,708 families reside outside of Anbar Governorate and 35,402 families are reported within Anbar Governorate — the actual number of the displaced is presumed to be considerably higher, and the number of those trapped in areas of active conflict are not known [19].

Those who have fled the major cities of Ramadi and Al Fallujah and their surrounding neighborhoods are seeking refuge in government buildings, including schools, in open fields, and even sleeping in cars. Their needs are numerous. Families fled their homes with few personal belongings. They require basic necessities, such as stoves, cooking materials, clothing, blankets, and other life-sustaining items for winter survival. Hospitals and health care clinics are running low on medical supplies, and doctors are unable to reach the health facilities. Water infrastructure has been disrupted, markets are not functioning, and food supplies have been significantly affected. Waste management is a growing concern as garbage collection has ceased [20].

At the end of 2009, there were an estimated 27 million IDPs around the world, and UNHCR was helping about 14.7 million of them in 22 countries, including the three with the largest IDP populations: Sudan, Colombia, and Iraq. The focus of health needs assessment for the IDP is directed toward the top priorities of the various groups to highlight the overall situation of health among the internally displaced populations while addressing the gaps in the delivery of health care services [21].

**Iraq Public Sector Modernization (I-PSM)**

The I-PSM program is a government-sponsored initiative supported by eight UN agencies, including WHO, which covers four main themes: 1) developing policy and building machinery at the center of government for managing Public Sector Modernization (PSM); 2) supporting system-wide reform for development management, gender mainstreaming, e-governance and national statistics; 3) piloting reform in the three key sectors of health, (education, water and sanitation); and 4) supporting decentralized service delivery and local governance initiatives [22]. WHO is leading the health component of the I-PSM program from the UN side and works closely with UNICEF and UNFPA to support the Iraq Ministry of Health. During Phase I of the program, a functional review of the health sector has been conducted, and a road map for health sector modernization has been developed and is being implemented to support the Ministry of Health and other partners engaged in modernization of the health sector [6].

The road map touches on 12 important policy domains, which are: 1) governance arrangement, including respective roles and responsibilities; 2) roles and relationships between the public and private sectors; 3) use of investment, including distribution and size of health facilities; 4) provider organization structures (e.g., how will primary and secondary care be integrated); 5) health financing and payment mechanisms; 6) human resources and responsibility for preparation; 7) relationships between health organizations and health staff;
8) organizational and individual incentives; 9) development of an appropriate regulatory framework; 10) community mobilization for health; 11) evidence-based policy, planning, and management; and 12) implementation of the Basic Health Service Package (BHSP).

The Ministry of Health has been working closely with WHO to roll out the family practice model approach as well as health insurance, including exploring health financing options. Public money should be allocated on the basis of evidence of effectiveness and in furtherance of the priorities of government. This requires moving away from incremental budgeting (a percentage is added to the previous year’s budget to arrive at the next year’s budget) toward a medium term budget, e.g., 3 years prospectively to respond to changing economic circumstances and to allow for a better policy planning. The second round of the National Health Account (NHA) was launched in January and will be supported by WHO experts [14].

**Family Practice Service Model**

WHO/Iraq (in collaboration with the Iraq Ministry of Health) developed the Family Practice Model, establishing a number of norms, standards, patterns, and guidelines for care. The aim is to integrate the services provision around individuals and families, restructuring today’s fragmented facilities into a system of community-focused family health providers. The following interventions were recommended for implementing the Family Practice Model for Iraq: 1) improvement of services in the Basic Health Services Package (BHSP), which represents the basic health services that should be available and provided with good quality by each PHCC; 2) improved policies and drug supply and stock conditions for the Essential Drug List that should be available in each pharmacy of PHCCs, covering the most prevalent and common diseases and including drugs for chronic diseases, drug supply procedures, and treatment protocols; 3) updated job descriptions for staff based on family practice and training programs based on the new job descriptions; 4) a referral system; 5) registration of catchment area population and development of family folders that include information about the number of family members, their visits to the PHCC, and investigations provided, etc.; 6) development of a family physician roster and a primary health care information system; 7) a standard primary health care facility with standardized medical equipment and furniture; 8) a family practice accreditation program and community participation; 9) early assessment and monitoring done for the 10 piloted facilities to address how close they are to the family health model; 10) high political commitment for the program from the Minister of Health; and 11) establishing executive teams at different administrative levels for implementation of the interventions to achieve the family health model [15].

The Iraqi health system is struggling to modernize, trying hard to move away from outdated centralized hospital-based provision toward a more integrated primary care model. The conflicts of recent years have taken a heavy toll. We urgently need a clear strategic plan for health and need support from the Ministries of Planning, Finance, and Higher Education. If we can galvanize the political will and agree on long-term objectives, we can move forward to see a healthy Iraq [23].

**BIGGER PUBLIC HEALTH CRISIS AS OF JUNE 2014**

The Iraq security situation deteriorated during June 2014, mainly in Mosul and Salah Aldeen governorates, with further implications on health care and the humanitarian situation.

Ongoing assessments as of this writing in June 2014 indicate that displaced families continued to move, often on a daily basis. IDP settlements appear to be unorganized, and some individuals reportedly conceal their displacement status, which makes it challenging to establish needs [24].

Out of the total 500,000 person displaced, a total of 9,620 families have been identified as displaced within different areas in Ninewa Governorate. Many people are staying in the open and are in urgent need of...
shelter, water, latrines, and food. The number of IDP families in June 2014 stands at 72,910 per Ministry of Displacement and Migration, with the latest registration reporting 50,922 families inside Anbar and 21,988 in other Governorates [25].

According to WHO, Iraq may be facing a much bigger public health crisis, in which people’s access to life saving health intervention will be increasingly compromised. The health indicators, which already were a cause of concern, will be worsening. Damage to the health infrastructure and health functions will show more deterioration. With the current crisis, it seems less likely that Iraq will be able to eradicate polio [24].

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