The burden of infections and child health in Iraq

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Series of sanctions and prolonged wars have brought enormous calamities in Iraq. In a country where a major bulk of population are children, massive deterioration in physical, mental and social health has been witnessed during and after the conflicts in Iraq. With respect to the increasing burden of infections that have incapacitated children and their lives, the state of nutrition and unavailability of safe environment were thoroughly assessed in this article. Due to the recent deterioration of child health situation in Iraq recommendations are given to focus on the most crucial issues of child health.

Health of Iraqi children has been a matter of growing concern. Decade long sanctions imposed by the United Nations (UN) in 1991 and series of wars have brought the country to a devastating state.[1-3] Classifying countries on the basis of various development indicators United Nations International Childrens Fund (UNICEF) report on the State of the World's Children (2003) have ranked Iraq on the 33rd position for under 5 mortality rate.[1] The infrastructure of Iraqi health system has become profoundly fragile. The reports further prove that Iraq's progress in child survival has been the worst among 201 countries in the world. It was worse than even Botswana and Zimbabwe, which have an adult prevalence of human immuno-deficiency virus close to 40%.[4] The main cause of increase in infant, child and maternal mortality can be attributed to rising poverty the breakdown of basic services, of water and sewage disposal, poor sanitation and deterioration of health services, in terms of lack of drugs, equipment and quality. Children are dying of commonly preventable diseases such as diarrhea, cholera and from acute respiratory infections, malnutrition and other debilitating diseases.[1,2] The article basically focuses on child health situation with respect to the previous and ongoing conflict in Iraq. With respect to 3 parameters like health development, burden of infections and nutrition an assessment is made that provides clues for emergency interventions.

Several aspects of child health in Iraq are still unknown, but various reports have shown a grim picture in the recent times. Bombing in the recent past has destroyed water and sanitation are at risk of sabotage of various factions across the country. Vital medicines have been robbed, and health facilities damaged after the fall of Saddam regimen. Health facilities cannot perform diagnostic tests as some reagents are missing.[2-4] Shortages of vaccines and

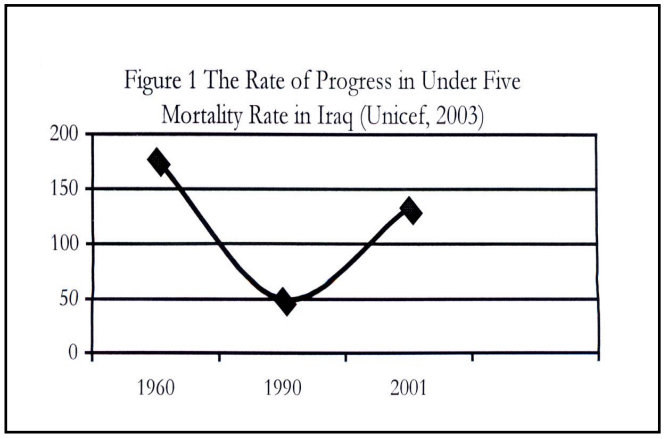

Figure 1 - The rate progress in under 5 years mortality rate in Iraq (United Nations International Childrens Fund, 2003).

tuberculosis drugs are going to run short very soon. Public health and hygiene are constantly on the threat. The UN estimates that 5,000,000 Iraqis do not have access to safe water and sanitation. Combined with the high temperatures, the burden of diseases has been dramatically increased. The risk of infection is more than ever in the vulnerable communities. Knowing the fact that Tigris and Euphrates water serve main sources of drinking water, hundreds of thousands of tons of raw sewage are pumped into the these rivers. Supplies of water cleaning chemicals have been stolen or destroyed. Looters are piercing water pipes for commercial use; as a result, the quality of water being pumped into homes is extremely poor and proliferate fatal illnesses among children. Nearly 3 quarters of the children surveyed in Baghdad in the assessment had at least one bout of diarrhea over the previous month. Comparing the results with earlier findings it becomes clear that children who have generally grown over the past few years as of improved nutrition have suddenly and dramatically wasted. This coincides with war and the breakdown of social services. It might not be conclusive, but it does suggest that the shift of children into the acutely malnourished category is recent.[2-4]

Reports show that one child in every 8 in Iraq dies before the age of 5 **(Figure 1)**. As a result, The Infant Mortality Rate (IMR) increased 2.5 times during the last decade, under 5 mortality rate doubled and maternal mortality ratio, which is closely related to child survival, has tripled.[1-4] The World Health Organization (WHO) is also extremely concerned regarding the psychological impact of conflict, fear, and the loss of family members or neighbors on Iraqi children. The physical and psychological damage of conflict could take years to heal, and is likely to leave many permanent scars.

The 3 biggest child killer diseases, for example acute respiratory infection, diarrheal diseases and measles are widely reported. Preventive measures

Table 1 - Nutritional profile of Iraqi children (United Nations International Childrens Fund, 2003).

% of infant with low birth weight (1995-2000)	% Still breast feeding (20-23 months) (1995-2000)	% of under 5 moderate to severe underweight (1995-2001)	% of under 5 moderate to severe stunting (1995-2001)	% of oral rehydration rate 1994-2000
23	25	16	22	37

against the killer diseases in Iraq are abysmally poor. The burden of diseases during and after the war has gone beyond the limits of control efforts. In a WHO report 17 cases of acute watery diarrheal syndrome (8 May 2003) have been notified in 2 hospitals in Basra. Seven cases of clinically confirmed cholera were reported, mainly among very young children (between 13 months and 4 years old) and currently more than 30 admissions per day for diarrheal disease is causing a big concern. Out of 200 outpatients a day, 90% are for diarrhea; others are diagnosed with hepatitis, acute respiratory infections, malnutrition, shigella and typhoid. Surveillance and infection activities have been currently arrested. Any epidemic of serious impact cannot be ruled out if urgent actions are not taken. Several cholera outbreaks were reported in June through to August 2002. After the Gulf War outbreaks of diarrheal diseases and Cholera became endemic in all governorates of Iraq. In refugee and internally displaced persons' camps during (and after) previous wars in Iraq, diarrheal diseases accounted for between 25% and 40% of deaths in the acute phase of the emergency. Eight percent of these deaths occurred in children under 2-years-old. Pertussis (whooping cough) incidence is on the March and more cases of diphtheria have been reported. In 1999 Iraq suffered a major outbreak of polio. Tuberculosis rates have risen significantly in the last decade. The number of new cases of tuberculosis nearly tripled from 46.1 per 100 000 people in 1989 to an estimated 131.6 per 100,000 people in 2000. A serious malaria outbreak (vivax strain) occurred with a peak of 100,000 cases per year in 1994 and 1995. The outbreak has been attributed to movement of people from endemic into malaria-free zones, delays in access to effective treatment and a lack of effective control measures.[2]

If robust actions are not taken to control the burden of infections, the consequences for child health will be enormous. The World Health Organization estimates that if 10,000 Iraqi people are unable to access health care for one month, at least 30 children with diarrhea will not be treated, 55 children with respiratory infections will go untreated and 5 children with pneumonia will not receive life-saving antibiotics. In the longer term, disruption of surveillance for monitoring disease in the general population, breakdown of public health programs, damage to health facilities, and malfunction of water and sanitation systems will lead to increased levels of illnesses and higher death rates. The incidence of community oriented, and vaccine-preventable infections will increase. New disease patterns and outbreaks of communicable diseases including measles, meningococcal meningitis, pertussis and diphtheria can be expected.[2-4]

An assessment undertaken by UN agencies in 2000 revealed a high prevalence of anemia in school children. Numerous cases of rickets (vitamin D deficiency) were also reported. Reports provided by the Iraqi Ministry of Health, 2001 documented 31,545 cases of kwashiorkor, 291,587 cases of marasmus (swelling of limbs and body) and 1,977,454 cases of other protein, calorie and vitamin malnutrition in children under 5 years.[2-4] Approximately 22-25 million people live in Iraq of which 13, 000,000 are children. Sixteen million Iraqi civilians are completely dependent on government-distributed food rations. One million or one-third of Iraqi children suffers from malnutrition.[3] The child nutritional status in Iraq has also deteriorated rapidly from 1991-1996 and has shown some decline recently (**Table 1**).

United Nations International Childrens Fund have released troubling findings from a rapid nutrition assessment undertaken in Baghdad, which has found that acute malnutrition rates in children under 5 have nearly doubled in Baghdad since a previous survey in February 2002. Nevertheless, it shows that 7.7% of children under 5-years-old are suffering from acute malnutrition, compared with last year's figure of 4%. Acute malnutrition signifies that a child is actually wasting away. The survey found that more than 1 in 10 children were in need of treatment for dehydration.[1,4]

The country suffers from frequent shortage of supplies including vaccines due to the procurement problems related to the Oil For Food Program. There is a lack of motivation among governorate staff at all levels, due to low salaries, and the very small public expenditure budgets of local authorities. This is compounded by a shortage of qualified staff, as many moved abroad or into the private sector. The distribution of infant milk formula in the food basket continues to jeopardize the promotion of exclusive breastfeeding and puts infants at higher risk of intestinal infections and contamination, which contribute directly to malnutrition. The recent improvement in the situation of children can be easily reversed as a large proportion of the Iraqi population is fully dependant on food rations and the public health

care system. The damage to the infrastructure and disruption in services will further contribute to the deterioration of the situation.

Health is a fundamental right of children. With half of the population children represent the future of the Iraq. Provision of health care and protection for the most vulnerable population has become an absolute priority. There is a need for concerted and prompt action by the international community to help safeguard children. Based on the population needs the goal should not only be an urgent, co-ordinated, flexible, effective intervention but should also reflect the interest and welfare of Iraqi children. Due to the recent outbreaks WHO has already set up a surveillance system which is conducting a survey of infectious diseases, and have established an outbreak committee that is implementing control interventions.[1,2] Still robust efforts in the provision of major health services and for improving of child health are widely lacking. In line with the local policies and strategies, best child health care practices need to be adopted across the country. The most pressing health-related actions will be ensuring of adequate, safe drinking water and access to sanitation, providing medical supplies and treatment for children affected by infections; trauma and other war related injuries. Building a safe environment, prevention of diseases outbreaks, and making sure that adequate stocks of essential drugs are available and functional health facilities are in hand to provide coverage to the population.

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The oral hygiene habits of school students in Riyadh, Saudi Arabia

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People's oral health behavior is important for the prevention and care of oral diseases. Their views of being able to cope with oral health behavior relate to actual tooth brushing, inter dental cleaning and dental visiting. The oral hygiene habits of a particular population depends upon its cultural background, religious norms, awareness of the problems that a lack of hygiene causes, knowledge of the existence of particular cleaning tools, education levels and socio-economic status. Today the toothbrush has become a necessity, and no conscientious person in the Western world and in some parts of the developing world can think of spending a day without the involvement of a toothbrush. In the developing world, various plants are used for oral hygiene purposes. In the Kingdom of Saudi Arabia (KSA), a study on school children revealed that 83% used a toothbrush while 16% used miswak.[1] Another study on secondary school students from Riyadh, KSA confirmed that 10% of non-smoker students never brushed their teeth.[2]

The aim of this study was to find out the prevalence and frequency of oral hygiene habits among intermediate and secondary school male and female students from Riyadh, KSA.

The study was carried out on intermediate and secondary school students (male, female) from Riyadh, KSA, over a period of 2 months, using stratified cluster sampling technique. A questionnaire was developed and used in Arabic language having 15 questions. The questionnaire was tested before embarking on the study. The questionnaire was distributed to 2000 students (1000 male and 1000 female).

The data was entered by a Fox Pro Program and analyzed by using statistical package for social sciences version 10. The data was analyzed for frequency distributions and Chi-square test for comparisons. The *p* value was set 0.05%. One thousand seven hundred questionnaires were returned. Fifteen hundred and ninety-six questionnaires were acknowledged appropriately filled and were accepted for the analyses giving response rate of 80%. A total of 82% male (n=820) and 77.6% female (n=776) respondents were within the age range 12-20 years (mean age 15.39 and SD ± 2.08).

Among intermediate school students (age 12-15 years) 7% of male and 3% of female and in secondary schools 14% of male and 3.5% of female students never cleaned their teeth. The daily oral hygiene habit