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THE HEALTH CONDITIONS OF THE POPULATION IN IRAQ SINCE THE GULF CRISIS

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INTRODUCTION

This report is based on an analysis of epidemiological data that has been routinely collected by the public health sector of the Government of Iraq, supplemented by surveys and situation assessments carried out by the World Health Organization (WHO) and other United Nations agencies and nongovernmental organizations.

To probe into the impact that United Nations sanctions have had since 1991 on the health status of the Iraqi population, a WHO consultant (epidemiologist) visited Iraq for four months in early 1995 to collect health, morbidity and mortality data, focusing on the period from 1989 to 1994, to assess pre- and post-war health status of the population.[1]

A large number of other assessments were also carried out by several other United Nations agencies and nongovernmental organizations, though to a less comprehensive degree, also to determine the impact the sanctions and related events were having in the country. Their findings have been incorporated in the overall analysis in this report.

The six-week Gulf war in 1991 resulted in the destruction of a large number of public facilities in Iraq, such as electricity generating and water purification plants and sewage treatment networks. As a consequence, provision of health care to the population was seriously disrupted. One example has been the complete disruption of the Expanded Programme on Immunization (EPI), the result being a decrease in the number of infants and children being immunized and as a result, an increase in many vaccine-preventable diseases.

The sanctions imposed on Iraq since 1990 have remained in force for five years, and have contributed to delays or, in some cases, even cessation attempts by the Government to repair vital damaged facilities and programmes. As a result, the quality of life of the average Iraqi citizen has been adversely affected. Owing to the lack of financial resources from foreign exchange earnings, namely from oil, the import of food and medicine has been restricted. Though the United Nations sanctions do not apply to food and medicine, the absence of oil sales has left Iraqi families and hospitals with no money to buy either. Thus, the impact of sanctions on the economy of a country like Iraq, which has relied heavily on the sale of oil since the early 1950s, its main export commodity, has invariably had damaging effects in many areas of the economy, including the health sector.

[1] Note: for purposes of this report, "pre- or post-war period" refers to the period either immediately prior to, or following, the six-week Gulf war of 1991. Also, the word "sanctions" refer to United Nations sanctions that were imposed on Iraq in 1990 by the United Nations.

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1. Selected indicators before the sanctions

Selected indicators for Iraq in 1988-1989, before the Gulf Crisis of 1990 reveal a country that enjoyed a fairly good standard of living.

The data in **Table 1** reflect a modern urban society, in which the wealth it obtained from exporting its oil, was channelled, for the most part, into improving the quality of life of the Iraqi people, which at that period of time (1988-1989) was at a relatively "satisfactory" level, with indications of further improvement. At that time, Iraq reportedly had a good health surveillance and reporting system, hence, official data reported during this period are considered to be fairly reliable.

However, since 1991 the quality of data collected have greatly deteriorated owing to disruption in the communication and transportation networks in the country, which even now have not been fully restored to their original state, because of financial constraints. The data collected since 1991, through presumably this defective or damaged system, in all probability, are underestimates, and this specifically applies to mortality and morbidity data.

The gradual erosion in the credibility of the public health care system for its inability to provide medicines and other vital supplies to the general public, forcing them to go to the private sector for better health care, is another reason why morbidity and mortality data have become unreliable. Moreover, the private sector, in most cases, does not report morbidity data to the official reporting system.

Table 1. Selected indicators in Iraq before sanctions, 1988-1989

Health indicators:	
- Birth rate	43 per 1 000 population
- Crude death rate	8.0 per 1 000 population
- Infant mortality rate	52 per 1 000 live births
- Under 5 mortality rate	94 per 1 000 live births
- Maternal mortality rate	160 per 100 000 live births
- Low birth weight	5% (below 2.5 kg)
- Life expectancy	66 years

Socioeconomic indicators:	
- GNP per capita (US$)	US$ 2 800
- % female literacy	85%
- % population with health care	93%
- % population with safe water	90%
- % pregnant women with maternity care	78%
- % pregnant women with trained birth attendant during delivery	86%

2. *Impact on the gross national product*

The per capita gross national product (GNP) is an indication of the economic status of a country. In 1989, before the 1991 Gulf war, Iraq had a GNP of about US$ 2 800. The effect of the six-week 1991 Gulf war and conditions surrounding the sanctions that were imposed on the country in 1990, is reflected by the GNP rapidly declining from US$ 2 800 in 1989 to US$ 1 500 in 1991. More recent official figures are not available. The situation has deteriorated during the past four years, as reflected by the exchange rate of U.S. dollar to the Iraqi dinar, which in December 1995 was US$ 1 = 3 000 Iraqi dinars. The monthly salary of a mid-level civil servant during this same period was 5 000 Iraqi dinars (FAO, 1995).

3. *Impact on the food situation*

In the pre-war years in Iraq, local food production was supplying only 30% of the country's food requirements. The total value of Iraqi food imports in 1989 exceeded US$ 2 000 million (FAO, 1 994). Calorie availability was 120% of actual requirements, nutritional deficiencies were at very low levels, while clinical disorders due to excessive and unbalanced consumption of foods were increasingly encountered. **Table 2** reflects estimated food production, requirements and shortfalls in 1995.

In pre-war years, food marketing was strictly controlled by the Government and prices of most food items were largely subsidized. Private trade on the free market was mostly for red meat, fresh milk and cheese, vegetables and fruits. Every citizen was assured an adequate supply of food at affordable prices. The results of a 1988 survey of a sample of 1 100 primary school children in two selected areas of Baghdad, conducted by Food and Agriculture Organization (FAO) in collaboration with the Nutrition Research Institute of Iraq, revealed that under nutrition was no longer a public health problem in Iraq at that time, and that at least 7% of children had childhood obesity.

Table 2. Shortage of food in Iraq, 1995/1996 (000 tons)

Commodity	Estimated production	Total requirements	Shortage/import requirements	% shortage of total requirements
Cereals	2 192	5 633	3 441	61.1
Pulses	50	120	70	57.7
Vegetable oil	100	298	198	66.4
Red/Poultry meat	114	454	340	74.9
Fish	5	62	57	91.9
Eggs (millions)	150	1 966	1 816	92.4
Milk	N.A.	372	223	59.9
Tea	NIL	62	62	100.0
Sugar	80	814	734	90.0
Baby milk	Negligible	43	43	100.0

Source: Evaluation of food and nutrition situation in Iraq - FAO 1995.

A rationing system was introduced by the Government in September 1990 in order to overcome the deteriorating food situation. The situation of famine has been prevented largely by an efficient public rationing system. The food basket, which earlier provided 53% of 1987- 1989 food energy availability was reduced in September 1994 to provide only 34%. The ration moreover is deficient in several minerals and vitamins. Animal protein is lacking in this cereal-based diet. To provide additional nutritional needs at market prices is beyond the means of most families **(Table 3)**. The monthly ration of 1 800 gm of "baby milk food" provides about one-half of food energy and protein. It is no wonder that prevalence of protein-energy malnutrition in infants and young children in Iraq is of alarming proportion (FAO, 1995).

The birth of the flourishing "parallel" market with an unprecedented increase in food prices has made the economically-deprived population survive on a "semi-starvation diet". Prices of basic food stuffs have risen phenomenally. Some examples will illustrate this alarming situation **(Table 4)**. The price of wheat flour in August 1995 was about 33 times higher than the price in 1993, and 400 times more than the pre-war price. Compared with prices before the 1991 war, prices of most food items in the open market are several hundred times higher. Several food items are sold on the open market at prices that are beyond the means of most salaried people (FAO, 1995), let alone people in the lowest economic level.

Table 3. Selected nutrients from the Government Food Ration compared with pre-war availability in Iraq

Nutrient	FBS* 1998/90	Daily ration	% decrease in availability
Food energy (Kcal)	3 120.0	1 093.0	650
Protein (gm)	82.5	26.9	67.4
Fat (gm)	75.3	22	70.8
Calcium (mg)	467	79	83.1
Iron (mg)	26	8.2	68.5
Zinc (mg)	17.3	6.7	61.3
Vitamin A (rg RE)	1 332.0	1.2	100
Vitamin C (mg)	728	0	100
Thiamine (mg)	3.2	1.2	62.5
Riboflavin (mg)	1.7	0.5	71.6
Folate (rg)	352	80	77.3
Vitamin B6 (mg)	2.6	0.9	65.4
Lysine (mg g pro.)	47	32	33.2

Source: Evaluation of food and nutrition situation in Iraq. FAO, 1995.
** Food before sanctions*

4. *Impact on child malnutrition*

Children are most vulnerable to dietary inadequacy, and the effects of malnutrition are accentuated by various types of infectious diseases. A large number of *ad hoc* nutrition surveys have been conducted on children in different governorates in Iraq, and the results have been consistently dismal. Moderate to severe malnutrition in children is widely prevalent. Kwashiorkor and marasmus, the most alarming forms of protein-energy malnutrition, which have almost disappeared from most developing countries, reappeared in Iraq in 1991. Nutritional anaemia and vitamin A deficiency, which may in extreme stages result in nutritional blindness, are now common occurrences.

Table 4. Purchase prices by the Government for basic agricultural products (Iraqi dinar/ton)

Crops	Purchase prices (Iraqi dinar/ton)	
	1989	May 1995
Wheat (3 varieties)	220 - 270	95 000 - 105 000
Barley	180	60 000
Rice (3 varieties)	400 - 500	120 000 - 150 000
Maize (2 varieties)	400 - 500	65 000 - 75 000
Sunflower	1 000	35 000

Source: Evaluation of food and nutrition situation in Iraq - FAO 1995

In 1995 a survey conducted jointly by the FAO and the Nutrition Research Institute of the Ministry of Health, Iraq, among 693 households in Baghdad, revealed the enormity of the problem. In urban Baghdad, young children were the worst affected, with 28% stunting, 29% underweight and 12% wasting. Severe malnutrition in 1 to 5 year-old children was a common finding. Compared with 1991 estimates, the current survey demonstrates a four-fold increase in wasting and almost a similar increase in stunting **(Table 5)**.

Table 5. Nutritional status of children less than five years-old in Baghdad, Iraq (1991-1995)

Nutritional Status	Baghdad	
	1991 (n=520)	1995 (n=594)
Stunting	12%	28%
Underweight	7%	29%
Wasting	3%	12%

Source: Evaluation of food and nutrition situation in Iraq - FAO 1995

There are numerous studies that have been conducted around the world to confirm that stunting in children is a manifestation of chronic under nutrition over a long period of time, and in most cases, these children do not catch up with their inherited potential in future years.

Since 1993 the situation has worsened for a majority of the Iraqi population, especially children, with rampant under nutrition and micronutrient deficiencies common. A recent report by FAO (1995) points to a grim picture of child nutritional status. Both marasmus and Kwashiorkor with classical signs, rarely observed in other parts of the world, excepting in famine-like conditions, are now widely observed. The monthly average number of cases of marasmus and Kwashiorkor admitted to hospitals has increased 50 times. Although this figure was provided by the Government, with the alarming situation prevailing throughout the country, this figure is plausible (FAO, 1995) **(Table 6)**.

Table 6. Monthly average cases of malnutrition in children less that five years-old

Year	Kwashiorkor		Marasmus		Other malnutrition	
	No.	Per 100 000	No.	Per 100 000	No.	Per 100 000
1990	41	2	433	14	8 063	269
1991	1 066	34	8 015	258	78 990	2 542
1992	1 145	36	9 289	269	93 610	2 511
1993	1 261	38	11 612	349	102 971	2 989
1994	1 748	51	16 025	465	131 349	3 613

Source: Evaluation of health and nutrition situation in Iraq - FAO 1995
Note: Denominator for calculation of rate/per 100 000 is used.

Comparing levels of the infant mortality rate (IMR) and the mortality rate of children under 5 years-old during the pre-war period (1988-1989) with that during the period of the sanctions (since 1990), it is clear that the IMR has doubled and the mortality rate for children under 5 years-old has increased six times. This can be regarded as the result of two major detrimental factors: malnutrition of mothers and children; and the widespread prevalence of infectious diseases, especially diarrhoea, interacting with each other. The synergistic effects of malnutrition and infectious diseases in children should not be forgotten **(Tables 7a and 7b)**.

Table 7(a): Reported mortality in children less than 5 years old from selected causes in Iraq (1990-1994)

Year	No.	per 100 000
1990	8 903	257
1991	27 473	884
1992	46 933	1 460
1993	49 762	1 495
1994	52 905	1 536

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

Table 7(b). Infant mortality rate (IMR) in Baghdad

Month - Year	IMR in Baghdad (per ' 000)
Aug 1989 - July 1990	80
Sept 1994 - Aug 1995	161

Source: Evaluation of health and nutrition situation in Iraq - FAO 1995

5. *Impact on maternal and child health*

Next to infants and young children, women of all ages are vulnerable to nutritional deficiencies, due especially to their specific role of child-bearing and child-rearing. In fact, a malnourished pregnant woman is responsible for transmitting malnutrition to the next generation by giving birth to a malnourished newborn baby with a low birth weight (i.e., weight below 2500 gm) who, living in the same adverse environment and with the same type of socioeconomic deprivation, will grow up as a malnourished child, with a deprived physical and mental potential.

Low birth weight (LBW) rate can be a reliable indicator of maternal malnutrition, as well as an indication of the level of socioeconomic deprivation of the mother. A cut-off point of 10% of LBW is usually the target, but a level lower is more desirable. The Ministry of Health has reported a categorical increase in the occurrence of low birth weight infants, which was 4.5% in 1990, 19.7% in 1993, and 21.1% in 1994 **(Table 8)**.

Table 8. Percentage of low birth weight (LBW) births to total births in Iraq (1990-1994)

Year	% LBW
1990	4.5
1991	10.8
1992	17.6
1993	19.7
1994	21.1

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

The increase in maternal mortality and morbidity levels clearly reflects the hardship women have been experiencing since sanctions were imposed. Although reliable data are not available in this area, from what is available, it appears that the maternal mortality rate (MMR) in Iraq has gone up several fold since 1991.

A note of caution in the interpretation of LBW level is extremely relevant at this stage. Underweight newborn babies are also the outcome of pre-term delivery, which again can be due to marked maternal malnutrition, continuous mental tension and anxiety, and excessive hard physical activity during the third trimester, all of which can be quite prevalent due to the hardships in life since sanctions were imposed.

Unfortunately, data in this area are not available in regard to the prevalence of pre-term deliveries, nor is data available on abortions and still-births. It is important to collect and analyse such data since the sanctions were imposed.

Furthermore, it has been reported that the repair of cleft palate in children is being increasingly demanded in surgical units in the larger hospitals. The possibility of other congenital disorders is high in view of the hardships and psychological trauma during pregnancy. This also is an area needing further investigation.

6. *Impact on the environment as a result of increased agricultural activities*

Before the 1991 Gulf war, Iraq was a net food importer, with almost 70% of cereals, legumes, oil and sugar being imported from other countries. The first reaction of the Government to the sanctions was to make a vigorous attempt to boost agricultural production, especially of rice, wheat and barley, which are the main staple cereals of the Iraqi population. Since the sanctions were imposed, every piece of fallow land, whether in urban, peri-urban or rural areas, is being used for agricultural purposes, for which

farmers are provided with many types of incentives, including raising the purchasing prices, which in May 1995 rose very sharply.

This effort, however, by the Government and the assistance provided by the international organizations have been inadequate in responding to the problems facing the agricultural sector, which, among other things, requires farm machinery, spare parts, quality seeds, fertilisers, pesticides and herbicides. With the sanctions still in effect, most irrigation and drainage programmes in Iraq have suffered, resulting in some places to a return of some of the irrigated lands into marshy lands, which are unsuitable for agriculture. The prospect of agriculture in Iraq is, thus, bleak.

In many instances, there have been ecological disturbances. Rice production, leading to water stagnation in irrigated fields near human habitation, has led to extremely high prevalence of malaria, caused by high levels of vector breeding of the *A. sacharovi* and *A. stephensi stephensi* mosquitoes. This has caused another serious public health problem, triggered by the scarcity of appropriate drugs for treatment and insecticides for vector control.

Malaria in Iraq in pre-war years was almost eradicated, with low prevalence restricted to only the northern part of the country. From 1992 to 1994, the prevalence of malaria shot up to explosive levels, not only in the northern region, but in other regions of the country as well. There was a similar increase in the prevalence of other vector-borne diseases, like cutaneous and visceral leishmaniasis.

7. *Impact on the malaria epidemic*

Iraq had a serious malaria epidemic outbreak from 1992 to 1994, due to *Plasmodium vivax*, which has shown increasing intensity **(Table 9)**. This, too, has been a tragic consequence of conditions surrounding the sanctions, tragic in that the country had at one time been largely successful in controlling malaria, and second, for the long-lasting and far-reaching effects of malaria on the health of the population, especially on women of reproductive age. Malaria is now recognized also as an important cause of anaemia, which during pregnancy can lead to a number of pregnancy-related morbidities. Malaria is a powerful determinant of low birth weight infants, which has been confirmed by the sharp increase of low birth weight babies within a brief period of 2-3 years (see section 5).

Spraying operations have also been adversely affected owing to an acute shortage of insecticides, equipment and transport vehicles. The disruption of health infrastructures and acute scarcity of properly trained staff to conduct anti-malarial activities, especially in the northern Autonomous Region, considered as the source of the malaria epidemic, have compounded the effects caused by the scarcity of insecticide spraying

However, in 1995, WHO, in collaboration with the European Union, has been able to raise funds and to control the malaria outbreak significantly in the northern provinces.

Table 9. Incidence rates of new malaria cases in Iraq, 1989-1994

Year	Malaria incidence rate (15 Governorates)		Malaria incidence rate (3 Northern Governorates)	
	No.	Per 100 000	No.	Per 100 000
1989	1 510	10.4	1 918	87.2
1990	1 761	11.7	2 163	95
1991	4 025	25.9	1 087	46.1
1992	5 535	34.4	12 916	530.2
1993	4 589	27.6	36 490	1 466.0
1994	22 169	128.7	67 462	2 585.2

Source: Ministry of Health, Government of Iraq

Several types of population movement, such as seasonal mass labour migration to zones of intensive irrigation, have recently started, while other kinds of population movement, to avoid direct and indirect effects of the sanctions, have been responsible for the spread of malaria from endemic to once malaria-free zones. These migratory processes, very limited before the imposition of sanctions, have been largely responsible for the creation of the present epidemic situation.

8. *Impact on secondary and tertiary health care*

Iraq, during the pre-war years, was known to have had an excellent health care service, providing primary health care to more than 90% of its population. Secondary and tertiary health care, through specialized services, was of a fairly high standard, with services provided by highly trained health staff. Surgical care and laboratory investigative support in hospitals and in other health infrastructures, considered as two reliable indicators of the level of secondary and tertiary care, were available to the Iraqi population at most levels of health care. **Tables 10 and 11** present a comparison between the levels during 1990 and 1994.

Table 10. Major surgical operations in Iraq (1990-1994)
(Base year 1990)

Year	Surgical operations	
	No.	Per 100 000
1990	90 318	100
1991	78 089	87
1992	65 372	73
1993	62 463	69
1994	56 153	62

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

Table 11: Laboratory investigations in Iraq (1990-1994)
(Base year 1990)

Year	Laboratory investigation	
	No.	% to 1990
1990	11 370 183	100
1991	7 625 355	67
1992	7 079 420	62
1993	6 914 706	61
1994	6 316 611	54

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

Recent estimates on the number of major surgical operations during the last five years indicate a reduction of around 40% compared with the period prior to the sanctions. In addition to unreliable electrical power supply, on which the basic requirements of surgical intervention depends, there is an acute shortage of anaesthetics, surgical instruments and other essential necessities needed for surgical interventions. Needless to say, the deficiency in surgical care must have vastly increased morbidity and mortality levels. However, it is difficult to correlate statistically this cause-and-effect relationship.

A closely-related impairment of adequate health care services is the relative absence of laboratory investigative support, on which secondary and tertiary health care depends. A recent survey (WHO, 1995) revealed that since the sanctions in 1990, a reduction of laboratory services has declined around 50%, owing to a lack of essential laboratory

equipment and chemicals and reagents, without which basic biochemical, bacteriological and pathological investigations cannot be conducted. Radiological and electro- diagnostics investigations have been equally affected.

The deterioration in these two vital health care areas is another tragic consequence of the sanctions. The health care system in Iraq, which was once reputed to be of high quality before the war in 1991, has since declined to one which now only offers low-quality services to the majority of its population.

9. *Impact on enteric infections*

The extensive destruction of electrical generating plants, water-purification and sewage treatment plants during the six-week 1991 war, and the subsequent delay or incomplete repair of these facilities since the sanctions, coupled with over-crowding and a lack of sanitary facilities, leading to a lack of personal hygiene, have been responsible for an explosive rise in the incidence of enteric infections, such as cholera and typhoid. The overall situation regarding sewage disposal was at an alarming stage in 1993. The report of FAO states that even within Baghdad, there are huge areas of sewage water, sometimes green with algae and often showing visible faecal material with foul smell. The report states, "What remains surprising, however, is that the city has been able to avoid major epidemics in the presence of these very bad sanitary conditions." The most alarming feature is the absence of any sign of a downward trend.

The rate of occurrence of cases of typhoid, for instance, shot up steadily from 11.3/100 000 population in 1990, to an alarming level of 142.1 per 100 000 population in 1994, while cases of cholera have been reported since 1991 **(Table 12)**. These two diseases had almost been under control prior to the 1991 war.

Table 12: Incidence of new cases of cholera and typhoid during 1989-1994 in Iraq

Year	Incidence of cholera		Incidence of typhoid	
	No.	Per 100 000	No.	Per 100 000
1989	0	0	1 686	11.6
1990	0	0	1 691	11.3
1991	1 217	7.8	17 524	112.8
1992	976	6.1	19 276	119.9
1993	825	5	18 724	112.5
1994	1 344	7.8	24 474	142.1

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

10. *Impact on prevalence of other zoonotic and vector-borne diseases*

The number of cases of both cutaneous and visceral leishmaniasis (Kala-azar) showed a steady increase from 1991 to 1994, which can be explained to the steady increase in vector density. Shortage of proper insecticides, spraying and fogging machines and other supplies and equipment as a result of the sanctions, is largely responsible for this continuing undesirable situation, along with an explosive increase of rodents and stray dogs, which are reservoir hosts of the parasites. Shortage of necessary drugs is also responsible for inadequate treatment of cases **(Table 13)**.

Table 13. Incidence of new cases of leishmaniasis* during 1989-1994 in Iraq

Year	Leishmaniasis incidence	
	No.	Per 100 000
1989	2 159	14.9
1990	2 375	15.8
1991	11 946	76.9
1992	12 645	76.6
1993	11 155	67.0
1994	9 348	54.3

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded
**two types = cutaneous and visceral leishmaniasis*

11. *Impact on other infectious diseases*

The effects of the war and sanctions have produced a situation of overcrowding, deteriorating environmental conditions and increased malnutrition. The difficulty in maintaining immunization coverage owing to the disruption in the cold-chain of the Expanded Programme on Immunization, difficulty in maintaining vaccine stocks and above all, the inability of the staff to maintain the immunization programme at an adequate level, have created a tragic situation in which children, above all, are not being sufficiently protected against preventable childhood diseases.

A recent attempt was made to analyse the available data pertaining to tetanus, poliomyelitis, diphtheria, pertussis, meningitis and measles, to assess the impact the

sanctions were having on incidence of infectious diseases. Crowding in bomb shelters and births in unhygienic situations may account for the markedly elevated incidences of measles, poliomyelitis and tetanus. Measles, the most contagious of these diseases, shows the highest increase **(Tables 14-16)**.

Table 14. Incidence of new cases of tetanus, poliomyelitis (< 15 years-old) during 1989-1994 in Iraq

Year	Tetanus incidence (< 15 years-old)		Poliomyelitis incidence (< 15 years-old)	
	No.	Per 100 000	No.	Per 100 000
1989	30	0.21	8	0.12
1990	80	0.53	38	0.57
1991	933	6.01	153	2.22
1992	98	0.62	113	1.58
1993	64	0.38	72	0.97
1994	38	0.22	56	0.73

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

Table 15: Incidence of new cases of diphtheria, pertussis (< 5 years-old children) during 1989-1994 in Iraq

Year	Diphtheria incidence (< 5 years-old)		Pertussis incidence (< 5 years-old)	
	No.	Per 100 000	No.	Per 100 000
1989	71	2.4	342	11.8
1990	144	4.8	397	13.3
1991	511	16.4	1 537	49.5
1992	369	11.4	1 601	49.8
1993	240	7.2	767	32.1
1994	132	3.6	534	15.5

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

Table 16: Incidence of new cases of measles and meningitis (3 types) (< 5 years-old children) during 1989-1994 in Iraq

Year	Measles incidence (< 5 years-old)		Meningitis incidence (< 5 years-old)	
	No.	Per 100 000	No.	Per 100 000
1989	5 049	174.1	2 263	15.6
1990	6 486	216.1	1 561	10.4
1991	11 358	366.6	5 792	37.3
1992	20 160	627	4 534	28.2
1993	16 258	468.5	3 789	22.8
1994	10 657	369.4	3 074	17.8

Source: Ministry of Health, Government of Iraq
Note: 3 Northern Governorates excluded

There was an explosive rise of most diseases in 1991. In 1992, the levels for most infectious diseases in children reached peak levels, and thereafter started declining due to significant efforts made by national authorities supported by UN agencies to ensure the availability of vaccines for children. The 1994 levels show a declining trend, but still the levels are far higher than pre-war levels.

CONCLUSIONS

In an attempt to assess the impact of the United Nations sanctions on the quality of life of the population in Iraq, the following facts should serve as constant reminders in drawing overall conclusions regarding the humanitarian aspects of the sanctions:

1. The six-week war in 1991 resulted in the large scale destruction of military and civilian infrastructures alike. In general, civilian populations were, subsequently more affected by the consequences of much destruction than the military populations, the latter of whom have tended to be more protected against the daily hardships ensuring since enforcement of the sanctions.

2. The sanctions imposed on Iraq and related circumstances have prevented the country from repairing all of its damaged or destroyed infrastructure, and whenever attempts have been made, these have been incomplete. This applies to electricity generating and water purification plants, sewage treatment facilities and communication and transportation networks. This has affected the quality of life of countless Iraqi citizens, especially those belonging to the mid and lower economic levels of the country's total population of 20 million, who do not have alternatives or options to overcome the effects of these ravages.

3. Iraq is an oil-rich country, which prior to the 1991 war was almost totally dependant on the import of two vital requirements for a healthy life--food and medicine. More than 70% of food requirements of Iraq, prior to 1991, were imported and the bulk consisted of staple cereals, legumes, cooking oils, sugar and tea, which are the major items in the daily diet of the average Iraqi citizen. *Financial constraints* as a result of the sanctions have prevented the necessary import of food and medicine.

4. Other items in the daily diet, especially animal products such as dairy products, chicken and beef, in which the country was almost self-sufficient, are now being sold on the open market at "sky-rocketing" prices, which only those at the highest income level can afford. The average Iraqi citizen depends on rationed foods, which supply one-third of the daily minimum caloric needs. Iraq has a disciplined rationing system, which, so far, has prevented a major famine. Animal products on the free market, due to their high prices, are not available to infants and children in most families, which is a source of protein they urgently need.

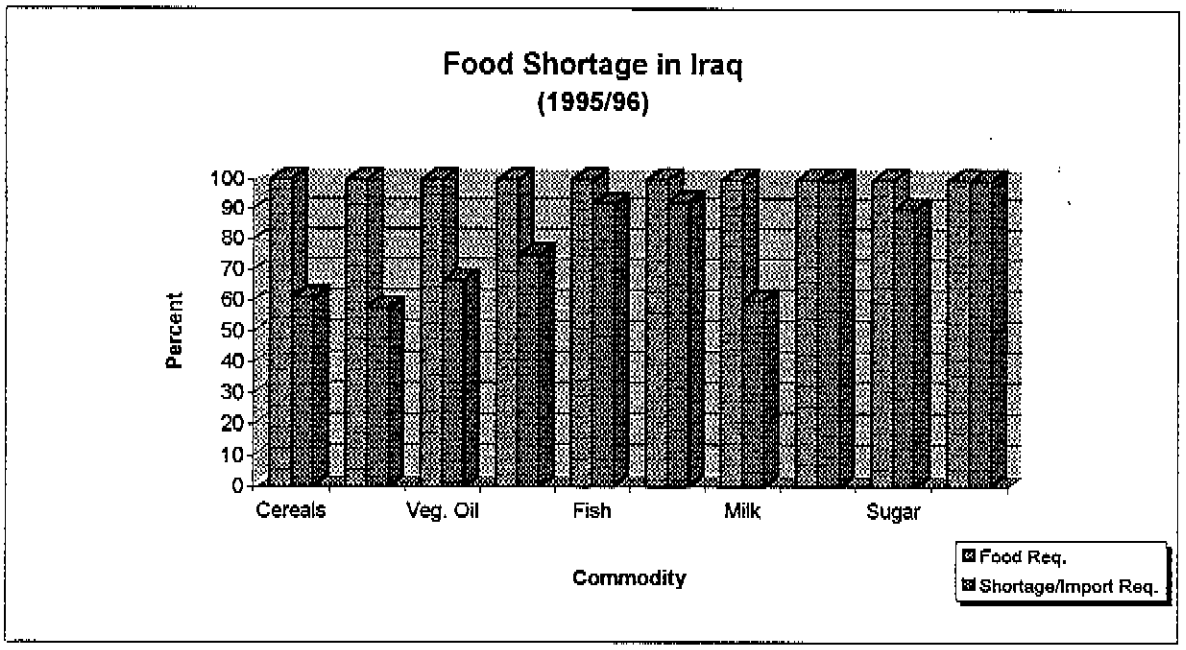
5. The vast majority of the country's population has been on a semi-starvation diet for years. This tragic situation has tremendous implications on the health status of the population and on their quality of life, not only for the present generation, but for the future generation as well.

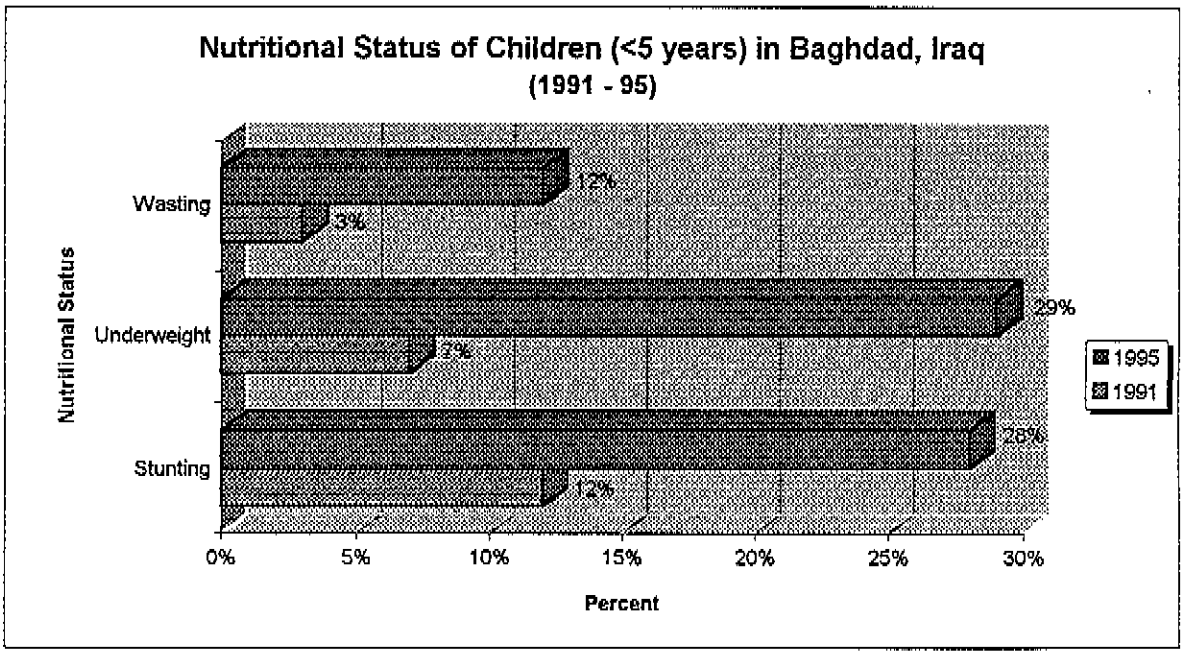
6. The reduction in the import of medicines, owing to a *lack of financial resources*, as well as a lack of minimum health care facilities, insecticides, pharmaceutical and other related equipment and appliances, have crippled the health care services, which in pre-war years were of a high quality. Assessment reports rightly remarked that the quality of health care in Iraq, due to the six-week 1991 war and the subsequent sanctions imposed on the country, has been literally put back by at least 50 years. Diseases such as malaria, typhoid and cholera, which were once almost under control, have rebounded since 1991 at epidemic levels, with the health sector as a helpless witness.

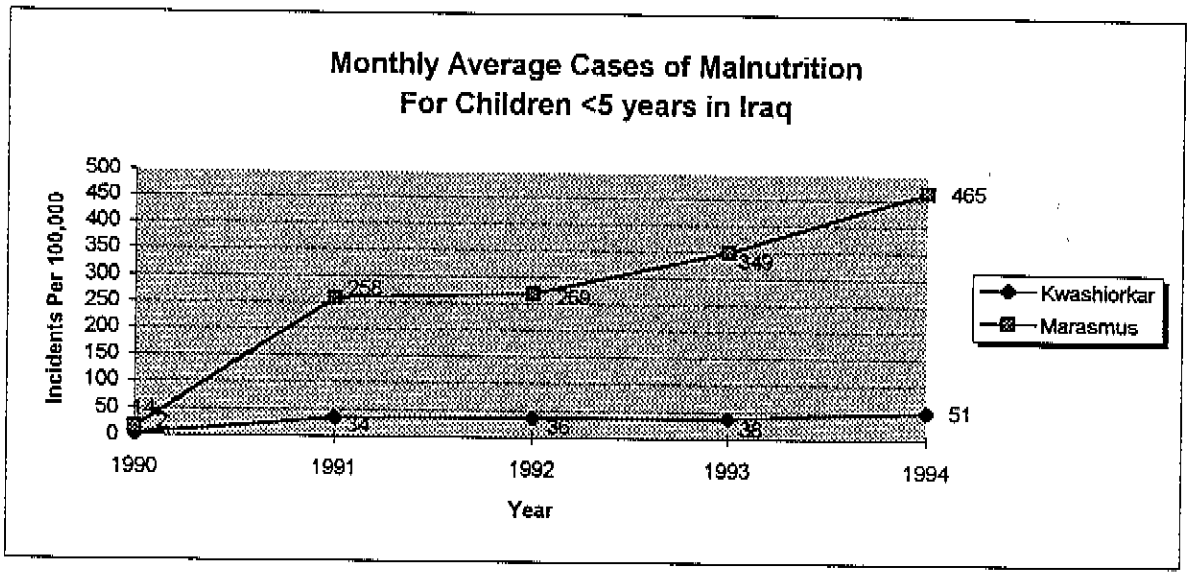
7. Very rarely has the impact of sanctions on millions of people been documented. Severe economic hardship, a semi-starvation diet, high levels of disease, scarcity of essential drugs and, above all, the psycho-social trauma and anguish of a bleak future, have led to numerous families being broken up leading to distortions in social norms.

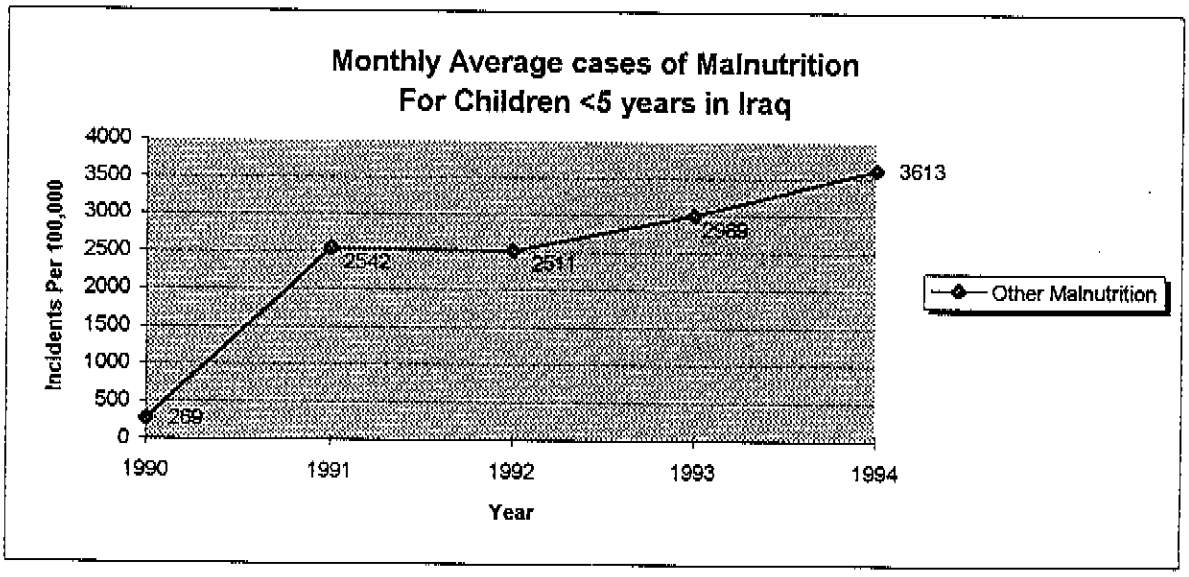
8. The impact of this unfortunate situation on the infant and child population in particular in Iraq needs special attention. It is not only the data on morbidity and mortality that tell the story, but equally important are the crippling effects of many of these morbidities which are often forgotten. The psychological trauma of the six-week 1991 war and the terrible hardships enduring with the sanctions since then, can be expected to leave indelible marks on the mental health and behavioural patterns of these children when they grow to adulthood. This tragic aspect of the impact of the war and conditions surrounding the sanctions is rarely articulated, but the world community should seriously consider the implications of an entire generation of children growing up with such traumatized mental handicaps, if of course, they survive at all.

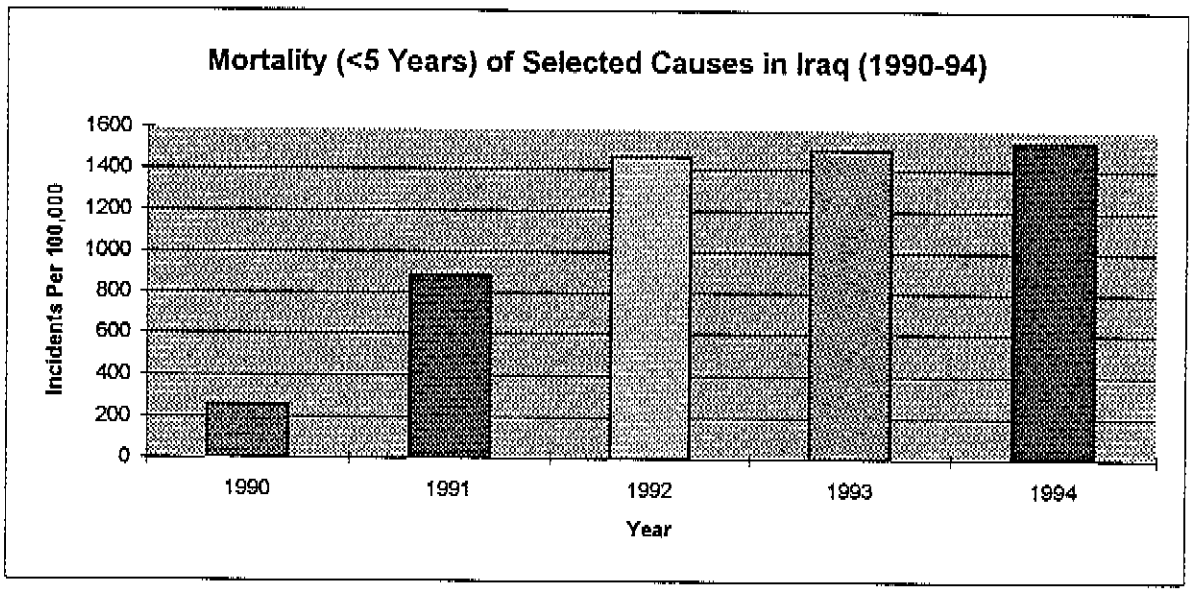
APPENDIX: Graphical Analysis of Statistics Contained In Tables

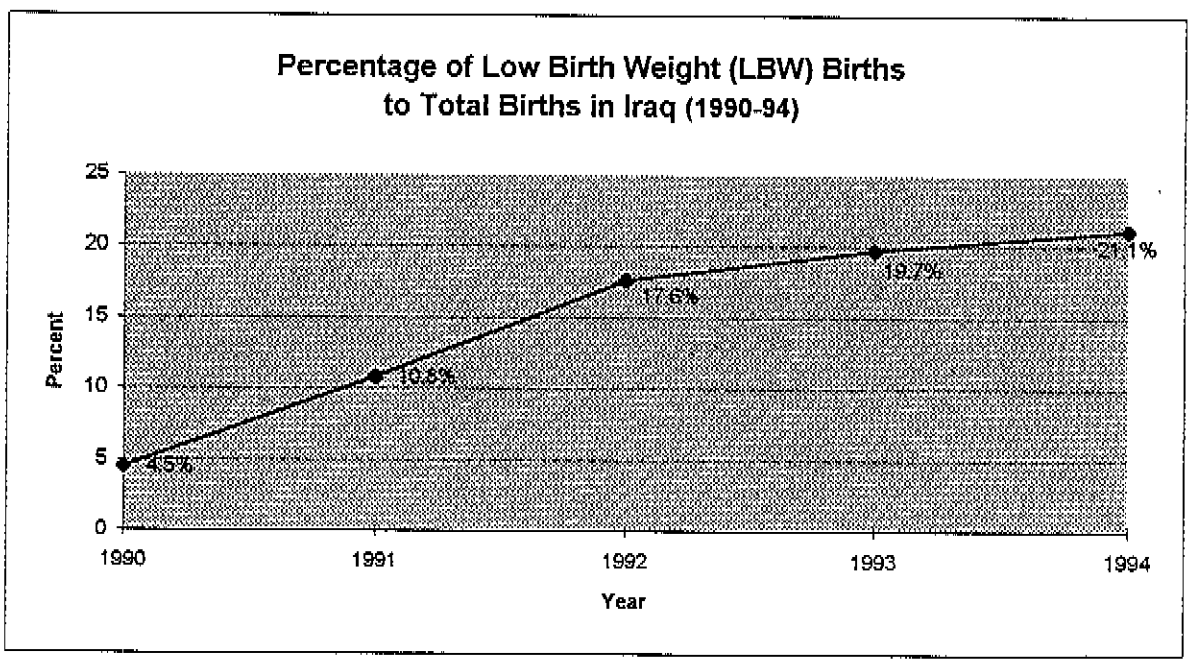


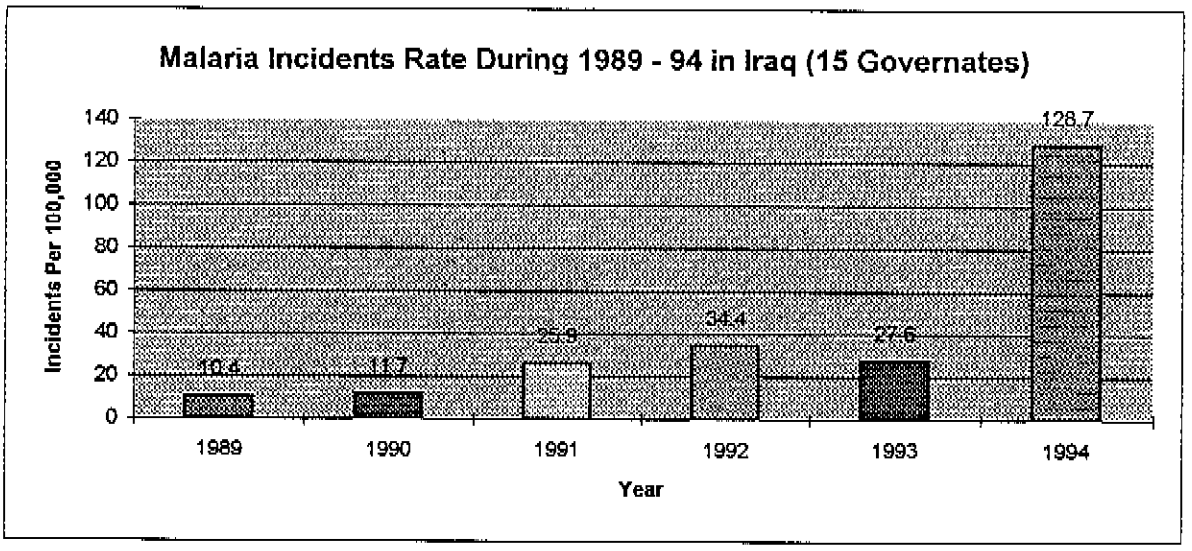


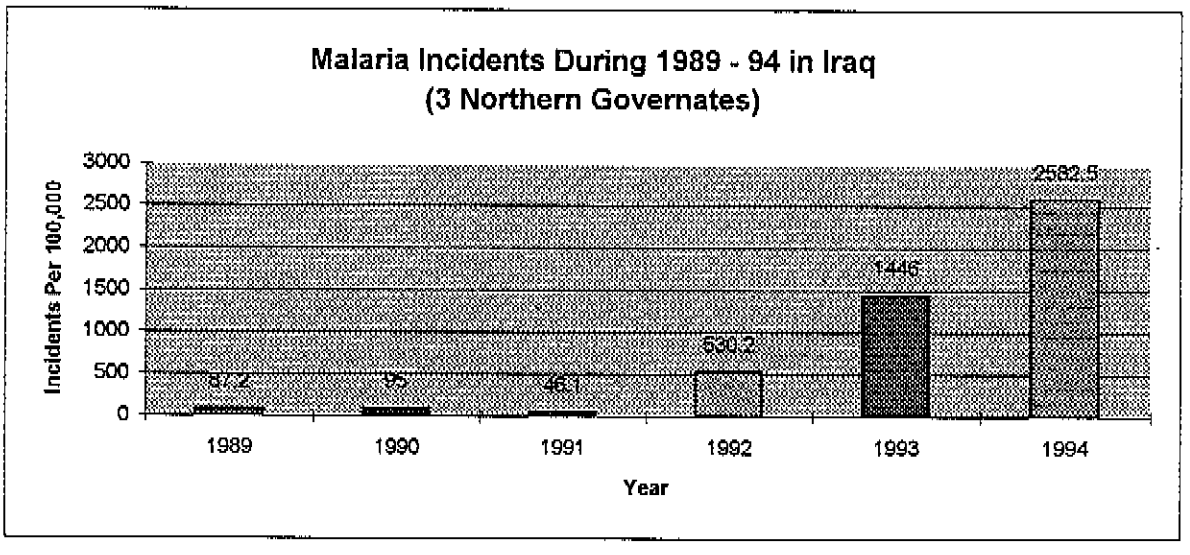

Monthly Average Cases of Malnutrition
For Children <5 years in Iraq
Incidents Per 100,000
500
450
400
350
300
250
200
150
100
50
0
1990
1991
1992
1993
1994
Year
258
259
349
465
34
36
35
51
Kwashiorkar
Marasmus

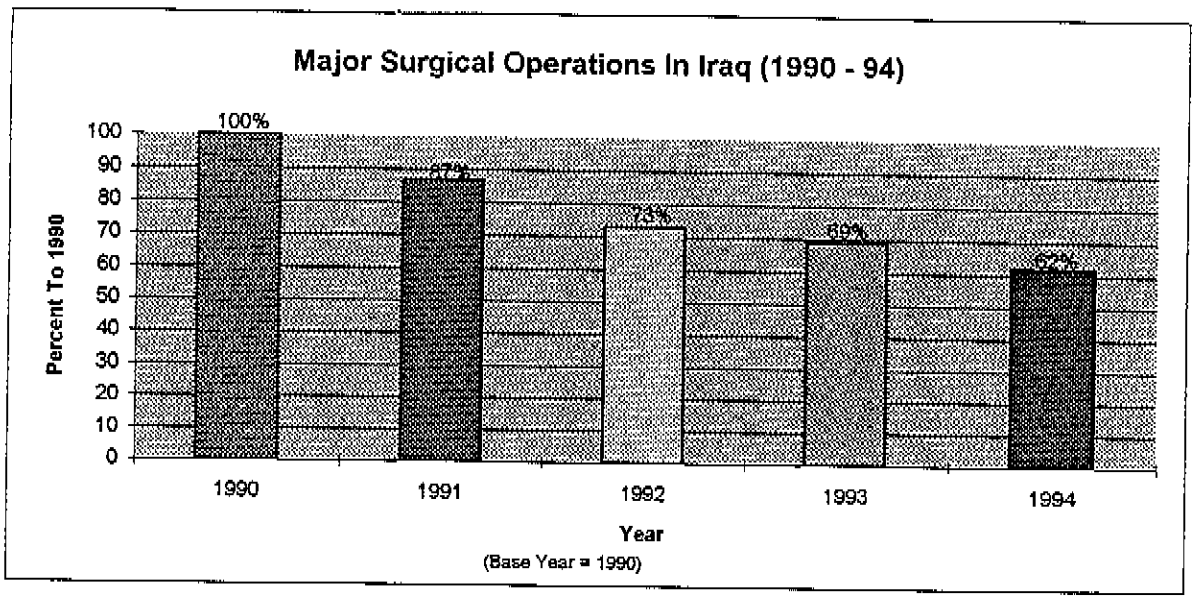

Monthly Average cases of Malnutrition
For Children <5 years in Iraq
Incidents Per 100,000
4000
3500
3000
2500
2000
1500
1000
500
0
1990
1991
1992
1993
1994
Year
269
2542
2511
2989
3613
Other Malnutrition

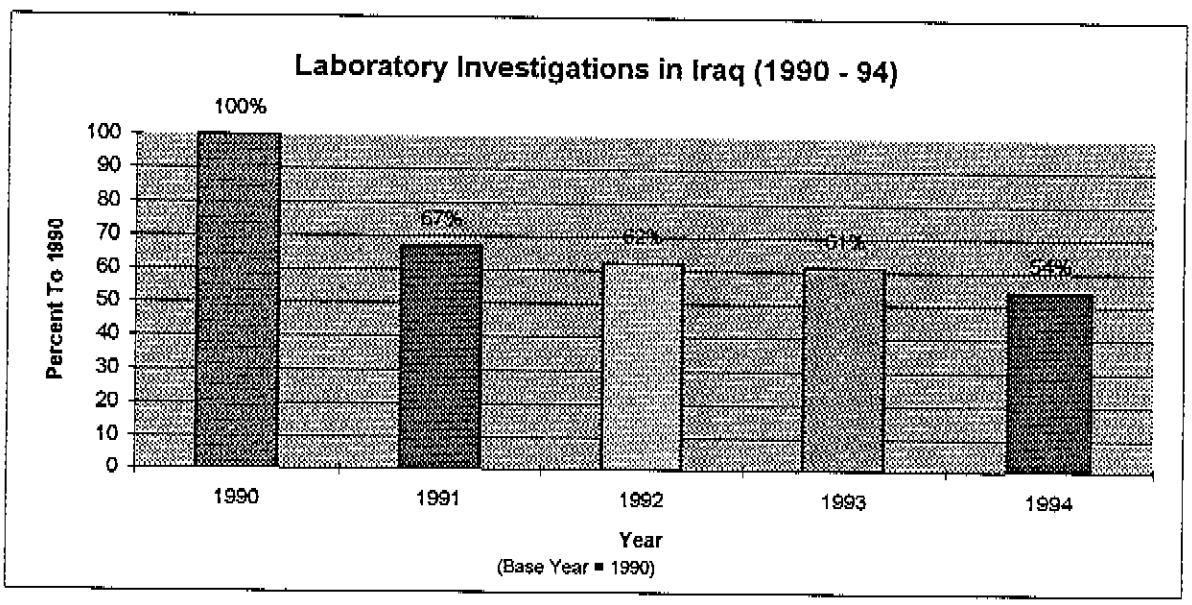

Mortality (<5 Years) of Selected Causes in Iraq (1990-94)
Incidents Per 100,000
1600
1400
1200
1000
800
600
400
200
0
1990
1991
1992
1993
1994
Year

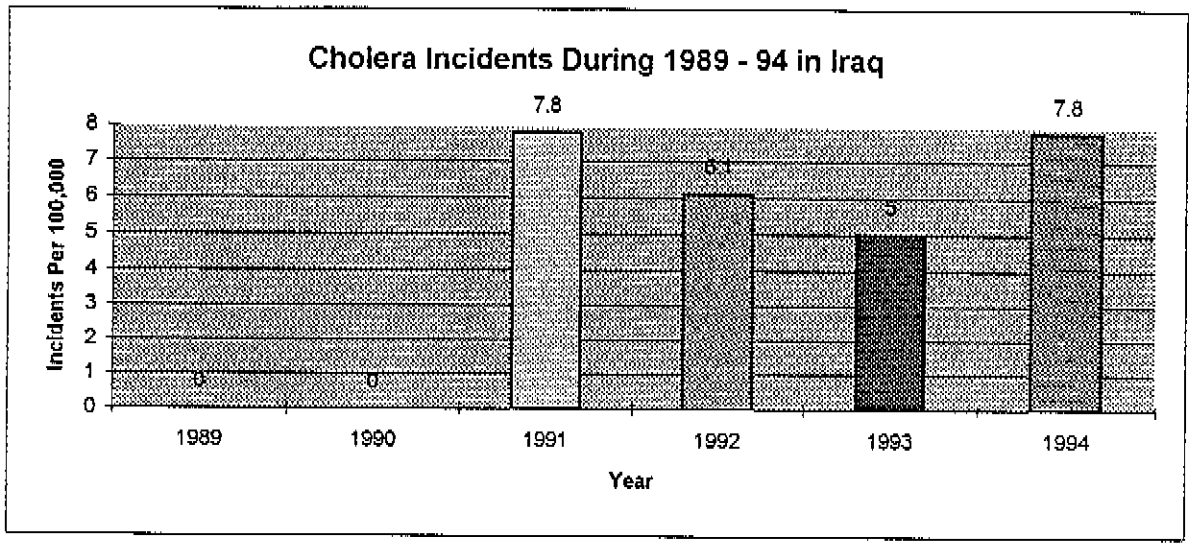

Percentage of Low Birth Weight (LBW) Births
to Total Births in Iraq (1990-94)
Percent
25
20
15
10
5
0
4.5%
10.5%
17.6%
19.7%
21.1%
1990
1991
1992
1993
1994
Year

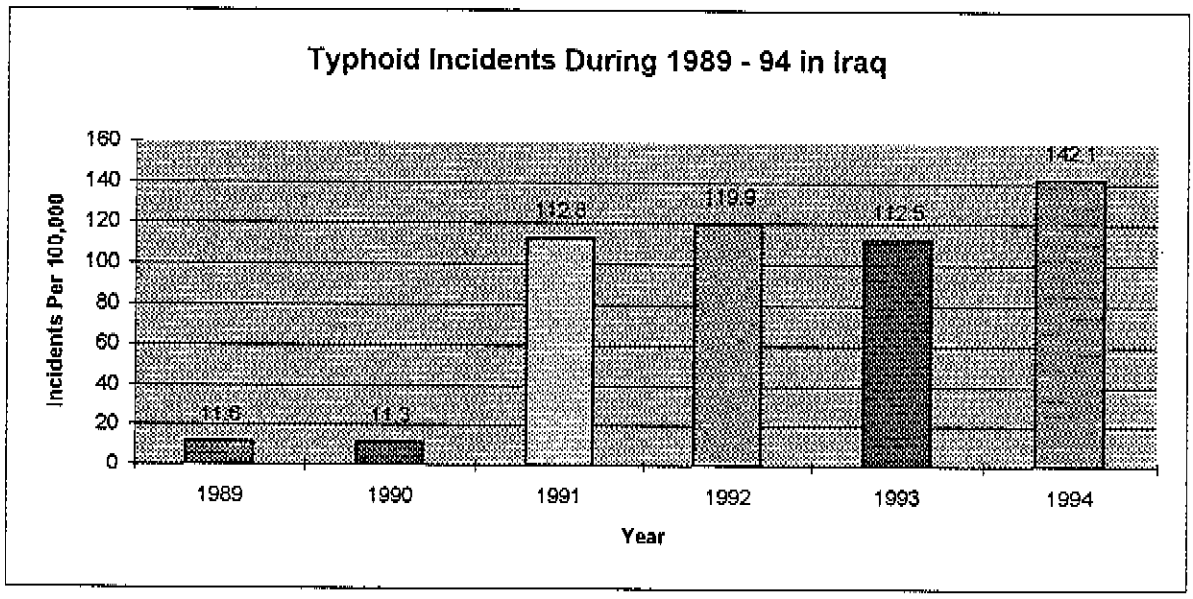

Malaria Incidents Rate During 1989 - 94 in Iraq (15 Governates)
Incidents Per 100,000
140
120
100
80
60
40
20
0
10.4
11.7
25.9
34.4
27.6
128.7
1989
1990
1991
1992
1993
1994
Year

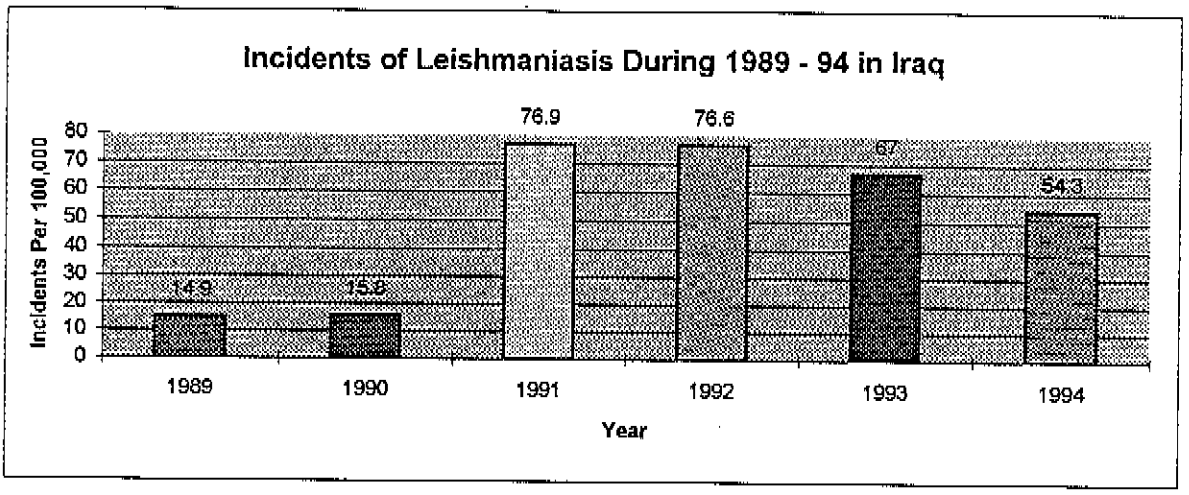

Malaria Incidents During 1989 - 94 in Iraq
(3 Northern Governates)
Incidents Per 100,000
3000
2500
2000
1500
1000
500
0
87.2
95
46.1
530.2
1446
2582.5
1989
1990
1991
1992
1993
1994
Year

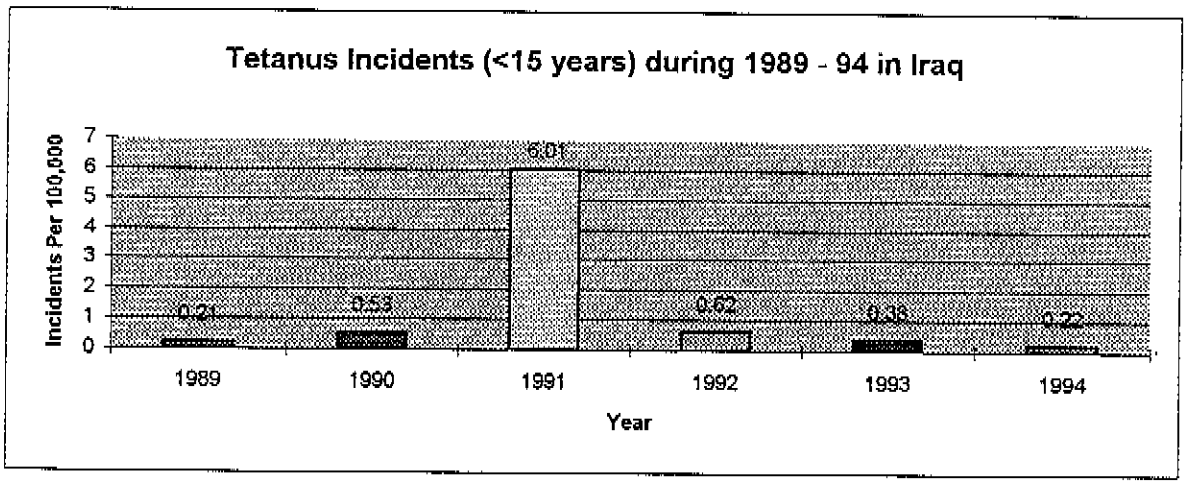

Major Surgical Operations In Iraq (1990 - 94)
Percent To 1990
100
90
80
70
60
50
40
30
20
10
0
100%
87%
71%
69%
62%
1990
1991
1992
1993
1994
Year
(Base Year = 1990)

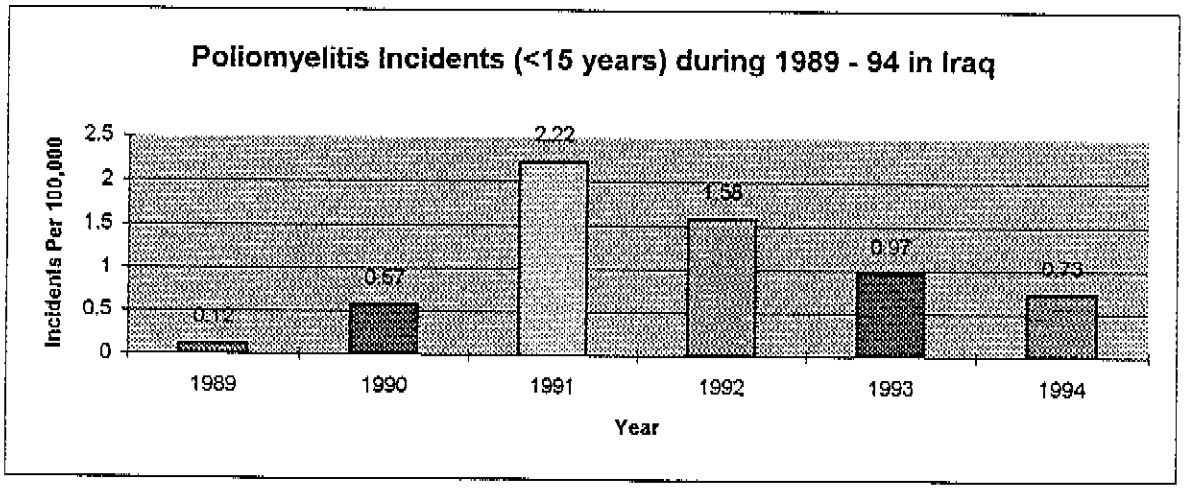

Laboratory Investigations in Iraq (1990 - 94)
Percent To 1990
100
90
80
70
60
50
40
30
20
10
0
100%
67%
62%
61%
54%
1990
1991
1992
1993
1994
Year
(Base Year = 1990)

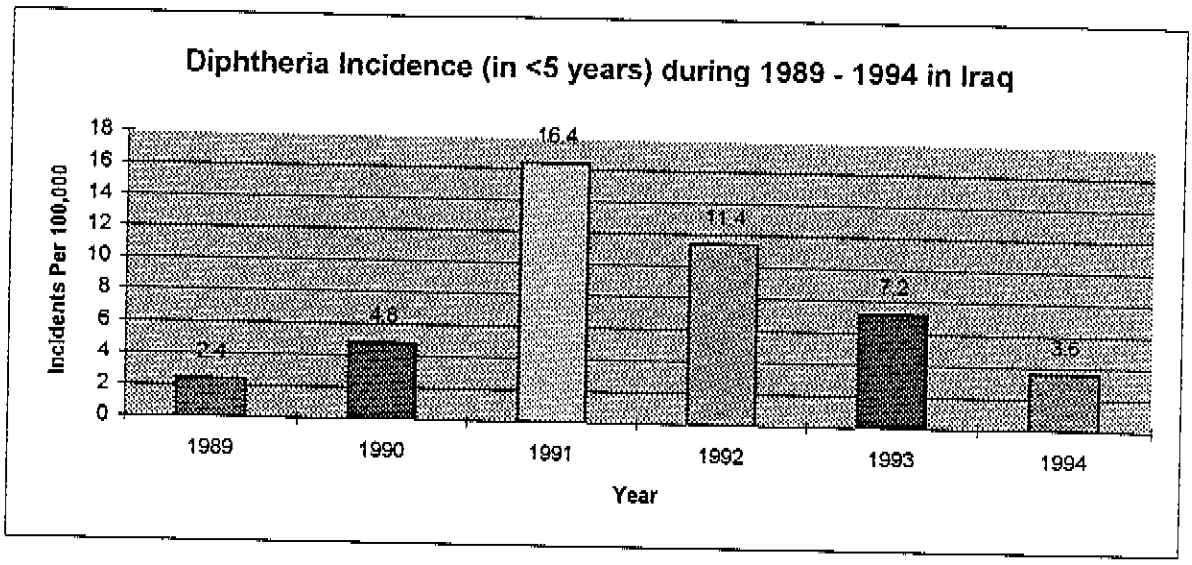

Cholera Incidents During 1989 - 94 in Iraq
Incidents Per 100,000
0
1
2
3
4
5
6
7
8
0
0
7.8
6.1
5
7.8
1989
1990
1991
1992
1993
1994
Year

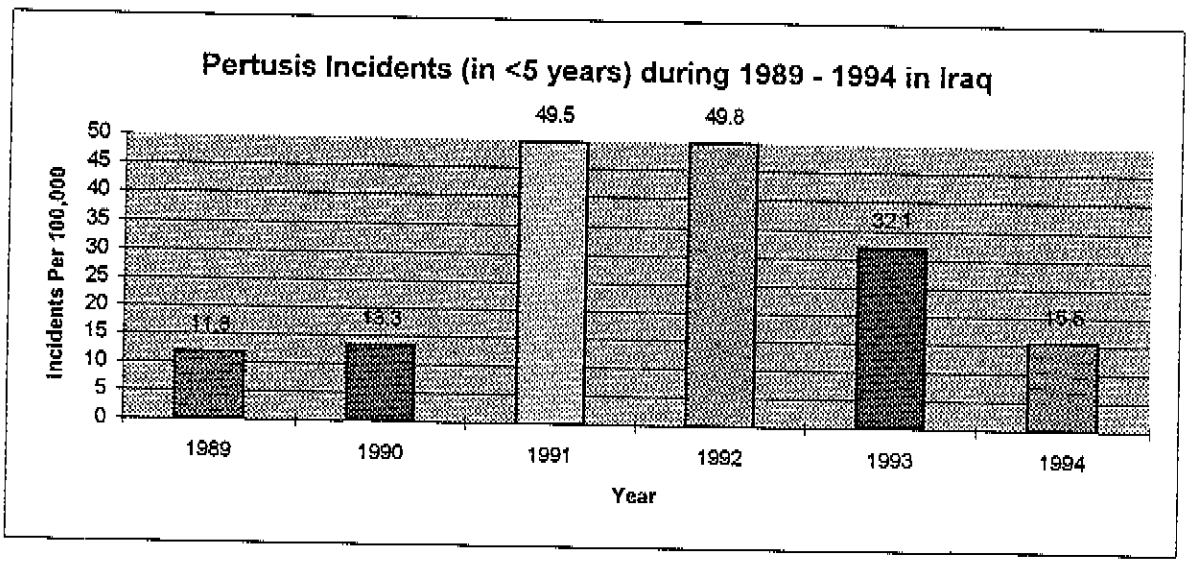

Typhoid Incidents During 1989 - 94 in Iraq
Incidents Per 100,000
0
20
40
60
80
100
120
140
160
11.8
11.3
112.8
119.9
112.5
142.1
1989
1990
1991
1992
1993
1994
Year

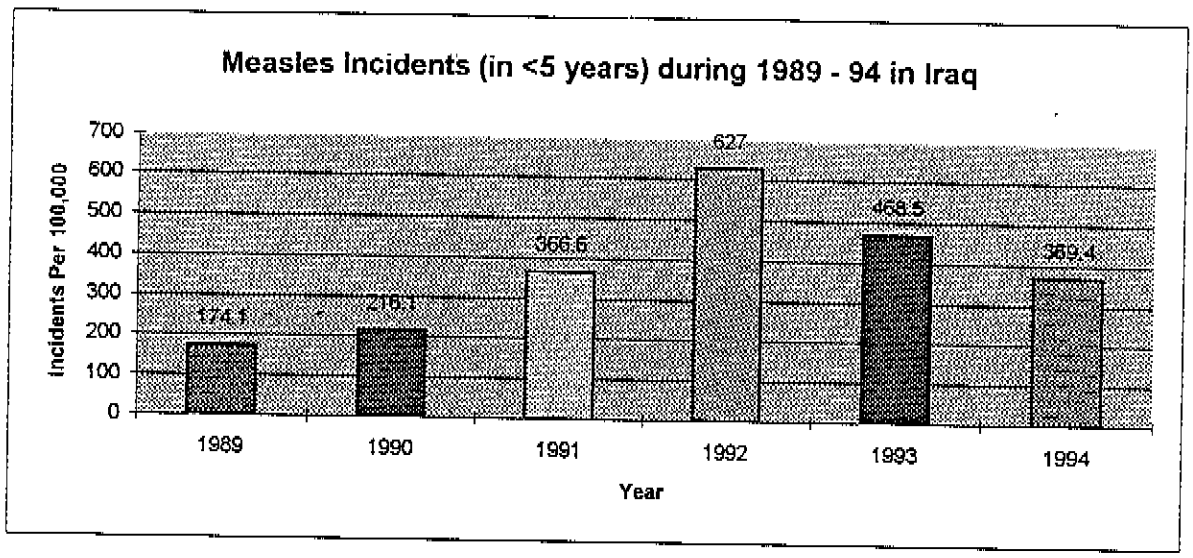

Incidents of Leishmaniasis During 1989 - 94 in Iraq
Incidents Per 100,000
80
70
60
50
40
30
20
10
0
14.9
15.8
76.9
76.6
67
54.3
1989
1990
1991
1992
1993
1994
Year

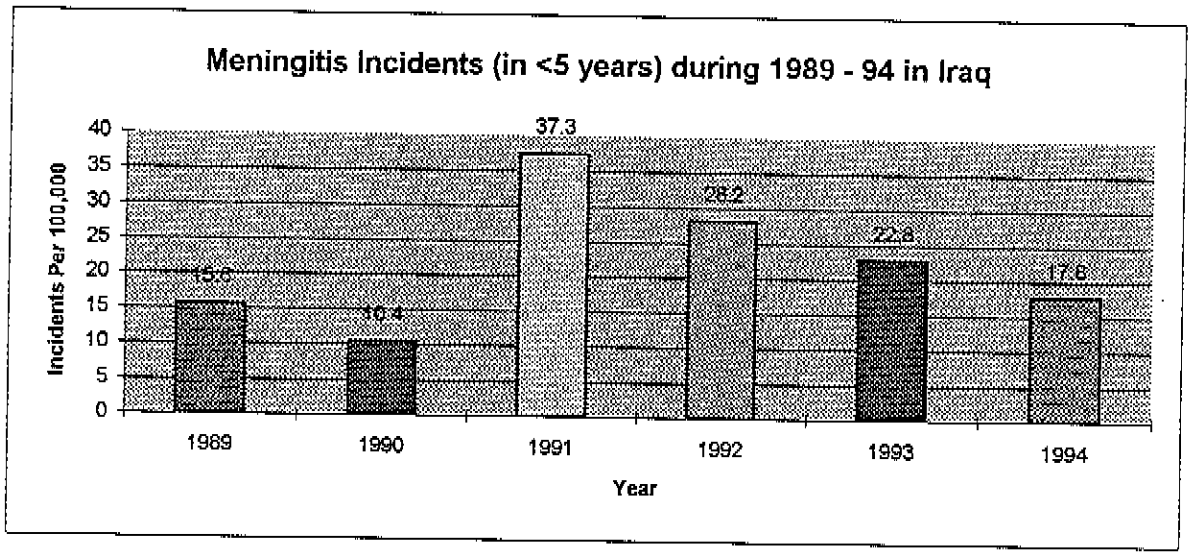

Tetanus Incidents (<15 years) during 1989 - 94 in Iraq
Incidents Per 100,000
7
6
5
4
3
2
1
0
0.21
0.53
6.01
0.62
0.38
0.22
1989
1990
1991
1992
1993
1994
Year


Poliomyelitis Incidents (<15 years) during 1989 - 94 in Iraq
Incidents Per 100,000
2.5
2
1.5
1
0.5
0
0.12
0.57
2.22
1.58
0.97
0.73
1989
1990
1991
1992
1993
1994
Year


Diphtheria Incidence (in <5 years) during 1989 - 1994 in Iraq
Incidents Per 100,000
18
16
14
12
10
8
6
4
2
0
2.4
4.8
16.4
11.4
7.2
3.6
1989
1990
1991
1992
1993
1994
Year


Pertusis Incidents (in <5 years) during 1989 - 1994 in Iraq
Incidents Per 100,000
50
45
40
35
30
25
20
15
10
5
0
11.8
13.3
49.5
49.8
32.1
15.6
1989
1990
1991
1992
1993
1994
Year


Measles Incidents (in <5 years) during 1989 - 94 in Iraq
Incidents Per 100,000
700
600
500
400
300
200
100
0
174.1
216.1
366.6
627
468.5
369.4
1989
1990
1991
1992
1993
1994
Year


Meningitis Incidents (in <5 years) during 1989 - 94 in Iraq
Incidents Per 100,000
40
35
30
25
20
15
10
5
0
15.6
10.4
37.3
28.2
22.8
17.8
1989
1990
1991
1992
1993
1994
Year