

Harvard study: Iraq faces public health catastrophe

At least 170,000 Iraqi children under five years of age will die as a result of the Persian Gulf war and the continuing U.S.-imposed sanctions, according to a Harvard medical team which conducted the first comprehensive survey of post-war Iraq. The team, which traveled throughout Iraq from April 28 to May 6, had virtually unlimited access to the medical facilities of every region of the country, as well as its water purification, sewage treatment, and electrical power plants. The team warned that cholera, typhoid, and gastroenteritis are now epidemic, and that "the state of medical care is desperate and—unless conditions substantially change—will continue to deteriorate in every region and at nearly every provider level."

Although the prestigious team, led by Dr. Megan Passey, publicly released a report on its findings at a May 22 press conference in Washington, D.C. warning of the catastrophe, its findings have been largely ignored. We present here excerpts from its 28-page report entitled "Public Health in Iraq after the Gulf War."

I) Mortality and morbidity

This study documents an emerging public health catastrophe in Iraq today. It concludes that infant and child mortality will double and that at least 170,000 children under five will die during the coming year as a result of the delayed affects of the Gulf Crisis. This conclusion is based on six factors.

First, mortality data, gathered in hospital visits, document a two- to threefold increase in infant and child deaths.

Second, morbidity data, gathered in visits to medical facilities, document the sudden onset of epidemics of gastroenteritis, cholera, and typhoid throughout Iraq during early 1991.

Third, the incidence of these water-borne diseases typically peaks during the hot summer months of June and July, so that the epidemics which began months earlier will most probably worsen.

Fourth, severe malnutrition, previously uncommon, is now widespread in pediatric wards in all regions of the country.

Fifth, the health system is operating at a fraction of its pre-

Gulf Crisis capacity. Many hospitals and community health centers have closed, and there are acute shortages of medicine, staff, and equipment.

Sixth, basic infrastructure in water purification, sewage treatment, and electrical power generation operate at substantially reduced levels. Many facilities appear to have been damaged beyond repair and will have to be entirely rebuilt.

A) Mortality data

Mortality data for children were gathered at four different hospitals (see **Figure 1**).

At the Erbil Pediatric Hospital, the director, Dr. Jamal Jaafar, reported that the rate of children dying in the hospital itself rose from 56 per month in April 1989, to 150 per month in April 1991. Pediatricians interviewed at Erbil stated that, since the Gulf War began, most children have died at home rather than at the hospital. Thus, the figures for deaths at Erbil Hospital in 1991 may greatly understate the total number of deaths, both at home and the hospital.

B) Morbidity data

Morbidity data for gastroenteritis, cholera, and typhoid were gathered from hospitals and community health centers in all regions of the country. Morbidity is almost certain to worsen during the warmer summer months.

2) Cholera

Although cholera is endemic to Iraq, prior to the Gulf Crisis its incidence was insignificant. Cholera has now reached epidemic proportions.

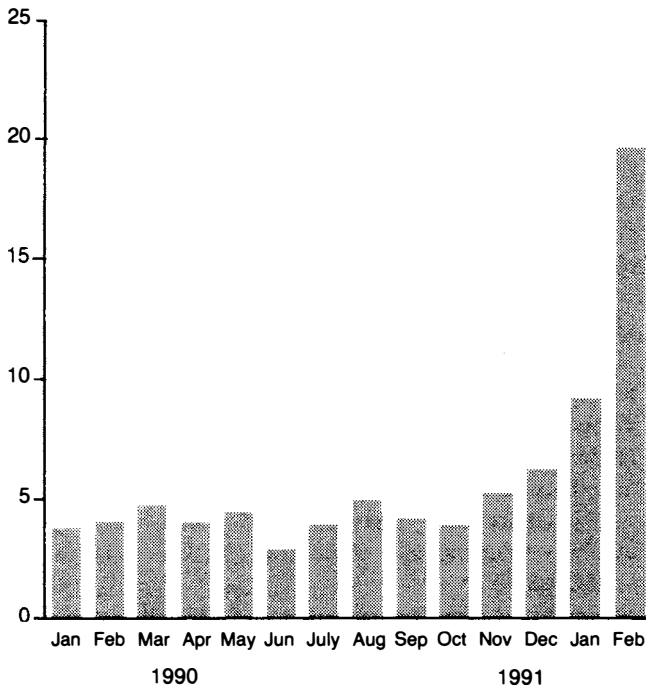
Al Qadisia hospital in Baghdad reported 30-35 cases of cholera a week in April 1991, compared to 2-3 per week at the same time last year. Several weeks before the study team's arrival, this hospital opened a special isolation ward for suspected cholera cases, reflecting the striking increase in the number of cases.

Governments are frequently loath to report cholera because its existence may reflect an inability to meet basic health and sanitation needs. The study team believes that it was denied access to the Ebnil Qatib Infectious Disease

FIGURE 1

Admission mortality rate, Saddam Central Pediatric Hospital

(children under 5) Admission mortality rate



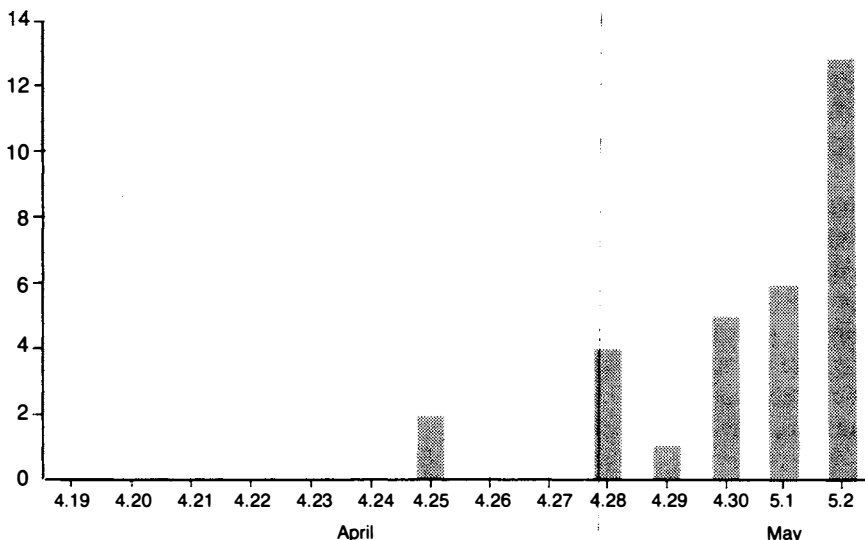
Hospital in Baghdad because the government did not wish the team to observe cholera cases of epidemic proportions. The study team therefore suspects a high degree of under-reporting of cholera by all other medical facilities where the team was granted access to interview staff and to examine medical records.

FIGURE 2

Sulamaneiya Pediatric Hospital, new cases of typhoid, April-May 1991

No./day

▒ Typhoid cases



3) Typhoid

Typhoid is endemic to Iraq but, since the Gulf Crisis, has also become epidemic throughout the country. The study team directly observed and confirmed numerous cases in Baghdad, Basrah, Erbil, Kerbala, Kirkuk, and Sulamaneiya.

At the Sulamaneiya Pediatric Hospital, Dr. Moodie and Ms. Benjamin examined hospital admission records and documented a dramatic rise in the number of children admitted with typhoid during April and early May of 1991 (see Figure 2). Their figures record the onset of an epidemic. . . .

Physicians in every region of the country report a shortage of chloramphenicol, the standard typhoid medication. In addition, these physicians report that because of supply shortages they were forced to discharge typhoid patients who were not yet cured and thus remained infectious. This practice increases the likelihood of the disease spreading among the general population.

4) Morbidity will worsen this summer

The increase in morbidity rates for cholera, typhoid, and gastroenteritis during March, April, and May of 1991 is especially ominous. Generally, water-borne diseases peak in June or July with the onset of hot summer weather. This study documents a sudden rise in the incidence of these diseases, due to contaminated water and untreated sewage, well before the effects of summer heat. Morbidity, and hence mortality, will most probably worsen during the summer.

C) Malnutrition

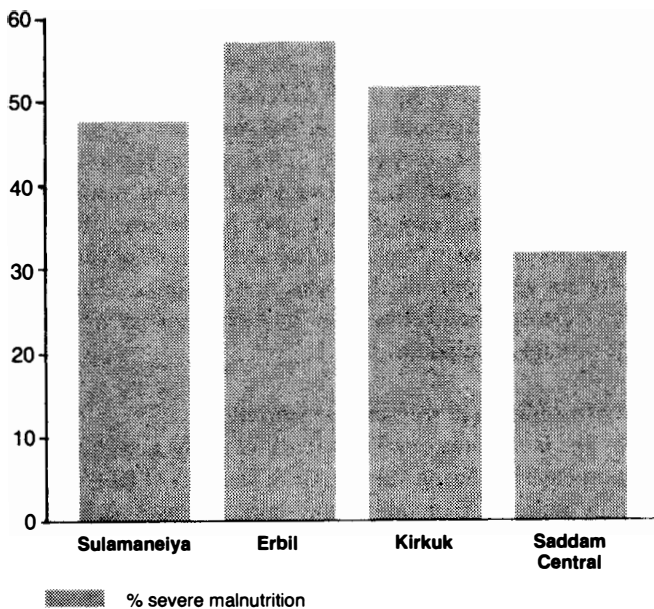
Iraqi physicians interviewed at 15 hospitals and seven community health care centers stated that severe malnutrition was uncommon in Iraq during the last decade. . . .

The prevalence of acute severe malnutrition was so high as to suggest the real possibility of famine in Iraq if conditions do not substantially change (see Figure 3). Hospitals today

FIGURE 3

Pediatric inpatients—Iraq: severe malnutrition in children under 5

% inpatients with severe malnutrition



are unable to adequately treat malnutrition because of acute shortages of food and infant formula. Most of these children will die from gastroenteritis, cholera, or typhoid in combination with malnutrition.

D) Conservative nature of the estimate that child mortality will double

This study concludes that the child mortality rate today is at least double and that at least 170,000 children will die in the coming year from the delayed effects of the Gulf Crisis.

The most recent available estimate of Iraq's pre-Gulf Crisis child mortality rate is 52 per thousand ("United Nations Children's Fund and World Health Organization, 1990 National Survey on Vaccination, Diarrhea, and Child and Maternal Diseases in Iraq," [1990]). Doubling that figure produces a post-Gulf War mortality rate of 104 per thousand.

Applying this derived mortality rate to the 3.3 million Iraqis under five, this study estimates that 55,000 additional deaths of children under five have already occurred. Applying this mortality rate for the coming year, this study projects at least 170,000 additional child deaths because of the delayed effects of the Gulf Crisis.

The conservative nature of this figure of 170,000 additional child deaths can be understood by focusing on gastroenteritis. Before the Gulf Crisis in 1990, about 50,000 children a year in Iraq died from gastroenteritis. Current hospital data show a twofold to tenfold increase in the number of children admitted with this disease. These data also show

more than a doubling of the rate of child death in hospitals from all causes, including gastroenteritis.

In other words, at least twice as many children are admitted to hospitals with gastroenteritis, and of those admitted, at least twice as many die as before. Therefore, since there were 50,000 child deaths each year from gastroenteritis before the Gulf War, four times as many, or an additional 150,000 child deaths from this disease can be expected in the coming year, unless conditions change.

To repeat, this figure of 150,000 additional deaths is for gastroenteritis alone. This figure does not include deaths from malnutrition, respiratory disease, or other common child illnesses. Hence, the estimate of 170,000 additional child deaths is probably low.

II) Functioning of the medical system

... As of 1990, Iraq had a nationwide network of 131 hospitals and 851 community health centers which provided comprehensive health services to both urban and rural populations. This health care system reached more than 90% of the population. . . .

The study team estimates that the Iraqi health system currently functions at a fraction of its capacity before the Gulf Crisis.

Iraqi physicians reported that many hospitals and community health centers were severely damaged either in the Gulf War or during the civil uprisings that followed. These reports were confirmed by the study team's own on-site inspections of medical facilities in Al Najaf, Basrah, Kerbala, and Kirkuk.

For example, in Erbil, only five out of 42 community health centers are presently functioning, and in the Sulamaneiya area, only six out of 20. In Basrah, only five out of 19 community health centers functioning before the Gulf Crisis are open today.

Those community health centers that are open are flooded with an unusually high number of patients. For example, physicians at Al Batein Community Health Center in Basrah reported that their facility, which normally serves 40,000 people, now serves 150,000. This overcrowding is due to the closure of other facilities, combined with the increases in gastroenteritis, cholera, typhoid, and malnutrition.

Hospitals and community health centers also lack reliable clean water, sewage disposal, and electrical power. Of the 16 functioning hospitals and community health centers that the study team surveyed, 69% have inadequate sanitation because of the damage to water purification and sewage treatment plants. There is not enough electricity for operating theaters, diagnostic facilities, sterile procedures, and laboratory equipment.

Staff at every health facility visited reported severe shortages of anesthetic agents, antibiotics, intravenous fluids, infant formula, needles, syringes, and bandages. Existing stores of heat-sensitive vaccines and medicines

have been depleted by the loss of electrical power for refrigeration. . . .

III) Sanitation: water purification and sewage treatment

The mortality and morbidity patterns described in Section One and the deterioration of the medical system described in Section Two reflect the breakdown of sanitation in two key areas: water purification and sewage treatment.

A) Water purification

Iraq's entire system of water purification and distribution relies on electricity. Electricity is necessary to power water treatment plants and to pump water throughout the country. With the destruction of the country's electrical power plants in the Gulf War, Iraq's water purification and distribution system came to a virtual standstill. While some water purification facilities are now operational, much of Iraq still lacks clean drinking water.

B) Sewage treatment

Like the water purification system, Iraq's system of sewage treatment is entirely dependent on electrical power. Sewage plants pump wastes from homes and factories, treat the raw sewage, and discharge the treated sewage to rivers for disposal. With the incapacitation of the electrical system, raw sewage either backs up in homes and streets or flows into the Tigris, Euphrates, and other rivers.

In Baghdad, there are two sewage treatment facilities that serve Baghdad and the surrounding areas. A law student member of the study team who speaks Arabic, Ms. Sarah Leah Whitson, visited these facilities and interviewed sanitation engineers.

During the first week of the Gulf War, both plants ceased operation due to the lack of electricity and resorted to discharging raw sewage directly into the Tigris River. Later during the war, one of the two facilities was bombed and completely destroyed. With the resumption of some electrical generating power, the surviving plant, which treats about 50% of the area's sewage, resumed operation. Much of Baghdad's raw sewage continues to be discharged into the Tigris, polluting the drinking water of densely populated areas of Southern Iraq.

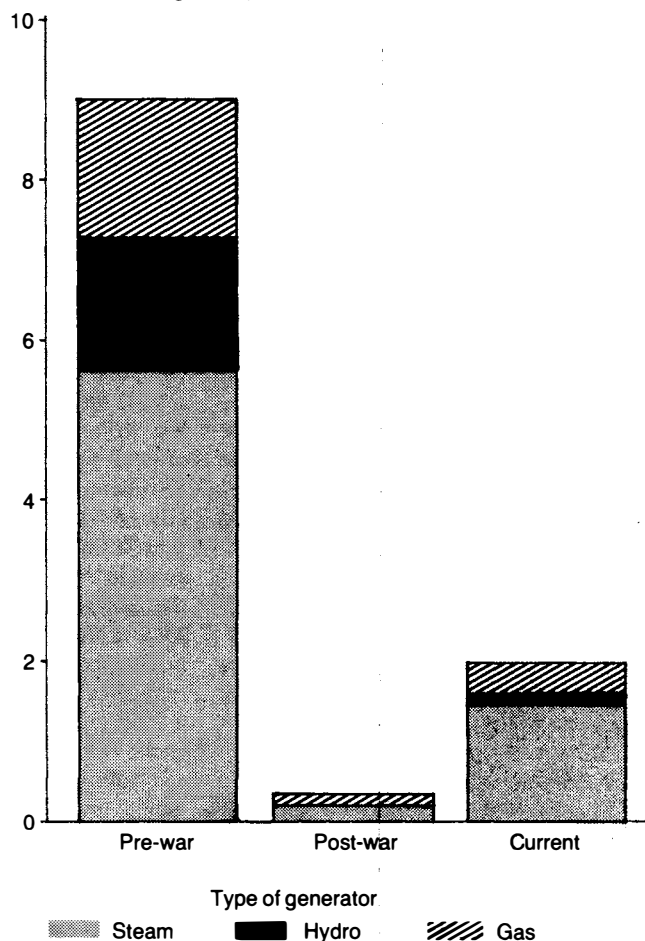
In Baghdad, Basrah, and Kirkuk, the study team observed neighborhood streets filled with foul-smelling and unsanitary sewage and other wastes. Children walked and played in stagnant, waste-contaminated pools of water. Garbage collection also ceased due to a shortage of fuel for trucks, and consequently streets are littered with rubbish.

IV) Electrical power and public health

A) The destruction of Iraq's power system

Virtually all of Iraq's electrical power is supplied by 20 generating plants. These plants are connected through a

FIGURE 4
Capacity of power stations by time period and type of generator
(thousands of megawatts)



network of 400 kilovolt transmission lines. Before the Gulf War, Iraq's total electrical generating capacity was about 9,000 megawatts (see Figure 4).

This system was incapacitated by bombing during the Gulf War. Within the first days of the war, 13 of Iraq's 20 power generating plants were incapacitated or destroyed. By the end of the war, only two of the country's power stations, generating less than 4% of Iraq's pre-war output, were in operation. Even today, months after the war is over, electrical output is still roughly only 22% of the pre-war level, despite the priority given to restoring the electrical generating system.

Iraqi engineers predict that little additional electrical power will be restored over the next year. Many generating facilities were destroyed beyond repair and will have to be entirely rebuilt. Damaged facilities can be repaired only through cannibalization of parts from other electric power plants, because sanctions prevent the import of spare parts.