

Iraq's public health infrastructure a casualty of war

Attempts to resurrect Iraq's health-care system remain hindered by a medley of factors, experts say, including the absence of national security, the scarcity of utilities like water and electricity, and a dearth of financial resources.

War has shattered Iraq's primary health and disease control and prevention services, and has decimated the country's research infrastructure (*Nature* 423, 468; 2003). Nurses and primary health-care workers are in chronic short supply. Public health laboratories, clinics and several hospitals also lie in ruins.

The most likely diseases to arise after conflict are communicable diseases such as typhoid, vector-borne diseases such as malaria, and vaccine-preventable diseases such as measles, says Kawa Maruf, a World Health Organization (WHO) medical officer in Dahuk, Iraq. In central and southern Iraq, fluctuating electricity and poor sanitation have led to spikes in water-related diseases such as cholera and dysentery. In the summer of 2003, several Iraqi hospitals also reported cases of diarrhea that were up to four times higher than the seasonal average.

Stunted vaccination programs threaten the health of Iraq's approximately 4 million children



The war in Iraq has reduced hospitals to rubble.

under the age of five. Vaccine supplies were destroyed last April, when looters broke into the Vaccine and Serum Institute of Baghdad and destroyed large repositories of vaccines for hepatitis B, meningitis, measles, polio, tetanus and

yellow fever. The United Nations Children's Fund reported that 270,000 Iraqi babies born after the war began have not received any vaccinations. Recently, however, a fledgling national immunization initiative has been slowly taking root.

Experts say the recovery of Iraq's health infrastructure—once among the most advanced in the Middle East—will hinge on repairing public health programs, forming a national health policy and sustaining financial investment. Apart from regulating the flow of drugs and sending some medical staff overseas for training, however, relief organizations have not made much headway, says Jafar Hayder, a WHO medical officer in Sulaimania, Iraq.

Other recovery efforts under way include a \$7 million children's vaccination program by the US Agency for International Development, as well as a new scientific academy that aims to revitalize Iraq's research climate by luring expatriate doctors back home (*Nature* 426, 484; 2003). But a lot more resources are needed to restore Iraq's health system to its level in 1990—Iraq's health ministry estimates that it will require an additional \$1.6 billion each year.

Despite Iraq's steep path to good health, however, experts say the nation has better prospects of recovery than other war-torn countries such as Afghanistan and Liberia, which had inadequate health systems to begin with.

"In Iraq, sophisticated office buildings and hospitals were bombed into rubble. In Afghanistan, rubble was bombed into rubble," says Ronald Waldman, professor of clinical population and family health at Columbia University. The media spotlight on Iraq overshadows reconstruction efforts in other post-conflict nations, adds Waldman, who advised Afghanistan's health ministry. "When the spotlight of news is off, the donors disappear."

Relief funds are plentiful immediately after an emergency, but decline as the world shifts its attention elsewhere—a phenomenon widely known as donor fatigue. "There is far too much money initially when there is little capacity to absorb it," says Jan Kolaczinski, a conflict and health expert at the London School of Hygiene and Tropical Medicine. "That's why you get lots of stupid implementations by emergency [non-governmental organizations] that just try and blow their budgets as quickly as possible." Pointing to experiences in both East Timor and Afghanistan, Kolaczinski adds, only time will tell whether Iraq will go down the road of other postwar has-beens—"a cycle that happens over and over again."

Soldiers battle 'Baghdad boil'

More than 300 US soldiers in Iraq have been diagnosed with the parasitic skin disease leishmaniasis, which is expected to infect nearly 1,000 soldiers by the end of 2004. "This is probably the largest outbreak of leishmaniasis that the US military has ever seen," says Lt. Col. Peter Weina, director of *Leishmania* diagnostics at Walter Reed Army Medical Center.

Known in Iraq as the 'Baghdad boil', the cutaneous form of the disease is transmitted by the bite of sandflies carrying various species of the protozoan *Leishmania*, and causes craterlike skin lesions. Leishmaniasis is the "major medical issue" facing troops in Iraq, says Lt. Col. Russell Coleman, assistant chief of entomology at Walter Reed.

Most soldiers were infected during the sandfly season that began in April 2003, but did not show symptoms until recently because of the disease's long incubation period. There have been no cases reported thus far of the more serious visceral form of leishmaniasis, which affects the liver and spleen and can be fatal.

The standard treatment for the skin disease, GlaxoSmithKline's Pentostam, has not been approved by the US Food and Drug Administration, but is available to soldiers and civilians through an Investigational New Drug protocol. Soldiers are sent to Walter Reed for treatment because potentially severe side effects require that the drug be administered under strict controls.

More than a million new cases of cutaneous leishmaniasis are reported worldwide each year, with current large outbreaks in Sudan and Afghanistan. As a result, the availability of Pentostam is limited and the Army is investigating alternative treatments for the disease.

Although vaccines for leishmaniasis are in early development, an effective one is "a long way off," says Lt. Col. Weina.

To prepare for the return of the sandfly season in April, the Army has deployed medical units in Iraq to control insects and animals that may act as reservoirs for the disease, and to educate soldiers about preventive measures. "Living conditions certainly play a large role in this because there is no drug you can take to prevent the disease," says Lt. Col. Coleman. "All you can do is keep that infected sandfly from biting the soldier."

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