

enduring **effects** of war

health in Iraq 2004



This report assesses the impact of the recent war in Iraq and the ensuing period of insecurity on health, the health care system and health reconstruction initiatives. It describes the reported 100,000 deaths and many more injuries attributable to conflict and violence and the current pattern of mental and physical illness. It gives an overview of the Iraqi health care system and barriers to good health care including problems with access to services, fragmentation, damaged infrastructure, inadequate medical supplies and poorly trained and supported health workers. It also highlights problems with the infrastructure that influence health, such as water and sanitation. In analysing the efforts at reconstruction, it highlights the inadequacies and challenges of efforts to build a new health system based on primary health care principles, freely available to all.

Keywords: conflict, security, health, health care, international development, Iraq

This report and an executive summary are available in English and Arabic, along with updates on the Iraq Health Monitoring Project, from the Medact office and on the Medact web site – www.medact.org



challenging barriers to health

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Introduction

‘The impact of conflict on health can be very great in terms of mortality, morbidity and disability’ (World Health Organization 2002a)

This is a study of the effects of the 2003 war in Iraq and the ensuing period of insecurity on health, the health system and health system reconstruction. It is a product of the Iraq Health Monitoring Project and builds on two previous Medact reports (*Collateral Damage: the health and environmental costs of war on Iraq*, Medact 2002, and *Continuing Collateral Damage: the health and environmental costs of war on Iraq 2003*, Medact 2003). Once again the purpose is to stimulate informed public debate worldwide on the impact of conflict on health, with special reference to Iraq.

This report adopts a qualitative approach, combining a literature search with semi-structured interviews. These were conducted face to face in Amman, Jordan with people living and/or working in Iraq, and by phone and e-mail with other informants including civilians, public health professionals, experts on the impact of conflict on health and relief and development workers with current experience of working in Iraq, of both Iraqi and foreign origin, working for a range of organisations. While this generated rich data, the study faced similar problems to those encountered in preparing the previous two Medact reports, namely tackling a complex and contentious issue in a situation where much of the information needed for full understanding is not available, not collected and/or not published in the public domain, or unreliable.

The study uses the WHO definition of health as ‘a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’. It supports WHO’s view that the impact of war and violence (a general term covering conflict, economic violence such as sanctions, and experience of dictatorship) must be measured not only by death and injuries due to weaponry, but by the often greater longer-term suffering linked with damage to essential infrastructure, a poorly functioning health system and the failure of relief and reconstruction efforts. The direct impact of conflict on health is summarised in Table 1.

Working within this public health perspective, our remit is broad and includes assessments of the infrastructure (particularly water, sanitation, power and nutrition/food security); the current state of Iraqi health; how well health services are coping; and psychosocial factors that promote or harm health. The security situation and the management of relief and reconstruction are also discussed, and

recommendations made. Analysis of this deeply contested environment is complicated not only by the lack of data but also by the plethora of perspectives on the nature of the problems and possible causality.

A historical perspective is essential. The experience of dictatorship, previous wars, sanctions, the temporary relief of the Oil-for-Food programme (UN 2004a), the recent experience of war and the subsequent political and security crisis have together forged an environment primed for the acts of collective violence that pervade Iraq today. The continuing presence of coalition troops, and their use of military force in response to anti-coalition threats within civilian communities, has fed a reservoir of scepticism and fuelled insurgent groups openly active since the fall of the regime, with a range of motives. The net effect on those living and working in Iraq creates huge difficulties for those attempting to address health needs, and hampers access to health services and other means by which people can maintain their physical and mental health.

The health system – defined by WHO as all activities whose primary purpose is to promote, restore or maintain health (WHO 2000a) – remains in a state of disrepair. The breakdown of essential infrastructure and an interacting range of other health determinants are leading to a hugely increased burden of death and mental and physical illness from all causes, directly and indirectly attributable to the effects of conflict (see Table 1). Even if the circumstances were much more auspicious, the difficulty of reversing this downward spiral could not be underestimated.

TABLE 1 The direct impact of conflict on health
(adapted from *World report on violence and health*, WHO 2002a, p222)

Health impact	Causes
Increased mortality	<ul style="list-style-type: none"> • Physical trauma (eg bombs, landmines) • Infectious diseases (eg diarrhoeal diseases, respiratory infection) • Deaths avoidable through health care (eg emergency intervention, preventive measures, medication)
Increased morbidity	<ul style="list-style-type: none"> • Injuries due to physical trauma (eg weapons, burns, poisoning) • Injuries due to increased societal violence, including sexual violence • Infectious diseases: water-related (eg cholera, typhoid), vector-borne (eg malaria), and other communicable diseases (eg TB, AIDS) • Reproductive health: more stillbirths and premature births, more babies with low birth weight and more delivery complications • Nutrition: acute and chronic malnutrition and deficiency disorders • Mental health: impact of psychosocial trauma on mental health (eg anxiety, depression, suicide)
Increased disability	<ul style="list-style-type: none"> • Physical • Psychological • Social

The immediate impact of the conflict

The impact of conflict on the health of both civilians and combatants generally arises both from the direct effects of combat – battle deaths and injuries – and from indirect consequences that continue to be felt years after the conflict ends. In Iraq conflict has continued in the form of localised armed rebellions, almost daily attacks of various kinds on combatants and civilians and attacks by occupying forces. The nature of this continuing conflict and the political control of information-gathering and dissemination make assessment of death and injury difficult. Yet such information is essential for needs assessment and planning of aid and reconstruction related to health.

Civilian deaths

Prewar planning by the US Defence Department supposed that the conflict would be short and reconstruction supported by a cooperative Iraqi population (Burkle and Noji 2004). Although the period of ‘major combat operations’ was indeed short and President George Bush declared the end of the war on 1 May 2003, conflict continues between government and coalition forces and insurgent groups with a mixture of motives. Insurgents have used suicide bombing, car bombs and rocket-propelled grenades against civil and military targets. Coalition forces have responded or in some cases acted pre-emptively with aerial weaponry to tackle threats in civilian communities. There are numerous reports of a high toll of civilian casualties from the war and ongoing insurgency.

Analysis of a nationwide survey of 988 Iraqi households in September 2004 concludes that around 100,000 excess deaths have occurred since the 2003 invasion, and possibly many more (Roberts et al, 2004). Violence accounted for most of these deaths, particularly air strikes by coalition forces. More than half of those reportedly killed by coalition forces were women and children. The risk of death from violence in the 18 months after the invasion was 58 times higher than in the 15 months before it. The risk of death from all causes was 2.5 times higher after the invasion than before. The scientists criticise the failure of the occupying forces to monitor casualties and the extent to which civilians are protected against violence, and call on an independent body such as WHO to confirm their findings. ‘In the interim, civility and enlightened self-interest demand a re-evaluation of the consequences of weaponry now used by coalition forces in populated areas,’ they conclude.

The latest report from the Iraq Ministry of Health,

published before September 2004, makes no mention of this extra burden of mortality and morbidity, and reports the leading causes of death in people over five as cardiovascular disease, cancer, renal disease, respiratory disease and diabetes (Ministry of Health 2004a).

Civilian injuries and illness

No figures are available on civilians injured during the conflict. It is usually estimated that the number of people injured in war is three times the number of deaths, though recent analysis of terrorist bombings puts the figure of injuries as high as ten times the number of deaths (Tabak and Coupland, *MCS* in press).

The number of traumatic injuries from shooting has increased greatly since the war, according to reports from major hospitals in the centre/south (WHO 2003). The future burden of disability from traumatic injuries will inevitably rise as conflict continues. There are an estimated 10 million landmines and explosive remnants of war in north Iraq alone that could take up to 15 years to clear (Pacific Disaster Management Information Network 2004). Security problems restrict demining and removal of ordnance in central and south Iraq, where urban and rural populations face increased risk from munitions storage containers, explosive ordnance, mines and cluster munitions used during the war, though the extent of the problem is unknown.

Other countries undergoing similar conflict and social transition have experienced more domestic violence, child and spouse abuse, acts of public violence and mental/behavioural disorders (Ajdukovic 2004). There is no data in the public domain on the prevalence of such problems in Iraq, but they are likely to pose further mental and physical threats to health.

Combatant deaths, injuries and illness

Since the start of the war 1139 Coalition troops have been killed in Iraq: 1071 from the US and 68 from the UK (at October 28, 2004). Official figures cite 4194 major US injuries and 3536 minor. There is additional unknown mental and physical morbidity from war-related causes. Meanwhile little is known about Iraqi combatants injured during the war, estimated to range between 40,000 and 135,000 (Medact 2003). They have very little access to rehabilitative health services.

The indirect effects of conflict on health

The immediate impact of conflict on physical and mental health accounts for a relatively small proportion of the suffering (Santa Barbara and MacQueen 2004). In the longer term too, health is harmed by conflict-related damage to essential health-sustaining infrastructure and to the health system, as well as the corrosive effects of conflict-related factors such as poverty, unemployment, disrupted education and low morale. It is difficult if not impossible to disentangle the indirect effects of conflict on health in Iraq from other underlying health trends, especially in the absence of reliable, valid, current data. Because the impacts are interactive and cumulative, it is also extremely difficult to make causal connections with each successive war or period of conflict. The selected key health concerns illustrated below do not paint a comprehensive picture, but serve as indicators of the heavy burden of disease on the population and the extent of health need.

The heavy burden of disease

Communicable diseases

‘The magnitude of communicable diseases continues to increase,’ says the minister of health – but data is scarce. The ministry’s communicable disease control centre reports diarrhoeal diseases, acute respiratory infections, leishmaniasis, measles, mumps, and typhoid as ‘leading conditions’. There were over 5000 cases of typhoid in January – March 2004. (Ministry of Health 2004a).

The high rates of infant and under-five mortality, indicative of overall national health status, are attributable to long-term effects of war, sanctions, and mismanagement. Immunisation coverage fell drastically after 1990 and public health campaigns ceased. There was greater exposure to pathogens due to decay of the water and sanitation infrastructure, and greater vulnerability due to malnutrition. People had little knowledge of basic hygiene. The cumulative effect was an alarming recurrence of previously well-controlled communicable diseases, particularly among children (UN 2003a).

Infant mortality rates improved in the safe haven of north Iraq under the Oil-for-Food programme but not as quickly in the centre or south. Child mortality rates were estimated at 90–100 deaths per 1000 in 2000, a 30% decline from 1999 but still almost double the 1990 rate (Basic Support for Institutionalising Child Survival 2003). The current rate is not known.

Immunisation programmes have been seriously affected by insecurity, disruption of the cold chain due to erratic electricity supply and looting, lack of adequate equipment and erratic supply of vaccines (Ministry of Health 2004a, Japan International Cooperation Agency 2004). The ministry says vaccine-preventable diseases such as measles, mumps and typhoid are increasing. Renewed efforts have been made and a national measles, mumps and rubella campaign for school-age children launched early in 2004 reports 97% coverage (Ministry of Health 2004a), but the barriers remain formidable.

Noncommunicable diseases

Like many other countries, Iraq had been undergoing an epidemiological transition from the 1980s characterised by rising life expectancy and a greater burden of noncommunicable disease (UN 2003c). The Ministry says cardiovascular disease is currently the main cause of death (Ministry of Health 2004a). The prevalence of diabetes mellitus and cancer is not known. Many cancers are potentially preventable (lung, bladder) or treatable (breast) but 50–80% of Iraqi cases are only detected in the advanced stages when prognosis is much worse. The suffering is compounded by the high cost and centralised distribution of cancer surgery, chemotherapy, and radiotherapy and the scarcity of palliative care (Ministry of Health 2004a). The disproportionately high rates of childhood cancers such as leukaemia noted by clinicians in Basra need further verification and study (Yacoub et al 1999).

Effective management of noncommunicable disease requires an integrated network of primary, secondary and tertiary care services. Basic primary care functions such as preventative measures, health promotion and support for people to manage their own conditions have mostly been absent. Poor quality health services, shortages of essential medication, lack of outreach to poor and rural populations and lack of access in conflict areas have further compromised the management of chronic conditions. The likely consequences will be an additional burden of essentially preventable death and disability.

Reproductive health

Maternal mortality doubled between 1989 and 1998, the most recent year from which figures are available. One in four deaths occurred during pregnancy and over 60% after delivery – most of them preventable through education, adequate nutrition and good

health services (WHO 2003). The Ministry of Health estimates that 30% of women in urban areas and 40% in rural areas deliver without qualified help. Many primary care centres lack basic supplies and equipment needed for antenatal services. Half the district level institutions to which high risk pregnancies are referred lack essential resources and trained staff (Ministry of Health 2004a).

Over half of primary care facilities no longer provide family planning services due to looting, lack of basic supplies and inadequate training (Ministry of Health 2004a). Prostitution, now much more common as a result of increasing poverty and social breakdown (UN Development Fund for Women 2004) is associated with more sexually transmitted diseases, including HIV. The rise in back-street abortion is leading to reports of more cases of septic abortion (*The Telegraph* 1.09.04).

Mental health

Mental health care was neglected by the previous regime (Abed 2003). There are few if any mental health skills in primary care, and no intersectoral working for mental health in the community. The mental health service is largely specialist, hospital-based and delivered by a relatively small number of psychiatrists – mostly based in Baghdad, with very few nurses, social workers, psychologists or other therapists. There are no community services or community-based interventions. People with psychosis and other severe problems are often either confined to one of a very few asylums or cared for (and sometimes abused) by the family.

Epidemiological work across the world suggests average prevalence rates of 1% psychosis and 10% common mental disorders (largely depression and anxiety). There have been no epidemiological studies in Iraq but the rates of mental illness are likely to be significantly increased by living through the previous three wars and a dictatorship, in a society where human rights were routinely abused (Amowitz et al 2004); with increased poverty and malnutrition being major risk factors for mental illness; and with post-traumatic stress disorder caused by conflict (De Jong, Comproe and Ommeren 2003). The effects are felt by civilians and Iraqi war veterans. A subset of Iraqis also suffer from the long-term effects of being tortured during the Saddam Hussein regime (International Rehabilitation Council for Torture Victims 2004). These may be both physical and psychological (Summerfield 1996).

The Iraq ministry of health has identified high rates of depression, anxiety and somatisation (the manifestation of mental ill health in physical symptoms) (Ministry of Health 2004b). In addition to frank mental illness, related behavioural problems

such as family violence, child and spouse abuse and acts of public violence greatly increase in conflict and post-conflict situations (WHO 2002a). The aggregated effects of the psychosocial trauma suffered by Iraqi people create preconditions for further violence.

The health-sustaining infrastructure

The state of any country's infrastructure has a direct and indirect impact on the health of its population. Water and sanitation, power supply, food security, housing, transport and many other factors are important health determinants. Improving and sustaining the health of the Iraqi population and meeting the interim government target of halving child mortality within two years (Coalition Provisional Authority 2004) will require rebuilding and protecting the basic infrastructure, which has been severely and repeatedly damaged by over 20 years of war, government neglect and mismanagement, economic collapse and sanctions.

Water and sanitation

Sanitation facilities, most already non-operational, were looted throughout Iraq during and after the 2003 war. Half the sewage treatment plants are now working but nearly 500,000 tons of raw and partially treated sewage are discharged daily into the rivers. Less than half the population in rural areas has direct access to piped potable water (UN Development Programme 2003).

Power

Extensive damage to the electricity-generating infrastructure was incurred post-war as facilities were looted and pylons brought down to extract valuable copper from the wires. The available generating capacity can supply only half the total potential load (UN Development Programme 2004). Power supply remains unpredictable, with many homes, offices, and health care facilities largely reliant on private generators.

Nutrition and food security

Damage to the infrastructure that sustains food security has been sustained during conflict and subsequent periods of neglect, and it continues to be a major concern. One in four people are still highly dependent on public food distribution system, which in any case does not provide adequate food for the poorest households, who cannot afford to supplement the deficiencies through market purchases. Household survey data for 2003 indicate a greater percentage of children underweight (17%) or chronically malnourished (32%) than in 2000, though acute malnutrition has fallen from 6% to 5% in the same period (World Food Programme 2004).

The health system

The deaths and illnesses in Iraq that result from both the direct and indirect effects of conflict have been catalogued in the preceding sections. Now we turn to the health system itself, to assess how well it is coping with these complex and rising demands. *The World report on violence and health* (WHO 2002a) included an analysis of the diverse impacts of conflict on health systems and related infrastructure, a framework adapted in Table 2 to assess how closely it reflects the situation in Iraq. The decline of its health system and health-sustaining infrastructure since the 1980s demonstrates the profound impact on health of war, sanctions, economic collapse and lack of effective government.

Before 1991 the health system in Iraq was an evolving network of primary, secondary and tertiary care facilities that provided free, good quality services (WHO 2003) despite the damage done during the Iran-Iraq war. The health system was dramatically affected by the 1990–1991 Gulf War. Damage to the economy and the regressive effect of economic sanctions drastically reduced revenues available to central government, while state governance of the health sector declined. The low salaries and the lack of

regulation or management control encouraged many doctors and some nurses to change their practice to earn additional income from formal and informal user charges. Meanwhile the supply of drugs and equipment declined, and essential maintenance of equipment and facilities ceased. The quality of care fell drastically and many health professionals, especially recruits from overseas on whom the system relied heavily, left the country.

The Oil-for-Food programme improved investment in supply of goods for health but this was not matched by investment in salaries, training and recurring expenses, and therefore had little sustainable impact on quality. The health system focused on curative, hospital-based care at the expense of already inadequate community services, health promotion and disease prevention. The net effect was that the health system failed to reorient itself to postwar needs (WHO 2003) and was poorly prepared to cope with the impact of the 2003 war.

The war and resulting period of insecurity have further compromised the system by restricting access to health facilities, reducing outreach, and undermining initiatives to address fundamental long-term system problems. The situation in Baghdad and

TABLE 2

The impact of conflict on the health system and health-sustaining infrastructure, and its effects in Iraq (adapted from *World report on violence and health*, WHO 2002a, p227)

Object of impact	Manifestation of impact	Evidence in Iraq
Access to health services	<ul style="list-style-type: none"> • Reduced security • Financial exclusion (due to charges for services) • Geographical exclusion 	<p>Yes</p> <p>Yes</p> <p>Yes</p>
Health care activity	<ul style="list-style-type: none"> • Shift from primary care and preventive health care to specialist curative care • Reduction in rural and community-based services • Disrupted surveillance and health information systems • Compromised public health programmes 	<p>System already strongly specialist/curative. PHC adversely affected by war</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
Infrastructure	<ul style="list-style-type: none"> • Destruction of clinics • Disrupted referral systems • Damage to vehicles and equipment • Poor logistics and communication 	<p>Some – eg 12% of hospitals damaged in 2003</p> <p>Yes</p> <p>Yes – especially through theft and looting</p> <p>Yes</p>
Equipment and supplies	<ul style="list-style-type: none"> • Lack of drugs • Lack of maintenance • Inability to maintain cold chain for vaccines 	<p>Yes</p> <p>Yes</p> <p>Partially</p>
Human resources	<ul style="list-style-type: none"> • Insecurity pervades working environment • Low morale • Difficulty in retaining trained workers • Disrupted training and supervision 	<p>Yes</p> <p>Yes</p> <p>Many left Iraq during 1990s</p> <p>Already poor</p>
Essential health-sustaining infrastructure	<ul style="list-style-type: none"> • Water • Sanitation • Power • Food security 	<p>All adversely affected</p>
Relief and reconstruction activities	<ul style="list-style-type: none"> • Security limits access to certain areas • Increased cost of delivering services • Greater focus on single problems, with less integration between programmes • Less security for relief personnel • Weakened coordination and communication between agencies 	<p>Yes</p> <p>Not known</p> <p>Possibly</p> <p>Yes – exposure to insurgent acts and kidnapping</p> <p>Yes</p>

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A history of violence and neglect, 1990-2004

WAR 1990-1 p1

- Damage to economy
- Damage to essential infrastructure
- Damage to health system
- More deaths in postwar period than during the war

SANCTIONS AND ECONOMIC COLLAPSE p1

- Reduced revenues available to government
- Regime refusal to spend more on health and welfare
- Restricted import of goods for reconstruction
- Some improvements under Oil-for-Food programme

DICTATORSHIP p1

- Mismanagement of economy
- Widespread human rights abuses
- Health care lower priority

WAR 2003 p2

- Short campaign
- Infrastructure damage
- Widespread violence, looting, vandalism
- Explosive remnants of war and landmines

COLLAPSE OF STATE p1

- Overthrow of Saddam Hussein regime
- "Debaathification" leads to mass military and civil servant unemployment
- Fragile interim government
- Continued presence of coalition military forces



All information from references cited in *Enduring effects of war: health in Iraq 2004*, Medact, London, 2004.

of violence in Iraq

Iraq today



WAR ZONE p10

- Flashpoints: ongoing conflict
- Rise in criminality
- Violence against women
- Sabotage of reconstruction initiatives
- Destructive impact on daily life
- Vulnerable groups: women, children and internally displaced people

HEALTH-SUSTAINING INFRASTRUCTURE DAMAGED p4

- Water
- Sanitation
- Power
- Nutrition and food security

HEALTH SYSTEM IN CRISIS p5, pp8-9

- Restricted access to health care
- Damage and looting of health facilities
- Poor quality services
- Little focus on health promotion and disease prevention.
- Limited supply and inequitable distribution of drugs and equipment
- Major workforce problems (number, skills, morale)

POPULATION HEALTH POOR pp2-4

- Estimate of 100,000 deaths associated with invasion and occupation of Iraq
- Violence reported as primary cause of death
- Unknown burden of disability due the effects of violence.
- Unknown burden of death/disability from lack of access to services
- Increase in diarrhoea and acute respiratory infections.
- Increase in vaccine-preventable diseases: measles, mumps, typhoid
- High child mortality
- High maternal mortality
- Many mental health problems but little care available

RELIEF AND RECONSTRUCTION AGAINST THE ODDS p11

- Contested environment
- UN marginalised
- Inadequate leadership
- Traditional neutrality of humanitarian organisations threatened
- Too little coordination between agencies and with government
- Personal security of Iraqi and international staff at risk
- Most promised funds have not materialised
- Public scepticism

the northern governorates has improved; for example, over two thirds of the health centres in Baghdad have been rehabilitated with the support of United Nations agencies and nongovernmental organisations (NGOs) (Ministry of Health 2003). Reconstruction efforts are much less advanced elsewhere; rural regions, and areas where there is ongoing conflict between coalition forces and insurgents and little protection for Ministry of Health and NGO staff, have seen little or no improvement.

Poor quality services

The quality of health care in the state system is poor due to chronic underfunding, poor condition of the physical infrastructure (lack of maintenance and direct damage due to looting and vandalism), shortage and mismanagement of supplies, too few staff and lack of modern skills and knowledge. A 2003 survey of primary care facilities in Baghdad revealed that staff skills, technology and the working environment remained substandard (ABT Associates 2004).

The Ministry of Health has prepared plans for primary health care, quality improvement, nursing and other areas (Ministry of Health 2004a). It faces daunting challenges related to infrastructure, supplies and human resources, as well as leadership, morale and financing. Pay rises have been a recent positive step: a doctor's monthly salary has risen from US\$20 to \$120–180, while a nurse earns from \$60 a month.

Restricted and inequitable access

Evidence on the extent of damage to health facilities during the 2003 war is conflicting (Burkle and Noji 2004). In 2003 over a quarter of primary care centres closed, 12% were controlled by 'other groups' and not the Ministry of Health, and 3% had unexploded ordnance in their immediate vicinity (Ministry of Health 2003). The picture changes over time, varies regionally and is difficult to track.

The postwar security crisis has affected access to health care, especially in flashpoint areas. Paul Hunt, special rapporteur on the right to health, United Nations Commission on Human Rights, accused coalition forces during the conflict in Fallujah of blocking civilians from entering the main hospital; preventing staff from working there or redeploying medical supplies to an improvised health facility; and firing at ambulances which they suspected were being used to transport insurgents (ReliefWeb 2004). Insurgents also targeted hospitals in Baghdad and Ramadi with missile attacks and car bombs (*The Telegraph* 25.07.04).

The poor infrastructure and lack of human resources and supplies are particularly acute in these flashpoint areas. Previously adequately staffed urban centres are suffering a brain drain because of conflict, compounding the earlier trend of migration of professional staff from rural to urban centres.

Limited access is a particular problem for women. Insecurity and the threat of sexual violence prevented many women and girls from seeking health care for themselves or their children in the months after the 2003 war (UN Development Fund for Women 2004). One in five Baghdad mothers said they were unable to access mother and child health services during their last pregnancy because of security difficulties (Ministry of Health 2003). Addressing safety concerns of staff and patients, the Ministry of Health has trained 2400 security personnel to guard facilities throughout the country (UN 2003a).

Weak stewardship

Government stewardship of the health sector began to fail after 1991, the state health system was liberalised and health spending fell dramatically, all factors creating the preconditions for creeping privatisation and commercialisation of health care. The 2004 per capita allocation to the Ministry of Health is US\$38. This national health service budget of \$950 million compares very favourably with the \$16 million spent by Saddam Hussein in 2002, but it is still very low (Ministry of Health website 2004).

There has been growing fragmentation of services with huge variations in quality of care, weak referral systems, and no population protection from the financial burden of ill health. The onus is on patients to access health services rather than on providing services to reach them. People increasingly rely on self-diagnosis, traditional healing and advice from friends and family, and buy medicines without prescription from local markets.

Secondary care facilities are oversubscribed due to lack of diagnostic and therapeutic capacity outside the major cities. Specialists are unwilling to turn patients away, however inappropriate their needs, for fear of losing potential future revenue (WHO 2000b). The cost of health care is perceived as an indicator of quality and primary health care is poorly regarded; 70% of Iraqis think private health care is better than public health care, and 60% think it is better to go straight to a specialist when they are ill (Ministry of Health 2004a). Those who can afford it visit medical specialists in private facilities, or consult them directly in public facilities on a fee-for-service basis. Specialists tend to operate from outpatient

clinics in hospitals in urban centres, where fees are charged according to the seniority of the doctor rather than ability to pay, and there are also examples of doctors and nurses charging for treatment at street-corner community clinics. Those who have no money or access to specialists use public sector primary care.

These apparent inequities in distribution reflect long-term deficiencies in management and regulation of the health sector. Hospitals are located in all 18 governorates, generally in urban centres, while rural areas are served only by primary care facilities where the distribution of services is patchy. Like psychiatry, primary care offers less opportunity for personal income generation by professionals than other specialities, so nearly half the health centres are inadequately staffed (Ministry of Health 2004a), even though they provide the only formal health care available to the poor, particularly in rural areas. The Ministry of Health reports that rural primary health care services for 150,000 people in the south, including Marsh Arabs, are rudimentary or completely lacking (Ministry of Health 2004a).

Many communities remain largely dependent on the private sector for care and/or supplies and there is no financial protection from the costs of ill health, or welfare support. Aid organisations that can import supplies independently and work directly with individual hospitals and primary care clinics have played a large role in areas where the Ministry of Health has less influence (International Committee of the Red Cross 2004a).

Crumbling facilities

Iraq has 1285 primary care centres, 172 government hospitals and 65 private hospitals, of which two thirds are in Baghdad (Ministry of Health 2004a). Official estimates suggest that around 12% of hospitals were damaged and 7% looted in 2003; more than a third of the facilities that provided family planning services destroyed; and about 15% of community child care units closed. These are likely to be underestimates. The two main public health laboratories in Baghdad and Basra were looted and destroyed. The Institute of Vaccines and Sera was stripped of most of its equipment and furniture, and long power outages resulted in the loss of vaccines. Two of the three rehabilitation hospitals in Baghdad were looted to the extent that they had to close, and the main psychiatric hospital was looted and patients abused, raped and turned loose. Four of the seven central supplies warehouses were looted (Ministry of Health 2004a).

Most hospitals have chronic problems with sewage and garbage disposal, water and power supply and

lack of drugs and equipment, according to the ministry. A rapid postwar assessment by the Ministry and the World Bank showed that a third of the hospitals and half the health centres surveyed needed urgent and extensive rehabilitation. Another survey found that basic equipment was missing in more than half the health centres. Regular daily electricity cuts were a common problem and more than 80% had no generators, or non-functioning ones (Ministry of Health 2003).

Shortages of drugs, equipment and supplies

The procurement, inventory management and distribution of medical supplies by the state company Kimadia, which works under the Ministry of Health on marketing drugs and medical appliances (Kimadia 2004) are described as ineffective and inefficient (UN 2003a). After the war there were no antibiotics, insulin or chemotherapeutic drugs at any public hospital or health centre in the southern governorates, but CPA advisers found supplies in the Kimadia regional warehouses – originally denied by warehouse staff. There is widespread suspicion of criminal involvement in the distribution of pharmaceutical supplies (*The Washington Times* 14.6.04). Pharmaceuticals are allegedly diverted from the warehouses and appear on the market in neighbouring countries. Supply trucks are intercepted before they reach their destination, and supplies that reach local populations may be looted or otherwise diverted to end up in private pharmacies.

Workforce problems

Iraq formerly used its oil wealth to recruit many international health professionals, especially nurses, but most of these staff, and many Iraqi professionals, left during the 1990s. The physician to population ratio is low for the region and the qualified nurse to physician ratio is far below the norm (Ministry of Health 2004a). Recent studies found 47 doctors per 100,000 population, less than half the ratio in neighbouring countries. The total of 16,700 civilian nurses for a population of 26 million is a critical shortage (WHO 2003, Garfield and McCarthy 2004). In tertiary facilities, relatives often provide nursing care. Many deprived populations in rural areas are served by personnel with only rudimentary training. Standards cannot be raised without new professional accreditation and licensing systems, clinical career pathways, remuneration systems, better education, up-to-date learning materials and opportunities for exchange of professional knowledge and skills within and outside Iraq. The need to tackle this huge agenda is acknowledged but efforts have only just begun.

Living amid conflict

The most common Iraqi response to the question ‘What is the single biggest problem you are facing in your life these days?’ was ‘lack of security/stability’ (Oxford Research International 2004). Some people are seeking refuge in newly strengthened tribal groupings and resurgent faith communities, while others have been mobilised in violent nationalist or sectarian activity by people from within and outside Iraq (Feinstein International Famine Centre 2004). The security crisis pervades daily life, though some areas are relatively calm. There is a spectrum of violence, looting, vandalism and kidnapping, including of doctors (Charatan 2004). Its impact on population health ranges from physical and mental trauma to restricted access to health services. Vulnerable groups are affected in different ways, as highlighted below.

Men

Violent male deaths arise from insurgency: the dead may be insurgents, or targets for reprisals by insurgents, government security forces and Coalition troops. These deaths and injuries may therefore be underreported.

Women and girls

Insecurity, and especially the actual and perceived dangers of sexual violence, have created a climate of fear that prevents women and girls from participating in public life – going to school, going to work, seeking medical treatment, or even leaving their homes. Iraqi women are thus prevented from fully participating in the crucial early phases of recovery and reconstruction (Human Rights Watch 2004). Since April 2003, at least 400 women and girls as young as eight were reported to have been raped during or after the war; underreporting due to stigmatization of victims of sexual violence means the real figure may be much higher (UN Development Fund for Women 2004). Attendance at three Baghdad schools was less than 50%, with female absenteeism mainly attributed to insecurity and fear of kidnapping (Electroniciraq.net 2003). Conflict, insecurity and gender violence have also prevented women from seeking health care for themselves and their children (UN 2003a).

Internally displaced people

The general insecurity faced by the population of Iraq as a whole affects internally displaced persons (ie

refugees within their own national borders) even more because of their particular vulnerabilities and lack of community protection (UN 2004c). Displaced people form two main groups: those long-term displaced as a result of the former government’s policies and conflicts between neighbouring countries or factions in Iraq, and those displaced during or following the coalition intervention in 2003. The collapse of the regime encouraged 800,000 forcibly displaced Kurds to return to their homes in north Iraq, thus displacing around 100,000 Arabs, previously installed by the regime, who fled in fear of reprisals. Travelling groups have become regular targets of looters. Many newly displaced live in shanty towns or tent villages with no facilities, or in rural communities. Many returnees and newly displaced people are staying in abandoned military facilities, schools and police stations with little or no basic facilities and potential harm from explosive remnants of war and landmines.

Health workers

Many Iraqi health workers are making efforts to provide services in extremely difficult circumstances. However, the insecurity has a negative impact on their ability to come to work each day and feel safe while they are there. Some health workers may be forced to treat insurgents and fear becoming targets for other groups or troops. Longer-term factors will also influence workforce capacity. The International Labour Office has outlined seven dimensions of socioeconomic security that together capture the totality of workers’ experiences of security and insecurity (ILO 2003). Security in the labour market, employment, job, skill reproduction, work, representation and income are all potentially compromised in the current situation in Iraq. For example, professional development opportunities, clinical career pathways, appropriate financial incentives, morale and a collective voice in health system governance are all adversely affected. Their absence damages both the current quality of health care and the prospects for future development.

Aid and development workers

Recent kidnappings have highlighted the risks faced by aid and development workers, whether Iraqi or foreign nationals. Following a series of bombings, hostage murders and other security incidents, most NGOs have left Iraq. Only a few dozen UN workers remain in the International/Green Zone in Baghdad.

Relief and reconstruction

The US and UK governments, which as the Coalition Provisional Authority (CPA) assumed control of Iraq after the regime fell, gave overall responsibility for humanitarian relief to the US department of defence rather than to agencies experienced in handling humanitarian crises – a major and controversial departure from normal practice. The defence department initially had very little public health capacity (Burkle and Noji 2004) and no plan for health reconstruction. The UN, traditionally responsible for coordinating humanitarian responses in a crisis, was marginalised despite its secret preparations for postwar humanitarian relief and its officials, in limbo for several critical months, were caught ‘between cooptation and irrelevance’ (Minear 2003).

All this posed a dilemma for the NGOs, as many felt that working with the CPA or accepting UK or US government funding would undermine the neutrality of humanitarianism in the context of an active conflict. Furthermore, in some fields they were expected to compete with a growing number of private contractors motivated primarily by profit rather than principle. Some NGOs decided to work in full collaboration with the CPA while others refused, and declined government funding (Feinstein International Famine Centre 2004). Yet others attempted to act independently of the CPA (Slim 2004).

All partners face a contested environment, major policy quandaries, and a host of issues arising from interaction with coalition forces as both a donor and a military and political force. Relationships have been strained and all cite difficulties in engaging with other groups, exacerbated by differences of opinion on the legality of the war and occupation that undermine potential collaboration (Ridde 2003).

A rapid needs assessment by the UN and World Bank for the Madrid donor conference in August 2003 identified a range of reconstruction priorities. US\$32bn was promised for reconstruction, comprising loans and grants. Yet Iraq continues to pay reparations for the 1990–1991 Gulf war, including large payments to corporations such as Texaco and Coca-Cola (Klein 2004). US and UK companies received 85% of US\$1.5bn of contracts over \$5 million (Iraq Revenue Watch 2004).

The CPA was dissolved on 28 June 2004 and many decision-making powers on health system issues transferred to the Iraq Ministry of Health. Although funding has been agreed for health projects, funds

have not been disbursed and projects have not been implemented. A significant gap has opened between policies to address health needs and their implementation. There has been duplication of effort as agencies act on the basis of their own need assessments and priorities. For example, some communities in Najaf recently received five deliveries of water purification kits from different agencies in the space of a week. Moreover, some NGOs do not have the expertise needed to operate in such a difficult environment.

Negative perceptions

The agencies’ task is all the harder because of negative perceptions and security concerns (Feinstein International Famine Centre 2004). The risks undergone by relief and reconstruction workers are exacerbated by the superficial similarity of coalition forces, relief organisations and private contractors, who all have a significant proportion of Western personnel, travel in convoy and may be independently involved simultaneously in the same area.

Some programmes have made concerted efforts to overcome negative perceptions and engage with community leaders and officials. Not all agencies have exercised such sensitivity and dynamism, however. Agencies and the Iraqi government have little access in conflict areas as negative perceptions run too deep and the security risks are too high (ICRC 2004b). Duplication of effort has occurred because many agencies are operating in the same few safe spaces. After the bombing of the UN and International Committee of the Red Cross headquarters in Baghdad, most intergovernmental organisations relocated to Jordan, and most of the NGOs that remained have withdrawn following recent kidnappings and killings.

The NGO coordination forum has produced a code of conduct encapsulating the principles of civilian control of humanitarian operations, neutrality, proportionality and independence. It encourages NGOs to share information and facilitates something it calls ‘coordinated competition’, but no sanctions are available against those who breach the code (NGO Coordination Committee in Iraq 2004).

Whilst policy on redevelopment of the health system is emerging, implementation has been limited. Iraq remains largely a war zone and the pursuit of a relief and development agenda may be little more than nominal, while the future hangs in the balance.

Conclusions

It is estimated that 100,000 Iraqis have died as a result of the 2003 invasion of Iraq and its aftermath. Violence accounted for most of these deaths, particularly air strikes by coalition forces. The risk of death from violence in the 18 months after the invasion was 58 times higher than in the 15 months before it, while the risk of death from all causes was 2.5 times higher. No starker proof is required of the disastrous effects of war, even a supposedly short and contained one, on innocent people. The 2003 war exacerbated the threats to health posed by the damage inflicted by previous wars, tyranny and sanctions. It not only created the conditions for further health decline, but also damaged the ability of Iraqi society to reverse it.

Recommendations

Health, conflict and humanitarian assistance

- An independent commission should make a thorough investigation of casualties and the state of health in Iraq.
- Coalition forces should be required to monitor casualties and the extent to which civilians are protected against violence.
- Coalition forces should re-evaluate the consequences of weaponry used in populated areas.
- Coalition forces should comply with the Geneva Convention, including desisting from attacks on civilians and civilian infrastructures.
- The Iraqi government and coalition forces should respect the distinction between humanitarian assistance and relief efforts by the military. A clear separation of roles must be maintained and evident to all.
- Donors should pay much more concerted attention to the need to monitor and clear areas of Iraq where explosive remnants of war and landmines remain in situ.
- The UNEP Study on Depleted Uranium must be carried out as soon as possible.

Health and health policy

- Donors should support the Ministry of Health of Iraq to develop a clearer and more comprehensive picture of the health situation, to underpin planning and implementation of relief and reconstruction efforts, and to avoid the current duplication of effort.
- Donors should support the establishment/strengthening of health information systems and research capacity to plan effective public health interventions. This monitoring should assess wider determinants of health in postwar settings, such as

violence and psychosocial factors, as well as traditional epidemiological indicators.

- The capacity of the Ministry of Health to coordinate intersectoral health development and exercise stewardship of the multiplicity of internal and external actors must be strengthened and its authority safeguarded.
- Donors and the Iraqi government should ensure that adequate investment is taking place in reconstructing and protecting the health-sustaining infrastructure, including water, sanitation, power and food security. Allocated funds must reach their targets, be spent wisely, and be managed effectively.

Access to health services

A health service that people can trust and that serves everyone equitably can generate positive feedback to relationships in the wider society. Donors need to support the Iraqi government to take the following steps:

- Ensure that health facilities remain accessible and that coalition troops, government security forces and insurgents do not misuse health facilities and equipment for military purposes.
- Provide adequate rehabilitation services for combatants and civilians with long-term physical and mental disability resulting from trauma. Special attention should be paid to the psychosocial needs of children.
- Ensure that health sector funding continues to increase and funding flows remain stable.
- Investigate the funding basis of the health system, encouraging a move away from formal and informal charges for health services at the point of use, and a gradual shift towards a fully tax-based system. External donors should fund exemption schemes for the poor and strengthen existing forms of collective insurance.
- Boost primary care and introduce incentives for health staff to serve in clinics, especially in rural areas. At the same time, strengthen referral systems.

Preventing further conflict

Avoidance of further conflict is the key to reducing the direct and indirect impact of conflict on health in Iraq. The need to find alternatives to violence and resolve political differences is paramount. Medact has endorsed the principles of The Responsibility to Protect (ICISS 2002) and recommends better funding of research into conflict reduction and confidence-building measures. Examination of the role that the health system can play in building the peace in Iraq is also urged.

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This evidence-based report analyses from a public health perspective the impact on health and health services of the 2003 war on Iraq, and the country's ensuing political and security crisis. It builds on Medact's previous two reports on health in Iraq (2002 and 2003), which attracted worldwide media attention.

The war and its aftermath continue to have a major negative impact on the physical and mental health of the Iraqi people. An estimated 100,000 Iraqis have died because of the invasion and countless thousands more have been injured. This report also highlights the inadequacies and challenges of efforts to build a new health system based on primary health care principles, freely available to all.

This report is produced by Medact, an organisation of health professionals that exists to highlight and take action on the health consequences of war, poverty and environmental degradation and other major threats to global health. For many years Medact has highlighted the impacts of violent conflict and weapons of mass destruction and worked to improve the health of survivors of conflict.

This report and an executive summary can also be found on the Medact web site www.medact.org and on the web site of International Physicians for the Prevention of Nuclear War, www.ippnw.org

Photographers © Iva Zimova/Panos Pictures Women's hospital ward in Al Nagar, Iraq, where two or three patients share one bed. © Kael Alford/ Panos Pictures In Najaf a child is carried across the street by his father on the outskirts of the old city. The area had been under siege from US forces for weeks, with fighters of Moqtada al-Sadr's Mehdi army offering stiff resistance.

