

Integrated Control of Communicable Diseases

WHO Iraq

2006-2007



World Health Organization

Regional Office for the Eastern Mediterranean



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1. Main achievements

Despite the critical situation in Iraq much progress has been made in the field of communicable diseases prevention and control in 2006-2007.

The comprehensive communicable diseases surveillance system is now well functioning with primary health care (PHC) centres and hospitals reporting on a monthly and weekly basis in most of Iraq's governorates. Furthermore, for the past two years WHO Iraq has provided full technical and logistics support to reduce the likelihood of human H5N1 infections and strengthen the country's early warning system. Despite the region in general witnessing many outbreaks of human H5N1 cases in 2007, no such outbreaks were reported in Iraq.

Clear progress has also been made in the field of malaria and leishmania prevention and control. Only three malaria cases were reported in 2007, all in the northern city of Erbil. This indicates that the prevalence of malaria in Iraq is now isolated in specific areas and that the country is making substantial progress towards complete eradication. A clear reduction in visceral and cutaneous leishmaniasis has also been observed. The progress achieved is due to a comprehensive package of prevention and control activities implemented by the Ministry of Health (MOH) with full technical and logistics support from WHO, including: early diagnosis and response; indoor spraying; fogging; entomological surveillance activities; rodent control activities; distribution of bed nets; and community awareness activities.

WHO has also provided technical support for Iraq's proposals to the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM). The Iraq tuberculosis proposal has already been approved with funding of US\$ 15 million to be allocated over the next five years. WHO Iraq also submitted three proposals to UNDG Iraq Trust Fund in the area of avian influenza (AI) and communicable diseases prevention and control. One of the proposals was successfully completed in November 2006. The other two proposals were approved in 2007 and are currently being implemented to:

- sustain the progress achieved by ensuring proper planning and implementation of prevention and control activities related to emerging infectious diseases and other infectious diseases that constitute a major public health concern;
- strengthen outbreak response systems and avian influenza surveillance within the overall communicable diseases surveillance system in line with International Health Regulations 2005; and
- strengthen national human resources capacity in regards of communicable diseases prevention and control.

2. Surveillance and outbreak response

WHO is providing continuous technical and logistics support to the Ministry of Health to strengthen disease surveillance and outbreak response in line with the International Health Regulations (IHR). Such support includes: the provision of training programmes both inside and outside Iraq; improving communications; supporting outbreak response at both central and governorate levels; supporting various meetings; and providing technical and logistics support to finalize and print manuals and guidelines related to communicable diseases surveillance.

WHO Iraq also regularly receives and analyses communicable diseases data to evaluate the effect of different interventions and to formulate future strategies. Prevention and control activities are conducted in different villages/districts according to the epidemiological situation.

However, despite significant progress in communicable diseases surveillance and outbreak response, the surveillance system is in need of further support, especially in relation to the integration and participation of the private sector.

Technical and logistics support provided by the WHO during 2006-2007 to strengthen disease surveillance and outbreak response systems included the following:

- the provision of 22 epidemiology fellowships in Amman, Jordan;
- support for three Iraqi nationals to obtain masters degrees in epidemiology through the Jordan Field Epidemiology Training Programme;
- training workshops on communicable diseases surveillance and outbreak response at the central and peripheral levels;
- training workshops on haemorrhagic fever prevention and control;
- advocacy meetings on waterborne diseases prevention and control;
- workshops on waterborne diseases prevention and control;
- monitoring and evaluation activities at central and peripheral levels;
- the provision of updated WHO documents;
- technical review and printing of the Communicable Diseases Surveillance Manual and different surveillance forms (immediate, weekly and monthly);
- strengthening laboratory-based surveillance through the provision of medical supplies and laboratory reagents.

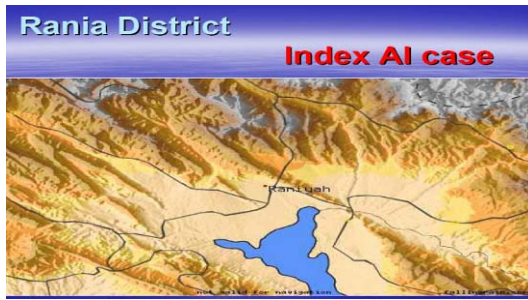


Epidemiology fellowship participants, Amman

3. Avian and pandemic influenza

For more than two years WHO Iraq has been providing full technical and logistics support to reduce the possibility of human H5N1 infections and to strengthen the early warning system, including: the establishment of committees to implement the national strategy; the strengthening of epidemiological and laboratory based surveillance systems; and community awareness campaigns.

To date, only three cases of human H5N1 have been confirmed in Iraq. Several suspected cases were reported in the northern governorates of Erbil and Sulaymaniyah, as well as in the southern governorates of Babel, Basra, Maysan, Thigar and Wasit. During early 2006 other suspected cases were reported in the governorates of Baghdad, Diyala and Ninevah. Following the screening of around 450 suspected cases just three proved positive for H5N1, two in Sulaymaniyah and one in Baghdad. In line with IHR (2005) Iraq demonstrated full transparency and a timely exchange of information in relation to the reported three cases of avian influenza.



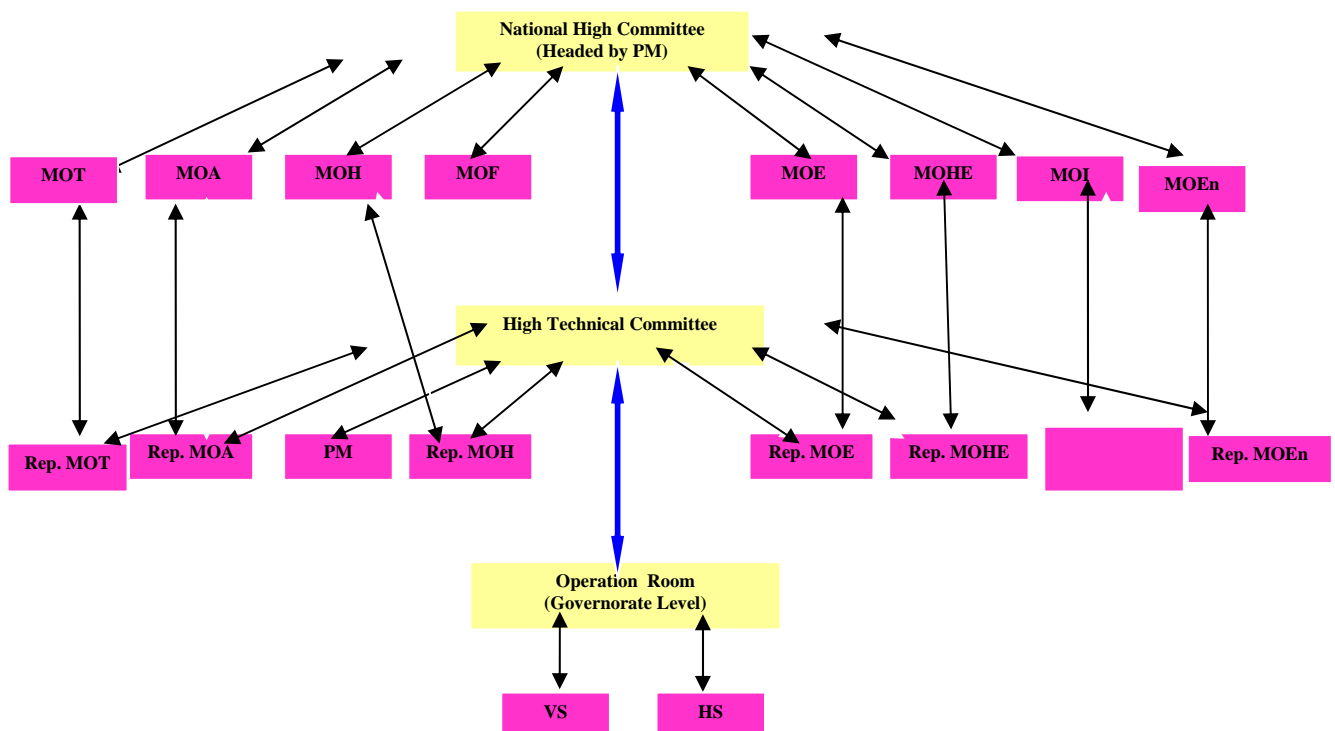
Mission organized upon the request of the Ministry of Health of Iraq and the Ministry of Health in Kurdistan area to assist in the investigation of avian influenza outbreak in northern Iraq and after the first human case was confirmed in Sulaymaniyah (Rania district)



WHO-led avian influenza international experts' mission to Iraq

In preparedness for a possible outbreak of avian or pandemic influenza, technical and logistics support was provided in the following areas:

- Establishment of a national technical committee and high level committee led by the Deputy Prime Minister with the participation of the Ministry of Agriculture, Ministry of Education, Ministry of Environment, Ministry of Health, Ministry of Higher Education, Ministry of Finance, Ministry of Interior and Ministry of Trade.



- Technical and logistic support for testing avian influenza samples. By the end of December 2007 about 450 human samples had been tested in WHO reference laboratories.
- During 2006 WHO Iraq received the list of laboratory equipment, reagents and kits needed to improve avian influenza laboratory-based surveillance for Iraq. The list included: the kits for polymerase chain reaction (PCR) identification of all types of influenza A type; kits for PCR identification of all types of influenza B type; and kits for rapid detection of influenza, etc. The list was procured through WHO Regional Office for the Eastern Mediterranean. Some of the kits were procured from the local market (Amman) to ensure rapid delivery.
- During the first few months of 2006 WHO Iraq provided personal protective equipment (PPE) valued at US\$ 45,000. The equipment was distributed to the avian influenza isolation units in different governorates, according to needs. Subsequently, PPE estimated at a total value of US\$ 500 000 was procured and delivered to Iraq.
- Real time PCR was procured. Two staff members from the Central Public Health Laboratory (CPHL) Baghdad received training in Amman on the use of the machine before it was dispatched to Baghdad.
- As soon as the avian influenza index case was confirmed, antiviral treatment (Tamiflu) was procured by WHO and distributed to the governorates, according to the epidemiological situation. The total amount procured was 70 000 tablets.
- WHO Iraq supported urgent investigation missions conducted by communicable diseases control (CDC) Baghdad to the northern governorates and Maysan.
- Avian influenza surveillance tools have been revised and finalized. Copies have been printed and distributed to all Iraq governorates.
- A liquid nitrogen generator was procured and delivered to Iraq. Two engineers were trained in the Netherlands on the installation and use of the machine.
- From 5 to 17 March 2006 four staff members from the Central Public Health Laboratory (CPHL) Baghdad received training in NAMRU3/Cairo on advanced techniques for the isolation and identification of different types and subtypes of avian influenza.
- Training courses have been provided in epidemiology and infection control for physicians and health workers in the isolation units, hospitals and PHC centres.
- The following community awareness activities were supported:
 - 10 TV spots;
 - leaflets technically reviewed with 700 000 copies printed and distributed;
 - health education materials in the Kurdish language for the northern governorates were printed;
 - 83 advocacy meetings in which community leaders, women's groups, mass media, high risk groups and PHC staff participated (Table 1).

Table 1. Advocacy for community awareness

Governorate	Number of advocacy meetings	Males	Females	Total participants
Erbil	1	7	16	23
Mosul	5	110	30	140
Kirkuk	4	77	33	110
Basra	8	184	66	250
Maysan	5	107	42	149
Muthana	3	73	17	90
Thiqar	4	79	31	110
Baghdad	22	300	355	655
Salaeddin	4	82	28	110
Babel	4	71	39	110
Diwaniyah	4	69	41	110
Najaf	4	84	26	110
Diyala	4	75	35	110
Ramadi	4	88	22	110
Wasit	4	85	25	110
Karabala	3	57	23	80
Total	83	1548	829	2377



Community awareness activities



TV spots



Health education leaflets

- With WHO technical and logistics support, a training workshop on avian influenza surveillance tools was conducted in Amman from 17 to 18 March 2006. The purpose of the workshop was to provide training on surveillance tools in light of the new avian influenza situation in Iraq, including case definition and case investigation, etc.



Participants during the avian influenza workshop

- In accordance with a mandate to support national efforts to combat avian influenza through the provision of effective advocacy and communication for behaviour change, WHO and UNICEF jointly organized two consecutive training workshops for media practitioners and governorate spokespersons between 26–27 and 29–30 March 2006.



Media workshop participants



Spokespersons workshop participants

- WHO/UNICEF workshop was conducted on the development of avian influenza communication and social mobilization strategy to identify priority communication and social mobilization needs.
- From 12 to 13 April 2006 a total of six Iraqi officials from Ministry of Health and Ministry of Agriculture, in addition to the WHO Iraq avian influenza focal point, participated in the joint WHO/Food and Agriculture Organization (FAO) avian influenza meeting in Ankara. The meeting brought together human and animal health officials from a variety of affected countries, including Armenia, Azerbaijan, Georgia, Islamic Republic of Iran, Iraq, Syrian Arab Republic and Turkey. The meeting promoted technical and operational joint collaboration for influenza surveillance response and containment and provided a chance for the participants to share their practical experience.
- In April 2006 a Joint WHO-FAO-UNICEF working session for NGOs on avian influenza was conducted. A total of 20 representatives from local and international NGOs participated in the session.
- WHO Iraq focal point for avian influenza participated in the rapid response for avian and pandemic influenza training of trainers workshop in Bangkok, Thailand, between 17 and 21 July 2006. The workshop was organized by the Global Disease Detection/International Emerging Infections Programme, the Thai Ministry of Public Health, USA Centers for Disease Control and Prevention (CDC) Collaboration, Department of Human Health Services/Centers for Disease Control and Prevention and WHO.



Rapid response for avian and pandemic influenza training of trainers workshop, Bangkok, Thailand

- A training of trainers workshop on rapid response for avian and pandemic influenza was held in Erbil from 8–12 February 2007. A total of 45 epidemiologists, virologists, communication officers, clinicians, infection control specialists and veterinarians from

Basra, Dohuk, Erbil, Kirkuk, Maysan, Mosul and Sulaymaniyah participated in the workshop. The workshop focused on the development of qualified teams responsible for outbreak investigation and response of human avian influenza cases. The trained teams are responsible for training other teams in different governorates with the technical and logistics support of WHO.



Participants during the workshop in Erbil/February 2007

- A training workshop on rapid response for avian and pandemic influenza was held in Basra from 9–12 April 2007. The number of participants totalled 43 and came from the following units of the four lower southern governorates:
 - Surveillance unit
 - Infection control unit
 - Health education unit
 - Laboratory
 - Veterinarian section
 - Environmental department.



Participants during the workshop in Basra/April 2007

- Between 30 April and 2 May 2007 a technical meeting was conducted in Amman on rehabilitation of avian influenza isolation units in Baghdad, Basra, and Erbil. A total of 27 people from these locations participated in the meeting. The main objectives and outcomes of the meeting were as follows:
 - assess the situation (physical structure, equipment, staffing, etc) of isolation units for avian influenza in the Baghdad, Basra, and Erbil governorates
 - assess the space requirements, flow and functionality of isolation units
 - assess the service systems requirements of isolation units.



Participants during the workshop in Amman/May 2007

In addition, three avian and pandemic influenza training workshops were held in Mosul to provide team training on outbreak investigation and response to human avian influenza cases.

Workshop 1

A total of 34 participants took part in the 29–29 March 2007 workshop, including physicians, laboratory technicians and health staff from three hospitals (Ba'aj, Hamdaneya, and Talafar) and the PHC districts of Ba'aj, Hadhar, Hamdaneya, Makhmoor, Sheekhan, and Sinjar. The participants also included seven veterinarians from the veterinary hospital and other districts in Ninawa.



Participants during the first workshop in Mosul/ March 2007

Workshop 2

A total of 14 participants took part in the 18–19 March 2007 workshop, including physicians, laboratory technicians and health staff in the PHC districts of Qayara, Talafar, and Telkeif. The participants also included two veterinarians from the veterinary hospital and one veterinarian from each of the three districts.



Participants during the second workshop in Mosul/ March 2007

Workshop 3

A total of 33 participants took part in the 14–15 March 2007 Mosul avian influenza workshop, including physicians, laboratory technicians and health staff from the city's eight hospitals and the two PHC districts of Al-Aymen and Al-Ayser. The participants included three veterinarians from the veterinary hospital.

- A team of three WHO international specialists supported by national staff was deployed in Erbil from 11 to 16 February 2007 to support the Ministry of Health in conducting a workshop on Guidelines for laboratory design: Health and safety considerations. The workshop was attended by 42 multidisciplinary professionals (26 males and 16 females) representing Iraq's 18 governorates. The participants included professionals from the ministries of health (24), higher education (4), agriculture (6), and environment (8) who are engaged in managing, designing and constructing new laboratories or renovating existing laboratories throughout Iraq.



Participants during the workshop in Erbil/ February 2007

- Throughout 2007 training workshops on rapid response for avian and pandemic influenza were conducted in the following northern governorates:
 - Dohuk: six workshops
 - Erbil: nine workshops
 - Sulaymaniyah: 10 workshops.

The aim of the workshops was to develop qualified teams of professionals responsible for investigating outbreaks of human avian influenza cases in the northern governorates and provide immediate response.



Rapid response training workshop on pandemic and avian influenza, Dohuk, May 2007

- Three laboratory technicians were trained in NAMRU3 between 15 and 26 April 2007.
- Two engineers were trained in Beirut on the maintenance of real time PCR. PCR is essential for the rapid lab diagnosis of H5N1.

- Two avian influenza training workshops for laboratory technicians were conducted in CPHL/ Baghdad. During the first workshop, from 11-13 July 2007, 17 participants from the surrounding governorates received training. During the second workshop, from 8-11 July 2007, 29 participants from Iraq's other governorates were trained.
- Rehabilitation of Erbil's avian influenza isolation unit has started and is now 62% complete. The rehabilitation of the Basra unit will commence as soon as possible.



Isolation unit, Erbil

- The WHO Regional Office has almost completed its 2008 procurement of equipment for the National Influenza Laboratory. Many of the items have been successfully delivered to Baghdad.
- The procurement of medical supplies required for the isolation units in preparation for pandemic influenza has started.

4. International Health Regulations (IHR 2005)

During all WHO missions to Iraq, both the WHO Representative Iraq and WHO Iraq epidemiologist utilized the cholera outbreak as an opportunity and entry point to advocate for IHR 2005 at various levels. IHR presentations were given during training activities in Baghdad, Erbil, and Sulaymaniyah. WHO consistently advocated for Iraq to use the cholera outbreak as an opportunity to:

- identify gaps and strengthen national diseases surveillance, prevention and control, and response systems;
- strengthen public health security in travel and transport;
- strengthen partnerships in order to respond to public health threats.

During the cholera outbreak in Iraq WHO was asked to act to counter measures imposed by some neighbouring countries: doxycycline given to arrivals from Iraq; and restrictions on imported food products, such as dates. WHO referred to the IHR 2005 which clarifies the criteria for public health emergencies of international health concern. According to these criteria, restrictions on travel and trade should only be imposed if there is a significant risk of international spread.

5. Waterborne diseases

5.1 Cholera

No cholera outbreaks were reported in Iraq during 2006. However, on 14 August 2007 a *Vibrio cholerae* outbreak began in the northern Iraqi governorate of Kirkuk and quickly spread to 11 of the country's 18 governorates. As of 30 December 2007 a total of 4697 laboratory-confirmed cases were reported, resulting in 24 fatalities, making this the largest documented cholera epidemic in Iraq's history.

In order to ensure an effective response to the cholera outbreak and control the spread of the disease, WHO led the Health and Nutrition sector team and worked in close cooperation with both central and local government authorities.

As part of a joint operational strategy, WHO in partnership with other UN and international agencies assisted the Government of Iraq in rapid response to the cholera outbreak through the following strategies:

- improving coordination and information management
- intensifying active surveillance for cholera
- strengthening public health laboratory capacity
- ensuring proper case management
- ensuring the availability of safe water, sanitation and food
- strengthening risk communication in affected communities
- ensuring the availability of needed supplies.

WHO also undertook numerous joint national and international field missions to Baghdad and the provinces of Dohuk, Erbil, and Sulaymaniyah in order to identify possible gaps and ensure rapid response. Visits were made to the following locations:

- Ministry of Health
- Central Public Health Laboratory
- Teaching Hospital
- Paediatric Hospital
- Emergency Hospital
- Water Quality Laboratory- DOH
- Water Quality Laboratory- DWS
- Directorate of Health
- Preventive Health Department
- schools
- PHC centres
- Governor's Office
- General Directorate of Water Supply
- Drugs and supplies warehouse
- paediatric hospitals
- water treatment plants.



Central Public Health Laboratory, Erbil



Teaching hospital, Erbil



WHO team with the director of the cholera operation room in Koya

In October 2007 WHO provided the following emergency supplies for rapid cholera response:

- five million water purification tablets, each tablet will purify 20 litres (200 000 for one month), serving 800 000 – one million people;
- 100 000 water purification tablets, each tablet can purify 1000 litres of water. (125 000 for one month);
- 60 000 DPD-1 tablets for testing residual chlorine in drinking water;
- 10 diarrhoeal disease kits for the northern governorates;
- 30 000 units of Ringer lactate solution;
- 2000 doxycycline treatment courses;
- 20 000 infusion cannulas of different sizes;
- 10 000 units of normal saline solution;
- 500 chlorine test kits in addition to 100 000 DPD-1 tablets.



Trucks dispatch cholera kits

During the field missions the following activities were accomplished as part of a rapid response to the cholera outbreak:

- Six training of trainers workshops were conducted in Erbil and Sulaymaniyah with full technical and logistics support of WHO. A total of 130 health workers from hospitals and PHCs were trained on developing and implementing effective training programmes by using the best tools, skills and theories.
- Five two-day training courses were conducted in Koya and Taq-Taq with full technical and logistics support of WHO on Hygiene Education for 176 school teachers and community leaders. The main objective was to establish a common understanding of up-to-date approaches to hygiene promotion and environmental sanitation, to assess best practices, and share experiences on current practices in hygiene and environmental sanitation in schools and households.
- Three-day training sessions were conducted for 30 chlorine operators in the Koya district.
- Six hygiene education training sessions took place for 200 teachers and community leaders in Erbil governorate.

- A total of 100 laboratory technicians from Dohuk, Erbil, Kirkuk, Mosul and Sulaymaniyah received training on techniques for lab diagnosis of VC and water quality testing.
- Three urgent missions were undertaken for CDC Baghdad and Central Public Health lab staff to Erbil, Kirkuk and Sulaymaniyah.
- The distribution of 5000 cholera case management guideline posters to 1,000 health facilities.
- The distribution of 50 000 leaflets on cholera and water disinfection.
- The supply of reagents for both water quality control laboratories and CPHL in Erbil and Sulaymaniyah.
- A health education specialist and a sanitary engineer were recruited to support health authorities and water supply departments in the northern governorates.
- WHO supported 22 fellowships on epidemiology in collaboration with CDC Atlanta. The training modules focussed on surveillance and outbreak response.
- A comprehensive school health education plan targeting 1800 schools as part of the School Health Programme in coordination with UNICEF was prepared by WHO in coordination with health and education authorities in the three northern governorates.
- WHO has supported eleven cholera surveillance teams by hiring 11 vehicles for Dohuk, Erbil, Koya and Sulaymaniyah to monitor school hygiene and chlorine levels in drinking water, in addition to health education activities in schools and remote areas.

5.2 Viral hepatitis

- 14 fellowships on viral hepatitis prevention and control were provided in Cairo, Egypt.
- Training workshops and community awareness activities were supported.
- Monitoring and evaluation activities were supported.
- Kits for different types of viral hepatitis were provided

WHO also provided full technical and logistics support for the Viral Hepatitis Study. The main aim of the study was to estimate the prevalence and incidence of all types of viral hepatitis in Iraq. The results of the study can be summarized as follows:

- Hepatitis A is hyperendemic in the country with a prevalence rate of 96.4% compared with previous figures of 90%–95%;
- Hepatitis E is also endemic, but less than hepatitis A with prevalence of 20.3%;
- Hepatitis B is of low endemicity at 1.6%;
- Hepatitis C is found to be of very low endemicity at 0.4% compared with previous figures of 0.5%;
- No significant sex differences were found with reference to hepatitis A and E.
- With reference to hepatitis B, a prevalence rate of 2% was found in males compared with a 1.4% rate in females.
- For hepatitis C the prevalence rate was 0.5% in males compared with 0.3% in the females.
- The incidence of different types of acute viral hepatitis cases collected from 10 governorates during 2006 was 41%, 10.1%, 2.5% and 19.4% for hepatitis A, B, C and E respectively.

5.3 Typhoid fever

Typhoid fever is one of the water and foodborne diseases with high endemicity in Iraq. Due to the hot weather and the continuous interruption of electricity and water supply, an increase in waterborne diseases was expected during the summer months of 2006-2007. As a result, numerous interventions were implemented to prevent and control outbreaks of typhoid fever. In 2005, 2006 and 2007, a total of 33,720, 26,150 and 36,208 typhoid fever cases were recorded respectively.

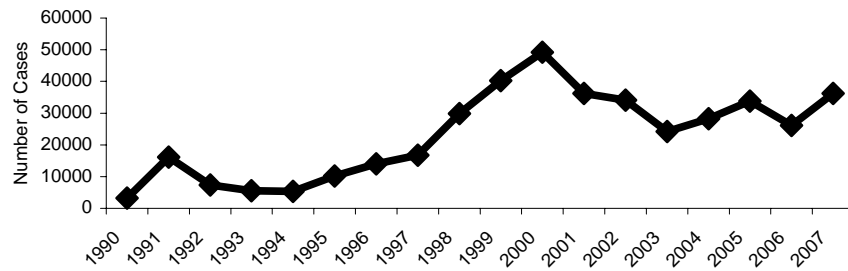


Figure 1. Typhoid fever cases reported in Iraq, 1990–2007

6. Malaria and leishmania control

In order to evaluate the effectiveness of various intervention strategies and devise future plans, WHO Iraq is receiving and analyzing communicable diseases data on a regular basis. Prevention and control activities are being conducted in different villages and districts according to prevailing epidemiological circumstances.

The 2007 data indicated a decrease in the incidence of many communicable diseases. Only three malaria cases were reported during 2007: two of them in Sidican village in the Erbil governorate and one imported case from Ethiopia.

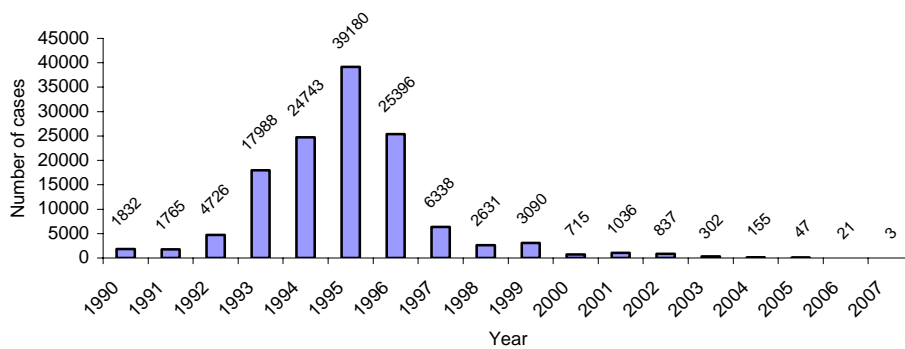


Figure 2. Reported malaria cases in Iraq, 1990–2007

In 2007 a total of 806 cases of kala-azar were reported (excluding Anbar province) compared with 1572 cases in 2006, 2059 cases in 2005, and 3218 cases in 2004. In terms of leishmania (both kala-azar and cutaneous leishmaniasis), almost 83% of cases reported during 2007 were from eight governorates: Baghdad (106), Basra (103), Diwaniyah (137), Maysan (220), Najaf (89), Salaheddin (87), Thi qar (100), and Wasit (220).

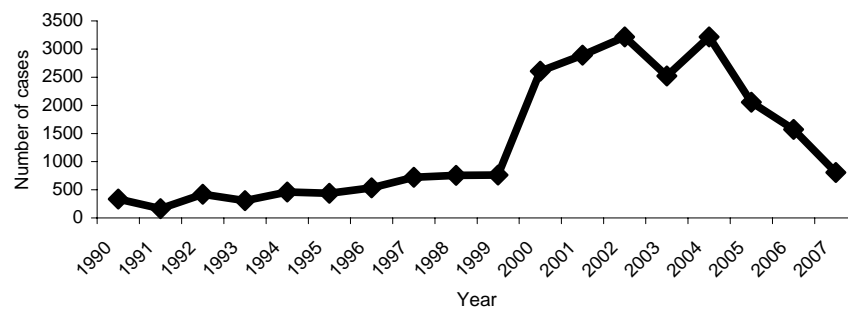


Figure 3. Reported kala-azar cases in Iraq, 1990–2007

The reduction in the incidence of malaria and leishmania is attributed to the comprehensive package of prevention and control activities conducted during the previous years by the Ministry of Health with full technical and logistics support from WHO. Such activities included: early diagnosis and response; indoor spraying; fogging; entomological surveillance activities; and rodent control activities, among others.

Control of communicable diseases such as malaria and leishmaniasis is implemented through programmatic strategies and comprehensive intervention packages.

During the reporting period many activities were supported, including the following:

- spraying campaigns in September- October 2005 and April- May 2006;
- fogging activities during 2005 and 2006;
- provision of long-lasting insecticide treated bed nets; WHO provided bed nets for 192 000 families and supported distribution to the governorates (Table 2);
- two national seminars (100 participants, for 2 days for each);
- 31 national training workshops (3-4 days each) to raise the awareness of government and private sector medical and paramedical staff on various malaria, leishmania prevention and control activities (Table 3);



Spraying activities in Mosul



Fogging activities in Basra



Malaria spraying in Wasit

Table 2. Distribution of bed nets by governorates

Governorate	Number of bed nets
Dohuk	10 000
Erbil	10 000
Sulaymaniyah	10 000
Ninawa	10 000
Kirkuk	10 000
Diyala	15 000
Baghdad\Kerkh	10 000
Baghdad\Rasafa	10 000
Babel	11 000
Najaf	7000
Kerbala	10 000
Diwania	10 000
Muthanna	7000
Anbar	10 000
Salahedin	7000
Thiqr	11 000
Maysan	10 000
Basra	11 000
Wasit	11 000
CDC (reserve)	2000
Total	192 000

Table 3. Training for disease prevention and control

Area	Number of workshops	Males	Females	Total
Leishmania	19	567	165	732
Malaria	12	371	145	516
Total	31	938	310	1248

Table 4. Training for vector control

Area	Number of workshops	Males	Females	Total
Vector control	19	469	100	569

- 19 entomological monitoring surveys;
- 19 rodent control campaigns throughout Iraq;
- vector control activities, including 19 training workshops and providing the needed kits and spraying at water collection and dumping sites (Table 4);
- delivery of medical equipment and supplies to Iraq worth US\$ 3 510 000 for malaria, leishmania and avian influenza programmes (Figure 4 and Table 5).

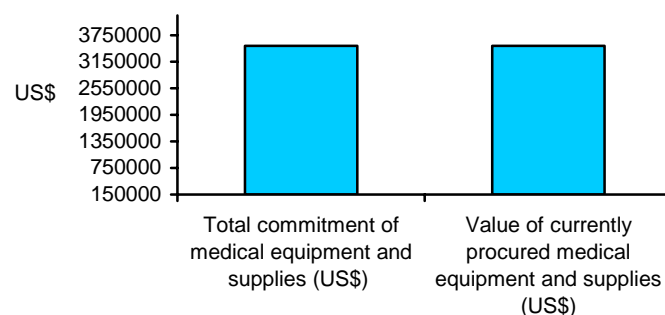


Figure 4. Equipment and supplies for malaria and leishmania: total commitment vs value of procured items

Table 5. Procured equipment, supplies and kits for malaria and leishmania control during 2006

Description	Qty.
Long lasting insecticidal mosquito nets	192 000
Dissecting/stereo microscope	30
Microscopes with binocular phototube with digital photo camera	6
Laboratory microscope, biological standard set	100
ICT malaria combo Pf/Pan – Pv/Pm/Po, Cassette, 25 tests, shelf-life: 16 months	200 Kit
Mobile laboratory with special body to accommodate related equipment and items	1
Toyota double cabin 4WD	21
Staining dish Schiefferdecker for 20 slides of 76 x 26 mm	100
Microscope slides 76 x 26 mm	40 000
Blood lancet, SS, single packed	10 000
PH metre with buffer solutions	20
Pipettes colour-coded fixed volume (10, 20, 25, 50, 100, 200, 250, 500 and 1000 µL)	50 set
Tips for pipettes 0.5 to 250 µL, pack of 1000	100 pack
Tips for pipettes 200 to 1000 µL, pack of 1000	100 pack
Water still, 4 litres/h – fully automatic	20
Diamond pencil, clinical aids	100
Slide drying box, capacity 100 slides	1000
Cover slides, pack of 100	50 Pack
Side lamp, mobile	47
Graduated cylinders, borosilicate glass capacity 1000 ml	120
Beakers, low form, with graduation and spout capacity 250 ml	120
Beakers, low form, with graduation and spout capacity 600 ml	120
Beakers, low form, with graduation and spout capacity 1000 ml	120
Conical flask, Erlenmeyer flask, narrow neck capacity 250 ml	120
Conical flask, Erlenmeyer flask, narrow neck capacity 500 ml	120
Insecticides	15 000 kg
Support provided to National Influenza Center (avian influenza)	
Real time polymerase chain reaction (RT-PCR) Applied Biosystem 7300, with training for 2 health technology staff	1
Kit, Flu A kit, 20 tests	5 kit
Kit, In Vitri EIA Flu A kit, 20 tests	5 kit
Viral specimen collection swab Culturette, packing size: box/100 pcs	50 pk
Tissue culture tubes with round bottom sterile, pack of 500	8 pk
MDCK serum free medium, pack of 1 L	5
D-MEM, pack of 500 ml	20 bottle
RPMI 1640, pack of 6x500 ml	2 bottle
Gentamicin sulfate 50 mg/ml, 10 ml	100pk
Trypsin-EDTA 0.05%, pack of 6x100 ml	2 pk
Tissue culture flask, growth area 25 cm ² , case of 500 pcs	4 case
Liquid nitrogen dewars, classic 25 litre	20
Centrifuge, bench top refrigerated model Rotanta 460 R Hettich with swing out rotor	2
Fluorescence microscope	2
Inverted microscope	2
Inverted microscope with digital photo camera	1
Liquid nitrogen generator, 10 L	1
Egg incubator	2
Liquid nitrogen freezer, Cryogenic system 10K	1
CO2 incubator	2
PPE – Surgical Masks, box of 50	9440 box
Latex gloves, M-size, box of 100	8000 box
Latex gloves, L-size, box of 100	8000 box
Disposable coverall head cover X-Large	90 000
Masks FFP2	40 000
Goggles, uncoloured full screen protective, reusable	30 000
Tamiflu (anti viral)	70 000 tablets

7. Schistosomiasis

Most schistosomiasis cases reported during 2007 (Figure 5) were from two districts: Baladroz in Diyala governorate and Al-Qaem in Anbar governorate. WHO is supporting many prevention and control activities in these two districts.

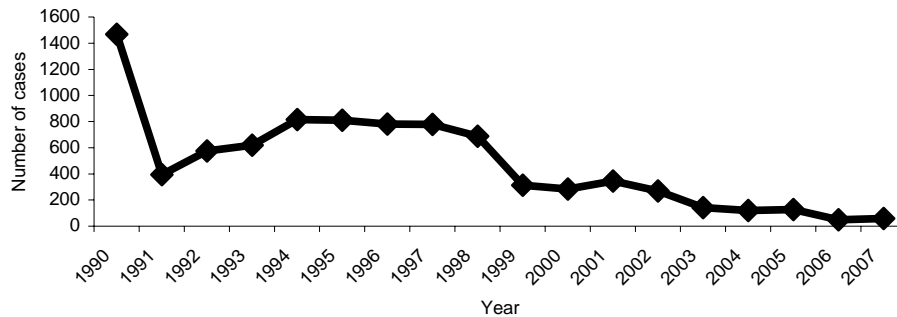


Figure 5. Reported schistosomiasis in Iraq, 1990–2007

During 2006 and 2007 WHO provided the following technical and logistics support to prevent and control schistosomiasis:

- spraying campaigns of aquatic snails
- training activities
- community awareness activities
- monitoring and evaluation activities
- procurement of needed supplies.



Spraying of aquatic snails

8. HIV/AIDS

WHO has provided technical and logistic support to HIV/AIDS programme to maintain low prevalence rates. The support focused mainly on the following areas:

- finalizing HIV/AIDS/STI guidelines
- training workshops at central and governorate levels
- providing fellowships
- monitoring and evaluation activities
- production and distribution of community awareness materials
- voluntary counseling and testing activities

- providing antiretroviral drug and lab diagnosis kits
- establishment of telephone hotlines.

9. Tuberculosis

Tuberculosis (TB) estimates for Iraq were revised during 2007. The new estimates are 56 and 25/100 000 for all forms and ss+, respectively. This indicates that the case detection rate has doubled.

During 2006–2007, WHO provided the following technical and logistics support to control and prevent TB:

- training activities inside and outside Iraq;
- the treatment of the MDR cases in Amman by facilitating communications between concerned authorities in Iraq and the TB sanatorium in Jordan;
- the provision of health education materials in the area of TB control and treatment;
- The Technical Review Committee of the Global Drug Facility (GDF) approved Iraq's application for emergency grant based on previous year's notifications plus 15% to account for possible expansion. The total number of patient treatments received in Iraq during 2006 was 12 072 (10 498 as per previous year's notifications and 15% extra from this number). Technical and logistics support was provided by WHO from the initiation of the process up until the arrival of the drugs to the TB institute in Baghdad.
- WHO Iraq supported the TB annual meetings held at the TB and chest diseases institute/ Baghdad. National TB focal points in all Iraq's 18 governorates participated in the meetings.
- With technical and logistics support of WHO, Iraq applied to the GFATM. Iraq's proposal was approved with a total of US\$ 14 553 900 to allocated over the next five years.
- On 4 February 2007 a joint meeting was conducted in Amman, Jordan, to agree on the roles of the different partners, as well as the arrangements and next steps towards grant signature. During the meeting the role of WHO was clarified.
- Representatives from the Ministry of Health, TB coordinators from the various governorates, staff of the National TB programme, members of the Country Coordination Mechanisms (CCM) and WHO met in Amman, Jordan from 10 – 12 July 2007 to discuss the technical & administrative issues related to the Implementation of Global Fund Grant to fight Tuberculosis in Iraq. The meeting was opened by H.E. Mr Al Yayani, Iraqi Ambassador to Jordan, and Dr Naeema Al Gasseer, WHO Representative to Iraq. It received wide media coverage. During the meeting, the first in two years due to the complex security situation in Iraq, the participants discussed the current situation of TB care in Iraq and the best methods to support and implement the GFATM TB grant.

10. Main challenges and lessons learned

- Security remains one of the key challenges to programme implementation in Iraq.
- Humanitarian and development activities are proceeding in tandem. WHO is providing support for the humanitarian activities while giving technical advice for the development of health strategies and policies.
- A coordinated and a multi-sector approach is essential for averting and containing public health threats.
- Improving surveillance and data management techniques is vital to ensure both timely detection and a rapid response to outbreaks.
- The stockpiling and pre-positioning of medicines and medical supplies is essential.
- The need for continuous training programmes is crucial due to high staff turnover.

11. Recommendations

1. Routine surveillance should be replaced by a more broad-based surveillance system in cooperation with the private sector. The inclusion of the private sector in surveillance and outbreak response systems needs to be assured through appropriate legislation.
2. Communicable diseases data analysis should be undertaken at the central, district and governorate levels to ensure rapid detection and response to outbreaks.
3. In line with IHR 2005 outbreaks should be utilized as an entry point to strengthen the surveillance system.
4. Iraq should revise its Public Health Law in line with IHR 2005, which came into force in Iraq on 16 June 2007.
5. Preparedness plans for cholera and pandemic influenza should be updated regularly. Indicators should also be developed to measure the implantation of national plans and assess their impact.
6. Coordination and continuous communication between lab and epidemiology units is essential to ensure early detection and timely response to outbreaks.
7. Proper and timely risk communication is essential for rapid containment of outbreaks. Media and communications officers should take part in training activities and different preparedness plans.