MEETING OF THE STATES PARTIES TO THE CONVENTION ON THE PROHIBITION OF THE DEVELOPMENT, PRODUCTION AND STOCKPILING OF BACTERIOLOGICAL (BIOLOGICAL) AND TOXIN WEAPONS AND ON THEIR DESTRUCTION

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Human Infectious Disease Surveillance

Submitted by South Africa

Background

1. The purpose of conducting public health surveillance is to assess / detect disease patterns and potential for disease occurrence in a population for investigations, prevention and control measures to be implemented. The disease surveillance system in South Africa is based on government law (Health Act, 63 of 1977) and regulations, under which specific infectious diseases (Table 1) must be reported to the Local Authority and from there to the provincial Health Department, who then reports to the National Department of Health. This system is a passive surveillance system where the majority of cases is reported from the health facility level and is not actively sought in the communities.

Legal Responsibility

2. Specific sections of the Health Act (Act 63 of 1977) emphasize the legal responsibilities of the key players in the notification system. It must be noted that the entire system is underpinned by the Act, and it is the legal responsibility of all to play their respective roles in the system, thereby ensuring it's success as a tool for health status improvement. Currently 33 medical conditions are notifiable. Some of these have been sub-divided for practical reasons e.g. Tuberculosis has been subdivided into various TBs, resulting in 45 different conditions, which the notification system covers.

The List of Conditions

3. The table below shows the complete list of conditions, which are notifiable. As can be seen almost all (except Lead poisoning and poisoning: agricultural stock remedies) are infectious.

Table 1: Notifiable medical conditions in South Africa

Medical Condition		
ICD09 Code	**ICD10 Code**	**Name**
AFP	AFP	Acute flaccid paralysis
022	A22	Anthrax [1]
023	A23	Brucellosis[1]
001	A00	Cholera[1]
090	A50	Congenital syphilis
0650	A98	Crimean-Congo haemorrhagic[1] fever and other haemorrhagic fevers[1]
032	A36	Diphtheria
005	A02 &	Food poisoning
HIB	HIB	*Haemophiles influenzae* type B
984	T56	Lead poisoning
040L	A48	Legionellosis[1]
030	A30	Leprosy
084	B54	Malaria
055	B05	Measles
036	A39	Meningoccocal infection
0029	A01	Paratyphoid fever
020	A20	Plague[1]
989	T57 &	Poisoning agricultural stock remedies
045	A80	Poliomyletis (ICD10:Acute)
071	A82	Rabies
390	100	Rheumatic fever
037	A35	Tetanus[1] (ICD10)
7713	A33	Tetanus neonatorum[1]
076	A71	Trachoma
010	A16.7	Tuberculosis primary
011	A16.2	Tuberculosis pulmonary
012	A16.9	Tuberculosis of other respiratory organs
013	A17.0	Tuberculosis of meninges
014	A18.3	Tuberculosis of intestines, peritoneum
015	A18.0	Tuberculosis of bones and joints
016	A18.1	Tuberculosis of genito-urinary system
017	A18.8	Tuberculosis of other organs
018	A18.9	Tuberculosis miliary
010-8		Tuberculosis total
0020	A01	Typhoid fever[1] (ICD10: Typhoid fever)
080	A75.0	Typhus fever (lice-borne)[1]
081	A75.2	Typhus fever (rat flea-borne)
0701	B15.9	Viral hepatitis type A (ICD 10: Acute)
0703	B16.9	Viral hepatitis type B (ICD 10: Acute)
0705	B17.8	Viral hepatitis non-A non-B (ICD 10: Acute)

[1] Causal organism listed under the 'Non-Proliferation of Weapons of Mass Destruction Act (Act 87 of 1993)

0709	B19	Viral hepatitis unspecified
0701-9		Viral hepatitis total
033	A37	Whooping cough
060	A95	Yellow Fever[1]

Description of the Notification System

Data collection tools

4. Different data collection tools are used at different levels of data processing. Three forms have been compiled to regulate the Act on Notifiable Medical Conditions. They are to be used as standard format for reporting across the country. The GW 17/5 and the GW 17/3 and the GW 17/4 are described in detail in the section below.

GW 17/5 – Notification form for cases and deaths

5. The initial notification of cases and deaths of notifiable medical conditions is done on the form **GW 17/5**. Most often it is health personnel e.g. clinic personnel, infection control nurses, other hospital staff or private medical practitioners who make use of this form to notify conditions. The GW 17/5 form makes provision for the notification of cases as well as deaths. It includes a detailed description of the patient's address (which may not include street names etc., in rural areas) for purpose of facilitating follow-up actions taken by the local authority.

Summary form for cases (GW 17/3) and deaths (GW 17/4)

6. Once a week each local authority summarises all the individual notifications from the **GW 17/5** forms they have received onto two summary forms. Summaries of notified cases are done on the form **GW 17/3** and notified deaths are summarised onto **GW 17/4**. Each week the local authorities send the completed **GW 17/3** and **GW 17/4** forms to the appropriate provincial office. The forms are usually sent via health district and/or regional offices if these are in place, to facilitate appropriate interventions and disease control measures at all levels of the health system. At all the provincial offices (and regional offices in some provinces) computer systems (using EPI-INFO 6 software) have been installed where the data is keyed in and sent each week on disk, or via e-mail to the national office, where they are added, once a month, to the national data basis of notifiable medical conditions.

Procedure at the National Office (Health Systems Research and Epidemiology Directorate)

7. Once the notifications/records have been added to the national database of notifiable medical conditions, this data set is used for a number of purposes:

a. Production of routine monthly tables detailing the latest figures for cases and deaths of the 33 notifiable conditions, through which latest disease trends can be monitored.

b. Feedback to lower levels of the health system and other sectors through publication and distribution of these tables in Statistical Notes and Epidemiological Comments.

c. Data is made available to the National Programmes for programme management and appraisal purposes.

d. Responses to requests from the public and private sectors for information on the status of specific notifiable diseases.

Limitations of the Notification System

8. As in the case of other states there are a number of problems affecting the Notification System. Some of them are quite complex and difficult to manage such as the perceived lack of incentive for medical practitioners to notify or the high turnover of health officers involved in data collection and processing. These problems affect the system both in terms of the quality of the data generated as well as the quantity of information produced. The fact that the system is run on a passive basis adds to the difficulty. Passive surveillance is more often associated with under-reporting of diseases, lack of representativeness of cases that are reported, lack of timeliness in reporting, lack of sensitivity an/or specificity as well as incorrect diagnosis of diseases by health personnel. The percentage of under-reporting quoted in the USA for more common diseases ranges from 10% to 25%.

Way Forward

9. The Department of Health is currently in the process of finalising a new web-based notification system. It is envisaged that this system will greatly improve the process of notification in terms of timeliness, usefulness and completeness of data collected.

Laboratory Capacity of South Africa

10. South Africa possesses a reasonably good laboratory infrastructure to be able to diagnose conventional infectious agents in all the laboratories of the National Health Laboratory Service situated in tertiary institutions as well as in private pathology laboratories situated in large urban centres. The National Institute for Communicable Diseases, which is the country's national reference centre for infectious agents and infectious diseases, possesses capabilities of international standard for the diagnosis of unusual and exotic infectious agents and would have the capability of responding diagnostically to unknown infectious agents. It possesses a maximum containment (BSL-4) laboratory to handle dangerous pathogens or pathogens of unknown virulence. It has responsibility as a regional reference laboratory and collaborating centre to international organizations such as WHO. It has also been responsible for the diagnosis of several of the viral haemorrhagic fever outbreaks in Africa and acute respiratory infectious disease in distant countries abroad.

Annex I

NON-PROLIFERATION OF WEAPONS OF MASS DESTRUCTION ACT (ACT 87 OF 1993)

Human Pathogens, Zoonoses And Toxins

Viruses

Chikungunya virus;
Eastern equine encephalitis virus;
Western equine encephalitis virus;
Venezuelan equine encephalitis virus;
Oropouche virus;
Rocio virus;
Dengue fever virus;
Yellow fever virus;
Japanese encephalitis virus;
Tick-borne encephalitis complex viruses, including Russian Spring-Summer encephalitis, Kyasanur Forest, Louping ill, Omsk haemorrhagic fever and Powassan;
St Louis encephalitis virus;
Rift Valley fever virus;
Crimean-Congo haemorrhagic fever virus;
Hantaviruses, including Hantaan;
Arenaviruses, including Lassa fever, Junin, Machupo and Lymphocytic choriomeningitis;
Variola virus;
Monkey pox virus;
White pox virus;
Ebola virus;
Marburg virus;

Bacteria

Bacillus anthracis;
Brucella abortus;
Brucella melitensis;
Brucella suis;
Chlamydia psittaci;
Clostridium botulinum;
Clostridium perfringens;
Clostridium tetani;
Enterohaemorrhagic Escherichia coli, serotype 0157 and other verotoxin producing serotypes;
Francisella tularensis;
Legionella pneumophila;
Burkholderia mallei (Pseudomonas mallei);
Burkholderia pseudomallei (Pseudomonas pseudomallei);
Salmonella typhi;
Shigella dysenteriae;
Vibrio cholerae;
Yersinia pestis;

Yersinia pseudotuberculosis;
Coxiella burnetii;
Bartonella quintana (Rochalimaea quintana, Rickettsia quintana);
Rickettsia prowazekii;
Rickettsia rickettsii;

Toxins

Abrin;
Botulinum toxins;
Cholera toxin;
Clostridium perfringens toxins;
Conotoxin;
Modeccin;
Ricin;
Saxitoxin;
Shiga toxin;
Staphylococcus aureus toxins;
Tetanus toxin;
Tetrodotoxin;
Trichothecene mycotoxins;
Verotoxin;
Microcystin (Cyanginosin);
Aflatoxin;
Volkensin;
Viscum album Lectin 1 (Viscumin);

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