Epidemiological Surveillance and International Health Regulations

Report of an Intercountry Meeting
Colombo, 15 – 18 December 1998

World Health Organization
Regional Office for South-East Asia
New Delhi

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CONTENTS

1. INTRODUCTION

In spite of some notable successes in the control of infectious diseases, these diseases pose a serious threat to the health of billions of people in the world today. They were responsible for over 17 million deaths worldwide in 1995 accounting for one-third of all global deaths. The South-East Asia Region (SEAR) is particularly vulnerable. More than 40% of the global burden of disease is borne by this Region.

In order to combat this ever-present threat of infectious diseases, countries need to have in place a sensitive epidemiological surveillance system to detect early the occurrence of these diseases and be able to take effective preventive and control measures rapidly, before they assume epidemic proportions. The epidemiological surveillance systems are, at present, not well developed and the epidemiological services need considerable strengthening in many countries of the Region.

The reluctance of many countries to notify the occurrence of diseases of international importance for fear of imposition of travel and trade restrictions by other countries has prevented WHO from providing assistance for their control. WHO is now in the process of revising the International Health Regulations to make it easier for countries to report diseases of international importance on a syndrome basis rather than on the basis of a specific diagnosis. The proposed revised International Health Regulations are being field-tested in 21 countries of the world.

In order to address these important issues, WHO sponsored an intercountry consultative meeting on epidemiological surveillance and international health regulations, in Colombo, Sri Lanka from 15-18 December 1998. Officials from the Epidemiological Services of nine Member Countries and staff from WHO/Geneva and the South-East Asia Regional Office participated in this meeting. (The List of Participants is given in Annex 3).

1.1 Objectives

The objectives of the meeting were:

(1) To review epidemiological surveillance in countries and to develop a plan of action to improve epidemiological services in the South-East Asia Region;

(2) To develop a strategy for capacity-building in epidemiological services, and

(3) To review the progress made in the field-testing of syndromic reporting of diseases in countries that are participating (India, Sri Lanka and Thailand) and to discuss strategies for the implementation of Revised International Health Regulations (IHR).

1.2 Outcomes

The expected outcomes were:

(1) Lists of regional and countries' notifiable diseases and of national focal points to be identified and epidemiological surveillance reports of communicable diseases to be improved;

(2) Commitment from countries for sharing of epidemiological information and improvement of epidemiological services;

(3) Plans for capacity-building in epidemiological services; and

(4) Correct understanding of the revised International Health Regulations and the methodology for their testing in the field.

2. INAUGURATION

The meeting was inaugurated by Mr Nimal Siripala de Silva, Honourable Minister of Health and Indigenous Medicine, Sri Lanka, in the presence of Dr Uton Muchtar Rafei, Regional Director, WHO, South-East Asia Region, the WHO Representative to Sri Lanka, the Secretary of Health, Director-General, Health Services, and other officials of the Ministry of Health and staff of WHO/HQ, Geneva and the Regional Office. The Minister of Health in his inaugural address stressed the importance of well-developed epidemiological services and intersectoral cooperation as well as partnerships with other concerned UN agencies, NGOs and private sector to control infectious diseases. The Regional Director, WHO, speaking at the inauguration expressed concern about the spread of infectious diseases worldwide and emphasized the need for countries to have a well-established surveillance system to detect early and respond rapidly and effectively to any threat of a disease outbreak. He also highlighted the economic loss to a country that results from disease outbreaks, citing the example of the 1.7 billion dollar loss suffered by India during the plague outbreak in 1994.

3. TECHNICAL SESSIONS

The technical sessions were inaugurated by Dr Vijay Kumar, Director, Integrated Control of Diseases, WHO/SEARO, who explained the objectives and expected outcomes of this consultative meeting. The participants elected Dr (Mrs) Dula de Silva, Deputy Director-General, Health Services (Public Health Services), Sri Lanka, as Chairperson, Dr Somsak Wattanasari, Director, Epidemiology Division, Ministry of Public Health, Thailand as Co-chairperson and Professor Mahmudur Rahman, Professor of Epidemiology, NIPSOM, Bangladesh as Rapporteur.

Technical papers on the global and regional perspectives of epidemiologic response to emerging infectious diseases, epidemic preparedness and response, and revision of the International Health Regulations (IHR), were presented by WHO staff from Geneva and the Regional Office. The participants of each country made presentations on the present status of epidemiological surveillance and the strengths and weaknesses of the system. Participants from Bangladesh, India, Indonesia, Sri Lanka and Thailand made presentations on training programmes in epidemiology. Nepal presented the Early Warning Reporting System (EWARS) developed recently in the country to detect threats of disease outbreaks. Participants from India, Sri Lanka and Thailand described the present situation as regards field-testing of the revised international health regulations.

The participants were then assigned to two groups and following discussions, made recommendations for:

(1) Developing a strategy for strengthening epidemiological surveillance and services in countries of the South-East Asia Region, and

(2) Developing strategies for the implementation of International Health Regulations.

3.1 Epidemiologic Response to Emerging Infectious Diseases – Global and Regional Perspectives

Rapid and appropriate response to emerging infectious diseases depends primarily on efficient surveillance systems at national, regional and global levels. In a world that can be described as a "global village" any outbreak anywhere can have international implications underlying more than ever the need for international coordination, a part of WHO's mandate. Because areas with the highest needs for surveillance of communicable diseases have often the poorest surveillance systems, new surveillance approaches, such as the surveillance of syndromes, adapted to poor laboratory infrastructure should be develop to respond to the challenge of development gaps. The development of an "information society" also challenges public health authorities since outbreak information gets disseminated more and more rapidly through the Internet by the media, NGOs and the private sector, bypassing public health sources and increasing the pressure for rapid information from public health authorities at all levels. Learning how to address this new information-sharing environment is essential and the only viable response lies in the rapid verification of information and increased transparency for information related to outbreaks or even rumoured outbreaks. The resurgence of old diseases and the emergence of new ones force surveillance systems to be set up to address large number of events as well as unanticipated events.

This surveillance effort requires multiple skills including epidemiology, infectious diseases, public health, laboratory, field experience, telecommunications and information management. It also requires multiple partnerships among WHO, ministries of health in countries, private sectors, NGOs, and the media.

Over the long term, global and regional surveillance should be built on efficient national surveillance systems and special effort should be made in that direction. The new approach of "integrated" surveillance is based on the concept that all surveillance activities at country level represent the national surveillance system and that coordination between common functions of these activities will improve the performance of the system, its cost-effectiveness and its sustainability. WHO provides standards and norms (e.g. case definition) for country surveillance systems to ensure regional and global consistency of surveillance data. The development of multi-purpose local human resources for surveillance through field epidemiology training is also an essential element of the integrated approach to surveillance.

3.2 Epidemic Preparedness and Response

The first priority of a surveillance system at all levels, national, regional and global, is epidemic response capacity to ensure that surveillance information provided by the system can be effectively and rapidly used for action. High visibility of outbreaks and epidemics will always challenge the credibility of surveillance efforts if epidemic preparedness and response are not properly done.

In practice, it should be emphasized that epidemic preparedness and response are primarily a matter of organization rather than important resources. A core of experienced professionals in field epidemiology can rapidly conduct outbreak investigations provided than administrative arrangements to use the minimum of logistics are made in advance. In addition, the composition of a National Crisis Committee should be established in advance to avoid unacceptable delay at the time of a crisis, as well as the establishment of minimum stock of medical supplies and communication equipment as requested.

3.3 Revision of the International Health Regulations[1]

Since 1951, the guiding objective behind the WHO International Health Regulations has been "maximum protection" from the international spread of disease and "minimum interference" with international travel and trade. This same objective is also being carried forward in the revision process for the new IHR.

In May 1995, the World Health Assembly directed that a new revision of the IHR be undertaken. A key factor behind the plans to revise the regulations has been the emergence and re-emergence of many diseases of potential international significance (such as haemorrhagic fevers, antimicrobial-resistant agents, and as-yet-unknown agents) as compared to the limited scope of the diseases covered in the current IHR (generally limited to cholera, plague and yellow fever). Other important developments behind the call to revise the IHR are the increasing globalization of trade travel and information flows which bypass international border controls; changes in public health practices and technology, and recent developments in national and international public health law (including the World Trade Organization agreements in 1995). Related concerns have been the lack of compliance by Member States with regard to their obligations under the current IHR to report cases of the three diseases covered by them and to see that the responsive health measures applied by them to trade and travellers from the stricken State are those that are specifically permitted in the IHR. An important focus of the revision is to address concerns about excessive health measures, such as embargoes.

Since the WHA resolution to undertake a revision of the IHR in 1995, WHO has been undertaking many activities to prepare the revision, including consultations with Member States, meetings of working groups of international experts, liaison with international organizations and nongovernmental organizations, the drafting of a first Provisional Draft IHR earlier this year, and the formal convening of the Surveillance Committee (CISCD) to address important issues in the revised IHR. Ultimately, the revised IHR shall be presented to the World Health Assembly (WHA) for adoption, tentatively scheduled for the year 2000.

While deliberations concerning the elements of the revised IHR are on and will continue for some time, it is currently anticipated that the revised structure of the IHR would incorporate a core of general articles which would stay stable over time, specific and technical health measures and other provisions in Annexes which would be updated more often, and a practical handbook to guide compliance with the IHR. In order to enhance compliance with the Regulations, other potential important features include provisions for: designation of examples of proper and improper health measures under the IHR; publication of excessive measures taken by Member States; a dispute-resolution mechanism to help resolve disputes over potentially excessive measures implemented by States as rapidly as possible, and specific and objective rules concerning what health measures States may implement.

A key innovation in the January 1998 Provisional Draft IHR is the approach of Syndrome Reporting which supplements—but does not replace—disease-based reporting of disease; syndrome reporting is only to be undertaken pending identification of the causal agent. Intended to capture all outbreaks of urgent international importance, it is based on six defined acute syndromes (including one "severe illness" syndrome), which are sufficiently severe (see "severe illness" criteria) and which are of "urgent international public health importance" (see related criteria). The potential benefits of syndrome reporting are many: faster notification and response appropriate to outbreaks as prior laboratory confirmation is not required; a focus of reporting and response on the most important,

[1] For more details on these issues, see the November 1998 Progress Report on the revision of the IHR included in the background materials for this intercountry consultative meeting.

internationally-oriented outbreaks; simple/stable case definitions; clinical, fact-based reporting, and the capture of as-yet-identified diseases. These advantages are also likely to enhance compliance by updating the focus of reporting and response on the most important, relevant outbreaks.

The related Pilot Study on Syndrome Reporting is a critical element in the revision process; only if the included countries participate fully can the benefits and operational aspects of this reporting approach be appropriately evaluated.

In order to enhance compliance and deter excessive health measures, it is anticipated that the revised IHR will continue to limit health measures States may apply to international traffic to protect against transmission of these syndromes (and related diseases). The permitted health measures are to be either specified in the IHR (or its Annexes), or if none, then permitted only if appropriately justified by risk assessment and management.

Regarding trade issues, the revision's potential expansion of reporting to syndromes and related diseases would be matched by similar restrictions on health measures, including extreme trade embargoes, applicable to these diseases. Particularly in the area of goods and food products, there is some potential for overlap (and conflict) with the World Trade Organization's Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement). In addressing these issues, the Secretariat in Geneva has been in constant contact with the SPS Committee at the WTO, and is actively evaluating different approaches towards dealing with the SPS Agreement in the revised IHR. Moreover, in terms of concerns about excessive health measures (e.g. embargoes), there are also reasons to view the World Trade Organization SPS Agreement as a neutral or even favourable factor: (a) in many cases, the perspectives of the IHR and the WTO in a dispute may well be the same—both organizations favour the minimizing of unjustified health-based trade barriers; (b) WTO takes great efforts to settle its disputes (as does WHO) so that it does not have to go through extensive dispute resolution processes, and indeed most of its disputes are settled; (c) there are indications that WTO would prefer the health aspects of disputes to be settled by health-related organizations, such as WHO, as far as possible, and (d) as a free trade-oriented organization, WTO's rules are often likely to be strong against unjustified health-based trade barriers (such as unjustified embargoes).

3.4 Country Presentations

Country representatives of nine of the 10 countries in the WHO South-East Asia Region made presentations on the present status of epidemiological surveillance systems in their respective countries. The strengths and weaknesses and the steps taken by countries to strengthen surveillance systems were highlighted. The Democratic People's Republic of Korea was not represented.

Surveillance systems in countries of the Region are at varying stages of development. Sri Lanka and Thailand have well-established, long-standing surveillance systems with regular feed-back mechanisms. Most countries have lists of notifiable diseases and mechanisms for daily, weekly or monthly reporting of these diseases from peripheral levels through district and provincial levels to the central levels. Feed-back mechanisms however are not well-developed in many countries. Nepal has recently developed an Early Warning Reporting System (EWARS) which, when fully operational, will enable the country to detect and take early action to prevent diseases assuming epidemic proportions. Most countries have common problems of shortage of trained staff; insufficient allocation of financial resources; poor political commitment for strengthening epidemiological services, and a poor career structure, which prevents officers from joining the epidemiology services. All countries are now taking meaningful steps to strengthen the services. The country presentations are summarized in Annex 2.

3.5 Training Programmes in Epidemiology

Training courses in epidemiology are carried out in all countries for health personnel serving at different levels of health services. The majority of these are of short duration. They are of the class room variety with little or no field work and usually many areas of study are covered in a single training course. Large numbers are trained in these courses. These courses are rarely evaluated to assess the quality of training and usually there is no follow-up of the persons trained. In addition to in-country training courses, use is made of other training mechanisms such as study tours and fellowships (usually sponsored by WHO) to visit centres of excellence in countries both within and outside the South-East Asia Region.

In Bangladesh, in addition to short training courses, there is a course in epidemiology leading to a Masters degree in Public Health (MPH) - Epidemiology, awarded by the University of Dhaka. There are also other MPH courses in different disciplines in public health and an M. Phil course in Preventive and Social Medicine. Epidemiology is a major component in the curricula of all these training programmes.

The National Institute of Communicable Diseases (NICD) Delhi, India, which is a WHO Collaborating Centre for Epidemiology, conducts numerous short-training courses. NICD also conducts an International Field Epidemiology Training Programme (FETP) of 12 weeks' duration. In this programme, 42.6% of the time is devoted to field work and participants receive practical 'hands-on' training. The course commenced in 1996 and is now conducted annually. Epidemiologists from Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal and Sri Lanka have participated in the training programme.

In Indonesia, a field epidemiology training programme commenced in 1982, and was organized by the Directorate-General of CDC & EH, with assistance from the Centres for Disease Control (CDC), Atlanta, USA and WHO. In 1986, this course was taken over by the University of Indonesia and the University of Gajah Mada and a postgraduate Masters' degree is now awarded on completion of the course. In 1996, DG, CDC commenced an Intensified Communicable Diseases (ICDC) project in six provinces covering 21 districts. In this project the largest part of the training budget is utilized for training in epidemiology. This project will cooperate with FETP and will be suitably modified so that 60% of the course time is allocated to field work.

In Sri Lanka, short training courses in epidemiology, disease surveillance and disease control are conducted by the Epidemiology Unit. In addition, in the postgraduate courses leading to Masters and Doctorate degrees in Community Medicine, training in epidemiology forms a large component of the course curricula.

In Thailand, in addition to short training courses in epidemiology, Mahidol University conducts a two-year postgraduate training course in the national language, leading to an M.Sc (Epidemiology) degree. Recognizing the limitation of classroom teaching of epidemiology, a two-year field epidemiology training programme was started in Thailand in 1980. This programme is conducted in the national language and provides on-the-job training. For assisting countries in the Region to build capacity in epidemiology, FETP was modified to enable participants from other countries to enrol in this training programme. At present, however, completion of the FETP, does not lead to the award of a degree and this may act as a deterrent for foreign participation in this programme. If the programme is considered too long, participants could follow only the initial 10-week introductory FETP course.

As epidemiology is a subject that cannot be taught only in a class room setting, it is hoped that countries will make the maximum use of field epidemiology training programmes now available in the Region to build up a core of well-trained epidemiologists to man their epidemiological services.

This will enable countries to control and prevent effectively the ever-increasing threat of communicable diseases.

3.6 Early Warning Reporting System (EWARS) in Nepal

Nepal experiences large outbreaks of diarrhoeal diseases, acute respiratory infections, encephalitis, malaria, etc. regularly. The routine surveillance system in the country has not been sensitive enough to detect these outbreaks early. To enable the services to detect timely any threat of a disease outbreak, and take effective preventive and control measures rapidly, the national authorities, through the Epidemiology and Disease Control Division (EDCD) of the Department of Health Services (DHS) has developed, and is implementing on a phased basis since early 1997, an Early Warning Reporting System (EWARS), to complement the existing Health Management Information System (HMIS).

Eight hospitals were selected as sentinel sites during the first phase and six conditions / diseases (acute flaccid paralysis, encephalitis, kala-azar, malaria, measles and neonatal tetanus) were targeted for intensified surveillance. Focal points were selected and given the necessary training. The Vector-Borne Diseases Research and Training Centre (VBDRTC) functions as the EWARS focal point.

Between January 1998 and April 1998, the sentinel sites were increased to include 24 hospitals in all.

The objectives of EWARS are to:

(1) Establish a sentinel surveillance network (SSN) complementary to HMIS for the early detection and monitoring of infectious diseases of public health importance with epidemic potential or those targeted for elimination / eradication, as well as for other new, emerging and re-emerging infectious diseases;

(2) Enhance the role of hospitals in preventive health activities, by involving them in disease surveillance;

(3) Establish coordination among laboratory personnel, clinicians and public health experts for rapid and accurate identification of infectious diseases, resulting in a quick response with regard to their prevention and control;

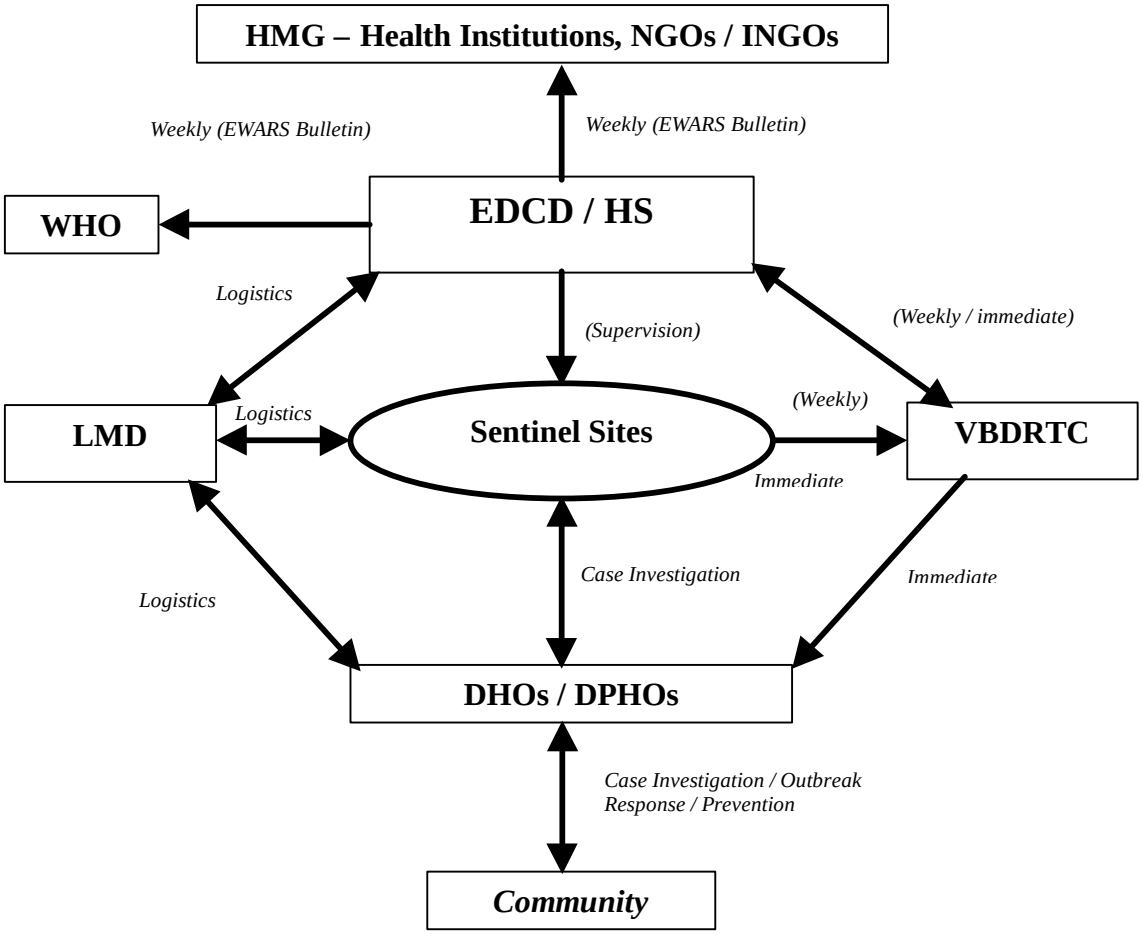
(4) Strengthen the district, regional and central capacity to respond to potential outbreaks of new, emerging and re-emerging diseases through the formation of Rapid Reaction Teams (RRTs) at each level;

(5) Enhance communication of public health information about communicable diseases among sentinel hospitals, and between the central and peripheral health institutions and the sentinel sites, and sharing of their experiences in ensuring prompt implementation of preventive strategies;

(6) Establish coordination with the Logistics and Management Division (LMD) in order to ensure prompt and adequate supply of necessary medicines and equipment needed for the prevention and control of communicable diseases, and

(7) Strengthen the concerted effort of different programmes of the Department of Health Services to monitor, control and prevent new, emerging and re-emerging diseases.

The flow of information in EWARS is as follows:



DHS = Department of Health Services; EDCD = Epidemiology and Disease Control Division; LMD = Logistics Management Division; VBDRTC = Vector-Borne Disease Research and Training Centre; DHO = District Health Office; DPHO – District Public Health Office.

Results

Indicators for timeliness and completeness of reporting from sentinel sites have been developed. Up to the 47th epidemiological week, 60% of sentinel sites were reporting on time (target 75%), and 95.4% of the expected reports (on time + late) were received (target 80%). As regards completeness of reporting (including zero reports), 100% of sentinel sites were sending complete reports, including zero reports (target 80%).

Conclusions

Besides monitoring the nation's health with regard to infectious diseases, keeping track of the disease situation, and quickly activating a public health alert, EWARS might help in predicting epidemics. Eventually, EWARS will end up with a post-epidemic study of causes, and the impact of an epidemic, which will further substantiate the level of knowledge on epidemic preparedness and management. It will also provide a real opportunity for strengthening the record-keeping system of curative health institutions, which seem to be below the required standard. Since EWARS provides information on infectious diseases through official channels, the activities for the control of diseases will

be based on objective guidelines of the national health policy. EWARS might also help in enhancing and strengthening the credibility of public health workers in the eyes of the consumers of health services.

The recognition of the importance of an Early Warning System for surveillance of communicable diseases is there. But for its success it needs strong laboratory support, as well as a reliable routine surveillance system. It was also found necessary to extend EWARS to areas beyond the catchment area of the hospitals for some diseases (e.g. malaria, measles), integrating it with a reliable and effective referral / counter-referral system involving the health post (HP) and Sub-health post (SHP).

3.7 Field-Testing the Revised International Health Regulations

Due to problems and limitations that have arisen in the implementation of the present International Health Regulations (IHR), the World Health Assembly in 1995 recommended the revision of the existing IHR. The Revised IHR is now being field-tested in 21 countries of the world including three countries from the South-East Asia Region. These three countries are India, Sri Lanka and Thailand. The three focal points presented reports on the present status of the field studies in their respective countries.

Two districts in India have been selected for the study, and staff have been trained in the syndromic approach in reporting, However, none of the syndromes listed in the revised IHR have been detected in the two districts and it was feared that there may not be any conditions to be reported before the end of the expected duration of the study. A concern was also expressed whether syndromic reporting might interfere with routine reporting. Thailand has made fair progress in training and testing the syndromic approach to reporting. Sri Lanka, however, has not commenced the study yet. This was due to Sri Lanka not being involved in the initial preparatory meeting. It was also felt by the selected focal point that he was not the appropriate person to carry out this study. Since a definite diagnosis can be made early and there are no restrictions in reporting diseases to WHO, the revised reporting system may not be quite applicable to Sri Lanka.

4. RECOMMENDATIONS

The Consultative Group made the following recommendations, focused on capacity-building, disease surveillance and testing of the revised International Health Regulations. The details of the recommendations are provided in Annex 1.

4.1 Strengthening of Disease Surveillance (See Annex 1 for details)

(1) List of diseases with epidemic potential

- Each country will adapt or modify a list of four to six diseases/syndromes (such as cholera, dengue/DHF, encephalitis, kala-azar, malaria, meningitis and plague) based on the disease burden and the public health importance of the disease in the country. [Action: National / Regional]
- Countries should take steps, wherever feasible, to integrate the surveillance of communicable diseases with epidemic potential. [Action: National]

(2) Case definitions

- The WHO standard case definitions should be adapted and used in disease reporting at different reporting levels [Action: National / Regional]

(3) Reporting and feedback

- Countries should establish a mechanism to ensure timely reporting from the peripheral to intermediate to central levels. Reports should include "*ZERO*" reports. [Action: National]
- Routine reports on selected diseases should be forwarded monthly to the Regional Office of WHO through the WR. [Action: National]
- All outbreaks of major public health importance should be immediately notified to SEARO and daily or weekly reports sent until the epidemic has been controlled. [Action: National]
- Countries should develop a mechanism (bulletin, newsletter, etc) to provide feedback to intermediate and peripheral levels. A copy of the bulletin / newsletter should be forwarded to the Regional Office of WHO through the WR. [Action: National]
- The Regional Office of WHO should provide regular feedback to countries. [Action: Regional]

(4) Early warning system

- Countries should develop an early warning surveillance system capable of detecting impending outbreaks. [Action: National]
- Rapid Response Teams at intermediate level for early action and Epidemiologic Intelligence Units at central level for outbreak verification should be established. [Action: National]

(5) Monitoring and evaluation

- Appropriate indicators and targets must be designed and used at each level to monitor the progress of the surveillance system. [Action: National / Regional]

(6) Role of WHO collaborating centres

- There should be networking of collaborating centres to strengthen disease surveillance. Laboratory support should be provided. [Action: Regional]

4.2 Training needs for Strengthening Disease Surveillance (See Annex 1)

- Countries should make maximum use of international field epidemiology training programmes (FETP) available in the Region, such as the short (12-week duration) FETP in India and the longer (two-year duration) FETP in Thailand. [Action: National]

- Shorter training courses should be of at least 10 working days' duration and focus on a specific subject such as epidemiology, clinical management, laboratory support or interaction with the media. [Action: National / Regional]
- Integrated guidelines for case management of diseases with epidemic potential (such as cholera, dengue, encephalitis, kala-azar, malaria, etc) should be developed for use in small hospitals and health centres. [Action: Regional]
- The quality of training should be ensured by the use of standard teaching materials, use of monitoring tools and participation of an independent observer. [Action: National]

4.3 Implementation of International Health Regulations (See Annex 1 for details)

- WHO should continue to provide technical support to countries participating in the pilot study. [Action: WHO HQ / Regional]
- The syndromic reporting approach needs to be clarified. Distinction should be made between syndromic reporting for improving national surveillance systems and syndromic reporting for the purpose of the revised IHR. [Action: WHO HQ / Regional]
- Countries in the pilot study should continue to participate fully in the application of the syndromic reporting approach. [Action: National]
- Careful consideration should be given to the trade and travel implications of the syndromic approach in the draft Provisional IHR, as well as the relevance of the WTO agreement on the application of sanitary and phytosanitary measures. [Action: WHO HQ / Regional]
- WHO staff from headquarters should report the countries' concerns, constraints and suggestions to the IHR revision group in Geneva. [Action: WHO HQ]

4.4 General Recommentations

(1) Orientation of other related sectors

- Orientation training courses in epidemiological surveillance and control of communicable diseases are recommended for related sectors such as environment, education, finance, planning, irrigation and private sectors including civil society (NGO). [Action: Regional / National]

(2) Political commitment

- There should be advocacy for political commitment to strengthen epidemiological services, disease surveillance and control of communicable diseases. [Action: National]

Annex 1

DETAILS OF RECOMMENDATIONS

(1) List of diseases with epidemic potential

Each country will develop or modify, according to the burden and public health importance of the disease, a list of diseases with epidemic potential.

Diseases* to be considered by the countries include

- Cholera
- Dengue / DHF
- Encephalitis
- Kala-azar
- Malaria
- Meningitis

* *Plague and Yellow Fever (in addition to cholera) will be included in the monthly reports from countries to the WHO Regional Office as required under the International Health Regulations.*

(2) Case Definitions

At the peripheral level, where no laboratory support is available a clinical case definition (*suspected)* should be used. At the intermediate level, where simple or limited laboratory tests are available, a *probable case* definition should be used and at the central level with diagnostic laboratory support, a *confirmed* case definition must be used.

Periphery : No laboratory support, based on clinical signs and symptoms only

Intermediate : Same + Simple or limited laboratory tests

Central : Same + Full laboratory support

Level	**Laboratory Support**	**Classification of case**
Periphery	None	Suspected
Intermediate	Limited	Probable
Central	Full	Confirmed

(3) Reporting and feedback

- The reports will include the total number of cases (suspected + probable + confirmed); when known, the number of confirmed cases should be given.
- The last day of the month following the reporting month, will be taken as the deadline for the receipt of reports at the WHO Regional Office.

- Use of modern technologies for data management should be encouraged at central/intermediate level.
- Member Countries are encouraged to conduct cross-border meetings at local and national levels to share information on surveillance issues regarding common diseases of public health importance. The existing bi-regional, ASEAN and SAARC mechanisms must be fully explored.

(4) Establishment of Early Warning System

- Collect baseline data on endemic situations (routine surveillance) to:
  - Monitor disease trends
  - Predict outbreaks
- Check information / rumours coming from any source including sentinel sites, laboratories, newspapers, and NGOs, etc. and develop verification mechanisms (through "intelligence cells").
- Share information with those who need to know.
- Strengthen and support the use of modern communication facilities such as telephone, fax, e-mail, two-way radio, etc.

(5) Monitoring and Evaluation

Use targets and indicators at all levels.

Situation	Levels	Indicators	Targets
Routine	Peripheral	– Timeliness – Completeness – Feedback	– 60% of units reporting on time – 60% of reports complete – Feedback received: Yes / No
	Intermediate	– Timeliness – Completeness – Feedback	Same as above
	Central	– Timeliness – Completeness – National Bulletin	– Same as above – Same as above. – National Bulletin: Yes / No
	Regional/ SEARO	– Regional Bulletin – Newsletter	For both: Yes / No
Outbreaks	Central	– No. of events verified according to source – No. of events substantiated – Feedback sent to sources	Trial phase; indicators to be developed
	Regional/ SEARO	– Number of events verified according to source – No. of events substantiated – Feedback sent to sources	Same as above

(6) Role of WHO Collaborating Centres

- Categorized according to disease and expertise available
- SEARO will produce a list of relevant collaborating centres with details of:
  - Expertise
  - Address
  - Focal point
- The expertise of collaborating centres must be used in the areas of training and technical assistance whenever needed.
- Networking among collaborating centres is recommended.
- Collaborating centres are encouraged to conduct operational research.

(7) Training Needs for Strengthening Disease Surveillance

- Any teaching or learning activity of less than 10 working days' duration should be classified as a workshop or orientation.
- A study tour should be of more than a week's duration, in a country having expertise in the selected field of study, based on terms of reference developed in consultation with WHO.
- The existing training materials for different levels of health personnel be reviewed and standardized for further adaptation and use by the Member Countries.
- To develop networking among different institutions, the training materials and the faculty should be exchanged among countries during the training programme.
- A mechanism should be established to follow up the trained health personnel, through mailing technical materials and personal contact between resource faculties and the trained health personnel.
- Resources required for maintaining the quality of the training programme and its follow-up should be built-in into the training programme.

(8) Implementation of Revised International Health Regulations

- The syndromic approach should complement the disease-specific reporting approach as appropriate and not lead to a separate reporting system; double-reporting should be avoided. The rapid reporting mechanisms of syndromes subject to the IHR should be closely linked with and supplement the existing national epidemiological surveillance system.
- Identification of appropriate focal points for the pilot study should be encouraged; those designated should be directly involved in national surveillance activities (e.g. Epidemiology Unit).
- Precise definition of each syndrome should be provided.
- The pilot study methodology needs to be revised. A longer time-frame for the pilot study needs to be established. In particular, it appears that the likelihood of an event of international importance is extremely low in the given time-frame and geographical areas selected.
- WHO should continue to provide technical support to countries participating in the pilot study.

- Countries in the pilot study should evaluate proposed notification criteria and case definitions of notifiable syndromes, assess operational issues at country level, and report their findings and relevant information to WHO at least monthly for further evaluation and assessment.
- Countries will develop a training module in line with WHO guidelines for syndromic reporting and train their health personnel participating in the pilot study (India, Sri Lanka and Thailand).
- The impact of above syndrome reporting on international trade and travel, as well as related concerns of reporting countries, should be fully considered while revising the IHR. All appropriate options for addressing health measures, which restrict international trade and travel in violation of the IHR, should be considered.
- A forum to discuss the implications of the revision of the IHR on international trade, including the SPS agreement, should be organized at the regional level (WHO) at the relevant time.

Annex 2

SUMMARIES OF COUNTRY PRESENTATIONS ON STRENGTHENING OF DISEASE SURVEILLANCE

(1) BANGLADESH

In Bangladesh, two regular disease reporting systems came into being during the Fourth Population and Health Plan (FPHP): the Weekly Epidemiological Reporting (the Epidemiological Information System (EIS) from Health Assistants through weekly visits to households in their respective areas in all 460 thanas in the country, and the Monthly Disease Profile Report (MDPR) from all static health facilities, i.e. from union sub-centres (USC), thana health complexes (THC), district hospitals, TB hospitals, medical college hospitals and tertiary-level specialized and general hospitals.

These reports (EIS and MDPR) are sent directly to the Department of Epidemiology, Institute of Epidemiology, Disease Control and Research (IEDCR) and to the Health Information Unit (HIU) in the office of the Director-General of Health Services (DGHS). These two units share the responsibility for compiling, analysing and disseminating reports based on information sent from the field level.

The Disease Control Programmes have specific programme-based reporting systems and surveillance mechanisms that provide feedback of relevant information to the respective programme managers for action. The UN system likewise provides technical and consultative assistance to these programmes on reporting systems. Several UN organizations such as WHO, UNDP and UNICEF, publish annual reports using programme monitoring indicators. Many NGOs also use data collection forms to monitor their programme implementation.

The new initiative spearheaded by WHO under its 1998-1999 biennium (BAN EMC 011), titled "Epidemiological Surveillance and Control", with the specific agenda to establish a regular disease surveillance mechanism with emphasis on emerging and re-emerging diseases, has already started operating under the leadership of the Director, IEDCR.

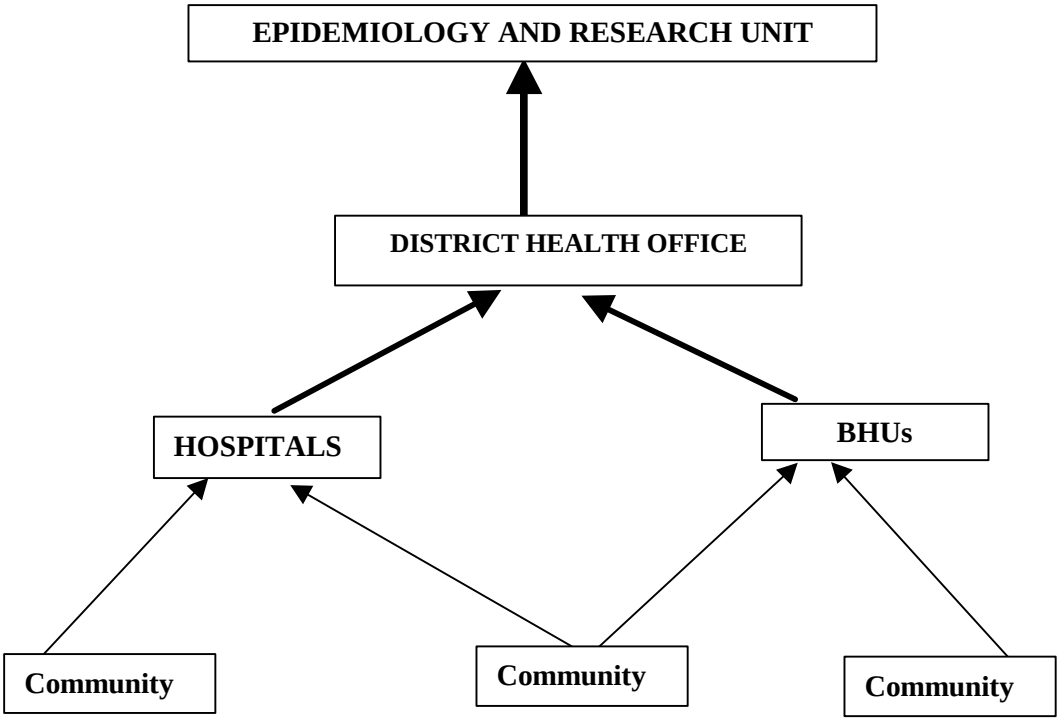
(2) BHUTAN

The country is divided into twenty (20) administrative divisions called dzongkhags (districts). Each dzongkhag is administrated by a Dzongda equivalent to a Governor. More than 90% of the population has access to health services delivered through a network of 28 hospitals and 145 basic health units (BHUs), and 454 outreach clinics (ORC) and more than 1000 Village Health Workers (VHWs).

(a) Existing Disease Surveillance System

The morbidity and mortality reports collected on a monthly basis from the BHUs and hospitals across the country are currently used to monitor the disease patterns and epidemics. Disease surveillance data is also collected through the notifiable diseases reporting system and sentinel surveillance of selected communicable diseases.

The organizational structure of the surveillance system is as follows:



Feedback
Health Division, Information and Record Section → District Health Office → BHUs → Community.

(b) Strengths of the Existing Disease Surveillance System

- Epidemiology and Research Section established in the Health Division.
- List of notifiable diseases is available.
- Lay reporting system supplements the health centre-based information collection.
- Sentinel surveillance established for selected diseases.
- Quick response to epidemics.
- Task Force for HMIS.
- Task Force for Natural Disasters.

(c) Weaknesses of the Existing Disease Surveillance System

- Lack of adequate documentation.
- Weak feedback system.
- Lack of adequate qualified technical personnel.
- Inadequate personnel in the Epidemiology and Research Section.
- Inadequate use of information at the point of collection.

(d) Constraints

- Delayed reporting due to difficult terrain.
- Inadequate communication facilities pose difficulties for quick epidemic response.

(e) Steps Taken to Strengthen the System

- Strengthening of the Epidemiology and Research Section in the Health Division.
- Supply of computers to all district health offices and hospitals.
- Installation of wireless sets and telephones in peripheral health centres in the country.
- Development of guidelines for field workers for responding to epidemics.

(3) INDIA

In India, there has been considerable growth in the health infrastructure consisting of a network of 132,727 subcentres, 21 853 primary health centres, 2 424 community health centres, more than 500 district hospitals and 132 medical colleges (by the end of March, 1996). Under the Constitution, health is a state subject and each state has its health care delivery system. The federal government's responsibility includes areas of policy-making, planning, guiding, and assisting, evaluating and coordinating the work of various provincial health authorities. The National Institute of Communicable Diseases (NICD) is the apex body responsible for providing technical support to state governments in developing epidemiological services.

In spite of such a vast infrastructure, there are weaknesses in the surveillance and response mechanism for communicable diseases, which became more evident during the outbreak of plague in 1994, and of dengue / dengue haemorrhagic fever in 1996. As a result of these outbreaks the country suffered huge economic losses.

Following these outbreaks, the need for strengthening disease surveillance and developing an early warning system and a rapid response mechanism were realized. With this background, the Government of India formulated the National Surveillance Programme for Communicable Diseases (NSPCD). The main objective of the programme is capacity-building at district and state levels.

The focus is on communicable diseases, which have the potential for causing large outbreaks, such as severe diarrhoea /cholera, viral hepatitis, dengue / dengue haemorrhagic fever, Japanese encephalitis, leptospirosis and plague.

The important components of the programme are training of medical and health personnel for strengthening the disease surveillance system and developing rapid and appropriate responses to outbreaks. The district laboratories are being strengthened by supplying essential equipment and providing training to staff for confirming diseases with epidemic potential. Districts and states are being provided with computers for epidemiological analysis of data and rapid communications. IEC is an important component of the programme to involve communities and their leaders, including *panchayati raj* members. In the programme, state and district health authorities are encouraged to seek support of other related departments and nongovernmental organizations

The programme is implemented by state health authorities through the existing health infrastructure by identifying a nodal officer and constituting a multidisciplinary rapid response team for investigation and control of outbreaks. Concerned health and laboratory personnel are being

trained. The National Institute of Communicable Diseases coordinates the programme at the central level.

(4) INDONESIA

The Director of Epidemiology and Immunization in the Directorate-General of Communicable Disease Control (CDC) centrally manages the existing disease surveillance system. Routine reporting originates from health centres and hospitals. Reports on 28 communicable diseases are sent on a monthly basis from these institutions to the district level and from there to the central level.

In addition to the routine monthly reporting, there is also a weekly reporting system for about ten diseases (such as cholera, diarrhoea, dengue haemorrhagic fever, plague, etc.) which have an epidemic potential. If there is a significant increase in the incidence of a disease, which meets the criteria established for a disease outbreak, health centres must report to the district health officer within 24 hours. In the event of a threatened outbreak of a disease, the district health office staff have to conduct the initial investigations to confirm the outbreak and implement the necessary control measures. If it is a large outbreak, the provincial health office will provide assistance.

There is also a special surveillance system for diseases which are on the verge of eradication / elimination (such as polio and neonatal tetanus) as well as for diseases such as HIV / AIDS and sexually transmitted diseases, where the sensitive social aspects also need to be taken into consideration.

Strengths of the Present Notification System

- There is a list of notifiable diseases.
- Countrywide coverage is achieved.
- Special surveillance systems provide high quality data early.

Weaknesses of the Present System

- Lack of case definitions hampers early reporting of notifiable diseases.
- Routine reports are neither complete nor timely.
- No proper analysis of reported data takes place at district level.
- Poor motivation to report. Importance of notification not realized by health staff.
- Inadequate supervision and poor technical support.
- High cost of special surveillance *vis-à-vis* routine surveillance.

Steps Taken to Strengthen the Surveillance System

- Priority-setting for special surveillance.
- Decisions for appropriate action will be taken at district level.
- Training of staff.
- Data verification and validation of methods established.
- Standardized analysis formats developed.
- Regular supervision.

- Development of feedback mechanism.
- Sufficient budget allocation.

(5) MALDIVES

Maldives has made considerable progress in disease control and prevention. As a result, many diseases that were once regarded as major public health problems do not exist any more. Even if present, they are on the verge of being eliminated or eradicated from the country. Thus, Maldives is currently experiencing a period of transition from disease control to disease elimination.

Although Maldives is free from most communicable diseases, the prevalence of these diseases in the neighbouring countries is of great concern. Because of its geographical location and rapid increase in the flow of visitors to and from the country, there is an increased threat of introduction of new, emerging and re-emerging diseases. The recent introduction (1992) of HIV is one such example. This has caused great concern and emphasized the need for strengthening the existing surveillance system. Highest priority has been accorded by the government to strengthening and expanding the surveillance system. Special attention is paid to surveillance activities at ports of entry (both sea and airports) to ensure that a "regular watch" is kept on all incoming passengers as well as other potential items that may introduce any disease to the country.

An early warning system (EWS) is in place throughout the country. Daily information is collected and analysed. Data are collected for every disease condition, including conditions related to ARI etc. The main purpose of data collection is to identify early any threat of a disease outbreak.

These reports are received from all health centres, regional hospitals and through atoll offices on a daily basis, and are compiled and submitted to the Ministry of Health, from where they are immediately forwarded to the highest government authorities the very same day.

In the event of an outbreak, in addition to the submission of these reports, constant monitoring is carried out. Most outbreaks, such as dengue outbreaks, are treated as national emergencies. In these situations a special centre is set up and managed by appropriate personnel. Strong government commitment is always available. Intersectoral collaboration and support are also available during these situations. The information collected depends on the type of disease that is targeted.

Standard case investigation forms are used in ruling out any suspects, which is classified as immediate reporting.

Health care delivery comprises of a four-tier system in the country: island, atoll, regional and central levels.

Depending upon the situation and when the need arises, advice of WHO experts is sought.

Strengths and Weaknesses of Existing Disease Surveillance Systems

Strengths

- Although the islands are scattered over an area of 960 sq.km.; the improvement in the communications system has further enhanced the timely reporting and feedback for surveillance.
- To strengthen the surveillance system, simple standard disease recognition charts, posters, and other literature are being made available to all levels.

- More radio and TV programmes are targeted to recognize the diseases and further improve the surveillance systems.
- Availability of medical officers at the periphery has further strengthened the surveillance system throughout the country.
- More and more staff who are actively involved in surveillance activities are now being trained under WHO-supported projects.

Weaknesses

- Training of different categories of health personnel within the country has limitations. There are many risks of importing diseases which are prevalent in neighbouring countries. In order for paramedical staff to recognize diseases which have long since disappeared is quite difficult.
- Although laboratory facilities are available at different levels (rural and central) more experienced technicians are required to carry out efficient surveillance.

Steps Taken to Strengthen Surveillance

- Since surveillance is being given highest priority, urgent steps are being taken to train and retrain different categories of health staff in carrying out surveillance activities. Besides the initial training, surveillance is included in the training curricula of community health workers (CHWs) and family health workers (FHWs). Numerous courses were conducted nationally to improve the quality of surveillance. Community and private health care providers are also trained.
- In addition, specific guidelines are formulated and are being distributed.
- Training on surveillance is provided abroad to the relevant programme managers and staff with WHO support.
- Most of the islands where health centres are situated have established voluntary groups – 'health task forces'. Members of these task forces are selected from the community by the leaders to assist health care services. This health task force is providing valuable assistance in the implementation of surveillance activities.

(6) MYANMAR

The Ministry of Health has laid two objectives: to enable every citizen to attain full life expectancy and enjoy a long, healthy life, and to ensure that every citizen is free from disease. The ultimate objective of disease surveillance is to determine the magnitude of infectious diseases of major public health importance and the risk of disease transmission so that control measures can be taken promptly, effectively and efficiently. The law for communicable diseases control and prevention was amended and promulgated by the Government in March 1995. Routine monthly surveillance reporting from basic health units to higher level is made from all 324 townships under the National Health Management Information System. Twenty-nine townships were selected as sentinel posts, representing their respective states/divisions for better monitoring, supervision and evaluation. Data on communicable diseases are collected weekly from specialist/ general hospital paediatric units at divisional and central levels. Data are also collected daily from the Infectious Diseases Hospital. The incidence of disease is reviewed regularly and feed-back is provided to the township. Prompt control activities are undertaken if there is any indication of an outbreak. Verification of cases, rapid survey on immunization coverage by Lot Quality Assurance Sampling (LQAS) and immediate mop-up action for immunization were done for every outbreak of vaccine-preventable diseases. Special

surveys and studies are carried out as the situation demands, in order to supplement routine surveillance. Laboratory diagnostic support is very important during outbreaks, as well as for surveillance of communicable diseases. Epidemic Response Teams were established with the approval of the authorities concerned.

Strengths

- Outbreak identification is usually made with laboratory support.
- Technical assistance as well as supplies and sometimes, financial support is usually provided to the township medical officer concerned by the SDCU and the centre.
- Multisectoral collaboration and coordination (including assistance from nongovernmental organizations) are available in disease outbreaks.

Weaknesses

- Communicable diseases continue to be major public health problems.
- Inadequate training of basic health staff in the epidemiology of communicable diseases and data reporting.

Actions Taken to Strengthen the Surveillance System

- Improving case-finding.
- Effective treatment regimens developed.
- Vector and pest control activities strengthened.
- Dissemination of health education materials.
- Support for research activities.
- Strengthening of training, monitoring and evaluation. Outbreak response training will also be conducted.
- Weekly reporting of vaccine-preventable diseases, such as acute flaccid paralysis, measles and neonatal tetanus in 1999.

(7) NEPAL

Background

- Before 1993, the historical morbidity and mortality reports from hospitals/health centres used to be sent to the Epidemiology Division (central level).
- Major programme divisions (viz. Malaria, EPI and TB) had essentially a "stand alone" type of information system.
- The integration of health care delivery into comprehensive basic health services in 1987 highlighted the need to develop an integrated management information system (MIS).
- A MIS Task Force was set up, with WHO assistance in 1987, to streamline the information system.
- Implementation of Health Management Information System (HMIS) in 1993/1994.

Existing Disease Surveillance Systems

- Health Information Management System (HMIS) – Routine reporting.
- Early Warning Reporting System (EWARS).
- Direct outbreak reporting to the Epidemiology and Disease Control Division (EDCD) / Directorate of Health Services (DHS) on an *ad-hoc* basis.

Routine Reporting

- Health staff from health posts (HPs) / sub-health posts (SHPs), primary health centres (PHCs) and hospitals report monthly to the District Health Office (DHO) information on communicable diseases using specific MIS reporting forms. This information is collated at the District Health Office, and sent to the MIS / Planning and Foreign Aid (P&FA) Division, DHS.
- The MIS ensures timely reports from all 75 districts of Nepal.
- At the central level, the district reports are collated by the MIS/P&FAD/DHS and disseminated to the concerned divisions.
- The concerned divisions analyse and interpret the data and formulate strategies and the necessary action to be taken.

Strengths and Weaknesses of the HMIS Disease Surveillance System

Strengths

- Provides information from all reporting units.
- Forms the basis for quarterly and final evaluation of disease control programmes by decision- and policy-makers.
- Assists in evaluation of disease trends and identification of priority districts.
- The Annual Performance Review based on MIS helps in guiding corrective measures and formulation of new strategies if indicated.

Weaknesses

- Surveillance reports are usually delayed and this prevents timely action being taken in case of outbreaks.
- Underestimates actual disease incidence.
- Too many details required about notified cases discourages recording and reporting at the health service level, and complicates analysis at the intermediate level.
- The reported number of cases depends on the utilization of health facilities by the population.
- There is considerable under-reporting of cases.
- Data collection and subsequent action are regarded as functions of the Health Ministry and not as a tool for self-evaluation by staff at the local level, where reports originate.
- Poor motivation for reporting arises if neither feedback nor orientation is received from higher levels.

Constraints

- Uncertainty in diagnosis of a disease leads to inaccurate reporting due to:
  - Lack of standard case definitions.
  - Untrained health staff.
  - Lack of laboratory services at health facilities.
- Delayed reporting due to:
  - Frequent turnover of health staff.
  - Poor motivation of staff.
  - Shortage of reporting forms.
- No reporting due to:
  - Absence of appropriate means of transport and communication facilities.
  - Health institutions located in remote and high altitude areas are unable to report.
- Incomplete and irregular reporting are other problems frequently encountered.

Plans for Strengthening Surveillance Activities in Nepal

- Expansion of the Early Warning Reporting System (EWARS).
- DHS through EDCD is in the process of adopting standard case definitions for surveillance of 24 common communicable diseases. The objective of implementing standard case definitions in surveillance system is to improve the accuracy and consistency in the diagnosis of specific diseases at similar health facilities for routine reporting.
- Appointment of Regional Surveillance Officers for AFP with the assistance of USAID/WHO.
- Strengthening laboratory capacity in five major hospitals: to be completed by 1999.
- Building outbreak response capacity at central, regional and district levels: training on case definitions and rapid response team activities are due to commence in February 1999.
- Strengthening surveillance activities at PHC/HP levels: training on case definitions and outbreak report, from June 1999 onwards (pending identification of budget).

8. SRI LANKA

Information Flow

- Systematic disease reporting from as far back as 1914.
- Notification of communicable diseases from 1947.
- Surveillance system based on notification of communicable diseases by all medical practitioners.
- Additional information from special disease control programmes, the Fever Hospital, the Children's Hospital, the Medical Research Institute, and regional laboratories,
- Hospital morbidity and mortality information from the Medical Statistician; and national mortality information from the Registrar-General.
- Feedback (weekly and quarterly), as well as special publications.

Notification System

- Made on a tentative diagnosis of a notifiable disease by medical practitioners and sent to the Medical Officer of Health (MOH).
- Investigation usually by Public Health Inspector (PHI) of the area.
- Notification registers maintained in hospitals and the MOH office; Infectious Diseases Register at the MOH office for confirmed cases.
- Weekly Return of Communicable Diseases from MOH to Central Epidemiological Unit and to the Regional Epidemiologist (RE).
- Group A diseases (cholera, plague and yellow fever) and acute flaccid paralysis notified directly to the Central Epidemiological Unit by hospitals, in addition to routine reporting.

Active Surveillance

- Conducted by the regional epidemiologists in large provincial and district hospitals, and by assistant epidemiologists in the Children's Hospital, Colombo.
- Active surveillance also by the Medical Research Institute and some special campaigns for certain diseases only.

Strengths

- Long-standing, well-established surveillance system.
- List of notifiable diseases available.
- Legal backing for notification.
- Dedicated officers in public health services despite lack of incentives.
- Weekly surveillance of major communicable diseases, including zero reporting.
- Regional epidemiologists in several districts to monitor reporting and assist in investigations.
- Active surveillance in large hospitals in districts and in major teaching hospitals.
- Special surveillance for acute flaccid paralysis, neonatal tetanus, measles, whooping cough, diphtheria, cholera, rabies, Japanese encephalitis and dengue haemorrhagic fever.
- Weekly and quarterly feedback to all data providers, and to general practitioners and health-related nongovernmental organizations and international agencies (WHO, UNICEF).
- Feedback on notification performance to selected hospitals.

Weaknesses

- Under-reporting due to poor knowledge and understanding of the importance of surveillance data, misconceptions and disillusionment with the system among some clinicians.
- Late reporting, often due to notifying the disease on discharge of the patient, and not when a provisional diagnosis is first made.
- Late investigation due to delayed reporting, postal delays, and lack of supervision.
- Lack of trained staff at central, regional and peripheral levels.
- Lack of reporting from outpatient departments and the private sector.
- Limited laboratory support.

Steps taken to Strengthen the Existing System

- Appointment of regional epidemiologists.
- Training in epidemiology for MOHs and PHIs.
- Review of surveillance activities in districts.
- Appointment of Infection Control Nursing Officers in larger hospitals.
- Training of medical officers in new, emerging and re-emerging diseases.
- Steps to strengthen regional laboratories.
- Setting up of Rapid Response Teams in provinces and districts.

(9) THAILAND

Effective surveillance is the foundation for early detection of epidemics, which is required for meaningful control of disease. In Thailand, a nationally standardized reporting network with standard case definition base on clinical and laboratory diagnosis and with cooperation of all health personnel, at all levels, has been IN OPERATION for more than 20 years. The Division of Epidemiology under the Permanent Secretary, Ministry of Public Health (MPH), acts as the centre of the network where reports on more than 60 notifiable diseases are analysed and feedback is provided through a weekly epidemiological surveillance report. This report serves the purpose of dissemination of surveillance information to reporting units, decision-makers and health authorities at all levels. The information is used for planning, monitoring and evaluation of health programmes at local and central levels.

Objectives of Surveillance

- To provide information to decision-makers for planning, monitoring (trends in endemic disease, progress towards control objectives, programme performance) and evaluating public health programmes, especially on communicable disease control.
- To detect epidemics.
- To predict epidemics.
- To estimate the disease impact.

Physicians at community hospitals in the district or more specialized hospitals (provincial, regional hospitals) who diagnose notification diseases have to submit a report by using a case notification form (506) to the provincial health office before forwarding the report to the central level. A notification change form (507) is available for submission of the revised diagnosis after the laboratory result following the death of the patient. The reporting form will be verified, collated, analysed, and interpreted. Wherever an unusual cluster of cases or outbreaks occurs a team of health personnel will be sent to investigate and appropriate control measures will be promptly applied.

The surveillance system is supervised and assessed periodically by supervisory teams from Regional Epidemiology Centres in the four regions of the country. The supervisors will assess the quality of reporting during field visits (accuracy, completeness and timeliness of the reports).

About two million notification forms are processed at the Division of Epidemiology every year. Surveillance data are characterized in terms of time, place and person. Morbidity and mortality information on different aspects is used to detect outbreaks, define specific impact of any diseases or interventions, and teach and train health personnel, etc. Weekly and monthly reports and annual summary of surveillance information are published and distributed to relevant organizations and individuals in the country and to international organizations like WHO. Periodic conferences, meetings and national seminars on epidemiology are conducted to present and discuss surveillance

and other epidemiological information. The surveillance data are used to make recommendations to improve the health of the people.

Strengths

- Clear goal with good support from decision-makers and a legal basis for notification.
- Well-established system with one central unit for entire disease surveillance backed up by good infrastructure.
- Computerized recording and analysis established at provincial level.
- Functional feedback mechanism.
- Good laboratory support available.
- Good epidemiological training centres.
- Utilization of information for action.
- A number of well-trained field epidemiologists to investigate and handle outbreaks.

Weaknesses

- Private sector not covered.
- Some delays in reporting.
- Under-utilization of epidemiology data in making decisions at the peripheral level.
- Inadequate medical epidemiologists in some provinces.
- Lack of incentives for doctors to work as epidemiologists.

Annex 3

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