

Implementing the New International Health Regulations in the Pacific --- Challenges and Opportunities

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Abstract

The newly revised International Health Regulations, i.e. IHR (2005), adopted by the World Health Assembly in May 2005, are the legally binding international instruments for preventing and controlling international spread of disease while avoiding unnecessary interference with international traffic and trade. IHR (2005), which will enter into force in June 2007, set out new obligations for detection, assessment and notification of and response to public health events of international concern. In particular, under the IHR (2005), each Member State is required to notify WHO directly of any event that may constitute a public health emergency of international concern. Although the implementation of the new IHR to contribute to regional and global health security will be very challenging in the Pacific, they provide new opportunities for the Pacific Island Countries and areas (PICs) to build, strengthen and maintain their core capacities for surveillance and response. This article describes the major changes in the new Regulations and discusses the opportunity of using existing mechanisms for the implementation of IHR (2005). In the PICs, while strengthening the capacity of national public health surveillance and response systems is essential and the key to the effective implementation of the new Regulations, the Pacific Public Health Surveillance Network (PPHSN) can also be utilized to facilitate the IHR implementation, including disseminating updated information related to IHR such as WHO guidelines and capacity building, whenever possible. (PHD, 2005 Vol 12 No 2 Pages 135 - 143)

Background of the IHR

The International Health Regulations (IHR), which are administered by the World Health Organization (WHO), are the legally binding international instruments covering measures for preventing international spread of diseases to ensure global health security. The current IHR, in force since 1969, prescribe notification requirements and measures only for three diseases: cholera, plague and yellow fever.¹

Over the past decades, the rapid globalization of trade and the movement of people have significantly increased the risk of cross-border spread of communicable diseases. The increasing phenomenon of globalization has altered the traditional distinction between national

and international health, including communicable disease spread pattern. Very few urgent public health risks are solely within the purview of national authorities.² Any upsurge in cases of infectious disease in a given country is potentially of concern for the international community.

Severe Acute Respiratory Syndrome (SARS), as the first severe infectious disease to emerge in the twenty-first century, has posed a serious threat to regional and global health security. The recent outbreaks of avian influenza caused by influenza A (H5N1) in Asia serve as stark reminders that the world faces the risk of an influenza pandemic, which can greatly impact the health of populations, and cause economic loss and social disruption in all countries in the world. The advent of recent SARS and avian influenza outbreaks underscore the importance and urgency of having an agreed code of conduct and an essential legal framework for preventing international spread of diseases and for coordinating more effectively an international response to a public health emergency of international concern in the future.

The IHR have undergone substantial revision to make them responsive to the challenges of infectious disease

threats, the increased volume and complexity of international trade and travel, and the widespread use of electronic communications.³ The revised IHR were adopted by the World Health Assembly in May 2005.⁴ The purpose and scope of the new regulations, namely the International Health Regulations (2005), are “to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade”. It is expected that the IHR (2005) will enter into force in 2007 for Member States.

Major changes in the IHR

The IHR (2005) set out new requirements and obligations for Member States and WHO concerning the verification, assessment and notification of public health events of international concern, the implementation of WHO-recommended control measures, the development of core capacities for surveillance and response, and inter-country collaboration. They also provide new opportunities for Member States to strengthen their existing public health surveillance and response systems to ensure national health security. The major changes and features of the new IHR are summarized as follows:

Scope of the IHR (2005)

Whereas the IHR (1969) cover only three diseases (cholera, plague and yellow fever), the scope of the revised regulations is broader than ever before. For the purpose of the new IHR, “disease” has been defined as “an illness or medical condition, irrespective of origin or source, that presents or could present significant harm to humans”. The new IHR provide a broader framework for protecting population against the spread of infectious diseases and for adequately responding to all public health emergencies of international concern (PHEIC).

Notification and Verification

Unlike the IHR (1969), where only three diseases are notifiable, the IHR (2005) request Member States to notify WHO of all events that may constitute a PHEIC within 24 hours of assessment of public health information by using a decision instrument (an algorithm). Member States, when requested by WHO, shall also verify and provide information on reports from sources other than notification or consultations of events which may constitute a PHEIC occurring in their area.

The decision instrument contains the following four criteria for the assessment of public health events and

to alert countries when to notify WHO of an event that may constitute a PHEIC (Figure 1):

- Is the public health impact of the event serious?
- Is the event unusual or unexpected?
- Is there a significant risk of international spread?
- Is there a significant risk of international travel or trade restriction?

If the event meets any two of the four criteria above, Member States shall notify WHO of the event within 24 hours of the assessment, through their National Focal Points.

There are two lists of diseases to supplement the instrument.

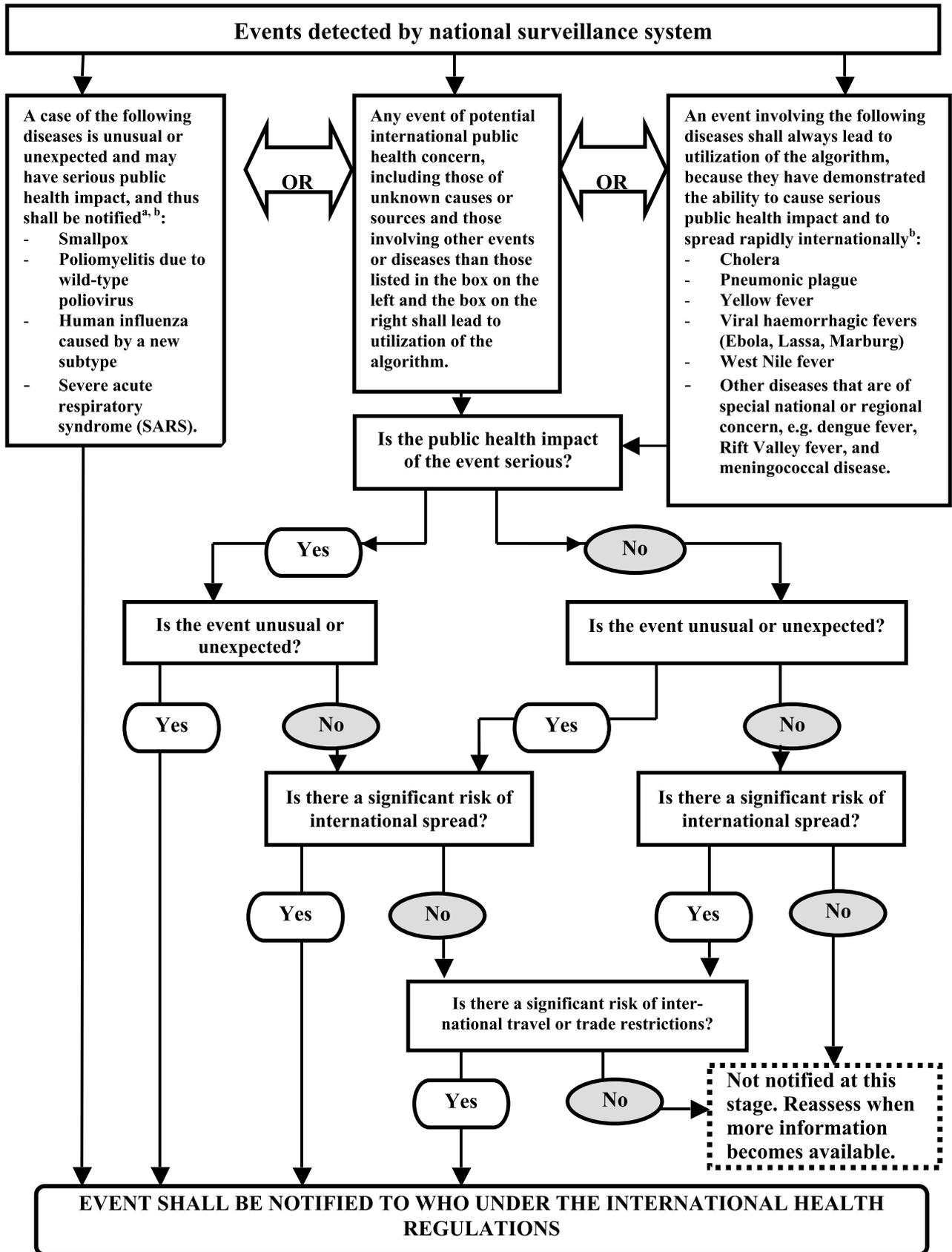
- (1) The first list includes four diseases, i.e. smallpox, poliomyelitis due to wild-type poliovirus, human influenza caused by a new subtype, and SARS. A single case of these diseases shall be notified to WHO because it is unexpected and may have serious public health impact.
- (2) The second list includes cholera, pneumonic plague, yellow fever, viral haemorrhagic fevers (Ebola, Lassa, Marburg), West Nile fever, and other diseases that are of special national or regional concern (e.g. dengue fever, Rift Valley fever and meningococcal disease). An event involving these diseases shall always lead to utilization of the algorithm, because they have demonstrated the ability to cause serious public health impact and to spread rapidly internationally.

IHR Focal Points

To establish effective communication channels, the IHR (2005) request each Member State to designate a National IHR Focal Point (NFP) and WHO to designate IHR Contact Points at its headquarters or regional offices as operational links for urgent communications concerning the implementation of the IHR (2005).

“National IHR Focal Point” is defined as “the national centre, designated by each Member State, which shall be accessible at all times for communications with WHO IHR Contact Points under these Regulations”. The main functions of the NFP include (1) sending to WHO IHR Contact Points, on behalf of the Member State concerned, urgent communications concerning the implementation of these Regulations; and (2) disseminating information to, and consolidating input from, relevant sectors of the administration of the Member State concerned, including those responsible for surveillance and reporting, points of entry, public health services, clinics and hospitals and other government departments.

Figure 1: Decision instrument for the assessment and notification of events that may constitute a public health emergency of international concern



Determination of a PHEIC and control measures

WHO will determine whether an event constitutes a public health emergency of international concern and issue temporary recommendations on control measures in accordance with the criteria and the procedures set out under the IHR (2005). An IHR roster composed of experts in all relevant fields of expertise will be established. An Emergency Committee composed of relevant experts mainly selected from the IHR expert roster will be established to provide its views to WHO on whether an event constitutes a PHEIC, the termination of a PHEIC and the proposed issuance and termination of such recommendations.

Member States will be requested to control urgent national public health risks that threaten to transmit diseases to other Member States, and apply WHO recommended control measures to prevent the spread of diseases and promptly detect their occurrence.

The IHR (2005) also allow Member States to implement additional health measures in accordance with their national law and obligations under international law. However, such measures shall be determined based on scientific principles and available scientific evidence. The country implementing such measures will need to provide to WHO the public health rationale and relevant scientific information, and WHO shall share this information with other Member States regarding the additional health measures implemented.

Core capacity requirements for surveillance and response

The IHR (2005) set out the core capacity requirements for surveillance and response, as well as the capacities needed for designated airports, ports and ground crossings (Annex 1 of the new IHR). In summary, at the local community level and/or primary public health response level, the core capacities include the detection of any unusual and/or unexpected events, the report of all available essential information immediately to higher level of health care response and the immediate implementation of preliminary control measures. At intermediate public health response levels, they should be able to confirm the status of reported events, to support or implement additional control measures and to assess reported events immediately and, if found urgent, to report all essential information to the national level. At the national level, more comprehensive core capacities are required, including the assessment of all reports of urgent events within 48 hours; the notification of any events that may constitute a PHEIC

to WHO immediately; the rapid determination of control measures; the provision of technical and logistical support; the establishment of a direct operational link with senior officials, the direct liaison with other relevant government ministries and links with hospitals, clinics, airports, ports, ground crossings, laboratories and other key operational areas for the dissemination of information and recommendations received from WHO; and the development and implementation of a national public health emergency response plan.

Each Member State will be requested to utilize existing national structures and resources to develop, strengthen and maintain, as soon as possible but no later than five years from the entry into force of the new IHR for that Member State, the capacity to detect, assess, notify, report and respond to public health events, in accordance with these core capacity requirements.

Implementation of the IHR (2005) will need comprehensive assessments of national surveillance and response systems, followed by long-term planning and adequate resource allocation to build core capacities for surveillance and response at each level of the country.

Intercountry and international collaboration

The IHR (2005) particularly require collaboration among countries as well as with WHO and other partners in detecting, assessing and responding to significant public health events, providing and facilitating technical cooperation and logistical support, especially core capacity-building, mobilizing financial resources and formulating proposed national laws and legislations.

Outbreak alert and response in the Pacific

Communicable diseases remain among the leading causes of morbidity and mortality in many Pacific island countries and areas (PICs) (Table 1). Outbreaks of known infectious diseases such as typhoid fever, influenza, cholera, dengue fever, leptospirosis, measles and rubella continue to occur in the Pacific (Table 1). Due to limited early warning and response functions within national public health systems, frequent lack of effective response mechanisms (including rapid mobilization of financial resource and outbreak response team), and very limited epidemiological and laboratory capacities, outbreak response is often delayed in many PICs.

The Asia Pacific Region has recently experienced major public health challenges arising from newly emerging diseases. Although the PICs have fortunately not been

At intermediate public health response levels, they should be able to confirm the status of reported events, to support or implement additional control measures

Table 1: Selected disease outbreaks in the pacific Island Region, 2000-2005

Disease	Country/territory	Year (Month)	Number of Cases (Deaths)
Brucellosis	Wallis and Futuna	2004	4
Cholera	Federal States of Micronesia (FSM)	2000	~3,500 (20)
Cholera	Marshall Islands	2000	>300 (6)
Dengue (only 1 serotype confirmed in most countries and territories: DEN-1)	Palau, French Polynesia, American Samoa, Cook Islands, Fiji Islands, Samoa, Solomons Islands, Tokelau, New Caledonia, Vanuatu, Wallis & Futuna, Kiribati, Marshall Island, Nauru, Tonga, FSM	2000-2005	estimated >45,000 (> 30)
Influenza A (H1N1)	French Polynesia	2000	?(4)
ILI (confirmed Influenza A & B circulation)	New Caledonia	2000	805
Influenza A	Guam	2003 (Oct)	No data
ILI (Influenza A?)	Samoa	2003 (Feb-Apr)	~15,000
ILI (confirmed Influenza A circulation)	Fiji	2004 (Feb-Mar)	14,429
Influenza A	Solomon Islands	2004 (Feb-Apr)	No data
Leptospirosis	New Caledonia	2000	28 (5)
Leptospirosis	New Caledonia	2001	23 (7)
Leptospirosis	FSM	2000 (April-May)	10
Leptospirosis	Palau	2000 (April)	3
Leptospirosis	Northern Marianna Islands (NMI)	2000-2001	10
Leptospirosis	Guam	2002	21
Leptospirosis	Fiji	2003	Small outbreak
Leptospirosis	Wallis & Futuna	2004	Small outbreak
Measles	Papau New Guinea (PNG)	2000-2005	On-going circulation with outbreaks
Measles	Guam	2002 (April-May)	76 suspected cases with 9 confirmed
Measles	Marshall Island	2003 (July-Sept)	647 (3)
Measles	Guam	2003 (Oct)	7 suspected cases with 5 confirmed
Rubella	Tonga	2002 (April-Sept)	~600, incl. 35 confirmed encephalitis cases
Rubella	Niue	2003 (August-Sept)	30
Rubella	Samoa	2003 (July-Sept)	710, incl. 6 encephalitis cases (2)
Scrub typhus	Palau	2001-2003	15
Shigellosis	Wallis & Futuna	Mid 2002	~800
Typhoid Fever	Samoa	2000 (Jul)	122 (1)
Typhoid Fever	Vanuatu	2000 (Dec)	26
Typhoid Fever	Tuvalu	2001 (May)	~22
Typhoid Fever	PNG	2000-2005	On-going circulation with many small outbreaks (among the 10 top causes of death)
		2004	Outbreaks in school & prison
Typhoid Fever	Fiji	2005 (ongoing)	92 (1)

affected by the outbreaks of SARS and influenza A (H5N1), any countries in the region including PICs are vulnerable to newly emerging diseases. The lessons learnt from SARS and avian influenza demonstrate that infectious diseases can continue to emerge in the world, can spread rapidly across national borders and regions including the Pacific, and can adversely affect economic development, trade, tourism and social stability. As many PICs are currently experiencing rapid social and environmental changes (migration, urbanization and globalization) and given the importance of international travel, the risk of cross-border transmission and spread of infectious diseases, including an influenza pandemic, is real and significantly increasing in the Pacific. The Pacific will need to be better prepared for early response to future disease outbreaks or public health threats in order to minimize their health and social-economic impact.

EWAR and the IHR implementation

Strengthening and implementation of early warning and response functions within national integrated disease surveillance and response systems are critical steps in building the core capacities for surveillance and response under the IHR (2005).

Early detection relies on effective surveillance. Conventionally, surveillance has concentrated on the systematic collection, collation and analysis of routinely gathered data on known diseases. However, such systems do not always function as early warning systems.

Early warning and response systems (EWAR) can be defined as the functions of an integrated surveillance system which aims to detect in a timely manner any unusual disease events that could represent a public

health threat. These systems explicitly recognize that 'signals' that act as the trigger for recognition of a significant public health event may come from many sources and require immediate investigation and control measures. The early warning systems utilize both formal and informal information that is related to a disease or public health event. They collect and analyse data and information from various sources: including health care facilities, public health institutes, laboratories, communities, media and even individual phone calls. Early warning surveillance comprises case-based surveillance and event-based surveillance (Figure 2).

Assessment of the signals or alerts generated by the surveillance system and timely response to outbreaks are important components of EWAR. Early detection has to be combined with timely and appropriate response in order to lessen the negative impact of a health event or a disease outbreak.

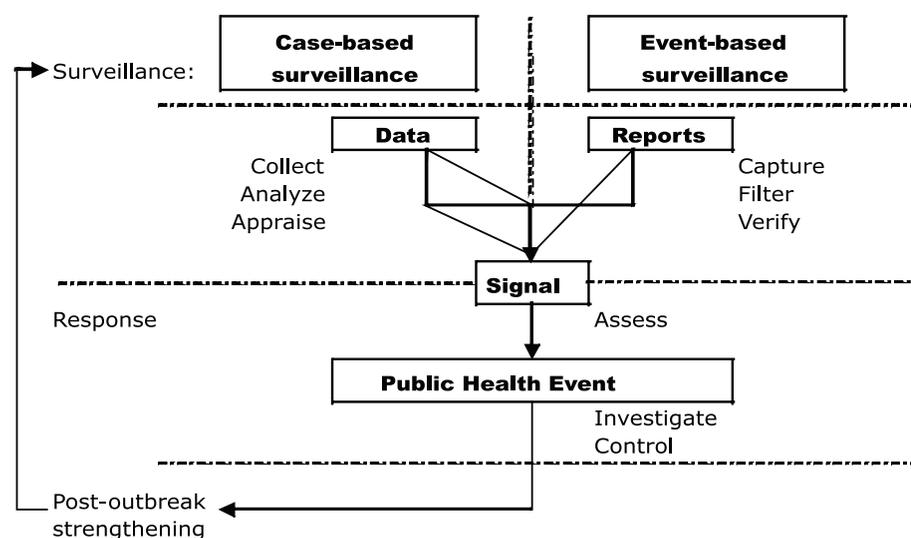
The Pacific Public Health Surveillance Network (PPHSN)⁵

The Pacific Public Health Surveillance Network (PPHSN), established in December 1996, is a collaboration of PICs and organizations dedicated to the promotion of public health surveillance and response in the Pacific. The goal of PPHSN is to improve public health surveillance and response in a sustainable way. PPHSN strategies include: harmonization of surveillance data and development of appropriate surveillance systems; publication/dissemination of timely, accurate and relevant information in various forms; training in applied epidemiology and public health surveillance; extension of the electronic communication network to new partners, new services and other public health networks; and development of relevant and cost-effective computer

applications.^{6,7} PPHSN priority targets are outbreak-prone communicable diseases, i.e. (not exclusively) cholera, dengue fever, influenza, leptospirosis, measles (and rubella) and typhoid fever, to which have been added SARS in 2003 and HIV/AIDS in 2004.

Three networking services have been established under PPHSN, including PacNet for alert and communication, LabNet for verification and identification of pathogens, and EpiNet for investigation and response, including

Figure 2 Early warning surveillance



preparedness. PacNet, created in 1997, is an email listserv (complemented when needed by fax) for a network of public health professionals interested or working in the Pacific Islands. It allows rapid communication, especially early warning for epidemic threats, and consequently makes it possible to raise awareness and preparedness levels in the region. PacNet is complemented by PacNet-restricted: a list restricted to selected health professionals (usually decision makers) from the ministries and departments of health, PPHSN Coordinating Body members and WHO offices. PacNet-restricted is an alternative option to PacNet, especially in the very early stages of outbreaks, when information is often sensitive and confidential (as the event is not yet confirmed and/or adequate public health response not yet brought about). LabNet is a three-tiered network of public health laboratory services comprised of national/territorial laboratories (Level 1), four of which (located in Fiji, French Polynesia, Guam and New Caledonia) have accepted to provide public health laboratory services to other countries and areas in the region (Level 2) and reference laboratories (including the WHO reference centers) within the Pacific (Level 3). EpiNet is a network for investigation and response, as well as preparedness, consisting of multidisciplinary national/territorial outbreak response teams.

PPHSN mechanism for the IHR implementation

The best way to prevent international spread of diseases is to detect and respond to disease events early and effectively when the problem is still small and at local and national levels. Therefore, the capacity of national and local public health surveillance and response systems is essential and the key to the effective implementation of the IHR.

Despite considerable progress made in national capacities over the past years, there remain significant challenges and gaps in public health surveillance and outbreak response in PICs. National communicable disease surveillance and response systems in most PICs are still unable to function as early warning systems and to rapidly respond to disease outbreaks to minimize their health, economic and social impact. The importance of strengthening national capacities needs to be recognized, as it is essential for early detection and rapid response to future outbreaks. WHO will continue to work with governments and other partners to provide PICs with technical, logistical and necessary financial support in building the core capacities, and assessing and responding to communicable disease outbreaks and other public health emergencies of

national and international concern in accordance with the new requirements under IHR (2005).

While building and strengthening national capacities is essential to effective IHR implementation in PICs, the Pacific should also utilize existing resources and subregional mechanisms to facilitate the IHR implementation. The Health Ministerial Meeting for PICs, held from 14 to 17 March 2005 in Samoa, recommended that PPHSN mechanisms be utilized for IHR implementation such as notification, verification and capacity strengthening wherever possible, and that the person representing the IHR focal point be a member of the national or territorial EpiNet team or an equivalent communicable disease response committee or taskforce at the national or territorial level. Where possible that person should be the chair of the team.

The Pacific should also utilize existing resources and subregional mechanisms to facilitate the IHR implementation

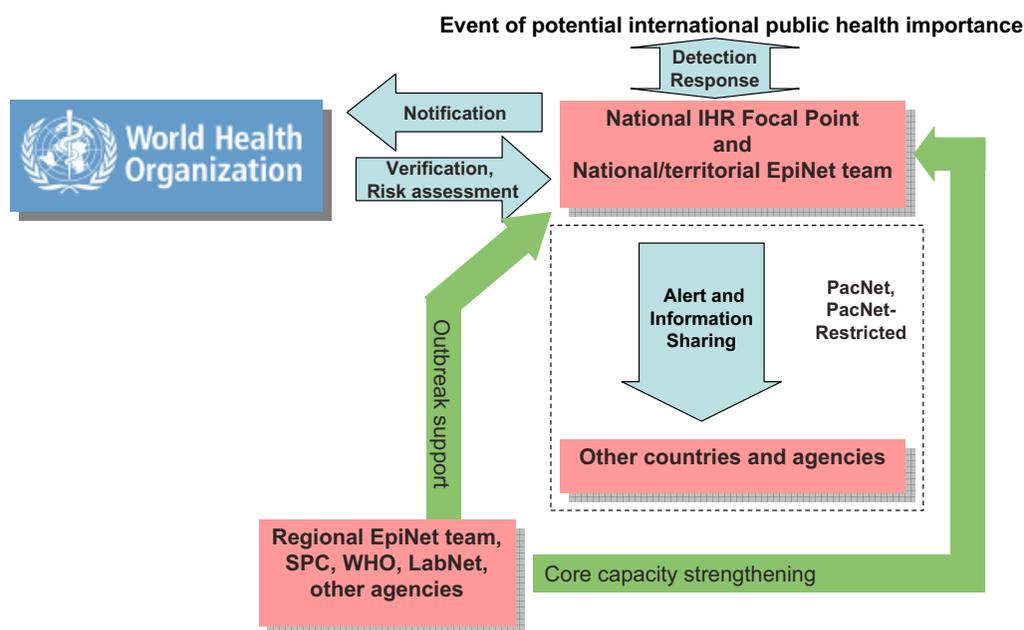
The advantages of using PPHSN mechanisms for the implementation of the IHR (2005) are as follows:

- (1) PPHSN has been already widely recognized as an existing regional mechanism of information sharing and outbreak alert and response.
- (2) Given limited resources, most PICs will have difficulties to develop and strengthen their surveillance and response capacities to meet the core capacity requirements under the IHR (2005) within a few years. Therefore, a complementary regional approach or mechanism is necessary to assist those countries in implementing the IHR.
- (3) A common mechanism is necessary to implement intercountry activities including international response to outbreaks, capacity-building advocacy and resource mobilization.
- (4) A regional mechanism will contribute to regional capacity-building within the Pacific.

Notification and verification

Under the IHR (2005) each Member State is required to notify WHO directly of all events that may constitute a public health emergency of international concern (PHEIC), and WHO will coordinate the verification of reports concerning significant disease events. WHO will assess and determine, on the basis of the information received and an assessment, whether an event constitutes a PHEIC in accordance with the criteria and the procedures set out in the IHR (2005).

In the PICs, PacNet, together with the PPHSN website, can be utilized to report verified events to a larger audience, to raise health professionals' awareness, and to disseminate information related to IHR such as WHO guidelines. The information and communication through

Figure 3: PPHSN and Implementation of the IHR (2005)

PacNet or PacNet-restricted can be useful to identify potential PHEIC, which may require official notification and verification under IHR (2005). The national EpiNet team (or equivalent) could by itself function as an IHR national focal point, i.e. as a national unit for urgent communications with WHO concerning such notification and verification. LabNet should be used for early identification and confirmation of pathogens and facilitation of sending specimens to WHO reference laboratories for further testing and verification, if needed (Figure 3).

Risk assessment and response

EpiNet teams or multidisciplinary national/territorial teams responsible for outbreak preparedness, investigation and response should be fully utilized for the rapid assessment of and response to any significant public health events, including any event that may constitute a PHEIC, especially those arising from outbreak-prone infectious diseases. Given that many of the PICs do not have sufficient infrastructure and skilled personnel to carry out rapid investigation and response activities required under the IHR (2005), it is useful to utilize regional resources to support the national and territorial EpiNet teams in conducting assessment of and response to future public health events and in improving national/territorial response capacity.

Core capacity-building

The IHR (2005) request all States to develop, strengthen and maintain the surveillance and response capacity to detect, assess, notify, report and respond to public health

events. PPHSN has been implementing trainings and other activities to strengthen national and local capacity for surveillance and outbreak response. PPHSN can be fully utilized as an intercountry mechanism to provide assistance in building national and local capacity to fulfill the minimum core capacity requirements under the IHR (2005). For example, it is necessary to continue to upgrade the skills of local health staff especially EpiNet team members. This can be implemented through various workshops and training programme conducted under PPHSN in collaboration with partners like WHO, Secretariat of the Pacific Community, the Fiji School of Medicine and the Centers for Disease Control and Prevention. The Data for Decision Making (DDM) training model consisting of small modules followed by practical studies or projects could be used to gradually build capacity on the job. In the long term, the PPHSN mechanism can be used to strengthen and maintain the capacity of each country/area. Building minimum core capacity in each PIC requires sufficient resources and PPHSN can also be utilized to mobilize such resources.

In conclusion, the IHR (2005) provide a more powerful tool and a broader framework for protecting population

Conclusion

In conclusion, the IHR (2005) provide a more powerful tool and a broader framework for protecting population against the spread of infectious diseases and for adequately responding to all public health emergencies of international concern in the future. The IHR (2005) set out new requirements and core obligations for Member States and WHO concerning the notification, verification, assessment of public health events of international

concern, the implementation of WHO recommended control measures, and the development of core capacities for surveillance and response. While the implementation of the new IHR to contribute to regional and global health security will be very challenging in most PICs, they provide new opportunities (including potentially increasing external support) for the countries to build, strengthen and maintain the capacity of their public health surveillance and response systems.

In the PICs, while the capacity of national public health surveillance and response systems is essential and the key to the effective implementation of the IHR, PPHSN mechanisms can also be utilized to facilitate the IHR implementation such as capacity strengthening, wherever possible. WHO will continue to work closely with governments and other partners to support the PICs in their efforts to build and strengthen core capacities, and to assess and respond to communicable disease outbreaks as well as other public health emergencies of national and international concern in accordance with the new requirements under IHR (2005).

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The issue is not how to stop globalization.

The issue is how we use the power of communities to combine it with justice.

(Tony Blair – 2001)