

Service-Oriented Training in Public Health

A model for enhancing Public Health Surveillance In the Pacific

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1 Summary

1.1 The Need

Every country needs the capacity to measure and analyse continuously the health status of its population. It does so through public health surveillance. Surveillance is not simply the collection and reporting of health data. Surveillance tells us where health problems are, who is affected, and where prevention and control activities should be directed. It helps us to define priorities for health programs and policies, and also to evaluate their effectiveness.

Without practitioners skilled in managing a system of public health surveillance, the quality of assessment of a population's health status will be deficient or misleading, and the resultant public health responses may even be harmful. In the absence of valid surveillance data, the allocation of scarce and dwindling health resources will be more likely to be driven by other vested interests, and not primarily by the needs of the community.

In December 1995, the Community Health Program of the SPC, in collaboration with WHO and UNICEF, sponsored the Inter-agency Meeting on Health Information Requirements. This meeting recorded the concerns of participants on the accuracy, quality and usefulness of surveillance data in the Pacific. As a result of the meeting, the Pacific Public Health Surveillance Network was formed to develop and implement strategies for enhancing surveillance.

1.2 The Challenge

It is timely and imperative to formalise a Pacific training program in surveillance.

While various agencies conduct training in surveillance for health professionals from the Pacific, such training is not done in a coordinated and efficient manner to ensure professional and institutional development aimed at capacity building. However, what these initiatives indicate, is that the Pacific can support an indigenous training program in surveillance.

Training in surveillance should not be conducted as another vertical program. Furthermore, it should embody the principles for training articulated in the Pacific through the Yanuca Declaration, the meeting on Postgraduate Medical Education in the Pacific, and at the conferences on Community Health in Medical Education held between 1991 and 1997.

1.3 The Response

The Pacific should adopt the service-oriented model of training that integrates training in surveillance with training in public health.

In this model, the trainee is based in the workplace, and the process of training itself contributes immediately and directly to enhancing surveillance and other public health activities and capacity building.

Who to train?

Training should be offered to all health professionals.

The scope and level of training for particular individuals should be determined by their expected roles in the surveillance system, and their career aspirations. For the purpose of training, health professionals have been classified into three broad categories: public health practitioners, generalist clinicians and clinical specialist trainees. As many public health practitioners and generalist clinicians in the Pacific provide clinical and public health services concurrently, they could participate in the same training pathway in public health. Clinical specialists are important role models in society; they hold influential senior positions and their commitment for enhancing surveillance must be secured.

How to train?

The training model is integrated with public health practice and incorporates continuing education and graduate degree training.

A major investment is needed to enhance the quality of surveillance data through continuing education for all health professionals. This would include training in data collection and using the data for decision-making at the point of collection, i.e. at the primary health care level.

In addition to continuing education, it is essential to train practitioners to become senior health advisers and leaders in public health.

Specific educational objectives for continuing education and graduate degree training should be based on the needs of the practice environment. Training should be hierarchical so that it provides the competencies that are necessary for effective performance at different levels of the health system.

Graduate degree training in surveillance should be integrated with public health training. The latter may be categorised into three levels: basic, towards the Graduate Diploma in Public Health (GDPH); intermediate, towards the Master in Public Health (MPH); and advanced, towards the Master in Medicine (M Med) for medical graduates and the Doctorate in Public Health (Dr PH) for medical and other graduates.

The graduate program includes the Field Epidemiology Training Program (FETP), the prototype two-year, field-based training program in public health. Its major strength has been in enhancing competencies for managing all aspects of surveillance, including public health responses and policy making. A slight variation of this model is the Public Health Schools Without Walls (PHSWOWS) model, which also incorporates training in management at the district health centre level.

Where to train?

Continuing education and graduate degree training should be conducted primarily at the workplace.

Some didactic work will be required, but classroom tutorials and take-home exercises and assignments should be anchored to the real-life experiences in public health units. Public health units should be accredited as training centres based on specified criteria.

How to organise the training program?

The organisational framework of the training program should incorporate all the potential partners. The SPC should provide leadership as the Centre for Coordinating Service-oriented Training in Surveillance.

The SPC should appoint an advisory board constituted of the program partners, ie. representatives of national health departments, training institutions, international health agencies and technical advisers.

The SPC should coordinate the development of the continuing education program.

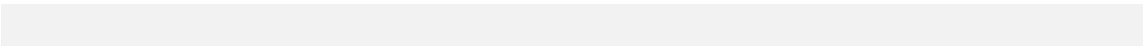
The University of Papua New Guinea and the Fiji School of Medicine should be invited to submit expressions of interest in developing and incorporating training modules in surveillance into their graduate degree programs.

Graduate degree trainees should have supervisory academic and field support. Field support should be provided through the senior public health practitioner based in the national or sub-regional public health unit, and in health agencies such as the SPC, WHO and UNICEF.

1.4 Looking Ahead

Options in planning, implementing and evaluating the training program should be considered and judged against criteria for ensuring and enhancing sustainability and capacity building.

The benefits should be sustained through the efforts of trainees and graduates, as well as through the national health departments, training institutions and regional and international agencies. The result should be strong surveillance programs with national and regional capability for responding to adverse health problems and, for promoting a healthy Pacific.



2 Recommendations

1. That the SPC, through the Pacific Public Health Surveillance Network (PPHSN), provide leadership by initiating, supporting and coordinating the development of the service-oriented training program in public health surveillance.
2. That the structure of the PPHSN be reviewed with a view to incorporating this leadership role; its new partners should include the training institutions, the University of Papua New Guinea (UPNG), the Fiji School of Medicine (FSM) and the Micronesian Human Resources Development Centre/Pacific Basin Medical Association (PBMA).
3. That the SPC call for expressions of interest from the FSM and the UPNG for integrating training in surveillance into their current graduate public health training programs.
4. That the SPC develop a model for continuing education in the Pacific, in collaboration with the Evaluation and Monitoring Unit of the PNG Health Department, the Fiji School of Medicine (FSM) and the Micronesian Human Resources Development Centre/Pacific Basin Medical Association (PBMA).
5. That the SPC facilitate the development of collaborative relationships with the training partners in the Pacific.
6. That a workshop for debating, developing, and operationalising the training program be planned and conducted in consultation with program partners.

3 Terms of Reference

To propose a framework for the development of modular training in public health surveillance (including field epidemiology), based on the networking of the training resources available in the Pacific. The training scheme will include distance learning and supervision by using advances in information and communication technology. It will have full academic recognition and fit Pacific Island realities.

The following institutions and agencies should be consulted:

- Fiji School of Medicine, Suva, Fiji;
 - Medical School, University of Papua New Guinea, Port Moresby, Papua New Guinea;
 - Micronesian Human Resources Development Centre, Pohnpei, Federated States of Micronesia;
 - World Health Organisation, Suva Office, Fiji;
 - UNICEF, Suva Office, Fiji;
 - UNFPA, Suva Office, Fiji;
 - Department of Community Medicine, University of Auckland, Auckland, New Zealand;
 - School of Public Health, University of Hawaii, Hawaii;
 - University of Victoria, Canada;
 - National Centre for Epidemiology and Population Health, Australian National University, Canberra, Australia.
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4 Why Invest in Training in Surveillance?

4.1 Public Health

Public health is what we, as a society, do to restore, protect and improve the health of the community. It is formally defined as the organised effort of society to prevent premature death, illness, injury and disability. It covers medical care, rehabilitation, health promotion and the underlying social, economic and cultural determinants of health and disease.

The public health process can be described under three core components:

- identifying and defining the problem;
- identifying and implementing interventions, and monitoring their effectiveness; and
- identifying and containing potential health hazards and threats.

The public health problem is identified and defined through the process of ‘assessment’; that is, the regular and systematic collection, assembly and analysis of health information acquired from epidemiologic and other studies. These include surveillance, surveys and cohort studies, as well as an assessment of medical, social and environmental risks and hazards.

4.2 Public Health Surveillance

Every country needs the capacity to measure and analyse continuously the health status of its population. It does so through public health surveillance. Public health surveillance is defined as the ongoing and systematic collection, collation, analysis and interpretation of health data, and the communication of the information derived from these data to those responsible for disease prevention and control. The communication aims to stimulate responses to health problems, and to use the information for planning, implementing and evaluating programs and policies for disease prevention and control.

Surveillance is therefore a tool for assessing and monitoring the health status of the population. It tells us where health problems are, who is affected, and where prevention and control activities should be directed. It helps us to define priorities for health programs and policies, and also to monitor and evaluate the effectiveness of public health interventions.

Health care providers are familiar with the model of providing clinical care to an individual seeking medical attention, in terms of the diagnostic and therapeutic components of clinical practice. The concept of surveillance in public health may be explained in analogous terms. An important difference is that while individuals will seek medical attention for an illness, it is the public health system that has to design ways for identifying problems deserving attention in the community.

Just as clinical practitioners use symptoms and signs to diagnose and treat the individual patient, public health practitioners use surveillance to assess and respond to the health needs of the community (Table 4.2).

Table 4.2 The use of surveillance by public health practitioners and the analogy with the way clinical practitioners use symptoms and signs

CLINICAL PRACTITIONERS USE SYMPTOMS AND SIGNS	PUBLIC HEALTH PRACTITIONERS USE SURVEILLANCE DATA
to assess the health status of the patient	to assess the health status of the community
to diagnose the nature and severity of illness	to diagnose the nature and extent of adverse health events and exposures in the community, e.g. morbidity and mortality, nutrition, lifestyle factors
to assess whether further investigations (eg. laboratory tests, X-rays) are needed to confirm the diagnosis or to explore the problem further	to assess whether further epidemiological investigations (e.g. community surveys, case control or cohort studies) are needed to confirm or explore the problem further
to determine whether treatment is indicated	to determine whether public health interventions are indicated
to evaluate response to treatment	to evaluate response to interventions

A clinical service needs practitioners competent in clinical practice. Practitioners should be able to integrate and synthesise information provided by the patient and other sources (e.g. laboratory scientists, radiographers, dietitians, physiotherapists) to diagnose the problem, and to develop plans for treatment and evaluating treatment.

Without a competent clinical practitioner, the quality of assessment of the patient's health and treatment is likely to be deficient or even harmful.

Similarly, a public health service needs practitioners competent in the practice of surveillance. These practitioners should be able to integrate and synthesise data from multiple sources (e.g. health care providers, death registries, demographers, health information systems, nutritionists, health educators, health promoters) and to transform them into public health actions, programs and policies.

Without practitioners skilled in managing a system of public health surveillance, the quality of assessment of a population's health status will be deficient or misleading, and the resultant public health responses may even be harmful. In the absence of valid surveillance data, the allocation of scarce and dwindling health resources will be more likely to be driven by other vested interests, and not primarily by the needs of the community.

Surveillance is therefore not simply the collection and reporting of health data. It is a system that collects and synthesises data from diverse sources in the community and health sector, and helps to set, and to guide progress towards achieving, national health goals and targets.

4.3 The Domain of Public Health Surveillance

Surveillance is usually equated with the notification of selected infectious diseases. However, the scope of public health surveillance, incorporates a range of health conditions that include changing population characteristics and health care delivery. This range is needed to include the demographic and epidemiological transition now being observed in developing countries. They call for a new focus on socio-demographic issues such as behavioral risk factors. The domain of public health, as shown in table 4.3, can be divided into three major sets of phenomena: population structure and dynamics, health conditions, and health systems.

Table 4.3 The domain of public health surveillance *

POPULATION STRUCTURE AND DYNAMICS	HEALTH CONDITIONS	HEALTH SYSTEMS
<i>Population size and growth</i>	<i>Positive health</i>	<i>Health services</i>
Components of population growth fertility mortality	Well being Growth & development Non-morbid processes	Accessibility Utilisation Quality Efficiency Equity of access
Momentum of population growth		
<i>Age and sex structure of population</i>	<i>Risk factors</i>	<i>Health care resources</i>
Sex ratio Population aging	Biological Environmental Occupational Social Behavioral	Human Technological Financial
<i>Spatial distribution and mobility</i>	<i>Health losses</i>	<i>Health policies</i>
Urbanisation Migration	Disease Disability Death	
<i>Family Structure</i>		
Family composition and life cycle Household and family caring		

* Source: Sepulveda J, Lopez-Cervantes M, Frenk J, de Leon JG, Lezana-Fernandez MA and Santos-Burgoa C. Key issues in public health surveillance for the 1990s. Morbidity and Mortality Weekly Report 1992;41(suppl):61-76.

4.4 The Challenge

While the burden of communicable diseases is decreasing in the Pacific, there are opportunities to reduce this further. However, the threat of emerging and re-emerging infections, such as AIDS, tuberculosis, the vector-borne diseases, and rising antibiotic resistance will continue to challenge conventional surveillance and control measures.

The demographic and epidemiological transitions occurring in developing countries are accompanied by profound social and economic changes that will impact on health. Urbanisation, abuse of tobacco, alcohol and other substances, and changing nutrition are associated with the rising problem of injuries and chronic diseases such as smoking related disorders, diabetes, ischemic heart disease, and the diseases of aging. The evolving patterns of disease will continue to increase resource demands on the shrinking health budget. They will affect countries in different ways, and place pressures on them to conduct operational research to understand their problems, and to tailor and evaluate appropriate interventions.

The evolving work environment in the Pacific therefore provides an appropriate challenge upon which to base surveillance and public health training.

4.5 The Pacific Public Health Surveillance Network

In December 1995, the Community Health Program of the SPC, in collaboration with WHO and UNICEF, sponsored the Inter-agency Meeting on Health Information Requirements (IAMHIR) in Noumea, New Caledonia to discuss public health surveillance in the region. The meeting recorded the concerns of participants on the accuracy, quality and usefulness of surveillance data in the Pacific.

The outcome of the meeting was the formation of the Pacific Public Health Surveillance Working Group (PPHSWG) which prepared the ground for the Pacific Public Health Surveillance Network (PPHSN). The PPHSWG identified a range of strategies for enhancing surveillance in Pacific Island countries (Appendix 11.5). These strategies were endorsed at the Meeting of Heads of Health Services in Noumea in March 1996. The strategies were as follows:

- to harmonise the collection of surveillance data at country and regional levels, and to develop appropriate surveillance systems;
- to develop relevant, cost-effective computer applications;
- to adapt training programs in public health surveillance and field epidemiology that would be responsive to local and regional workforce needs;
- to extend membership of the Network to new clients, services and other networks;
- and
- to publish timely health information bulletins on early warning messages of outbreaks of disease, results of research studies, and monographs.

These strategies were discussed and endorsed at the Pacific Island Meeting on Public Health Surveillance that was co-sponsored by the SPC and WHO in Noumea in December 1996. The outcome of this meeting was the development of the PPHSN, and The Coordinating Body of the PPHSN assumed the functions of the PPHSWG.

The Terms of Reference for this report to develop the training strategy in public health surveillance were approved by the Coordinating Body of the PPHSN early in 1997.

4.6 Is Surveillance Training Feasible in the Pacific?

The University of Papua New Guinea has offered graduate training in public health for over a decade. The Fiji School of Medicine introduced graduate training in public health this year. However, ongoing training in surveillance in the public health workplace are not major components of the curricula. Other institutions and agencies in the Pacific and Pacific rim countries are also conducting or planning programs relevant to surveillance.

The initiatives outlined below suggest that the Pacific has the capacity to support a training program for enhancing surveillance in the Region.

Pacific Institution/Agency

- ***The Community Health in Medical Education Conferences*** have discussed issues and problems of relevance to community health and medical education in the region since 1991. The meetings have facilitated several initiatives; these include: growth in community health curricula at FSM and the Pacific Basin Medical Officer Training Program, defining principles for training in community health, and most recently, identifying the need for a Health Research Council of the Pacific "...to promote health research and support the design, conduct and analysis of suitable research".
- ***The Health Monitoring and Evaluation Unit of the Department of Health, PNG*** plans to implement training to enhance surveillance among managers at the provincial levels. The Unit also plans to provide training in surveillance and outbreak control to hospital-based Senior Specialist Medical Officers. This program is to be supported with a new senior staff position in the Department of Community Medicine at UPNG.
- ***The Fiji School Medicine:*** The new School of Public Health has an Inaugural Professor of Public Health and just over 20 staff members.

The Regional Training and Research Centre for Reproductive Health at FSM, funded by UNFPA, is contributing to research and other activities, including efforts to coordinate professional development and quality assurance programs (Appendix 11.6).

AusAID has funded the new Postgraduate Clinical Training Program with A\$5.5m over 5 years. Among its initiatives is the development of a communication strategy for distance education, being developed in collaboration with an Australian consultant and the University of the South Pacific.

FSM and UPNG have agreed to work collaboratively on training activities.

- ***The Micronesian Human Resources Development Centre (MHRDC)*** is a non-

profit organisation that was established to promote health workforce training and retraining in the Federated States of Micronesia. (Appendix 11.2).

The Centre is collaborating with the College of Micronesia, which is, in turn, negotiating with the University of Guam to become a satellite campus of the University. This will enable it to offer Bachelors and Masters courses in health disciplines.

The Pacific Basin Medical Officers' Association (PBMOA) was formed in 1995 to promote high standards of medical care by encouraging and supporting continuing education and professional development.

The MHRDC and the PBMOA established the Western Pacific Health Net to promote regional continuing medical education and distance medical consulting.

- ***The Pacific Public Health Surveillance Network (PPHSN)*** is implementing a range of strategies to enhance surveillance in the Pacific (Section 4.5 and Appendix 11.5).
- ***The Regional and International Health Agencies: SPC, WHO, and UNICEF*** individually conduct a range of training and related activities to enhance surveillance in the Pacific. Together, they have agreed to pool resources and further expand collaborations. This was an important rationale for the formation of the PPHSN.

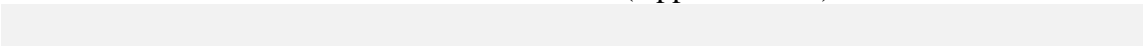
Pacific Rim Institution/Agency

- ***The Pacific Health Research Centres*** at the University of Auckland and in Wellington, New Zealand are pursuing opportunities to work collaboratively with health professionals in the Pacific (Appendix 11.4). The Centre in Auckland is developing a Master of Public Health Research, and a distance learning facility for the Master of Medical Science that includes a 50% component in each of clinical science and public health.
- ***The Department of Public Health at the Wellington School of Medicine*** has started short courses in public health, including applied epidemiology, risk assessment in environmental health, and health economics.
- ***The School of Public Health, University of Hawaii*** has conducted short courses in epidemiology in the Federated States of Micronesia in the past. It offers an annual course on Maternal and Child Health for health professionals from Micronesia. Dr David Morens, Professor and Head of the Epidemiology Program at the School, has been an active member of the Coordinating Body of the Pacific Public Health Surveillance Network since 1995.
- ***The National Centre for Epidemiology and Population Health, Australian National University*** in Canberra has coordinated the Field Epidemiology Training

Program (FETP) in Australia since 1991. It is now playing a leading role in the development of the global Network of Training Programs in Epidemiology and Public Health Interventions (TEPHINET). It has also been an active member of the Coordinating Body of the Pacific Public Health Surveillance Network since 1995, and of the Communicable Diseases Network of Australia and New Zealand.

- ***The New Zealand Overseas Development Agency*** recently commissioned a report for funding public health initiatives in the Pacific, with up to NZ \$3m for the first year and between NZ \$1-3m for the next three years.
- ***The Health Research Council of New Zealand*** encourages and supports research projects on the health of Pacific Islands people in the South and West Pacific and in New Zealand (Appendix 11.1).
- ***The University of Victoria, Canada*** is discussing a memorandum of understanding to further collaborate with the SPC on activities related to the training and development of health informatics in the Pacific.

Globally

- ***The Network of Training Programs in Epidemiology and Public Health Interventions (TEPHINET)*** is a collaborative initiative of field-based training programs in 18 countries, and of WHO and the Centers for Disease Control (CDC) in Atlanta, USA. This new Network will advocate, help consolidate, and support the development of training programs in field-based epidemiology and public health interventions in countries around the world (Appendix 11.3).
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5 Service-oriented Training in Surveillance

5.1 Training in Surveillance and Training in Public Health

Training to enhance surveillance is one of the five major strategies of the Pacific Public Health Surveillance Network. This report, in accordance with its Terms of Reference, addresses only the training component for enhancing surveillance, and not other essential components such as local and national health infrastructures, resources, and worker motivation.

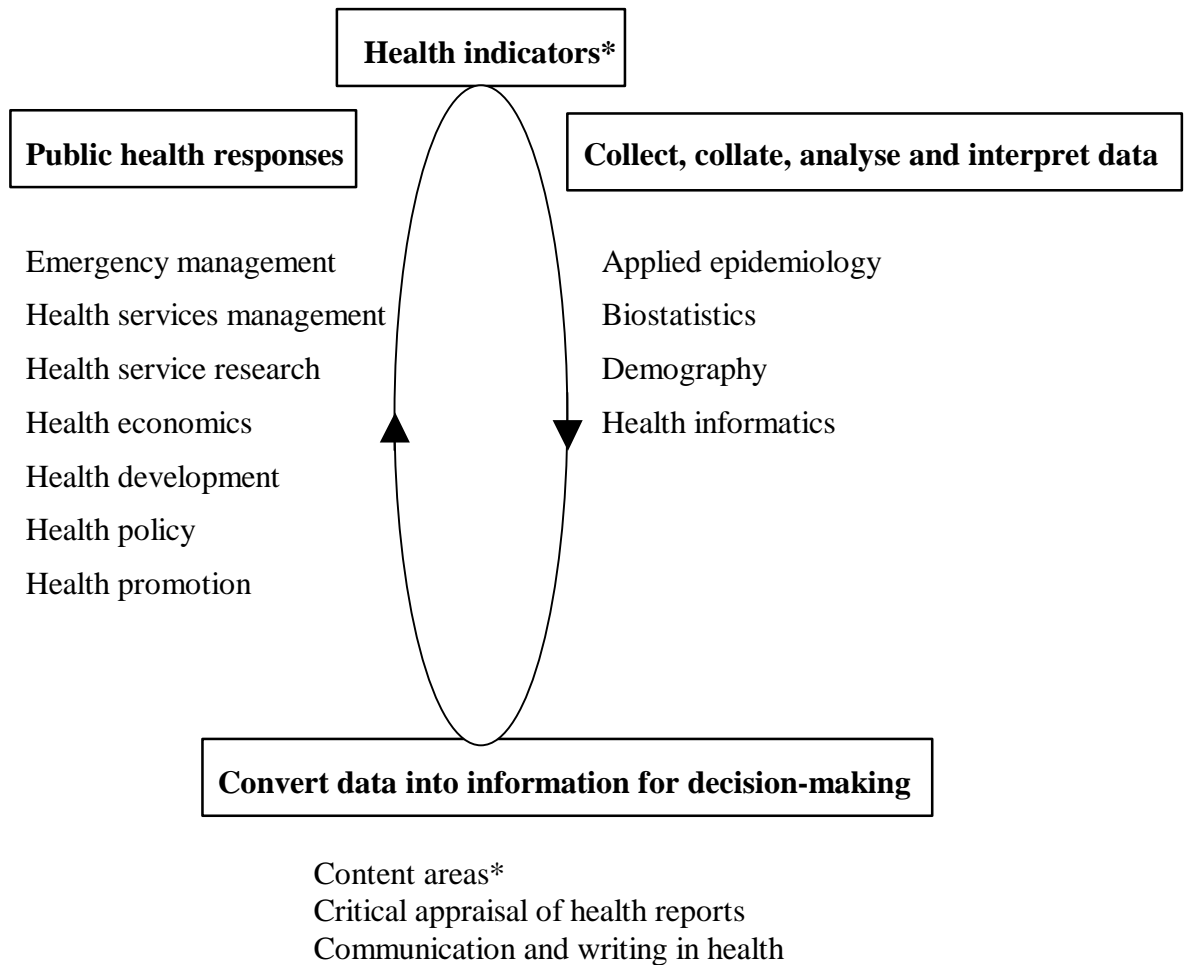
Training in surveillance should be the central component of training in public health, and training in public health should always incorporate training in surveillance.

Surveillance is essential for the public health activities of planning, implementing, monitoring and evaluating health programs and policies. The major purpose of training in surveillance is to develop competencies for managing the components of a surveillance system and for responding to adverse events detected through surveillance. These responses include outbreak investigations and control, and developing and disseminating information in a way that will stimulate and inform public health actions, programs and policies.

The subject areas in which competencies are essential in the practice of surveillance are shown in Figure 5.1. These areas overlap with modules incorporated in public health training. Training in surveillance should therefore be integrated with public health training, and not conducted as another vertical program.

In this report, training in surveillance implies that it will be integrated with training in public health.

Figure 5.1 Components of the surveillance chain, and subject areas for which training should be provided



* Health indicators and content areas include those classified under: communicable and non-communicable diseases, maternal and child health, reproductive health, environmental health, mental health, dental health, nutrition, occupational health, injuries. They may also include environmental risk factors (e.g. contaminated water supplies), and behavioural risk factors (e.g. smoking, dietary habits and physical activity).

5.2 Approaches to Training

Before outlining the features of the training program, it is necessary to clarify briefly the approaches that have been taken for developing the training program. In Table 5.2, a comparison is made between productive and non-productive approaches to training.

Some of these approaches have been articulated in the Pacific as follows: in the Yanuca Declaration, March 1995; in its re-affirmation in the Rarotonga Agreement, August 1997; at the meeting on Postgraduate Medical Education in the Pacific, November-December 1995; and at the four conferences on Community Health in Medical Education, 1991 to 1997.

Traditional university-based training in public health does not provide the competencies for functioning effectively in public health settings. This concern assumes even greater importance when training is conducted in a foreign country. Rarely does such training prepare the graduate for working within the realities, resources, infrastructures, and the prevailing supervisory support structures of the home country.

Table 5.2 Productive and non-productive approaches to training in the Pacific

PRODUCTIVE APPROACHES	NON-PRODUCTIVE APPROACHES
<i>Goals</i>	
Develop national and regional capacity in public health practice	Address immediate workforce needs of individual countries
Establish centres of national and regional relevance in public health training	Establish centres of excellence by standards for developed countries
Produce leaders and role models in surveillance and public health	Produce graduates with limited technical skills in surveillance
Produce graduates who will design, conduct and evaluate national and regional public health projects, and define inputs required from external agencies	Produce graduates who will depend on external consultants to design, conduct and evaluate national and regional public health projects
<i>Principles</i>	
Integrate training in surveillance with training and practice of public health	Separate training in surveillance from training and practice of public health
Provide training in the workplace where it will contribute simultaneously to public health	Provide training through the medium of textbooks and theoretical exercises
Remain sensitive and responsive to the needs of individual countries and to the expectations of external agencies and donors	Remain sensitive and responsive only to the expectations of external agencies and donors

Develop collaborative inter-dependent partnerships with training institutions in Pacific rim countries	Develop relationships dependent on training institutions in Pacific Rim countries
Incorporate training that encourages community and inter-sectoral participation for action	Focus training on the application of biomedical interventions
Strategies	
Attract top health graduates to become agents of change, role models and leaders in public health	Attract health graduates who are unable to meet requirements for other types of postgraduate training
Adapt curriculum to meet the needs of the practice environment in the Pacific	Adopt the curriculum from centres of excellence in developed countries
Train graduates from multiple health professions concurrently	Train graduates from restricted biomedical backgrounds, e.g. doctors and nurses only
Use state-of-the-art communication technologies for distance learning that are accessible across the Pacific Region	Limit training to university classrooms
Design a multi-exit system that rewards partial completion of training with some qualification	Prescribe rigid requirements for awarding qualifications
Evaluation	
Judge the quality of training by its contributions to public health in the Pacific	Judge the quality of training by standards expected in developed countries
Tune and retune the curriculum, educational objectives, and training strategies to suit varying contexts and changing needs in the Pacific	Fix curricula and educational objectives and strategies without plans for regular reviews

5.3 Who to Train?

Training in surveillance should be directed to all levels of health professionals. For the purpose of training, health professionals have been classified into three broad categories:

- public health practitioners e.g. public health officers, community health nurses, environmental health officers;
- generalist clinicians e.g. doctors, nurses, dieticians, dentists;
- clinical specialist trainees e.g. specialist physicians, paediatricians, obstetricians, surgeons.

As many public health practitioners and generalist clinicians in the Pacific provide clinical and public health services concurrently, they could participate in the same graduate degree training programs. While clinical specialist trainees could also follow these

pathways, there are good reasons for offering them special incentives to include public health training in their clinical curricula.

Training public health practitioners and generalist clinicians

Public health practitioners play a direct role in one or more of the following activities in surveillance: data collection, collation, analysis, interpretation, dissemination of reports, and converting data into information for action and public health decision-making. The goals of training in surveillance will therefore depend on the level of responsibility of the individual in the workplace, and the person's career aspirations.

Clinicians are critical in collecting data and for ensuring their completeness and quality. They should be trained to use the data to identify needs and priorities for delivering clinical services in the community. The goal for training in surveillance for this group should therefore be to enhance these particular skills. Furthermore, they should be trained to develop and sustain the broader public health perspectives in the context of providing clinical services.

Clinicians constitute the bulk of the health workforce, and will therefore be the largest target audience for training in surveillance. The importance of training them to ensure data quality, and to use the data to guide clinical practice, should never be underestimated. If surveillance data are of poor quality, they will not be useful and, in fact, may provide misleading information for developing or evaluating health programs and policies.

Training clinical specialist trainees

Clinical specialists are a crucial group to target for training in surveillance. They are important role models in society. They hold senior and influential positions in the country and play a key role in resource allocation within the health sector. They have a special status in the community, among health professionals, and among senior decision-makers and politicians in the country. Their participation in, and commitment to, enhancing surveillance must be secured.

The specialist training curricula should incorporate training in surveillance and public health. Options should be explored for training pathways that would offer them concurrent qualifications in the clinical sub-speciality as well as in public health. An example would be to offer them training modules in surveillance and public health during the final year of specialist clinical training in a way that this year may be accredited towards partial training for both clinical and public health qualifications.

5.4 How to Train?

The service-oriented training model integrates training with public health practice. It incorporates continuing education and graduate degree training. Training for the individual should be conducted predominantly in the workplace, where it can contribute simultaneously to enhancing surveillance and informing public health decision-making and actions.

Incomplete and poor quality surveillance data cannot be used reliably for informing public health actions and policies. A major investment is needed in training primary

health care providers for enhancing the quality of surveillance data. This would include training in data collection and using the data for decision-making at the point of collection, i.e. at the primary health care level. The means for doing this is continuing education.

In addition to continuing education, it is essential to offer training for senior level practitioners and potential leaders in public health at the graduate degree level to build national and regional capacity. Graduate degree training should be hierarchical so that it fosters the competencies needed by health professionals to function effectively at different levels of the surveillance chain. These levels range from improving the quality of data collection, analysis and interpretation at the peripheral and intermediate levels, to nurturing role models and leaders competent at managing all aspects of surveillance and public health decision-making at senior levels.

Only a relatively small number of people starting graduate degree training would be expected to continue intermediate and advanced levels of training. Estimates of this number should be based on workforce needs in the Pacific, and will be needed for planning the training program.

5.4.1 Continuing education

Goal

The goal of continuing education is to update and extend, or reorientate, the knowledge and skills of health professionals, and to broaden their scope of professional practice. Continuing education programs aim to encourage and support ongoing professional development, and life-long learning. The specific educational objectives for continuing education, as with those for graduate degree training, should be based on the needs of the practice environment. As a matter of course, all health professionals should be involved with continuing education programs for their professional development.

Rationale

The government is very keen on amassing statistics. They collect them, raise them to the nth power, take the cube root and prepare wonderful diagrams. But you must never forget that every one of these figures comes in the first instance from the village watchman, who just puts down what he damn well pleases.

Josiah Stamp

Surveillance data can be used effectively to inform public health decisions only if the data are a valid reflection of health events in the community. If the data do not reflect events correctly, for example, if they are inaccurate, omit important events, or their level of completeness is not known, using the data to inform public health decisions will be misleading and could even be harmful. This is known as the GIGO (garbage-in-garbage-out) principle. If unrepresentative surveillance data are collected and submitted by primary health care providers, then even competent public health practitioners using state-of-the-art analytic techniques cannot transform them meaningfully to inform public health decisions and actions.

Description

Continuing education may be classified into three categories:

- self-directed learning (this category is not addressed separately in this report as interested workers could use the opportunities provided through the other two categories);
- continuing education as a requirement by professional associations for renewing practising licenses; and
- in-service training usually initiated by employers.

Continuing education can be provided at work, or externally through short courses and also through workshops, seminars and conferences. Short courses are specific in content, and have to be thoroughly planned, delivered and evaluated. They may include training modules that are developed as building blocks for graduate degree courses aimed at acquiring higher qualifications.

Workshops, seminars and conferences provide opportunities for maintaining formal and informal contact with colleagues from elsewhere in the Pacific, and also with international leaders in public health.

Continuing education for renewing practising license

Examples of continuing education requirements set by professional associations are those of the Nursing Board in the Federated States of Micronesia to renew practising licenses for nurses every two years, and plans of the Pacific Basin Medical Officer Association for introducing a similar requirement for medical graduates. The SPC should initiate discussions with national health departments and professional associations with a view to encouraging the introduction of continuing education as a requirement for registered health professionals to renew their practising license.

The major advantage of this form of education is that it places the responsibility for learning and professional development directly on the health practitioner. Well-planned modules with appropriate educational objectives will be needed to encourage high rates of uptake in continuing education.

Continuing education through employer initiated in-services

Continuing education in the form of in-service training is usually initiated by the employer, and is conducted as a short course or a series of short courses over a defined period of time. Short courses in surveillance are offered to Pacific health professionals by national health departments and regional and international agencies such as the SPC, WHO and UNICEF. The purpose of such courses is to provide training in areas identified by the employer for updating, extending, or revising the knowledge and skill base of health staff.

Training modules

Continuing education will constitute a very large proportion of the training workload as it will have to target all levels of health professionals. To take advantage of economies of scale, it will be efficient in the Pacific for one agency to take responsibility for developing

and coordinating this program. This should be the SPC; it is well placed, and has the mandate of member countries to do so.

Where appropriate, curricula and educational objectives may be borrowed from modules developed for graduate degree training in surveillance and public health (Section 5.4.2). The benefits of this dual use of the modules are that:

- the institution developing the modules will have greater participation in, and accountability for, training the health workforce;
- the use of the modules for in-services will ensure greater relevance of the content and applications in the work place;
- the trainees at in-services who are also enrolled in graduate degree courses could be awarded credit points that would count towards their graduate training.

An illustrative example of planning, budgeting and evaluating in-services is provided in the monograph by WHO 'Guidelines for planning training activities for immunisation and disease control services', WHO/EPI/TRAM/95.2, 1995.

Developing train-the-trainer modules

Alternative models for training primary health care providers in data collection and in its local applications should be explored and evaluated. A few countries should be selected for such studies based on their commitment and the level of investment they are willing to make in improving the collection and use of surveillance data.

A small number of primary health care workers from these countries should be selected for developing train-the-trainer modules. The workers should be trained in collecting quality data locally, and exploring ways to use data on a small, select number of health events. They should be supported with ongoing supervision, say over a one-year period. Their experiences and project outcomes should be developed as case studies for train-the-trainer workshops in surveillance.

Countries investing in this initiative could be offered specific incentives such as part-funding for the project. The participants could be rewarded with certificates of proficiency, given credit points toward graduate degree qualifications, and invited to facilitate regional workshops.

5.4.2 Graduate degree training

Description

Graduate degree training in surveillance should be integrated with public health training at UPNG and FSM, and should be offered at three hierarchical levels:

- basic, towards the Graduate Diploma in Public Health (GDPH);
- intermediate, towards the Master in Public Health (MPH);
- advanced, towards the Master in Medicine (M Med) for medical graduates and the Doctorate in Public Health (Dr PH) for medical and other graduates.

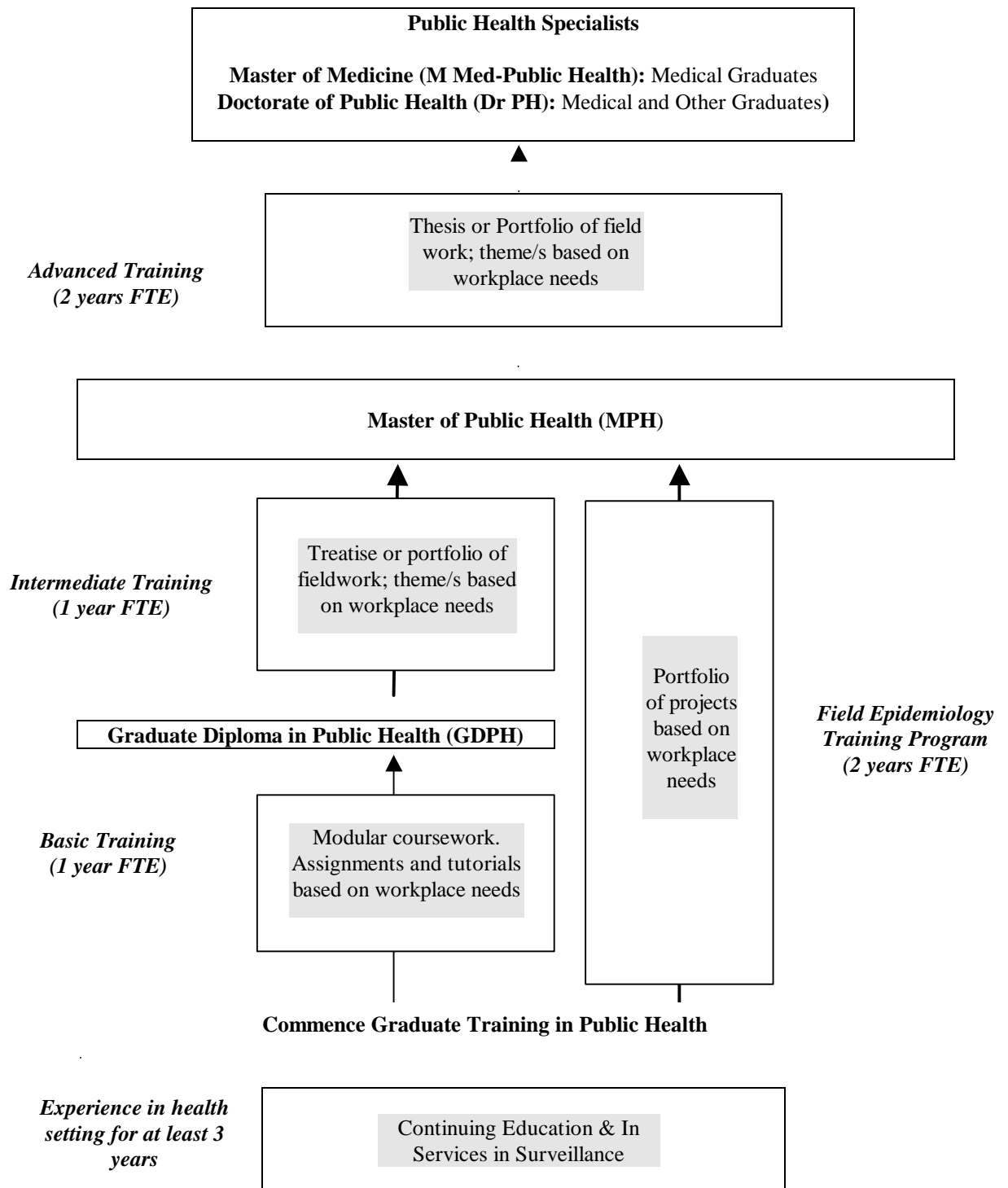
Graduate qualifications and training pathways are summarised in Figure 5.4. Training for the MPH may be approached through one of two pathways:

-
- basic training for one year full-time equivalent followed by a further 12 month's work on a treatise or portfolio; or
 - training over two years full-time through the FETP model.

Training at the intermediate and advanced levels aims to produce agents of change, role models and leaders in public health. Consequently, these levels of training will be targeted at a relatively small proportion of the health workforce.

The number of people who should be ultimately offered training at the intermediate and more advanced levels will have to be assessed through estimates of workforce requirements in the individual countries and in the region overall.

Figure 5.4 Pathways and outcomes of training in public health



(FTE = Full Time Equivalent)

5.4.2.1 Basic training - GDPH

Goal

The goal of basic training is to develop skills in collecting, analysing and preparing reports on surveillance data that are useful for decision-making and public health actions.

Description

Basic training in public health comprises coursework by modules over one year, full-time equivalent. Each module covers a defined subject area or component of public health. A combination of modules provides the building blocks for training towards the GDPH qualification. One module is usually taken to be the equivalent of about 24 hours contact time between trainee and lecturer, and at least 48 hours of additional work output by the trainee.

The modules for the GDPH have two equal components:

- core subjects - these could include: health in the Pacific, epidemiology, biostatistics, surveillance, management of public health, demography, health informatics; and
- elective subjects - these could include health service management, management of emergencies, health policy, health services research, health development, health economics, health promotion.

A combination of elective subjects could be recommended for training in speciality areas such as surveillance or hospital based epidemiology, clinical epidemiology (evidence-based-medicine), and district health service management.

Didactic teaching may be required for continuing education and the modular GDPH courses. However, classroom tutorials, and take-home exercises and assignments should be anchored to the real life experience of public health units. Opportunities for such experiences should be sought through local or national public health units, and these are described in greater detail in Section 5.5.

Admission requirements

A person who satisfies the entry requirements for a diploma course at FSM and UPNG is eligible for entry into the course.

Distance learning

Many trainees may not be able to attend university classes because it involves travelling away from their usual workplace and social networks. Therefore, training modules should be designed and made available through distance learning facilities. The University of the South Pacific and the Postgraduate Training Program at the Fiji School of Medicine are collaborating to develop state-of-the-art, cost-effective communication technologies for graduate training in the clinical disciplines. Distance learning in public health should be linked to this initiative.

5.4.2.2 Intermediate training - MPH

Goal

The goal of intermediate training is to develop competencies in managing all components of surveillance, and generating surveillance reports that can be used for encouraging and informing public health actions and decision-making.

The traditional MPH

The traditional model for graduate training towards the MPH is based on coursework in the university classroom. In this model, the course runs over a one or two-year period, and may or may not include a field-based project in the form of a treatise. MPH graduates in the Pacific have usually completed this type of traditional public health training in developed countries.

A similar option could be developed in the Pacific as well. After completing the GDPH, the trainee could elect to continue studies towards the MPH for a further one year full-time equivalent. This training would include a treatise based on a public health theme of importance to the home country. However, as it is important to train generalists with a broad perspective in public health, the treatise could be replaced by a portfolio covering a range of activities as described below in the section on the competencies for the Field Epidemiology Training Program (FETP). The supervisory and organisational framework described in the FETP could also be applied to these trainees.

The alternative pathway toward the MPH qualification is through the FETP.

The Field Epidemiology Training Program (FETP)

Goal

The major goal of the program is to develop competencies through field-based training to apply surveillance and other epidemiological data in public health practice.

Description

The FETP is the prototype two-year, field-based program being adapted increasingly by developed and developing countries around the world. Its major strength has been in enhancing competencies for managing all aspects of surveillance, including interpretation of surveillance data to encourage and inform public health actions and policies.

In this model, the day-to-day work environment within a health department's operational setting becomes the trainee's learning environment or 'classroom'. This emphasis on training away from the confines of the classroom has prompted the more apt label of Public Health Schools Without Walls (PHSWOWS) in countries such as Uganda, Zimbabwe, Ghana and Vietnam.

While this PHSWOWS variation of the FETP still provides training in surveillance, its major focus is on training in management of district health centres. For this reason, the PHSWOWS model may be better suited to the wide-ranging needs of public health training in the Pacific.

These field-based training programs have been modelled on the highly successful Epidemiology Intelligence Service (EIS) which was introduced through the Centers for Disease Control in the USA in 1951. The programs have now been adapted to meet the

training needs in surveillance in many developed and developing countries around the world.

Unique to this model of public health training is the range of skills that students develop in ‘field epidemiology’. Field epidemiology is defined as the application of epidemiology where the problem is unexpected, an immediate response may be demanded, the epidemiologist must travel to solve the problem in the field, and the extent of the investigation is likely to be limited by the need for timely intervention.

This differs from planned epidemiological studies in three respects. Firstly, the field investigation often does not start off with a clear hypothesis, but first requires descriptive studies to generate a hypothesis which then has to be proven. Secondly, in field investigations, there is an immediate need to protect the community and to address its concerns. Finally, in the field there is a need to consider whether data are sufficient to implement control measures rather than delaying them while exploring additional research questions.

Training requirements

The two-year training program consists of 21 months field work, and a cumulative period of three months classroom learning spaced at six monthly intervals. This ‘residential period’ provides a unique opportunity for group training through problem solving, peer-review, teamwork and multi-professional interactions in the classroom. These learning experiences form the basis for professional development and life-long networking.

The educational objectives are based on the needs of the practice environment, and the quality of training must be judged by the extent to which this principle is followed. The educational objectives are competency-based, and the trainees complete a range of tasks over the two-year period, for example they:

- analyse and interpret a surveillance database;
- design, implement or evaluate a surveillance system;
- design and conduct an urgent investigation ,such as a disease outbreak;
- design and conduct an epidemiological study such as a community survey, a cohort or case control study, or evaluate a public health intervention;
- formulate or evaluate health programs or policies by using a surveillance system or other epidemiological study;
- critically appraise scientific papers from peer-reviewed journals, and assess their scientific validity and relevance to local public health practice; and
- develop oral and written communication skills by reporting study findings to the community and to health professionals, for example, at meetings and scientific conferences, and also through the media, health news bulletins, and peer-reviewed journals.

Admission requirements

Admission requirements is a bachelor or equivalent qualification in a health-related discipline, and at least three years practical experience in a health setting. Graduates from medicine (including clinical specialists), nursing, dentistry, nutrition, veterinary science, sociology, biostatistics and environmental health can undertake this form of training. It is essential that individuals from diverse educational backgrounds are trained concurrently in this program as they will all benefit from collaborative work and group interactions, and thus become adept at using multi-disciplinary approaches for addressing public health needs.

5.4.2.3 Advanced training - M Med or Dr PH

Goal

The goal of advanced training is to develop competencies for managing and directing all the components of a surveillance system, and for functioning effectively as senior technobureaucrats, advisers and public health leaders.

Description

Advanced training comprises two years' full-time equivalent training after completing the MPH. One of two possible qualifications may be acquired: the Master of Medicine in Public Health (M Med) or the Professional Doctorate in Public Health (Dr PH).

The academic requirements for this level of training should be tailored to meet the needs of the country in which the trainee will ultimately work, and also the trainee's career aspirations. Advanced training should consist either of a thesis on a subject of national or regional public health significance, or of fieldwork covering comprehensively a selected range of topics documented in a portfolio. Trainees may choose to focus on a sub-speciality in public health, such as communicable diseases, non-communicable diseases, district health management, child health, environmental health, or reproductive health. The work quality would be expected to be at a more advanced level than for the MPH qualification.

The M Med qualification may sound like an anomaly when compared with other masters level programs such as the MPH, that requires one to two years' full-time training. Currently, both the UPNG and the FSM offer the M Med course as a four-year training program towards the clinical specialities (such as child health or obstetrics) or public health. However, only medical graduates are eligible for this course.

The two-year MPH course offers intermediate rather than 'specialist' level training in public health. Advanced training through the Dr PH should be made available for non-medical graduates, and also for medical graduates keen to pursue an alternative style of training to that offered through the M Med in public health.

The Professional Doctorate has been offered in the USA for many years now, and is starting to gain popularity across a wide range of disciplines in Australia; it is expected to provide an alternative qualification to the traditional PhD (Doctor of Philosophy). It is anticipated that at least three universities in Australia currently offering MPH courses will start offering the Dr PH in 1999.

The popularity of the Dr PH in Australia is based on recommendations from employer groups and professional organisations that have been dissatisfied with the immediate, practical relevance of the PhD qualification to the workplace. The primary objective of PhD-level training is to produce expertise in research, and thus the PhD is the appropriate qualification for career researchers. However, if the objective is to fill a gap for well-trained practitioners trained at an advanced level in public health practice, then the Dr PH would be the preferred alternative.

Compared with the traditional PhD, the Dr PH graduate will be broadly educated in public health principles, and fill the need for professional leadership mixed with research expertise that is greater than that offered by an MPH or PhD.

5.4.3 Supplementary Training

Opportunities for supplementary training beyond those described above should be actively identified and supported. Examples include:

- projects in the Pacific being designed or conducted by external consultants or agencies; and
- field visits by epidemiologists or public health practitioners, including staff from Regional offices of the SPC, WHO and UNICEF.

Interactions between trainees and selected visitors can provide valuable learning experiences for the trainee, opportunities for the visitors to contribute to the projects, and identification of new collaborative projects with opportunities for regional and global networking.

However, such contacts may be counter-productive if the trainee or visitor is not well prepared and briefed for the learning opportunity. Therefore, guidelines for facilitating such interactions should be developed.

5.4.4 Learning styles

The four major learning styles advocated for continuing education and graduate training in public health are as follows:

- *Learner-centred education*: trainees actively acquire information and skills, and are eventually expected to take full responsibility for acquiring the knowledge required for future tasks. The curricula should promote learning-how-to-learn, as well as learning how to deal with uncertainties, and the willingness and ability to use peer-support.
- *Problem-based education*: trainees learn by using a problem encountered at work to determine what information they need to understand and solve the problem.
- *Community-oriented education*: the educational objectives and curricula reflect the practice environment in which trainees' decisions have to take into account available resources and constraints facing the community.
- *Community-based education*: learning occurs through activities within the community's diverse facilities, including community organisations, health centres and hospitals. The community is used extensively as the environment in the learning process, and teachers and community members participate throughout the experience.

5.5 Where to Train?

This section refers mainly to the FETP and to trainees working on the MPH treatise. However, GDPH students working on take-home assignments would also benefit by using a similar network of field supports.

Each trainee has a supervisor (or preceptor) based within the work unit (placement site), and an academic supervisor at the training institution. The public health unit should meet specified criteria for being accredited as such. These criteria should include:

- availability of a local preceptor to fulfil specified roles and responsibilities;
- ease of access to public health data for analysis and interpretation;
- provision of office space, and a computer with appropriate software and access to the Internet;
- local work unit supported by a simple organisational structure with clearly defined levels of decision-making and tasks;
- opportunities to design and conduct community-based studies, and implement and evaluate intervention programs.

Several localities, not mutually exclusive, may be considered as training sites for field training (Table 5.5).

Table 5.5 Potential localities for field training

COUNTRY/REGION	TRAINING UNIT
Home country or another Pacific country	National or regional public health unit, or a major health centre
Regional centre	Pacific office of the SPC, UNICEF, or WHO
Rotational placement	Training unit in more than one country, and may include the above offices
Out-of-region placement	Short term placements in an out-of-region training unit

Home country

Training is conducted within the environment where the trainee will ultimately work. Some may consider this to be sub-optimal as the trainee may be distracted from studies because of social commitments. However, an alternative viewpoint is that the trainee has to learn to accommodate such commitments in the course of usual public health activities.

Another Pacific country

Training is conducted in a country that is not the usual place of residence of the trainee. The trainee is therefore drawn away from the social and cultural commitments of home, and could expect fewer distractions from work. However, this advantage needs to be

balanced against the disadvantage of being dislocated from important social support networks. On the other hand, working in another country is more likely to broaden the health perspective of the trainee, promote the exchange of ideas and public health practices across countries, and thus extend networking opportunities in the Pacific.

Regional centre

Experienced epidemiologists at some of the regional centres such as the SPC, WHO and UNICEF have pledged their support and commitment to host and supervise trainees within their agencies.

Rotational training

After completing some training within a country, say 12 months, further training may be based in another country, or in a regional centre. In highly selected cases, this may be out-of-region.

Out-of-region training

Out-of-region training has so far been the usual model of training in public health for Pacific students. This type of training should be limited to carefully selected indications. Examples include training at an advanced level in a specialised area for which training is not available in the Pacific. In such cases, the following criteria should be met:

- the need for specialised training has been clearly identified,
- learning objectives are well-defined;
- the application of the new skills has been well-defined;
- consistent and high quality support has been assured at the host institution for attaining training objectives.

5.6 Assessment of Training

Assessment for the GDPH should comply with criteria currently used by the UPNG and the FSM for assessing coursework at a similar hierarchical level. Mechanisms should be developed for assessing fieldwork done with local public health units and for awarding credits for continuing education activities.

Assessment of intermediate and advanced level trainees should start at enrolment. This practice would be to identify the level of support and motivation that trainees will need during field work, and to set milestones to be achieved over the first six to twelve months. The academic supervisor would then maintain fortnightly to monthly contact with the field supervisor and trainee to assess whether work schedules are consistent with the expected milestones. A major work review would be conducted after 12 months, and new milestones developed for completing the course.

MPH trainees should submit a treatise or portfolio that documents the work experiences and provides evidence of the newly acquired competencies. The portfolio acts as a scientific record of achievements, and should provide the basis for an oral examination in which the trainee is expected to demonstrate a mastery of the applications of

epidemiology, and a capability for independent activity, responsibility and professionalism in the field.

The portfolio and oral examination should also be used for assessing advanced trainees. However, the criteria for assessment should be at a higher level than for the MPH, and should be comparable to the level of requirements prescribed for specialist clinical trainees being awarded the M Med qualification.

5.7 Flexibility of Training

The graduate degree program has a number of features that reinforce flexibility, a key aspect of successful adult education programs. Three examples are provided to illustrate this flexibility.

Part-time training

A part-time training option is needed as full-time training in the modular coursework may not suit all potential trainees. For example, a health unit may be reluctant to release a worker for full-time training, but would support some official release schedule that facilitates part-time learning. Such training would require intensive supervision as learning may not be well sustained if there are competing work demands; hence the potential risk of frequent lapses in consistency of training.

Provision for exit at different points in training

Training for the Graduate Diploma in Public Health (GDPH) may be the primary goal of some trainees. Others may enrol initially for the MPH, but decide on an early exit point after completing the GDPH. This alternative for acquiring the GDPH may also be considered for trainees who have started in, but no longer wish to complete, FETP training.

Credit points from continuing education

Trainees enrolled in graduate training programs are likely to participate in continuing education programs. Criteria should be developed for awarding credit points towards graduate degree studies.

Examples of training pathways and their outcomes

Here are examples of training pathways which three different trainees might follow:

1. A newly graduated doctor completes three years of clinical service, then enrolls in the Field Epidemiology Training Program in their home country. After two years, the trainee submits a portfolio of surveillance and related public health activities, which meets specified educational objectives. The trainee is awarded a MPH. After working in the national public health division for one year, the trainee then enrolls in a M Med (Public Health) program. The trainee completes a thesis over a two-year period on a selected research topic addressing public health aspects of diabetes, and is awarded the M Med.
2. A nurse from a maternal and child health (MCH) clinic enrolls in a Graduate Diploma in Public Health (GDPH) through part time studies. After completing the prescribed modules by distance learning, the nurse is awarded the GDPH. Based on research to improve the quality of MCH Services, the nurse completes a treatise and is awarded the MPH. She immediately enrolls as a full-time candidate for the Dr PH and successfully completes selected modules as well as a thesis on the organisation of MCH clinics across the country.
3. A doctor working for many years in clinical practice completes in-services in surveillance and is awarded a certificate of proficiency necessary to fulfil the Professional Medical Board's annual licensing requirement. The doctor then enrolls in the Field Epidemiology Training Program, but finds this form of training unsuitable. The doctor next transfers over to the modular form of part-time training by distance education, and completes the Graduate Diploma in Public Health. The doctor then returns to clinical and public health practice without the desire for any further graduate training.

5.8 The Role of Pacific Rim Institutions

The Terms of Reference for this report includes the consideration that training institutions in Pacific Rim countries be invited to agree on common requirements for awarding post graduate qualifications.

The training program in the Pacific should be tailored to meet local needs. Pacific institutions should be the major partners in developing and implementing this initiative. The role of Pacific rim institutions should be determined by program partners on the basis of the needs for specific areas of expertise not available in the Pacific.

The SPC should therefore invite training institutions in Pacific rim countries to submit proposals for developing inter-dependent relationships with partners of the training program in the Pacific.

The reasons for anchoring the program primarily in Pacific institutions are that:

- the Pacific Island region can develop and conduct an indigenous training program;
- training in developed Pacific rim countries would incur additional costs, for example, university tuition fees, travel costs, and per diems;
- Pacific rim institutions could be invited to develop inter-dependent collaborations with program partners, thus utilising their expertise selectively and efficiently;
- a major focus on out-of-region training may add to the perception that such training may be of a higher standard and relevance than that available in the Pacific;
- trainees may be tempted to seek employment in Pacific rim countries after graduation.

5.9 Restructuring the Pacific Public Health Surveillance Network

The current training strategy of the PPHSN as specified in its Terms of Reference is: ‘To adapt training programs in public health surveillance and field epidemiology that would be responsive to local and regional workforce needs’. This report argues for the PPHSN to take on a leadership role for training in surveillance. Therefore, the current structure of the PPHSN should be reviewed

New partners in the PPHSN should include the regional training institutions, ie the FSM, the UPNG and the MHRDC. Country representatives on the Network should take a leading role in coordinating training plans and activities within their respective countries.

5.10 Organisation of the Training Program

The organisational framework for attaining the goals of the training program is summarised in Figure 5.10.

The SPC should display leadership by initiating, coordinating, and supporting (with resources and technical expertise) development of the training program in public health surveillance. It should act as the “Centre for Coordinating Service-Oriented Training in Surveillance”.

The SPC should appoint an advisory board constituted of the program partners, i.e. representatives of national health departments, training institutions, international health agencies and technical advisers. This should help ensure that the program remains sensitive and responsive to the needs of partners as beneficiaries of the program.

The SPC should invite the UPNG and the FSM to submit expressions of interest in developing and incorporating training modules in surveillance into their graduate degree programs. The SPC and the Universities should work collaboratively to ensure that the training modules are developed in a way that enables their use for both graduate degree training and continuing education in the region.

Graduate degree trainees should have supervisory academic and field support. The academic supervisor should co-opt work colleagues from the ranks of epidemiologists, clinicians and researchers in the academic institution to maximise support for the individual trainee.

Field support for trainees should be provided through the senior public health practitioner based in the national or sub-regional public health unit. Field placement should also be with practitioners working within health agencies such as the SPC, WHO and UNICEF.

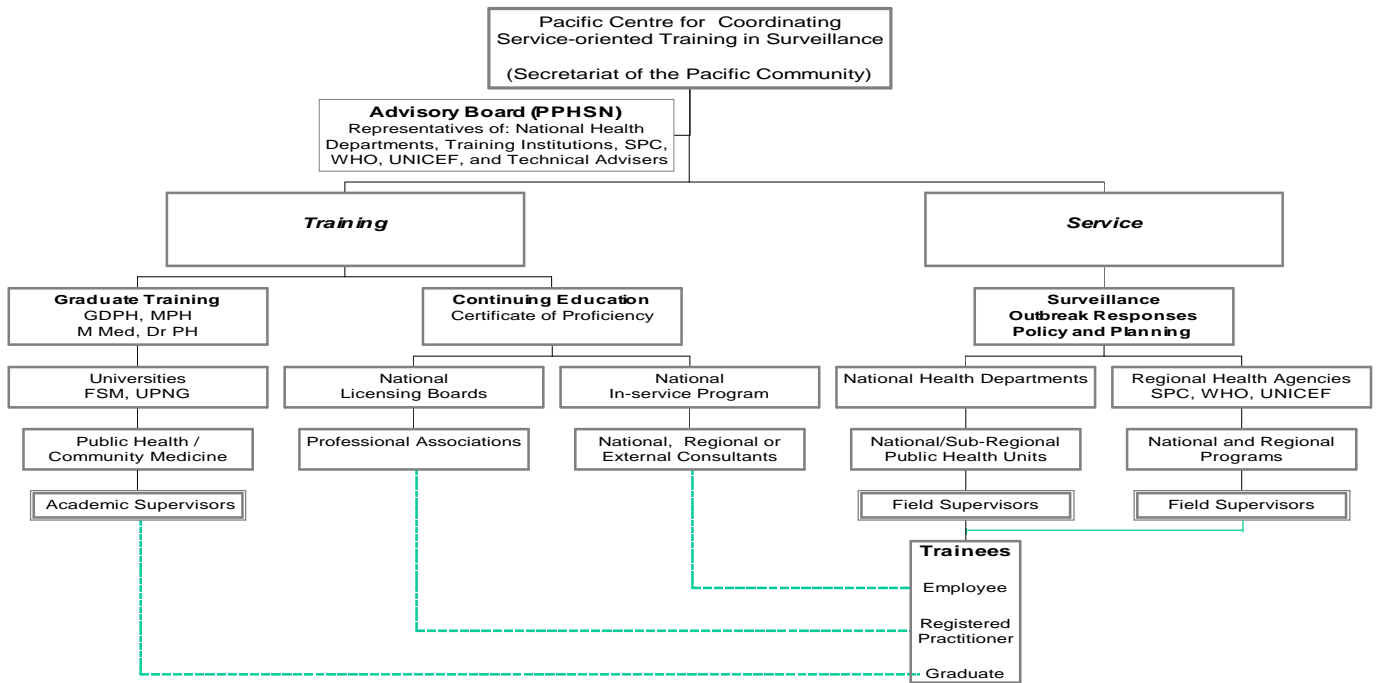
The SPC should initiate development of the continuing education program. The SPC itself should take responsibility for developing in-service modules for continuing education with the help of national, regional or external technical advisers. The Department of Health in PNG and the MHRDC should be invited to collaborate in developing these modules as they already have experience in doing so in their respective countries (Section 4.6). The SPC should also initiate discussions with national health departments and professional associations with a view to making continuing education a requirement for registered health professionals to renew practising licenses.

In-service trainees should be required to apply their newly acquired skills and knowledge immediately after returning to work from the in-services. The immediate senior member at work, in collaboration with the in-service facilitator, should supervise this process, and the trainee should be rewarded a certificate of proficiency, or credit points towards graduate degree training.

Registered practitioners renewing their practicing license should be guided on continuing education requirements through their corresponding professional body.

Pacific partner countries must make a substantial investment in, and commitment for, enhancing surveillance and public health, both from the national and the regional perspectives. They will have to balance immediate needs and priorities of their own constituencies with the needs for realising the longer-term gains from strengthening, and ultimately engaging, the regional capacity in public health.

Figure 5.10 Organisational framework for service-oriented training in surveillance



6 Looking Ahead

6.1 Benefits

The major benefit of the service-oriented training model is that the processes leading to the professional development of the trainee will themselves contribute immediately and directly to enhancing public health activities and capacity building nationally and regionally.

What is also important about this model when compared with the conventional model of university-based training is that trainees will be confronted with the realities of social, economic, and managerial problems that directly affect the organisation of health care. They will work with a diverse array of role models: doctors, nurses, community organisers, health care managers, social workers and political leaders. They will therefore be trained to consider a wider range of diagnostic, analytical and intervention strategies in dealing with health problems.

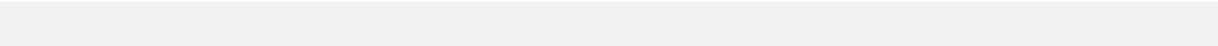
In addition to enhancing the competencies of the trainee, there will be other benefits from the training model that will contribute to public health and capacity building:

- curricula will be designed to respond to the health needs of the community or country;
- training will be conducted in the context of the resources and constraints prevailing within a community that is the same as, or similar to, the one in which the trainee will ultimately work;
- study projects for trainees will be identified according to the needs of the public health unit in which the trainee is based, and not prescribed by an academic institution or health agency;
- study projects will be designed in close collaboration with workers from a wide range of medical and para-medical disciplines, from community and health care providers in health centres and hospitals to policy makers and senior advisers;
- trainees will engage the skills and direct participation of their academic supervisors to address local health problems, thus ensuring university involvement and interactions with government agencies. This process will widen the university's sensitivities to training needs in health services. The supervisors, in turn, may invite collaboration from their own regional and global networks.
- trainees and supervisors from different countries will interact regularly to share individual learning experiences. This process promotes continual and life-long networking, thus contributing to regional capacity building.

The benefits of the service-oriented model will thus be sustained through the efforts of trainees, graduates, as well as the national health departments, training institutions, and regional and international agencies. The result should be strong surveillance programs with national and regional capability for responding effectively and in a timely fashion to adverse health events in the region, and ultimately for promoting a healthy Pacific.

6.2 Sustainability

Options in planning, implementing and evaluating the training program should be considered and judged against criteria for ensuring and enhancing sustainability. The program should:

- have a clear, long-term perspective aimed at capacity building nationally and regionally;
 - have consistently strong leadership dedicated to quality and continuing improvements;
 - maintain close relationships with ministries of health, and clinical and public health practitioners;
 - ensure that academic staff are given opportunities for research, international collaborations, and maintaining state-of-the-art and cost-effective training techniques;
 - formally document curriculum and training techniques, and outcomes and impacts of the program on national and regional public health, and evaluate these against internationally competitive standards;
 - foster interdependent rather than dependent relationships with Pacific rim institutions and agencies participating in the program;
 - affiliate with similar training programs in other countries such as the global Network of Training Programs in Epidemiology and Public Health Interventions (TEPHINET) (Appendix 11.3).
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7 People and Institutions Visited

Fiji

Fiji School of Medicine: Frank Piscioneri, David Phillips, Wama Baravilalla, Tom Fidge.

FSM Reproductive Health Training Programme: Ruffina Latu, Peggy Duncan.

UNICEF: Jane Paterson, BJ Rana, John Posbisil.

WHO: Michael O'Leary. WHO Consultants: John Wakerman, David Scrimgeor.

UNFPA/WHO: Salesi Finau Katoanga.

Hawaii

University of Hawaii: William Wood, David Morens, DE Miller.

Department of Health, Epidemiology Branch: Paul Effler.

Centre of Excellence in Disaster Management and Humanitarian Assistance: Rick Brennan.

New Zealand

Auckland

Department of Community Health, University of Auckland: Rod Jackson.

Pacific Health Research Centres: Zara Meha, Sitaleki Finau, Colin Tukuitonga.

Human Research Council: Moera Douthett, Bruce Scoggins, Andrew Sporle.

Wellington

Communicable Diseases Centre: Michael Baker, Siiri Bennet, Michael Bates.

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9 Abbreviations

ANU Australian National University

Dr PH Professional Doctorate in Public Health

EIS Epidemiology Intelligence Service

FETP Field Epidemiology Training Program

FSM Fiji School of Medicine

GDPH Graduate Diploma in Public Health

MAE Master of Applied Epidemiology

MHRDC Micronesian Human Resources Development Centre

M Med Master of Medicine

MPH Master of Public Health

NCEPH National Centre for Epidemiology and Population Health

PBMOTP Pacific Basin Medical Officers' Training Program

PBMOA Pacific Basin Medical Officers' Association

PHSWOWS Public Health Schools Without Walls

PPHSN Pacific Public Health Surveillance Network

PPHSWG Pacific Public Health Surveillance Working Group

RTRC Regional Training and Research Centre in Reproductive Health

SPC Secretariat of the Pacific Community (formerly South Pacific Commission)

TEPHINET Network of Training Programs in Epidemiology and Public Health Interventions

UNICEF United Nations Childrens' Fund

UNFPA United Nations Family Planning Association

USP University of the South Pacific

UPNG University of Papua New Guinea

WHO World Health Organisation

10 Glossary

Applied epidemiology is the application and evaluation of epidemiologic discoveries and methods in public health and health care settings.

Capacity Building is a general term for the process of individual and institutional (including institutional infrastructure) development which leads to higher skills and greater ability to perform useful research.

Epidemiology is the study of the distribution and determinants of health related states or events in specified populations, and the application of this study to control health problems. Epidemiology is the basic science of public health because it is the health science that describes health and disease in populations rather than in individuals, information that is essential for the formulation of effective public health initiatives to prevent disease and promote health in the community.

Field epidemiology is defined as the application of epidemiology under the following set of general conditions:

- the problem is unexpected,
- an immediate response may be demanded,
- the public health epidemiologist must travel to work in the field to solve the problem, and
- the extent of the investigation is likely to be limited because of the imperative for timely intervention.

Field epidemiology differs from planned epidemiological studies in three respects: the field investigation often does not start off with a clear hypothesis and may need descriptive studies to generate a hypothesis which then needs to be proven; the field investigation involves an immediate need to protect the community's needs and to address its concerns; and the field investigation involves the need to consider when data are sufficient to take action rather than to ask additional questions that might be answered by the data.

Public health is what we, as a society, do to restore, protect and improve the health of the community. It is formally defined as the organised effort of society to prevent premature death, illness, injury and disability. It covers medical care, rehabilitation, health promotion, and the underlying social, economic and cultural determinants of health and disease.

Public health surveillance is the ongoing and systematic collection, collation, analysis and interpretation of health data, and the communication of the information derived from these data to those responsible for disease prevention and control. The communication aims to stimulate responses to health problems, and use of the information for planning, implementing and evaluating programs and policies.

Surveillance is thus the tool that provides the data to inform and evaluate public health actions and policies.

11 Appendices

Brochures

1. Health Research Council, New Zealand
 2. Micronesian Human Resources Development Centre
 3. Network of Training Programs in Epidemiology and Public Health Interventions
 4. Pacific Health Research Centre
 5. Pacific Public Health Surveillance Network
 6. Regional Training and Research Centre in Reproductive Health
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