

Chapter 1.1.2

INTEGRATING PUBLIC HEALTH AND MEDICINE

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Public health and its achievements

Public health refers to 'all organised methods ... to prevent disease, promote health, and prolong life among the population as a whole' (1). It is responsible for many of the major improvements in the health of populations and individuals. Quarantine, which has been in use for hundreds of years, was a major advance in the control of communicable disease long before the idea of microbes was introduced. When John Snow removed the handle of the broad street pump, he showed the way to prevent waterborne disease and reduce outbreaks.

Tracing the history of mortality from tuberculosis, for instance, shows that long before the BCG vaccine and effective therapies were introduced, the mortality was declining because of improved housing, working conditions and nutrition. Currently, however, the threat of tuberculosis is increasing again because of two major public health issues: the HIV epidemic and antibiotic resistance.

More recently, public health has reduced the epidemic of lung cancer in many countries through its actions against tobacco consumption and against the use of asbestos.

Public health is now facing some important challenges - including the global obesity epidemic and the health consequences of global warming - and it continues to grapple with health inequity caused by social inequality and modifiable determinants of health.

Definitions and scope of public health

For the purposes of this chapter, the term 'public health' signifies a population perspective on health rather than a single science or discipline. It is based in medicine, epidemiology, biology, physics, sociology, economics, and other sciences; it uses management, marketing, community development and other techniques, and it employs a multitude of expertises from medical professionals to community workers and from engineers to community leaders.

Although there are a number of differing lists of core public health functions, there is broad agreement on what public health does – and this can be classified in two categories. The first category, which is aimed at ***prevention of disease and promotion of health***, includes population health surveillance; prevention of disease and injury; promotion of health and healthy behaviours; detection, investigation and response to outbreaks of disease, such as the implementation of disease prevention and health improvement programmes; and emergency and disaster preparedness and response. The second category of public health action is concerned with the ***organisation of health systems***, including health policy analysis, planning and managing programmes and strengthening community capacity (2).

Public health services and their organisation differ from country to country and often within countries as well: not all public health services are responsible for all health promotion activities. Indeed many health promotion activities are likely to be the responsibility of an organisation outside the health care system. For instance, the creation of built environments, a factor in health, is likely to be under municipal or county responsibility; and education departments are generally responsible for ensuring adequate curricular time is devoted to physical exercise. As such, many public health services can act only in collaboration with other services.

Most countries or regions have a service labelled public health or something similar, which is involved at least in the detection and prevention of infectious disease in the community. Responsibility for other public health functions may be found within the branch known as public health or within other organisations. In other words, public health expertise is generally diffused through various organisations in a society.

Public health and medicine

The main difference between public health and medicine is that the former is mainly interested in the health of populations, which has an impact on the individuals in the population, while the latter is mainly interested in the health of individuals, which has an impact on the health of the population. While the overall aims of the two are thus similar, the ways of achieving them are different. Both disciplines are necessary if these aims are to be achieved. Furthermore, each is likely to be more effective if the two work in synergy rather than against each other (3).

In view of the variability of the provision of public health services, the diversity of functions and the range of sciences that contribute to it, however, it is unsurprising that few medical practitioners have a clear idea of what public health is and what it does. While at least certain aspects of public health have been included in medical training curricula for some time, more recently countries such as Canada, the United Kingdom (UK), the United States (USA) and Australia have redefined learning objectives in public health for medical graduates.

Canada has produced an online textbook on public health (4) - probably the only comprehensive public health text book aimed at medical students and the clinical professions – and a recent issue of the *American Journal of Preventive Medicine* (5) was devoted to reports from the conference ‘Patients and Populations: Public Health in Medical Education’ organised to showcase best practices in North America.

Teaching in public health is often the responsibility of non-physicians¹, or physicians not involved in individual patient care, so that many public health teachers are not in a position to make links between public health and clinical subject matter. By absorbing the ‘hidden curriculum’ common in large hospital centres, students can come to view public health as an unimportant subject that reduces the time available for learning exciting high-tech medicine. As a result, it is not surprising that many students find public health uninteresting and irrelevant to the practice of clinical medicine (6). These attitudes are likely to persist as students progress to become practising physicians.

¹ A ‘physician’ here (and in North America generally) is another term for ‘doctor’ or general practitioner, while in countries like South Africa and Australia, a ‘physician’ is a specialist in internal medicine.

Provoking discussion and thought

A number of authors have explored ways of raising interest in public health topics by developing series of questions that can be used to explore the public health issues of clinical scenarios.

Jacobsohn et al look specifically at hospital policies based on in-patient scenarios (3) - while Stone proposes a framework that links the main themes of public health with clinical actions of prevention, diagnosis, treatment and follow-up (7). Gillam and Maudsley list the 'Liverpool Seven Pointers toward a population perspective on health' (8) - and Harper proposes a series of questions linked to seven contexts of the clinical encounter (9). Finally, Trevena et al link the 'Sydney 8 questions' to population health learning objectives (10).

Although these proposals are all written in the context of undergraduate education, they are also relevant to postgraduate and continuing medical education and the questions and themes would be very useful for initiating discussion around the concepts of public health.

Integrating clinical practice and public health knowledge

Although public health and medicine each have a different focus, when integrated into clinical practice, public health knowledge, attitudes and skills can improve the quality of care provided and is essential to practice in a number of ways. Most physicians use public health concepts in practice, although they may not be aware of it. Being able to define the public health knowledge, skills and attitudes they apply may assist physicians in improving the quality of their care and their contribution to the health patients and the community. Some examples of this follow.

Individual patient-physician encounter

At the core of medicine is the encounter between physician and patient. During these encounters, the concept of the determinants of health and of the socio-ecological model of health provides an understanding of why the patient became ill and his chances of regaining health. The determinants of health may also determine the patient's capacity to deal with disease and to follow the physician's advice. Familiarity with models of health behaviours provides the physician with pointers on how to counsel on lifestyles and treatment.

Investigation and diagnosis

Epidemiology, the science that describes disease in populations and a basic science of public health, has given rise to clinical epidemiology and evidence-based medicine. In many medical schools, these are now perceived as part of clinical medicine.

Epidemiology and evidence-based medicine are essential to efficient investigation, accurate diagnosis, and effective decision-making with regard to the management and interpretation of new information generated by research. As results of general epidemiological enquiry often underlie health information on the frequency of disease in populations, being able to interpret this information allows physicians to prioritise differential diagnoses according to the lifestyles and the determinants of the health of their patients. Explaining the impact of avoidable risk factors, the meanings of test results and the risks and benefits of different ways of managing disease requires knowledge of a number of epidemiological concepts.

Accurate diagnosis and management of environmental disease requires the physician to take an environmental history (11) and have knowledge of how to control environmental disease or knowledge of local public health services which may be required to solve the problem.

Preventive intervention

Preventive intervention is perhaps the most obvious way in which physicians put public health knowledge, skills and attitudes into practice. Physicians may intervene as part of a public health programme, for instance by participating in vaccination programmes, by setting up in-practice prevention programmes or by using opportunities for clinical prevention. To do so, physicians need to be up to date with public health programmes and clinical prevention guidelines.

For areas where there are no national or regional evidence-based preventive care guidelines, there are a number of reliable sources that provide guidelines as well as discussions of the evidence and rationale for the guidelines. This gives physicians information on the risks and benefits of the interventions which they can discuss with their patients. Examples are

- the Canadian Task Force on Preventive Health Care (<http://canadiantaskforce.ca/>) - although inactive for a number of years, it has recently been regrouped
- the U.S. Preventive Service Task Force (<http://www.uspreventiveservicestaskforce.org/>)
- the Australian Guidelines for Preventive Activities in General Practice (the red book) (<http://www.racgp.org.au/your-practice/guidelines/redbook/>).

The approach to disease management is not very different from the approach to prevention, both are based on assessment of the risks and benefits of interventions, which may include watchful waiting. As prevention differs from treatment in that it does not tackle an existing problem, differences in ethical values may come into play.

Practice population

To maintain the health of the people in their area, physicians assess the needs of their practice population and community, orient their practice to meet those needs and advocate for the health of the local community. Here again the physicians are using epidemiology and applying the principles of health promotion; community development and empowerment. The 'five-star doctor' is one expression of this expanded role (12); and 'community-oriented primary care' (COPC) is another (13).

Where it is implemented successfully, COPC is likely to have a positive impact on the health of patients and the community – but its implementation is often undermined by barriers from the health systems and lack of adequate training. Even if not formally and fully implemented, COPC can contribute to improvements in health (13).

Physicians also play a role in protecting populations from environmental and transmissible disease. As diagnosticians in direct contact with patients, they are in a unique position to identify and report unusual occurrences of disease. They are also well placed to assess possible disease sources and advise on how to reduce the spread of disease. In doing so, they are familiar with the basics of outbreak prevention and control as well as with local public health services.

Practice organisation

As those responsible for patient safety, the prevention of medical error, and the efficient use of resources, physicians use quantitative and qualitative methods to audit their practice. They borrow from management science to prioritise and implement change and to develop practice systems that improve the delivery of care. The Australian 'Green book' gives practical advice on how to improve delivery of preventive care, some of which can be adapted to improving patient management and follow-up (14).

As part of the health system, physicians collaborate with other professionals to provide a comprehensive service. They know the resources in their area and they know how to advocate for their improvement. In so doing, they apply notions of health service organisation as well as leadership and communication skills. They also balance the needs of individuals against the needs of their practice population, employing concepts from health economics as well as applying the ethics of population medicine.

Finally, physicians use the principles of infection control to prevent iatrogenic infections and cross infections between patients attending their practice.

Issues specific to rural areas

All these roles and responsibilities apply as much to general practice as to other branches of medicine - and as much to rural as to urban practice. However, the type, place and context of practice influence the depth of competence required in different aspects of public health.

The physician in a rural general practice is likely to be one of the few health professionals in the area. In small regions, they may have privileged contact with influential people and organisations – and indeed, they may be seen as a resource for all types of health issues, including public health and community issues. This provides an excellent opportunity to advocate for health, practice health promotion and influence health protection practices and infrastructure.

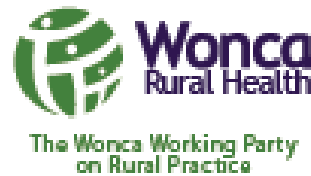
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