Human Resources for Health

Commentary

Public health workforce: challenges and policy issues

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Abstract

This paper reviews the challenges facing the public health workforce in developing countries and the main policy issues that must be addressed in order to strengthen the public health workforce. The public health workforce is diverse and includes all those whose prime responsibility is the provision of core public health activities, irrespective of their organizational base. Although the public health workforce is central to the performance of health systems, very little is known about its composition, training or performance. The key policy question is: Should governments invest more in building and supporting the public health workforce and infrastructure to ensure the more effective functioning of health systems? Other questions concern: the nature of the public health workforce, including its size, composition, skills, training needs, current functions and performance; the appropriate roles of the workforce; and how the workforce can be strengthened to support new approaches to priority health problems.

The available evidence to shed light on these policy issues is limited. The World Health Organization is supporting the development of evidence to inform discussion on the best approaches to strengthening public health capacity in developing countries. WHO's priorities are to build an evidence base on the size and structure of the public health workforce, beginning with ongoing data collection activities, and to map the current public health training programmes in developing countries and in Central and Eastern Europe. Other steps will include developing a consensus on the desired functions and activities of the public health workforce and developing a framework and methods for assisting countries to assess and enhance the performance of public health training institutions and of the public health workforce.

Introduction

This paper reviews the challenges facing the public health workforce in developing countries and the main policy issues that must be addressed in order to strengthen the public health workforce. The public health workforce is diverse and includes all those whose prime responsibility is the provision of core public health (non-personal) activities, irrespective of their organizational base. This paper is a contribution by the Department of Health Service Provision, World Health Organization, to the strengthening of human resources for health with a focus on the public health workforce in developing countries. This paper is one response to the suggestion made by the Scientific Peer Review Group "that WHO should pay more attention to traditional public health occupations in its work on human resources" [1]. It is also one aspect of the initiative established by the Director-General of WHO to improve human resources in national health systems. The

initiative will, among other things, examine options for developing stewardship and technical skills within the health professions [2].

Health systems and human resources

This initiative stems from the *World health report 2000* and the general effort to improve the performance of health systems worldwide [3]. As outlined in that report, the main functions of the health system are financing, stewardship, resource generation and provision of services. Human resources are the central component of all health systems and consume a major share of resources allocated to health systems. Human resources contribute to the performance of all main functions of health systems; efforts to improve the effectiveness of the health workforce are central to improving health system performance.

Human resources for health are classified into those providing care for individuals and those providing non-personal health services. Here we use the term "public health workforce" to describe the human resources providing non-personal health services. There is considerable overlap in the activities of the two main human resource categories, for example with the provision of immunization and screening services, and in many countries some clinical (personal health) services of public health significance are the responsibility of the public health workforce. A clear-cut distinction between public health and clinical services is not entirely realistic or practical.

Changing context for public health

Despite impressive health gains in almost all countries over the last few decades, the challenges facing the public health workforce are great. The unfinished agenda of communicable disease control is greatly complicated by the emergence of new pandemics, notably HIV/AIDS and noncommunicable (NCD) diseases, and global health threats such as environmental changes [4]. The public health implications of violence add a new and difficult dimension to public health practice. The prevention and control of many of these challenges requires a population-wide and intersectoral approach. The public health workforce should be at the forefront of the response to these challenges, working in partnership with a wide range of governmental and nongovernmental agencies and across a variety of sectors.

The current organization and delivery of public health services are inadequate for these new challenges. In particular, the development and ongoing training of the public health workforce have been neglected over recent decades in both wealthy and poor countries [5]. The events of 11 September 2001 in New York, the anthrax attacks in the USA and the subsequent "war on terrorism" have further widened the scope of public health. The extra resources provided for the public health response to these events [6], as well as to the reinvigorated programmes against the major infectious diseases [7,8], provide an opportunity to re-examine the activities undertaken by public health personnel and the mix of new or different personnel requirements, and to build the public health workforce and infrastructure.

There are cautious grounds for suggesting that a renaissance of public health is beginning. In several wealthy countries there are strong expressions of political support for public health and a new determination to confront the health inequalities that are a feature of all countries [14]. Public health is increasingly viewed as one of the important approaches for achieving national health goals [9]. Similar sentiments have been expressed in developing regions [10]. The Calcutta Declaration from the 1999 Regional Conference on Public Health in South-East Asia in the 21st Century made specific recommendations for building public health capacity in the region, including the creation of appropriate career structures and strengthening public health education, training and research [11]. An Indian Expert Committee on Public Health System in 1996 recommended development of a contemporary national health policy, a modern Public Health Act, development of a career track for public health professionals, and establishment of regional schools of public health [12]. The National Health Policy–2001 for India refers to the shortage of public health expertise and the outdated curricula that are unrelated to contemporary community needs [13].

Furthermore, health improvement is increasingly on the development agenda. WHO leadership has contributed to the development of the Global Fund to Fight HIV/AIDS, Malaria and Tuberculosis [14] and the Report of the Commission on Macroeconomics and Health [8], both of which make strong cases for new resources for health improvement. It is now widely recognized that financial resources alone are not sufficient and there is a danger that the weakness of the public health workforce will limit the impact of these new resources.

Public health: definition and scope

The term "public health" is used in a variety of ways – for example, as a condition, an activity, a discipline, a profession, an infrastructure, a philosophy, or even as a movement. Common to most of the definitions is a sense of the public interest. For example, the accepted definition in the United Kingdom is: "the art and science of preventing disease, promoting health, and prolonging life through the organized efforts of society" [14]. The accepted definition in the United States, by the Institute of Medicine, is that "the mission of public health is to fulfil society's interests in assuring conditions in which people can be healthy"

[15]. We base our definition on the notion of collective responsibility for health, the hallmark of public health action: public health is the "collaborative actions to improve population-wide health and reduce health inequalities".

The scope of public health practice is broad and ranges from the control of communicable diseases to the leadership of intersectoral efforts to improve health [16]. The key public health perspective is the population-wide approach to the prevention, control and management of health problems.

Public health capacity is the ability to achieve stated public health objectives at the national, regional and global levels with respect to both ongoing and emerging health problems [17]. Building public health capacity is the process of improving the ability of the public health workforce to meet its objectives and to perform better. The public health workforce is the central component of the national public health capacity, which also includes infrastructural components such as resources, facilities and appropriate technology. Traditionally, the focus of public health capacity-strengthening activities has been on formal academic and didactic training. It is important to focus more attention on modern training methods and flexible, in-service work site and work group training programmes to avoid the disruption caused by the need to enrol in more formal programmes.

It is usually assumed that capacity is linked to performance and that building capacity improves performance. With regard to the public health workforce this assumption appears reasonable, although it needs to be critically examined. It is appropriate to begin the process of advising governments on investments in public health capacity development at the same time as the activities of the public health workforce are being described and the evidence on effectiveness is examined.

Public health workforce: definition, role and current status

Human resources for health encompasses the stock of all individuals engaged primarily in the improvement of the health of populations. The public health workforce includes those primarily involved in protecting and promoting the health of whole or specific populations (as distinct from activities directed to the care of individuals) [18]. The public health workforce is characterized by its diversity and its complexity and includes people from a wide range of occupational backgrounds – for example, physicians, nurses, health managers, occupational health and safety personnel, health economists, environmental health specialists, health promotion specialists and community development workers. The public health workforce is trained in a variety of institutional settings.

All countries have a public health workforce, albeit of differing degrees of effectiveness and following different organizational patterns [19]. In most countries, the public sector – usually ministries of health and education and local authorities – have responsibility for the public health workforce, including its training, performance and quality assurance. These ministries have a leading role in strengthening the public health workforce. In some countries, some public health activities are provided by the private sector and nongovernmental agencies, often under contract to ministries of health or donor agencies; this increases the need for coordination among all providers of public health services.

The public health workforce has made many contributions to the improvement of population health, from the eradication of smallpox to the prevention and control of the burden of noncommunicable diseases [20]. The public health workforce contributes to strategic policy development, planning and regulation and the organization, delivery and evaluation of health services directed towards both individuals and populations. Public health is broad in scope and not all of the public health workforce is engaged within the health sector, or necessarily within the public sector. An effective public health workforce has an important contribution to make to the improvement of health system performance. Although many public health programmes have clear and direct impacts on population health, it is not always easy to delineate these effects. Regional differences in the major public health issues and in the organization and delivery of public health services contribute to the need for public health human resource policy advice to be context-specific, sustainable and in tune with the available resources.

With very few exceptions, there has been a general neglect of both the public health workforce and its related infrastructure, including its long-term development. For example, the recent National Health Manpower Plan for Botswana, 1997–2003, does not consider the public health workforce [21]. The proportion of national health budgets allocated to public health activities is less than 5%, and usually of the order of 1%–2%. Even in wealthy countries such as the USA, "the public health system had been seriously under-funded for more than thirty years" [22]. Similarly, in Canada the public health system is described as "being on the ropes" – that is, in a fragile state and getting worse, not better [23].

Few of the core public health activities [24] are carried out to a high standard even in most wealthy countries [25]. The Pan American Health Organization has identified

essential public health functions and is in the process of evaluating the infrastructure available for the performance of these functions [26]. In the WHO Western Pacific Region, a three-country project has examined essential public health functions, particularly at an operational level, and this analysis is identifying ways in which public health performance can be strengthened and made more sustainable [27].

There are several reasons for the universal poor state of public health practice. The "public good" nature of many aspects of public health practice [28] presents a difficulty when the focus of public health has narrowed and government attention and resources are concentrated on health care [29]. Responsibility for health is increasingly located at the personal level as national authorities attempt to reduce their costs [16] and the private sector is increasingly involved in the delivery of public health activities. However, the major determinants of health, and the most powerful means for health improvement, are increasingly located at the national and global levels [30]. WHO is promoting government stewardship of the health system; governments have a duty to their citizens to provide overall leadership for the health system in terms of vision, priorities and regulatory framework, irrespective of whether the funding for the system comes fully or partly from government sources [3].

Several attempts have been made to characterize the public health workforce, at least in developed countries. Enumeration of the public health workforce in the USA identified public health nurses as the largest professional component of the 400 000–500 000-strong workforce [31]. However, this exercise shed no light on the adequacy of the workforce in the USA and it is suggested that only 20% of the workforce has the education and training needed to work most effectively. A systematic study on the extent and relevance of postgraduate public health education and training in Australia in 1993 found that the majority of training programmes were directed towards people already in the workforce, rather than to increasing the size of the workforce [18]. At least in Australia, it appears that many people join the public health workforce at a later stage of their working life; almost half the workforce has a postgraduate qualification and two-thirds work for government agencies. The public health workforce is multiskilled and performs multiple functions from management to clinical roles. A German study is collecting information on aspects of the national public health workforce in many countries [32].

Public health training in and for developing countries

Public health training has a long history, primarily in Europe and in the Americas [33,34]. The Rockefeller Foundation was instrumental in establishing many of the most prestigious schools of public health in most regions of the world [35]. There has been a long-standing debate about the nature of the so-called schism introduced by the separation of public health training institutions from medical schools [36]. It seems appropriate, especially in developing countries, to ensure the close integration of public health training for all health personnel; this would argue against the establishment of isolated schools of public health.

WHO, UNICEF and other international organizations have made major contributions to the training of health personnel in developing countries. However, most of these efforts have focused on the training of junior health personnel and on infectious disease control and maternal and child services, and not on public health professionals, i.e. public health workers with a relevant postgraduate degree [37]. The International Clinical Epidemiology Network (INCLEN), initiated by the Rockefeller Foundation in the mid-1980s, focused over a 20-year period on improving the epidemiological skills of clinicians but did not address the need for a modern public health workforce in a resource-constrained setting [36]. There is a serious lack of appropriate public health training opportunities in most of the developing world. For example, Southeast Asia has some 12 schools of public health for a population of well over 1.5 billion people [38].

From a developing-country perspective, traditional approaches to public health training, whether based in the North or the South, have limitations [39], including:

• the emphasis on epidemiology, biostatistics, communicable diseases, health protection, the relative neglect of other public health sciences and the lack of attention to emerging public health problems;

• the isolation from ministries of health (especially since training institutions are usually under the control of ministries of education), other health providers, local communities, and other scientific disciplines;

• the emphasis on institution-based teaching and didactic training and the lack of direct field experience;

• the lack of experienced field-based senior public health practitioners as role models and the absence of apprenticeship experience;

• the view that public health is a medical specialty and the slow realization that the leadership of public health training programmes must be separated from the leadership of medical training programmes;

• the high cost of the training programmes in North America and Europe and the lack of incentives for graduates trained overseas to return home and work in government service.

Most of these criticisms of training for developing countries also apply to public health training programmes for developed countries. It is imperative that out-of-country training be restricted to where it is absolutely necessary and that flexible, in-country training programmes be further developed. One such innovative project began in 1992 when the Rockefeller Foundation launched the Public Health Schools Without Walls (PHSWOW) initiative in Africa, later expanding to Asia. The PHSWOW programme is an attempt to integrate public health training with health system reforms and especially the emphasis on community-based services with the decentralization of authority and resources [40,41]. The goal of the PHSWOW programme is to train graduates competent to respond to practical health problems and to manage health services, especially at the district level. In all countries the ministry of health plays a significant role in the PHSWOW programmes. A feature of the PHSWOW curricula is the substantial period of supervised field training – up to 75% of the course – during which the trainees are expected to acquire and demonstrate competence in key areas, including the ability to: investigate important local health problems; design, manage and evaluate health programmes; assess and control environmental hazards; and communicate effectively with individuals, communities, colleagues and policy-makers.

A recent evaluation of the programme concluded that, despite the lack of pre-formulated milestones, the PHSWOW provides one foundation on which to build public health capacity in developing countries [5]. The key lessons from the PHSWOW programmes are that:

• It is possible to undertake high-quality public health training in diverse settings in developing countries;

• A health systems approach to public health training has been developed;

• The basic public health training strengthens district health management;

• Strong local leadership is necessary for capacity-building initiatives in developing countries;

• This activity requires substantial external resources.

Models of public health training exist that are not based on schools of public health. For example, the Field Epidemiology Training Programmes (FETPs) and the more recent Training Programmes in Epidemiology and Public Health Interventions Network (TEPHINET) have concentrated on training field epidemiologists to respond to infectious disease epidemics and are based in ministries of health [42]. The International Clinical Epidemiology Network (INCLEN) is based in medical schools. The CDC (Centers for Disease Control, in Atlanta, Georgia, USA), has also recently started a programme on Management for International Health modelled on the FETP in recognition of the need for better management of public health programmes.

Since not every student in public health is either willing or able to attend and complete a full-time academic programme, it is desirable to increase the flexibility of public health training courses in terms of content, form and outcome. The outcomes can include certificates, diplomas, Master of Public Health degrees and doctoral degrees. This flexible approach to training is in operation at the University of the Western Cape in South Africa and improves equity in access to postgraduate public health education, especially if it incorporates the teaching of academic skills for disadvantaged students [43].

Programmes have been established to meet the need for health management officers – for example, the new Master of Public Health programme at Muhimbili University College, Dar es Salaam, Tanzania, which is supported by the University of Heidelberg and the Deutsche Gesellschaft für Technische Zusammenarbeit. A Swedish initiative based on the International School of Public Health, Umea, combines course work in Sweden with field work in the home countries of the MPH candidates [44]. New schools of public health are being developed, for example in Bandung, Indonesia, and in Kazakhstan; the Bangladesh Rural Advancement Committee has proposed a new school for Bangladesh. There is scope for further development of "twinning" relationships between institutions in the North and those in the South, and for South-to-South arrangements.

Public health workforce development: policy issues

Many policy-relevant questions can be raised about the public health workforce in developing countries. The key question is: Should governments invest more in building the public health workforce to ensure the more effective functioning of health systems? This question concerns the linkages between the effectiveness of the public health workforce and the improved performance of health systems. The answer is usually assumed to be affirmative, given the broad mandate of a modern public health workforce, its unique population-wide perspective, and its long-standing and continuing contributions to health improvement. However, it is necessary to review the evi-

dence base for this assumption. Other questions fall into several domains: the nature of the public health workforce, including its size, composition, skills, training needs, current functions and performance; the appropriate roles of the workforce; and how the workforce can be strengthened to support new approaches to priority health problems.

The available evidence to shed light on these policy issues is limited. An initial problem is the lack of data on the extent and composition of the public health workforce. This information gap is now being filled by WHO with data from a variety of sources, including the World Health Survey. Another major gap is the limited evidence on the effectiveness of public health training and practice. WHO is supporting the development of evidence to inform discussion on the best approaches to strengthening public health capacity in developing countries. Its priorities are to build an evidence base on the size and structure of the public health workforce and to map the current public health postgraduate training programmes in developing countries and in Central and Eastern Europe. The next steps will include developing a consensus on the desired functions and activities of the public health workforce, and developing a framework and methods for assisting countries to assess, manage and enhance the performance of public health training institutions and of the public health workforce. This work will be carried out in association with WHO regional offices and a wide variety of partners.

Conclusion

A long-term effort is now required to rebuild the public health workforce; this will require major support from national and a wide variety of international agencies. A strengthened public health workforce will be in a better position to ensure that evidence on the effectiveness of health interventions and the new resources coming into the health sector lead to improvement of the health of all populations, not just the most advantaged.

Competing interests

None

Author's contributions

Both authors contributed to all phases in the preparation of this article.

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