

to define what it is that students should know, from broad disciplines like epidemiology, biostatistics and health management, to new categories of competencies, such as informatics, communications, cultural competency, global health, policy and law, and ethics.<sup>1</sup>

My view is simpler: it is that in contrast to most graduate or postgraduate programmes organized around disciplines, professions, skills or sectors, our overarching aim in public health is to train our students to solve problems affecting the public's health. Our vision at Harvard is to encompass a continuum of scientific disciplines and programmes, from fundamental science to application locally and globally, in order to address most effectively the big problems in public health. To do so, we place great emphasis on multidisciplinary and interdepartmental approaches to problems and education. Education should not stop with satisfying the disciplinary or credentialing requirements. BRAC has brilliantly immersed the students directly in the health problems in villages. We are revising our curriculum to include, in addition to a practicum experience in the community, more case-based learning and analytical thinking. In both schools, the aim is to provide our students with the best skills in solving problems in public health.

What is the knowledge that is important? I believe there are three kinds: "public knowledge" accessible to everyone, as in published scientific literature; "contextual knowledge", namely how to apply public knowledge in a particular place or health context; and "tacit knowledge", the knowledge that cannot be taught but is learned by example, that breaks down barriers of culture or training, and is transformational in the lives of people.<sup>2</sup> These are the great challenges, as I see them, in public health education. ■

## References

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## Producing a capable workforce

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Public health education must be viewed in the context of globalization and practical plans applied to the current situation. Disease knows no border; the developed and developing worlds are united by one scourge – the shortage of a public health workforce. Therefore the issue is not about whether the emphasis should be about the art or science of the discipline, but about public health schools producing a workforce that is capable of protecting the public's health.

The capacity of public health schools differs vastly, both inter- and intracountry. The argument could be: who deter-

mines quality? Clearly, a core curriculum which includes strong leadership training is a useful base from which the different strands of public health can be launched. However, the burden of disease and health of the population within each region and country will influence the emphasis in each focus area. Private, public, academic and other institutions that could contribute to the improvement of public health should collaborate. This innovative approach is being encouraged in public health schools as best practice for community engagement. There is evidence that such practice is beneficial to the community, trainees and the public sector.<sup>1</sup>

Public health as a discipline requires broadening and should include non-medical disciplines that could contribute to, and thus enrich, the workforce. The health sector can no longer manage and deliver public health without contributions from these other sectors. The type and quantity of the public health workforce is rarely mapped, therefore graduates could be mismatched and may not meet the population's health requirements. The Essential National Health Research model established by the Commission on Health Research for Development,<sup>2</sup> currently used in 60 countries, can be expanded to map health needs against human resources for health supply.

In Africa, the AfriHealth project has endeavoured to map the capacity of institutions offering public health education and training. Regrettably, South-South collaboration, which could help to establish a robust sandwich programme using inter- and intracountry expertise, is uncommon.

The use of technology needs to be exploited to address ways of meeting the needs of a modern world in a resource-poor setting. The Knowledge Management for Public Health (KM4PH) project of the WHO should be considered and analysed as to whether it can benefit public health alumni in rural settings in developing countries.

Supportive links with alumni and purposeful mentorship graduate programmes should be established. These are known to be powerful tools for networking, and for retaining and informing the workforce post-training. ■

## References

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## The challenges of scaling-up

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Petrakova and Sadana make an important distinction between the science and the art of public health, where the art is concerned with application. However, while it is correct to say there is still much to be learned about how to deliver public health interventions, there is a growing body of research on health systems and policies that helps to guide the delivery of preventive and curative services at different

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