

TRANSDISCIPLINARY APPROACHES TO BUILDING THE CAPACITY OF THE PUBLIC HEALTH WORKFORCE

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The thesis of this article is that public health professionals working across disciplines can have a greater impact on the health of the public than they can working independently. A conceptual model, the HERP (Health Care Services, Education, Research, Policy) Transdisciplinary Model, is proposed to support the thesis. The model differentiates transdisciplinary approaches from multidisciplinary, interdisciplinary, and other similar efforts. Methods for strengthening the public health workforce through application of the transdisciplinary approach to research, professional education, and practice are discussed. The key roles played by epidemiological research, the cardiovascular disease (CVD) care team, and health education/health promotion in CVD prevention in developing countries are highlighted. CVD prevention in sub-Saharan Africa is used as an example in discussing the model and the transdisciplinary approach. (*Ethn Dis.* 2003;13[suppl2]:S2-45-S2-47)

Key Words: Transdisciplinary, Public Health Workforce, CVD, Sub-Saharan Africa

INTRODUCTION

The current complexity of public health problems requires professionals to seek ways of working across professional boundaries. The literature is replete with discussions about interdisciplinary, multidisciplinary, inter-professional, collaborative, and teamwork¹⁻³ approaches. This paper presents a conceptual model, HERP (Health Care Services, Education, Research, Policy), to illustrate ways in which professionals can work together to improve the health of the public. The term “transdisciplinary” is used to promote the idea of working across disciplines. The examples used in this discussion focus on cardiovascular disease (CVD) prevention in sub-Saharan Africa.

THE HERP TRANSDISCIPLINARY MODEL

The HERP Transdisciplinary Model, proposed by this author, illustrates the inter-relatedness of the work of various community and public health professionals. Four aspects of community and public health are presented in Figure 1: health care services, education, research, and policy. The Declaration of Alma-Ata acknowledges health as a fundamental human right, which implies that health care services, provided by a health care work force, are available to promote individual and community health. In addition to health care services, education (both general and health-related) is another important component of the model. In the community, health education provides planned opportunities in a variety of settings for individuals and groups to learn to pro-

tect, promote, and maintain health. Research, another component of the model, includes all types of scientific investigations, such as social, behavioral, epidemiological, etc. Finally, health policy, as defined by WHO, is “a formal statement or procedure within institutions (notably government) which defines priorities and the parameters for action in response to health needs, available resources and other political pressures.”^{15(p10)} Policies enable the provision of health services and programs, as well as providing access to these services and programs. These 4 domains of the HERP model contribute to the health of the public. Table 1 gives examples of the professionals who work in each of the conceptual domains of the model. In Figure 1, the overlapping circles illustrate the relationships between the conceptual domains, with the center being the transdisciplinary approach.

The following example is provided to illustrate the HERP Transdisciplinary Model. Numerous authors have discussed the lack of health statistics in sub-Saharan Africa.⁴⁻⁷ Cooper et al⁵ emphasize the difficulties inherent in developing and providing a rationale for treating a chronic condition, such as hypertension, when there is no data available to assess the potential benefits and costs of such treatment. In addition, there has been insufficient study of the psychosocial factors related to hypertension in African societies. To determine the feasibility of treatment options, a transdisciplinary approach could prove useful.

THE TRANSDISCIPLINARY APPROACH

Many terms have been used to describe the ways in which professionals

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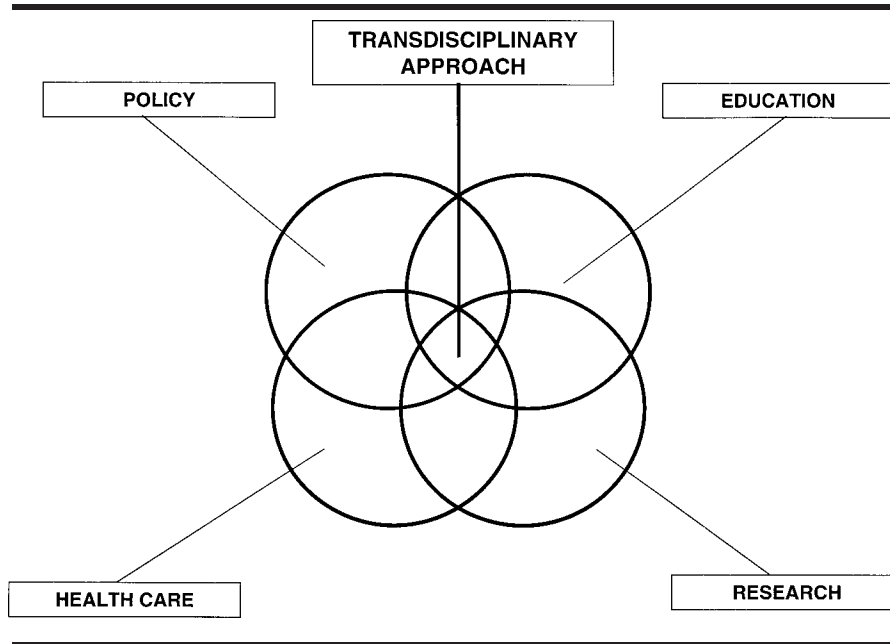


Figure 1. Four aspects of community and public health

work together, such as interdisciplinary, multidisciplinary, inter-professional, collaborative, and teamwork. A variety of definitions of these terms have been presented, analyzed, and discussed,⁸ and the merits of these concepts have been debated.⁹ The term “transdisciplinary” was used most recently in a report on educating public health professionals released by the Institute of Medicine (IOM) in the United States.¹⁰ This report about the public health work force provides recommendations to institutions and organizations for strengthening the education, research, and practice skills of public health professionals.

The IOM report¹⁰ recommends that professional education, research, and training embrace the transdisciplinary approach. The report differentiates between multidisciplinary research, cur-

rently the predominant research mode, and transdisciplinary research. “Transdisciplinary research involves broadly constituted teams of researchers that work across disciplines in the development of the research questions to be addressed.”^{10(p10)} The traditional approach to public health research has been either interdisciplinary or multidisciplinary. An example of interdisciplinary research would be 2 investigators from different disciplines collaborating on research they hope will answer a question of importance to both of them (eg, a cardiologist and epidemiologist conducting cohort studies on the usefulness of treatment for hypertension in selected communities in sub-Saharan Africa). In contrast, multidisciplinary research would address questions that are of interest to individual investigators, as well as ques-

tions shared among those participating in the project. An example of this might be a cardiologist and epidemiologist joined by a health promoter interested in policies related to hypertension treatment. While the results might be useful to multiple disciplines, separate research questions would pertain to the individual disciplines represented in the project.

The distinction in transdisciplinary research is the conceptualization of research questions that transcend any individual discipline or specialized knowledge base. The solution of applied public health problems is, typically, beyond the scope of one discipline. Broadly constituted teams of researchers work across disciplines to understand the nature of public health problems. For example, a cardiologist, nurse, economist, and health educator/promoter might work together as a team to compare various strategies for providing cost-effective hypertension-screening programs. The transdisciplinary approach highlights a difference in the research methodology used. Typically, the method reflects the individual discipline of the researcher, which may be complemented by consultants bringing additional research skills. “By definition, transdisciplinary research goes beyond and transcends individual disciplines by crossing traditional professional boundaries; individuals strive to adapt their own discipline’s theories and research to the needs of other disciplinary members of the group—each is able to transcend his individual perspective.”^{10(p112)} In other words, disciplines will not function independently when working side by side; rather, they will integrate and work as a team.

Public health research in the future will be extremely different, according to the IOM report.¹⁰ It will be transdisciplinary in nature, applying the basic sciences and community participation. “Moreover, a far larger portion of the research portfolio is likely to be evaluative, and/or intervention-focused, with

Table 1. HERP domains and examples of professionals working in each domain

Conceptual Domains	Professionals
Health care services	Physicians, dentists, nurses, social workers
Education	Health educators, teachers, communication specialists
Research	Statisticians, epidemiologists, behavioral scientists, health planners
Policy	Analysts, health promoters, administrators

interventions at the individual, community organizational, and even societal levels,^{9,10(p109)} requiring a variety of professionals to collaborate. Collaboration with other disciplines is encouraged as a way of contributing to transdisciplinary approaches. In its 1998 report on the control of international cardiovascular disease,¹¹ the IOM highlighted the importance of building capacity in order to conduct research and development activities to facilitate CVD prevention and control. Again, the transdisciplinary approach could be useful in facilitating this goal.

The same thinking is applied to the education of public health professionals. The transdisciplinary approach can be applied to the structure and modes of instruction. Questions can be raised about the utility of offering single discipline courses and departments that reinforce singular specialties. It may make more sense to structure the educational experience to bring disciplines together to address public health problems. A transdisciplinary approach may be more effective in addressing complex health issues. A recommendation for schools of public health, and other graduate programs preparing public health professionals, is to “collaborate with other academic units (eg, medicine, nursing, education, and urban planning) to provide transdisciplinary approaches to active community involvement to improve population health.”^{10(p15)} A systematic review of the literature by Cooper, Carlisle, Gibbs, and Watkins,¹³ revealed that health profession students benefitted from interdisciplinary education through changes in knowledge, skills, attitudes, and beliefs. An examination of transdisciplinary education would be useful for determining whether this approach yields comparable benefits.

The transdisciplinary approach can also be applied to professional practice. All public health professionals are responsible for preserving and improving the health of the public. In particular, as noted by Bonow et al, “The global

cardiovascular epidemic can be overcome only through a process of strategic, collaborative international partnerships.”^{12(p1603-1604)} Clinicians, researchers, educators, and policymakers, if dedicated to the transdisciplinary approach to addressing health problems, might accomplish this. However, more research is needed on collaboration and the effectiveness of teams in the context of health care.¹

CONCLUSION

The HERP Transdisciplinary Model is proposed as a means for building the capacity of the public health work force by stimulating discussion about the transdisciplinary approach. The interrelationships between health care services, education, research, and policy, involving various members of the public health work force working across disciplines, are an avenue for future exploration. For example, CVD prevention and control could include interventions to modify behavior at the individual, community, or national level. Such activity might be led by physicians specializing in CVD, with a variety of other professionals contributing to the goal of controlling the impending CVD epidemic.¹⁴ As discussed, a transdisciplinary approach may be key to preventing CVD in developing countries.

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