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A Multi-Institutional, Multi-disciplinary Model for Developing and Teaching Translational Research in Health Disparities

Translational Research in Health Disparities

Estela Estape, MT, Ph.D.,

University of Puerto Rico Medical Sciences Campus, School of Health Professions

Lourdes E. Soto de Laurido, Ed.D., MPHE,

University of Puerto Rico Medical Sciences Campus, School of Health Professions

Magda Shaheen, MD, Ph.D.,

Charles R. Drew University

Alexander Quarshie, MD, MS,

Morehouse School of Medicine

Walter Frontera, MD, Ph.D.,

University of Puerto Rico Medical Sciences Campus, School of Medicine

Mary Helen Mays, Ph.D., MBA, MPH, RD,

University of Puerto Rico Medical Sciences Campus, School of Medicine

Rosanne Harrigan, MS, EdD, and

ARN-Rx, University of Hawai'i at Manoa, John A. Burns School of Medicine

Richard White III, MD

Meharry Medical College

Abstract

Health disparities may affect any person in any community in the world, resulting from a multitude of factors including socioeconomic status, race, ethnicity, environment, and genetics. The impact of health disparities is felt by affected individuals, their families, communities, and the greater health care system.

There is a critical need to increase health disparities research activities. This may be achieved by expanding and strengthening the training, education and career development of motivated clinicians, physicians and basic scientists, engaging them in clinical and translational research. Translational research relies on collaboration across disciplines, facilitating the dissemination and transfer of knowledge to populations for the overall improvement of health while decreasing the economic burden of health care.

The University of Puerto Rico Medical Sciences Campus (UPR-MSC), Schools of Health Professions and Medicine joint initiatives, Clinical Research Education and Career Development (CRECD) and Hispanics in Research Capability (HiREC) programs, convened health disparities experts, faculty and scholars from multiple disciplines, cultural backgrounds and institutions. Together, they created a model for teaching translational research in health disparities that spans

disciplines without boundaries. This work was presented at the 2011 Clinical and Translational Research and Education Meeting, ACRT/AFMR/SCTS Joint Annual Meeting in Washington, DC.

Introduction

Traditionally, academic courses are developed in a unilateral process focusing on the needs of students within a specific institution and program. However, today's academic environment presents challenges and opportunities such as limited resources for development, the need for greater depth and breadth of content and instruction, and the expansion of educational opportunities through distance learning. The purpose of this paper is to present the collaborative process used to create a multi-cultural, multi-institutional, and multi-disciplinary course in *Translational Research in Health Disparities*. This long, yet productive journey has yielded a new academic course and the establishment of a sustained relationship among programs and institutions. Through this collaborative network, we have been able to share human resources and capabilities to address health disparities.

In 2008, UPR-MSC applied for a \$15 million Endowment Program grant, sponsored by the National Institutes of Health (NIH), National Institute on Minority Health and Health Disparities (NIMHD) Endowment Program for Increasing Research and Institutional Resources Capacity in Section 736 Health Professions Schools. These funds were the basis for the HiREC program, an initiative jointly directed by Estela S. Estape, Dean of the School of Health Professions (SoHP) and Director of the UPR CRECD program and Walter Frontera, past-Dean of the UPR School of Medicine (SoM) and CRECD Co-Director. The mission of the HiREC Endowment program is to expand and sustain a high quality clinical and translational research training program and research infrastructure that enhances minority health and increases health disparities research activities in Puerto Rico. At present, the main infrastructure for research career development is the post-doctoral Master of Science in Clinical Research (MSc), the only formal academic program in Puerto Rico addressing the development of independent clinical researchers. Founded in 2002, this trans-NIH program has been co-sponsored by the NIH National Center for Research Resources (NCRR), Research Centers for Minority Institutions (RCMI).

One of the three specific areas of emphasis of the HiREC Endowment is *Orientation, training and guidance in minority health and health disparities research*. An assessment of the MSc program showed that the research infrastructure of the program needed strengthening, especially as defined by one of the program's competencies: "to develop and implement culturally appropriate research aimed at reducing health disparities in Hispanic populations". To develop this competency, the following objectives were defined:

- Develop and adapt approaches to clinical research design and implementation that follow cultural diversity principles.
- Develop and adapt approaches to clinical research design and implementation aimed at reducing health disparities in Hispanic populations.
- Value sensitivity and professionalism with clients/patients from diverse cultural backgrounds (i.e. persons of diverse socioeconomic and educational background, from all ages, and lifestyle preferences) in their clinical research protocols and academic performance.

Although the topics of minority health and health disparities are covered in other MSc courses, there was no specific, required course that emphasized these topics, assuring that proper knowledge and skills to implement the objectives defined for this competency would be attained. Also, the HiREC Endowment program's five-year plan included a general

objective that specified the creation of a new course in Hispanic Health Disparities, which would support and strengthen the existing research capacity of the MSc program. Development of this course was under the leadership of Dr. Lourdes E. Soto de Laurido, Associate Dean of the SoHP and Director of the Research Institute for Global Health Education and Health Promotion (IIPESAG).

Dr. Soto, with the joint leadership of the HiREC and MSc programs, discussed options for course development. After careful deliberation, the group decided to search for a novel way to design this course instead of the more common method of developing course syllabi by a small group within the program or department. The group also decided that the course would be designed and shared among multiple institutions in order to expand its reach and make a significant contribution to the formation of well-versed researchers in health disparities. These decisions opened the door to a creative network process consistent with the concept that multiple inputs from different disciplines and cultural backgrounds enrich the outcome, help in the dissemination of the product, and bring together diverse expertise in building research teams that can more effectively address an important health need. The purpose of this article is to 1) share with colleagues the interactive process through which this course was developed; 2) discuss the challenges and advantages of academic program development using a multi-institutional, multi-disciplinary network; and 3) to propose ways in which technology may be used to share health disparities translational research courses that can be shared across institutions.

Methods

Creating a Network

As a scientific and health professions community, we are challenged to create educational and experiential opportunities leading to the development of independent investigators who can close gaps in health disparities through translational and trans-disciplinary research. Five minority institutions (University of Puerto Rico Medical Sciences Campus, Charles R. Drew University, Morehouse School of Medicine, Meharry College of Medicine, and the University of Hawai'i at Manoa) have in common a post-doctoral Master of Science in Clinical Research funded by NIH, NCRR, RCMI,. These 5 institutions are part of a group of 18 minority institutions participating in the RCMI Translational Research Network (RTRN) and are the leaders of the RTRN Education and Dissemination Committee. In 2008, the RTRN-Education and Dissemination Committee identified two goals: 1) to identify resources and appropriate course materials related to multi-site clinical research and 2) to make available appropriate course material including seminars, lectures, symposia, and other forms of educational exchange to be offered by web-based technology and teleconference (<http://rtrn.net>). Concurrently, the UPR-MSC, as part of its NIH, NIMHD Endowment, HiREC grant, faced the need to create a course in health disparities to address a program's major competency and NIH competencies for clinical and translational research.

The outcome of both groups working together in search for a novel idea to advance knowledge to decrease the gap in health disparities was that there was no formal multi-disciplinary course in translational research in health disparities. In response to this gap, leadership of the five participating institutions came together to leveraging the strengths and capacities of their CRECD-RTRN network, working through a dynamic process to create a multi-disciplinary, multi-institutional course in health disparities research that would also serve as a model for teaching translational research.

Assessing Available Resources within and outside the Network

A survey of the network's available courses in health disparities found that while each of the five institutions had developed at least one formal course in the topic, there was variability in the focus and intensity of each (Table 1). Courses ranged between one and three credits; one program, Charles R. Drew University (4 credits) and University of Hawaii (6 credits), had more than one formal course in health disparities. The majority were two credit courses with the primary focus being on cultural competency, community research/engagement, and gender issues/special populations in clinical research. Morehouse School of Medicine was unique in that it also offered a faculty development program with a focus on cultural competency, in addition to its formal academic course.

Outside of the RCMI network, we found several existing Certificate Programs in Health Disparities. These included a Certificate in Health Disparities Reduction, Columbia University Mailman School of Public Health; a Health Disparities & Health Inequalities Certificate, Johns Hopkins Bloomberg School of Public Health; a Community-Based Public Health Certificate, Johns Hopkins Bloomberg School of Public Health; an Interdisciplinary Health Disparities Certificate Program, UNC Chapel Hill Gillings, School of Global Public Health; a Certificate in Community-Based Participatory Research & Practice, University of Pittsburgh Graduate School of Public Health; a Certificate in Lesbian, Gay, Bisexual & Transgender Individuals' Health and Wellness, University of Pittsburgh Graduate School of Public Health; a Certificate in Minority Health & Health Disparities, University of Pittsburgh Graduate School of Public Health; the Graduate Certificate in Diasporas & Health Disparities, University of South Florida College of Public Health; and the course, 'Measuring Health Disparities', McGill University, and produced by the Michigan Public Health Training Center (MPHTC), Center for Social Epidemiology and Population Health, and Prevention Research Center of Michigan. In our search, we also found an online distance education Graduate Certificate Program in Ethnic Health and Health Disparities offered by East Carolina University, Department of Public Health and Brody School of Medicine.

In a series of conference calls, network leadership defined a strategy through which a course in health disparity could be created that brought together multiple disciplines during the developmental process and that would leverage resources across institutions. After an evaluation of the resources available at that moment within and outside the RCMI institutions, the group decided that there was no formal course available that would facilitate multi-site, trans-disciplinary clinical and translational research, especially research focused on addressing health disparities and that this gap would be the shared goal for working together. The multidisciplinary design process consisted of two main phases:

A. Phase One – Course Conceptualization and Content—In December, 2009, the UPR-MSc hosted the first Health Disparities Research Summit in San Juan, Puerto Rico to begin the active engagement of experts in the discussion and the general conceptualization of the first draft of the course. Attendance was by invitation and included 44 UPR-MSc leaders, MSsc faculty and Scholars, two NIH leaders and one health disparity expert from each of the following national institutions: Morehouse School of Medicine, Meharry Medical College, Mayo Clinic College of Medicine and RAND (Research ANd Development), a nonprofit global policy think tank. Objectives guiding this first meeting were:

- To recognize the contribution of the NCRR and the NIMHD to the island's research infrastructure and capacity building, increasing the effective participation of minority researchers to address minority health and health disparities.

- To bring together recognized experts in health disparities with faculty and scholars from multiple disciplines and backgrounds with an interest and commitment to develop an expertise in this area.
- To promote collaboration among leaders from minority and majority institutions as well as from research related industry and organizations.
- To start the dialogue and discussion in the creation of a Health Disparities Research course that would be shared through multiple technological approaches across all institutions interested in developing clinical researchers with the necessary health disparities competencies.

Drs. Sidney A. McNairy, Associate Director of Research Infrastructure, NCRP, NIH and Nathan Stinson, Jr., then Acting Director, Office of Scientific Programs, NIMHD, NIH spoke on the “The Future of Health Disparities: Research Perspectives”, providing a “wide-lens” perspective to health disparities. These leaders emphasized that the reduction of health disparities would require a better understanding of the complex ways in which multiple variables interact and the relative weight each factor had in contributing to inequalities in morbidity and prevalence. Research would elucidate how risks and resources were linked to social/environmental, provider, and individual contexts at multiple levels, combining over time to affect the health of socially disadvantaged populations. Finally, the educational process should enable the researcher to become an advocate for improving health outcomes by developing abilities to evaluate data with new perspectives; endorse new partnerships for collaborative research, education, and care; partnering with communities; advocating for changes in the system; and develop evidence-based interventions.

The success of this educational process would depend on the competencies against which content was developed and scholars evaluated. To be effective, competencies would need to reflect the vision and mission of the institution as perceived by various stakeholders, including the institutional leadership, participants in the education process, and those affected by health disparities, as individuals and as communities. Operationally, competencies should be clear and unambiguous; specific, addressing defined areas of competence; have a manageable number of outcomes; defined at an appropriate level of generality; lead to the development of enabling outcomes; and demonstrate a relationship between different outcomes. Finally, competencies in health care disparities needed to be focused in three core areas: health care and health care services, education and training, and research. In preparation for discussion and work in small group sessions, participants were reminded of four key points:

- Training in health disparities needs to result in a new breed of researcher: one who is able to elucidate the complex interactions of multiple variables that over time can positively affect the health of socially disadvantaged populations.
- Courses in translational research in health disparities need to train scientists to embrace trans-disciplinary work, researchers who are able to partner with communities, advocate for the health and well-being of those affected by health disparities, and who will integrate new technologies bringing new perspectives to old problems.
- The research workforce of tomorrow will evolve and become competent to the extent that they are exposed and supported, i.e., mentoring. But research expertise should not be confused with health care or education.
- Research cannot be carried out in a vacuum; it needs infrastructure and capacity as well as access to issues and subjects as well as access to the populations and to the

health care infrastructure including the databases (i.e. insurance carriers, providers, registries).

During this first summit, participants formed workgroups to focus on course fundamentals, competencies, and subject matter. Products from these groups would provide definition and guidance on the structure and content of the first draft of the course in health disparities. As shown in Table 2, each of the workgroups identified several critical issues that would be taken into consideration as the first draft of the health disparity course was developed.

During this first summit, the need to structure the course so that it would be available in a distance-learning format was introduced. Acknowledging that Internet-based instruction presented challenges, a distinct advantage of this instructional platform would be its support in creating networks and opening accessibility of intellectual property to all participating universities.

B. Phase 2 – Final Draft—The culmination of this multi-disciplinary journey in the development of a course in health disparities research was the second **Health Disparities Translational Research Summit**, held in San Juan, Puerto Rico in February 2011. For this 2nd Summit, in addition to the three RCMI institutions that participated in the 1st Summit, the other two RCMI institutions with formal CRECD programs were invited to actively participate: Charles R. Drew University School of Medicine and Science and University of Hawai'i at Manoa. To frame the topic of health disparities research and how it has been addressed by each of the CRECD programs, leadership from each of the minority partner institutions presented their program's approach to teaching health disparities as well as their experiences and 'lessons learned' from the course development process. These presentations reflected those of faculty involved in the course development, those teaching the course, and scholars engaged in the course.

Subsequently, the final draft of the course format developed through this participative process was presented to summit participants which included leaders from all of the CRECD institutions, past and present Scholars of the UPR-MSU Master of Science in Clinical Research program, and experts and key individuals representing the many disciplines that had been involved in the two-year development process. Following discussion and feedback on the modules and format presented, the group reached a final consensus in the development of a **two credit** course with instructional modules to address specific health disparities and modules regarding gender, community based participatory research (CBPR) and health literacy. A summary of the course syllabus description, course objectives and time distribution for instruction are located in Appendix 1.

Results

The primary outcome of this development process was a unique course introducing translational research to address health disparities, which reflected the input and guidance of multiple experts from diverse disciplines, cultural backgrounds and ethnicity. The second, although no less important, was the experience of forming and processing curriculum development using a multi-disciplinary, multi-institutional network approach. Other than the shared experience of being funded by the NIH CRECD program and being members of the RTRN, there was no structure supporting this type of collaboration and networking. A parallel challenge was that there was minimal institutional support in most of the institutions participating for this type of cooperative, collaborative curricula development.

Leadership for this process was also faced with several basic logistic challenges. For example, the five participating institutions crossed six time zones ranging from Atlantic/Caribbean (UPR-MSU) to Hawaii-Aleutian (University of Hawai'i at Manoa). The

administrative process of each institution had to be navigated in order to identify and leverage the necessary resources, such as funding as well as individual availability and time commitment, to be an active participant in this project.

For researchers called to participate in the process, there was the additional challenge of time commitment as they often had separate commitments to their own research and career development goals. Likewise, each of the participating institutions had different focus areas in health disparities research and in their approach to teaching health disparities. One of the challenges was that there was no single source that identified faculty expertise in health disparity research and/or summarized their research interests, and publication history. Lacking this information, identifying expert researchers in the selected health disparity areas became more difficult and time consuming.

Discussion

The developmental process for the course in health disparities research is a model of inclusion; collaboration; and the leveraging of the insights, wisdom, and expertise from multiple partners. In order to overcome the challenges facing us during the development of the course, we discovered that our success was equal to the commitment of each partner to and throughout the process. Through conference calls and emails, primarily, we were able to plan, discuss, and evaluate our work and progress towards the successful outcome: a multi-cultural, multi-institutional, and multi-disciplinary course in *Translational Research in Health Disparities*. The willingness of leadership from the CRECD institutions to share their experiences in developing health disparities content for their Master of Science in Clinical Research degree program proved invaluable. While this course could have been developed in a traditional manner, it would lack the depth, breath, and richness needed to truly prepare future researchers to close the gap in health disparities.

Lessons learned from this experience include an increased understanding of the rewards, as well as the challenges, that come from reaching beyond our comfort zones in curriculum development. Each partner came to the process with their own unique understanding and ideas about curriculum development, health disparities, and research in health disparities. It was equally important that we acknowledged our commonalities and strengths through collaboration. With this understanding, we were able to discuss and share our ideas and negotiate any differences.

Conclusion

From this experience, we have formed a Distance Learning Networking Group (DLNG), a collaborative initiative of RTRN–Education and Dissemination Committee. The goal of this collaborative is to share clinical and translational training and educational resources among multiple institutions through various technological methods such as on-line instruction and other distance learning opportunities. We have begun to develop a plan of action and hold a distance learning workshop, “Strategies, Challenges, and Lessons Learned” in San Juan, Puerto Rico in May, 2011.

During 2011-2012, we plan to implement a pilot project where the newly developed ‘Translational Research in Health Disparities’ course will be taught using an on-line format, shared among multiple institutions across the nation. We plan to include the five participating CRECD institutions, two minority institutions in Puerto Rico who have joined the group (Ponce School of Medicine and Health Sciences and Universidad deI Caribe) and two to three interested major institutions, including Mayo Clinic College of Medicine. Building on our collaborative success and our experience in minority health and health

disparities research, the goal of this network is to design a 12 to 15 unit credit, comprehensive Distance Education Graduate Certificate in Translational Research in Health Disparities. In this model, each participating institution will collaborate in the production and design of a distance education course, addressing a component in health disparities.

In conclusion, through this experience we have developed the following short and long term goals that will guide our future work:

Strategic Goal 1: develop **infrastructure** to facilitate multi-site, trans-disciplinary clinical and translational research, especially research focused on addressing health disparities.

Strategic Goal 2: develop **web-based training, research and educational resources** for investigators; health care providers; research participants; and the general public.

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Table 1

Formal Courses in Health Disparity in CRECD-Network Institutions

CRECD Institution	Course	Credits
Charles Drew University	<ul style="list-style-type: none"> Clinical research strategies in special population Community research survey methods and analysis 	(2 unit course) (2 unit course)
University of Hawai'i at Manoa	<ul style="list-style-type: none"> Cultural Competency 1 Cultural Competency 2 	(3 credit course) 3 credit course
Morehouse School of Medicine	<ul style="list-style-type: none"> Community Engagement in Health Disparities - Cultural Competency 	(2 units course) Faculty Development program: no credit
University of Puerto Rico, Medical Sciences Campus	<ul style="list-style-type: none"> Gender considerations in clinical research 	(1 unit course)
Meharry Medical College	<ul style="list-style-type: none"> Health Disparity 	(2 units course)

Table 2

2009 Health Disparities Research Summit: Workgroup Key Outcomes

Workgroup	Key Outcome
Course Fundamentals	<ul style="list-style-type: none"> • Represent the complex issues and factors affecting health disparities, e.g., the historical context of disparities, social determinants of health, various theoretical frameworks of disparity, genetic aspects of health disparities, etc. • Course content should be developed and presented from a multi-disciplinary perspective. • Faculty should be drawn from multiple disciplines including basic, clinical, behavioral, and social sciences, informatics and bioinformatics, and community. • Scholars should have experiential learning opportunities that help them identify health disparities both within themselves and their practice setting.
Competencies	<ul style="list-style-type: none"> • In program development and outcome evaluation, the stage of skill or competency expected of Scholars should be clear recognizing that stages of skill range from novice to proficient. • Where along this continuum do we expect Scholars to be during various points in the educational process and how do we structure the learning environment to support their success in attaining these skill levels?
Subject Matter	<ul style="list-style-type: none"> • Content should be derived from multiple topics that shape and contribute to health disparities, e.g., health literacy, advocacy, health economics, health systems, funding to support health disparity research, etc. • Health disparity should be framed contextually. For example, health disparities in Puerto Rico are typically compared or based on existing disparities in the United States mainland but this may be a false assumption. The public health infrastructure in Puerto Rico is unique and may, as a result, have a relationship to health disparities in the Island. Part of this challenge is the availability or integrity of available health statistics in Puerto Rico.