

Transdisciplinary Health Care Education: Training Team Players

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A health care team is like a sports team, except for instead of points we are dealing with people's lives. Like any great team, it is essential to know the roles and responsibilities of each of the players and to have trust in one another. It is vital to have that team learn together, and practice together so that when the game truly matters they can each play their best with trust and understanding leading to more positive outcomes.

—Dr. Kyu Rhee, Health and Human Resources—Chief Public Health Officer

Transdisciplinary Health Care

Transdisciplinary health care involves reaching into the spaces between the disciplines to create positive health outcomes through collaboration. This model of care effectively integrates clinicians such as physicians, nurses, social workers, physical therapists, complementary and alternative medicine practitioners, physician assistants, community health workers, and other health care providers to create a team that provides comprehensive preventative primary care. Transdisciplinary care advocates call for broadening our notion of primary care to include a multi-player team working together to alleviate the burdens borne by patients with multiple co-morbidities and extenuating social circumstances.^{1,2} Transdisciplinary health care improves the quality of patient education and support delivered to a patient, which has been proven to improve health outcomes. [author: provide citation(s) to support the preceding.] To date, however, there have been limited large-scale studies showing the efficacy of transdisciplinary health care education.^{3,4,5}

Transdisciplinary health care is especially crucial in underserved populations since these patients not only carry the largest burden of chronic disease, but are also subject to social, economic, and environmental determinants of health that contribute to worse outcomes than other groups. [author: provide citation(s) to support the preceding.] Moreover, underserved populations also have limited access to care. [author: provide citation(s) to support the preceding.] Thus, to overcome the health problems of medically underserved patients, clinicians must learn the principles of transdisciplinary care from the outset of their training; in doing so, they can learn how to use a support network to provide comprehensive, preventative primary care while addressing social and environment determinants of health that their patients will face.

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The Traditional View of Primary Care

The preventative care side of primary care is broad and covers a spectrum of specialties and disciplines. Frequently, people in each specialty work separately from those in others. Many practitioners feel frustrated by having to work in a fragmented system of care delivery. In such a system, depending on a single clinician to change health care outcomes—as one might have done when care was more localized—is not realistic. A *patient-centered medical home* is one that fosters relationships and coordination of care for preventative services as well as chronic care management. **[author: provide citation(s) to support the preceding.]**

The current shortage of practitioners in primary care is likely to become more pronounced as federal health reform improves coverage for the uninsured. Students across health disciplines presently tend to enter specialty fields rather than primary care.⁶ **[author: is this really true of anyone but medical students? What would it mean for a social worker or nutritionist enter a specialty?]** This coupled with the projected increase of 50 million new patients in addition to the current 46 million uninsured has resulted in a huge primary care workforce demand and a steadily diminishing supply especially for underserved populations.⁷ Lacking preventive care, many underserved patients also lack health care knowledge and medication. A new Harvard study has demonstrated that lack of insurance is linked to 45,000 deaths annually, or one death every twelve minutes. The report emphasizes that much of this disparity is due to lack of care for treatable chronic diseases and the increased quality of care available to those with access to care.⁸

It is estimated that to meet patient primary care physician demands, the workforce must expand by 40,000 physicians, but less than 20% of medical students show interest in primary care.⁶ Moreover, practicing primary care physicians experience burn-out due to the high volume demands needed to keep a practice financially viable, which furthers the workforce deficit. Fifteen-minute office visits and increasing paperwork demands hardly allow physicians time to address medical issues while providing adequate preventive care education and counseling. This environment lowers job satisfaction.⁹

The primary care workforce is also dwindling among care providers such as nurse practitioners. The current number of practicing nurse practitioners (NPs) in primary care is projected to increase by only 25,000 practicing members by 2015, while numbers of graduating NPs have declined by 5% annually **[author: since when?]**.¹⁰

Health Care Education and Transdisciplinary Care Today

The following reflection by Dr. Fitzhugh Mullan, a practicing pediatrician and head professor of medicine and health policy at George Washington University focusing on workforce development, illustrates how transdisciplinary training could yield more effective delivery of care:

Over 12 years of pediatrics practice at Upper Cardozo Community Health Center here in DC, I would say that three predictable problem areas were 1) dentistry, 2) mental health, and 3) social work. I won't go on about all the problems but suffice it to say that a kid with infection in the mouth, bad carries, or malformations was always

a challenge to get seen. And my rapport with the dentists was little to none—both those that worked at the health center and others. This was a big problem that could have been minimized with some joint training and/or on site orientation with each others work. A child with a mental health problems was always a crisis. Finding a Spanish-speaking psychiatrist or psychologist is almost impossible. Having more links, common experience, and an understanding of each other would have allowed us to make the most of what we had. Finally social work was always in huge demand and generally a limited supply. The few workers that we had were on-the-job-trained but we could have learned a lot from their experience and built better, more productive bridges. **[author: if this is from personal communication, say so here. Otherwise, cite the source and provide a page number.]**

In 2003, the Institute of Medicine's report on Health Professions Education, *A Bridge to Quality*, stated that implementation and development of interdisciplinary teams was one of the five core tenets to health care education reform. Traditionally, health care education isolates sub-disciplines from one another.¹¹ In a review by Hall et al., less than 30% of schools had any form of transdisciplinary curriculum in action, and almost never was it mandatory.⁵

A few national programs have offered brief workshops on transdisciplinary education, and the results from these have been favorable. For example, an innovative program at Hunter College Schools of the Health Professions in New York had community workers serve as mentors to health care providers from all disciplines to expose health care professionals to how the community's needs and culture would impact health care delivery.¹² Other institutions have developed smaller projects, where transdisciplinary teams such as a nursing student and medical student were sent into the community to create patient education programs.¹³ Integrating pharmacy and medical students for curriculum and outreach has also been targeted. A recent 2009 study of six colleges used focus groups to assess the benefits and barriers to interprofessional delivery of care for medical and pharmacy students and faculty. **[author: provide citation(s) to support the preceding.]** While the study did report positive outcomes, it also reported a need for increased communication to improve quality of care. Moreover, it emphasized the need for strong institutional support for implementation of these programs. Overcoming the professional cultures of each discipline remains a significant barrier.^{11,14} Even within specialties, there is limited cross-educational interaction. For instance, to increase knowledge of women's health among internal medicine residents, an initiative developed a curriculum for knowledge-sharing between obstetric-gynecologist and internal medicine residents.¹⁵

A.T. Still University of Osteopathic Medicine is a multidisciplinary institution that promotes "Whole Person Healthcare." The school promotes the integration of students into the community and with other disciplines early in their education. Rather than the traditional model of two years of basic sciences curriculum followed by two years of clinical rotations in local hospitals and academic clinics, A.T. Stills places students in their community campus by the second year, giving them early exposure to the complexities of health care delivery to underserved populations and the reasons for strongly integrating multiple disciplines in delivering care. The Advisory Committee on

Interdisciplinary Community-Based Linkages 2009 (ACIBL) also noted that the Medical University of North Carolina, South Carolina's Area Health Education Center (AHEC), and University of Arizona are all developing interdisciplinary curricula. **[author: provide citation(s) to support the preceding.]** Thought Title VII funding, AHECs are making progress placing students in interdisciplinary teams to serve underserved populations. The District of Columbia's **[author: spell-out of DC correct?]** AHEC Program Director, Dr. Lisa Alexander states:

Area Health Education Centers (AHEC) provide innovative learning experiences to students that prepare them for clinical practice in primary care settings serving underserved populations. Relevant learning in the context of community-based training emphasizes clinical care but other critical topics as well. These include population health, transdisciplinary team practice, cultural competency, primary care service delivery, community oriented primary care, social justice, and advocacy. Models of care delivery that are built around these core constructs will attract students who are drawn to these principles of equitable health care and service. Training opportunities provided by AHEC reinforce these core values and provide exceptional learning opportunities with dedicated and passionate role models. **[author: provide citation(s) to support the preceding; if personal communication, say so here.]**

Canada pushes for transdisciplinary education as a pervasive part of health care education more than the U.S. Part of the Pan-Canadian Health Human Resources Strategy is an initiative entitled, the "Interprofessional Education for Collaborative Patient-Centered Practice." **[author: provide citation(s) to support the preceding.]** The ideals behind this initiative are: "Changing the way we educate health providers is key to achieving system change and to ensuring that health providers have the necessary knowledge and training to work effectively on interprofessional teams within the evolving health care system." **[author: provide citation(s) to support the preceding.]** **[author: provide page number of quotation here]** The initiative advocates for increased research and demonstrations of the benefits of transdisciplinary education, the development of faculty and curriculum, and the creation of best practices for interprofessional education and practice.¹⁶ Additionally, in 2007, the World Health Organization in conjunction with the International Association for Interprofessional Education and Collaborative Practice (InterED) developed a "Study Group on Interprofessional Education" that will review existing practices and develop evidence for an international standard of interprofessional education. **[author: provide citation(s) to support the preceding.]**

Advisory Committee on Interdisciplinary Community Based Linkages (ACICBL)

The ACICBL is a diverse group of professionals who are tasked with providing Congress annual recommendations to ensure that the health care workforce is fostering an interdisciplinary environment. This year, the ACICBL chose to focus on medical education in promoting interdisciplinary health care delivery:

Interdisciplinary educational development and training is defined as the collaborative process by which an interdisciplinary team of health care professionals—faculty, clinical preceptors, community health care providers—collaborate, plan, and coordinate an interdisciplinary program of education and training. The collaborative process requires the preparation and functioning of interdisciplinary teams who share knowledge and decision making with the purpose of creating solutions to health care problems that transcend conventional discipline-specific methods and work together in service of patient-centered and/or community-centered health care needs.¹⁷ **[author: provide page number of quotation here]**

The ACICBL also addresses some of the major issues that arise while implementing interdisciplinary training, including ensuring that there is equal representation, collaboration, and ways to foster better communication between these groups. In their 2006 report, a key recommendation to Congress was to provide incentives to educational institutions to create an Office of Interdisciplinary Education to promote curriculum development and to serve as a facilitator between disciplines.¹⁸ Other key recommendations include the support of transdisciplinary educational teams partnering with Community Health Centers in underserved areas. This year the group believes that a true system based change needs to be initiated to incorporate curriculum that will directly address many of the issues associated with interdisciplinary practice.

Teaching Health Center—A Potential Forum for Transdisciplinary Education

Teaching health centers (THCs) would expand current residency programs to have sites at community health centers (CHCs). The benefits are two-fold: automatically increase direct patient care while also exposing residents to underserved populations.^{19,20} In an ideal setting, a THC is a CHC that would be a home to students and residents from multiple disciplines to create on-site comprehensive health care teams. These facilities would also be equipped with proper resources to account for the social aspects of health care. The barriers to a well-functioning interdisciplinary team will not be surmounted unless the following attributes are realized: students and residents are taught in an environment where the social side of medicine is emphasized, the curriculum teaches how to work with other disciplines, and students are exposed to practical experience delivering care. A recent press release by the National Association of Community Health Centers announced that the American Recovery and Reinvestment Act funding has released 5.3 million dollars to support Student/Resident Experiences and Rotations in Community Health, also known as SEARCH, which will of great benefit for the development of ideas such as the THC.

Student Run Free Clinics—A Service Learning Model for Transdisciplinary Health Care

Across the country, there are an increasing number of student service learning initiatives in the form of student-run free clinics.**[author: provide citation(s) to support**

the preceding.] These clinics vary across the spectrum in terms of discipline and format, but all are focused on serving the underserved. Many times these projects are developed and implemented by students with help from the institution and can range anywhere from free-standing buildings, churches, schools, extending hours of existing free clinics, or mobile clinics. Most common are medical, dental, physical therapy, and complementary and alternative medicine clinics. Many of these clinics address the transdisciplinary approach to health care, although some are more focused in one discipline, many integrate teams of students including students of nursing, physician assistant programs, medical schools, dental schools, social work programs, and even law schools.**[author: provide citation(s) to support the preceding.]** This is the ideal environment to expose students to how a transdisciplinary team can work together to properly address all the complicated health care needs specific to underserved populations. In an educational setting, it is also possible to develop the appropriate curriculum and training specifically related to how to communicate across disciplines, role defining, conflict resolution, and proper utilization of these new partners.

Other service learning models have been implemented including pairing of health care students with community health workers for community outreach and education, which has proven successful.¹² Promoting health care in an underserved population requires a new approach to medicine that must account for the environmental factors that affect these patient populations. Traditional health care education has limited scope on exposing students and residents from all disciplines to these populations so that they can develop the unique skills sets including transdisciplinary team work that are necessary to provide effective health care.

At University of California San Diego Student Run Free Clinic Project, the clinic team is overseen by “Underserved Health Care” fellows who are drawn from a variety of disciplines including dentistry, complementary and alternative medicine, and medicine. Patients who frequent these clinics can choose from an array of services that collaborate and communicate behind the scenes creating a seamless transdisciplinary team.²¹ To extend underserved education to the next level the Student Run Free Clinic Project is staffed by underserved health care fellows in multiple disciplines including physicians, dentists, and complementary and alternative medicines (such as acupuncture).

George Washington University’s student run clinic, the H.E.A.L.ing Clinic, has an attending physician assistant (PA) who helps to oversee the students in clinic and triages which patients can be seen by her and which ones are overly complicated and have to be presented to a physician attending. Additionally, Master of Public Health students provide health education to patients while student teams of PA’s and medical students examine and present patients to an attending. Social work and insurance screenings are done at check-in. Thus, students see the value in teamwork and the necessity of transdisciplinary health care in addressing all the determinants of health for underserved populations.

The Future of Transdisciplinary Medical Education

There are many terms being used today for working between disciplines and professions, each with its own nuance. There are many levels of integration and formality

between transdisciplinary, interdisciplinary, multidisciplinary, and interprofessional health care in terms of formality of organizational structure and cohesion of teams. Transdisciplinary care focuses on the highest degree of integration, cohesion, with the most horizontal and informal organizational structure. The overarching idea is to encourage communication and teamwork to create synergies in the current health care system. Clearly this is an evolving and necessary trend within the health care industry in order to provide more effective health care and prevention services.² If we are working to develop a primary care workforce that can effectively train students to serve underserved populations, we must address the specific challenges that they will face.^{5,22} This includes providing proper training for transdisciplinary health care. There is still much work to be done in developing appropriate curriculum to address many of the issues that arise with transdisciplinary health care.

While there is no consensus on when it should be implemented or how this curriculum should look, most studies support early exposure to a problem-based learning or simulation program that properly addresses the complex relationships and boundaries that need to be shaped.^{23,24} Concurrent faculty and administrative development is also necessary to support curricular changes that would be necessary to teach students to work across these boundaries.²² Breaking down the cultural prejudices between disciplines to ensure that each discipline feels valued is one of the most significant challenges since there is a lack of education in each individual discipline about the roles and education of their colleagues in the other disciplines. This in itself fosters confusion in terms of role-defining, making it difficult for students to know how to identify synergy in these relationships and not feel uncomfortable dealing with overlap in skill sets.²⁵ Leadership training is also an area that needs to be developed; despite the background of the team leader, it is imperative that he/she understands that each member of the team is an expert in a specific field. This means knowing when to defer leadership of an aspect of a patient's care to the most knowledgeable team member, being able to foster relationships, develop communication lines, and learning techniques for conflict resolution.

In the changing health care landscape, the need for more primary care health care workers, especially for underserved populations, is being emphasized. Research has shown that students who are exposed to underserved patient populations as a part of their education are 65% more likely to serve these populations in the future,¹⁷ but for future practitioners to thrive in these environments they must be able to work across disciplines. In order to be effective health care providers, these students must be exposed to transdisciplinary education and training early in their careers so they can more effectively provide care without burning out. Concerning underserved populations, trainees must be cohesively integrated with all members of a functional team (including physicians, nurses, physician assistants, complementary and alternative medicine practitioners, social workers, and community health care workers). In fact, the incorporation of community health workers as part of the transdisciplinary team is essential as they can provide resources (e.g., access to health foods, cultural sensitivities, living and working conditions) to not only treat illness, but promote health care.¹²

It is evident that both curricular and on-site training components are both needed to teach trainees effectively at all levels to work together and break through the current

barriers that have been built in the system between health care disciplines.^{5,22} Technology will also play an important role in the future of transdisciplinary providing a forum for students and practitioners across disciplines to communicate, interact, and integrate information about a single patient. As health information technology (HIT) continues to become mainstream, this will serve as invaluable tool to facilitate the process of transdisciplinary education and practice. Currently, a few promising steps are being taken to incorporate transdisciplinary education into curricula to transition into a new era of primary care, as an exciting new path unfolds before us. In the future we hope to develop a strong transdisciplinary workforce that can work together seamlessly to address all aspects of a patients health and thus prevent illness rather than chase a disease.

Notes

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