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An Academic-Practice Model to Improve the Health of Underserved Neighborhoods

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The Interprofessional Care Access Network is an innovative model for academic-practice partnership providing care coordination for vulnerable and underserved clients and populations in identified neighborhoods. Interprofessional student teams, including health professions students from nursing, medicine, pharmacy, and dentistry, collaborate with community service organizations and primary care clinics to address social determinants of health identified as barriers to achieving health care outcomes and Triple Aim goals. Teams are supervised by a nursing faculty in residence and address issues such as housing, health insurance, food security, and lack of primary care. Two case studies demonstrate the potential impact of the project. **Key words:** *academic-practice partnership, community, interprofessional, service learning, underserved*

INSTABILITY and chaos in the lives of many underserved and disadvantaged clients prevent them from achieving positive health outcomes. The most vulnerable clients may live in high-risk neighborhoods where they experience lack of resources and inadequate coordination of services. In some cases, community service and primary care organizations within a close geographic area may not be fully aware of all local programs or services, which inhibits collaboration regarding factors impacting health behaviors. In addition, health professions students may participate in clinical rotations in underserved neighborhoods but rarely work together interprofessionally or outside of their assigned agency to assist clients to achieve better health. Academic-practice partnerships across agencies and between schools have the potential to make significant differences in the lives of individual clients and populations.

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LITERATURE REVIEW

The Interprofessional Care Access Network (I-CAN) incorporates service learning into the clinical experiences of health professions students. Short-term project goals are focused on addressing social determinants of health that act as barriers to health care for disadvantaged clients. Successful improvement of these factors has the potential to impact Triple Aim goals within a community over time.

Triple Aim

Quality health care in the United States has been linked to achievement of the Triple Aim

goals, identified as "improving the individual experience of care; improving the health of populations; and reducing the per capita costs of care for populations."[1(p760)] Health systems innovation, including an interprofessional approach to care, is essential to achieve these ambitious and interdependent goals.[1] Triple Aim goals have also been identified as the desired outcomes of coordinated care organizations in Oregon,[2] which address the preconditions described by Berwick et al[1]: (1) identification of a population of concern; (2) policy constraints that create limitations and/or priorities; and (3) an integrator organization that works within the model for the particular population. Lewis et al[3] have proposed a related stratified approach in which high-risk subpopulations are identified and receive preventive interventions to reduce the risk of experiencing a Triple Fail event. Triple Fail events are costly, have poor health outcomes, and reflect a negative patient experience—reverse statements of Triple Aim goals. Both models are focused on population health.

Social determinants of health

The World Health Organization[4] has adopted a social determinants of health framework to improve health equity globally and urges immediate action to right intra- and international social injustices. The social determinants of health are the conditions of daily life shaped by the distribution of money, power, and resources locally, nationally, and globally. Examples include access to health care, food and water, education, environment, employment, and housing. These social determinants of health contribute significantly to health inequities.[5] According to Marmot and Wilkinson, "health does not determine social position; social position determines health."[6(p88)] This perspective provides a starting place for development of strategies to address health disparities.

There is a considerable body of knowledge, including explanatory models, that support the relationship between relative poverty and diminished health and life expectancy.[7] Braveman and Gottlieb[8] summarize research indicating that socioeconomic factors affect health outcomes directly and also indirectly through biopsychosocial mechanisms such as environmental exposures, risky health behaviors, lower availability of nutritious foods, chronic stress, and genetic regulation. Despite extensive research, there are gaps in the literature. Bambra et al[9] reported a need for evidence identifying the effectiveness of specific interventions on social determinants of health, and for whom. Chapman[10] contends that the human rights paradigm, which focuses on the obligation of government related to the health system and provision of health services, could contribute to a comprehensive approach to health equity. However, Chapman also acknowledges that a quality health care system does not make up for unaddressed health disparities.

Service learning in nursing and health professions

Service learning is not a new pedagogy and was initially proposed by Thomas Dewey.[11] The National Service-Learning Clearinghouse[12] suggests that service learning occurs when students and recipients of service create a reciprocal relationship that enhances learning and strengthens communities. Students participate in structured and reciprocal academic experiences in response to community-identified needs that address health disparities.[13]

A literature review of service learning in baccalaureate nursing education by Murray[14] described a variety of student outcomes achieved by service learning experiences, including advocacy and communication skills, awareness of biases/stereotypes and increased comfort in relating to people different from themselves, awareness of community needs, partnership-building skills, and professional and civic responsibility. Groh et al[15] reported an increase in leadership skills and social justice following student participation in service learning. Marcus et al[13] identified an impact on students' attitudes and beliefs regarding poverty and health. Nokes et al[16] reported significant increase in civic

engagement but not on critical thinking or cultural competence.

Despite the curricular constraints inherent in academia, students report more satisfaction with service learning if the experience is course based with a clear connection to their academic program.[17] Gelmon et al also indicated that students are most affected by experiences in nontraditional, nonclinical settings where they learn about daily lives of individuals and "experience the complex and fragile network of support services on which they depend."[17(p266)]

Successful service learning requires strong community partnerships, and the collaboration must help community partners address unmet community needs.[11] In a report evaluating the Health Professions School in Service to the Nation Program,[17] a demonstration project of service learning in health professions, Gelmon et al indicated that overall, most partners do not identify excessive burden from their involvement in service learning. Partners see themselves as teachers and are most satisfied when their teaching role is acknowledged. They place the highest value on their relationship with faculty and appreciate the opportunity to leverage the partnership into other grants and resources. They also appreciate the opportunity to network with other community organizations that may be involved in the community partnership.

While the literature describes the benefits of service learning for students, the impact of student engagement and service learning projects on community partners, communities, and clients is lacking. In 2012, a pilot project to develop a framework for measuring impact of student service learning was conducted (H. C. Voss, L. R. Mathews, T. Fossen, G. Scott, and M. Schafer, unpublished data, 2012). The results of the project highlighted 4 elements necessary for measuring service learning impact: (1) collaborative community partnerships; (2) access to clients; (3) data collection methods focused on outcomes; and (4) consistent engagement of faculty and students over time. Integration of authentic student learning opportunities is consistent with national initiatives for nursing education,[18] models of best practices in health care delivery,[19] and mechanisms for reciprocity between academia, community agencies, and clients.[20]

Health professions students have opportunities to make significant contributions to the health and well-being of individuals, communities, and organizations through service learning while learning about social determinants of health and contemporary care delivery models.

THE INTERPROFESSIONAL CARE ACCESS NETWORK

I-CAN is an innovative model for academic-practice partnership designed to enhance the health care experience, improve individual and population health outcomes, and reduce unnecessary health care costs for low-income, medically disadvantaged clients/patients families, and populations. Short-term outcomes include factors related to social inequality such as housing, access to primary care, food security, health insurance, and health literacy. Program goals include the following: (1) development of collaborative interprofessional practice and education partnerships that serve the needs of neighborhood populations and provide local access to health care; (2) improvement of health outcomes and satisfaction with the health care experience for disadvantaged and underserved patients, families, and communities; and (3) building capacity among health care providers and students for leading interprofessional teams in providing high-quality, patient-centered, and culturally effective health care.

In addition to the focus on client outcomes, I-CAN strengthens the capacity of health care professionals and students to lead interprofessional practice through collaborative health care delivery and advances the health and well-being of disadvantaged populations in neighborhoods in Portland and Medford, Oregon. The project creates synergy between academic programs, community services, and health care delivery and

facilitates interprofessional experiences for students, faculty, and practitioners by coordinating care through Neighborhood Collaboratives for Academic-Practice Partnerships (NCAPPs). Academic partners include the School of Nursing, School of Medicine, School of Dentistry, College of Pharmacy, Global Health Center, and the Office of the Provost. Community partners include federally qualified primary care clinics, neighborhood community organizations, and health services agencies that serve medically underserved communities. Under the supervision of a nursing faculty in residence, interprofessional student teams visit clients identified by NCAPP partners and address the social determinants of health that affect participation in their health care and achievement of their health goals.

PROGRAM DESCRIPTION

Neighborhood residents participating in I-CAN are identified by partner organizations based on criteria including unstable housing; lack of health insurance; inadequate access to health care and health-related resources; missed appointments with a provider; chronic illness and polypharmacy; inappropriate use of the emergency department (ED) and emergency medical services (EMS); and families with children who have poor school attendance, signs of negligence, or developmentally disabled parents. These referral criteria were developed to identify individuals most at risk for poor health outcomes related to social determinants in I-CAN–specific neighborhoods.

Neighborhood residents referred to I-CAN for collaborative care coordination are often among the most vulnerable and marginalized in the community. Of the 57 I-CAN clients to date, 75% report problems with pain, 44% lack a primary care home, 37% lack stable housing, and 27% have no health insurance. In the 6-month period before participating in I-CAN, 57% of clients visited the ED at least once, 18% visited the ED 3 or more times, 38% were admitted to the hospital at least once, and 37% used EMS at least once.

The I-CAN care coordination process for neighborhood residents is shown in Figure 1. Case finding occurs at the neighborhood agencies and through the Interprofessional Community Health and Education Exchange, a health education course offered through the Global Health Center.[21] The faculty in residence contacts the client for consent and introduces the student team. Meetings occur in the clients' homes 48% of the time; visits may also occur at a community agency or public venue. Students complete an assessment, set goals with the client, research available resources in the neighborhood, and connect the client with appropriate resources to meet their goals. The student team visits clients weekly during the academic term, and each visit averages 80 minutes. After 12 visits, the client is reassessed and care coordination can be continued or not, depending on reasonable progress and goals still to be met.

Qualitative and quantitative data analysis is in process to evaluate project goals, identify clients that benefit most from student team interventions, and estimate potential cost avoidance that can be achieved through strategies focused on improving social determinants of health. Two case studies reflect the meaningful outcomes that students working in an interprofessional team under the guidance of a faculty in residence and in collaboration with neighborhood partners are able to achieve.

CASE STUDIES

Case I: "Someone is listening"

The client was an elderly man who missed scheduled primary care visits and frequently called EMS, sometimes several times daily and in lieu of a scheduled primary care appointment. He visited the ED for anxiety related to memory loss and shortness of breath. He took multiple medications, including insulin, and lived alone and below the poverty line. He had a history of insulin-dependent diabetes

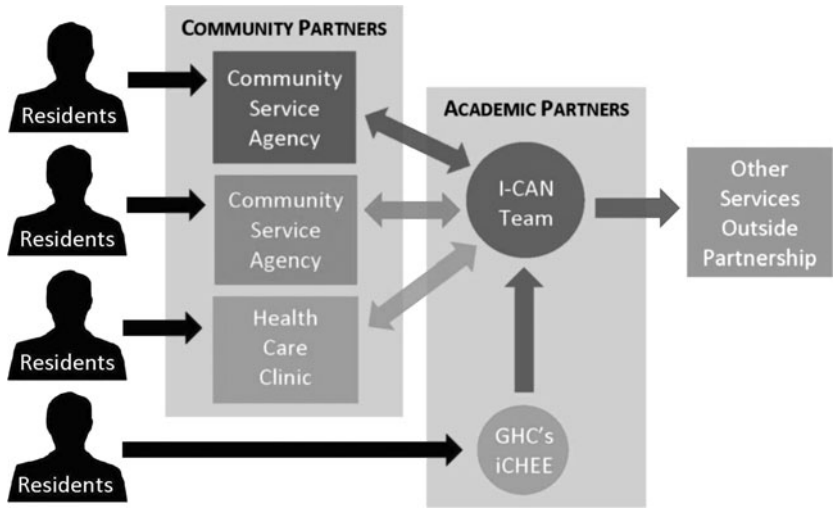

Figure 1. I-CAN care coordination process. I-CAN indicates Interprofessional Care Access Network; GHC, Global Health Center; iCHEE, Interprofessional Community Health and Education Exchange.

mellitus and heart failure and was oxygen dependent. He forgot and left his oxygen off and did not take his insulin or other medications with any regularity. He did not adhere to his diabetic diet and loved "junk food" and beer, resulting in consistently high capillary blood glucose readings. He was resistant to assisted living, as recommended by the home health nurse who visited for medication management, and often did not answer his door for service providers.

An interprofessional student team, 2 nursing and 1 medical student, visited the client in his home weekly over two 10-week academic terms. Interventions included posting signs in his apartment reminding him to wear his oxygen and creating a calendar for tracking insulin and medication administration. Students taught the client breathing techniques and worked with the home health nurse to obtain a nonrebreather mask for panic related to shortness of breath. The student team completed medication reconciliation and initiated a weekly medication count to determine how many medications the client was actually taking. They learned that the client was not taking his oral medication and was unable to see the hash marks on the insulin syringe. Upon the students' suggestion, an insulin pen was tried with some success, although the client still missed taking his insulin due to memory loss. The students communicated with the primary care physician, case manager, and home health nurse through weekly huddles as part of the care coordination process.

Over several weeks, the students built a trusting therapeutic relationship with the client. This led to significant conversations regarding his end-of-life wishes and his need for a higher level of care. As a result, the client completed a Physician's Orders for Life Sustaining Treatment form and was evaluated by Social Security Disability for Medicaid eligibility to pay for in-home services and possible entry into assisted living. The client became increasingly willing to discuss and even consider moving into assisted living with each subsequent visit by the student team.

Within a month of visiting the client, there was a marked decrease in EMS calls and missed medical appointments. Improved satisfaction with health care encounters was demonstrated by the client's willingness to consistently allow the student team into his home and discuss care decisions and options, including end of life. Most significantly, the client had only called EMS once in the last 3 months—during a break between terms

when students were not visiting. His anxiety had decreased because "someone is listening to me and what I want."

This client benefited significantly from visits by the student team and follow-up collaboration with the primary health care team. Prior to establishment of the relationship, this man was isolated and fearful, living alone and in poverty, with little social support. By collaboratively addressing the client's health care goals, EMS callouts and ED visits were significantly decreased, thereby appreciably reducing the cost of his care. While all goals have not yet been achieved, the client expressed improved satisfaction with his health care.

Case II: "I sleep outside most nights"

This client was referred to the I-CAN student team because he was older than 60 years and homeless—sleeping outdoors most nights. He had no primary care home and therefore no regular access to medical care. He had not brushed his teeth in more than 3 months and was physically exhausted. Other problems included blurred vision, right foot swelling from a previous injury, itching, and excessive drooling.

Students met with the client weekly at the referring community service agency. The client needed permanent housing to be eligible for much-needed cataract surgery. The interprofessional student team facilitated temporary housing and helped the client obtain an identification card necessary to apply for permanent housing. The dental student performed an oral screening and education about oral hygiene. Nursing students facilitated connection with a primary care provider in the neighborhood and then accompanied the client to the clinic for an assessment. It took 6 months before permanent housing could be arranged and the client could receive the eye surgery. Following surgery, the client was unable to manage eye drop administration. Nursing students partnered with the client to find a neighbor in his housing complex who was willing to help. Students taught the client and the neighbor how to administer eye drops and apply lotion to itchy skin. Care coordination is ongoing to address client goals and demonstrates the commitment over time needed to address and impact the chaos inherent in the lives of extremely marginalized individuals.

DISCUSSION

As demonstrated by this case study, the most common problems encountered by the I-CAN teams are unstable housing and lack of primary care. Housing issues are often complex, include related problems of safety and hygiene, and significantly influence access and the cost of health care.[22] Student teams work with housing managers and other community organizations to assist clients in obtaining prerequisites for housing application, such as tuberculosis tests and valid identification. Students review insurance to identify options for obtaining health care in the community, make appointments with primary care providers, accompany clients on visits, assist with obtaining medications, and provide follow-up education. If a client is uninsured, they connect the client with resources to become insured and then follow-up. Dental students go into the community with the student team to screen I-CAN clients and subsequently provide dental care at neighborhood dental clinics under supervision.

I-CAN is a model in which health professions students support individuals who are unable to address health issues because of challenges with social determinants of health. In the second case, students learned through authentic engagement on behalf of client about the onerous nature of the process for obtaining permanent housing. This is just one example where the chaos in a client's life from unmanaged social determinants of health needs to be the first step in partnering with the client to promote health and quality of life as health care professionals. Initial assessment and intervention, addressing a client's social determinants of health needs, are critical to achieving subsequent success with traditional health interventions.

IMPACT

Health navigation

Many clients from marginalized populations do not have the knowledge or ability to navigate complex community and health care systems in their own neighborhoods. Students work with each client or family to determine and prioritize goals and develop a plan to achieve them. Clients may not be aware of resources or services and are often unclear about what can be accessed using their health insurance. Individuals may be eligible but not have appropriate identification or meet other requirements that could be readily obtained. Students, working with community agencies and faculty, learn to explore resources, guide clients through complicated paperwork and regulations, and teach them to be more self-sufficient. The goal is that clients will connect and develop relationships with primary care providers, participate in preventive health care, and reduce or eliminate inappropriate and costly use of the health care system.

Barriers to health care

Besides the complexity of the health care system, social determinants of health influence health equity and health outcomes for vulnerable clients and populations. I-CAN neighborhoods are selected on the basis of their large population of disadvantaged and underserved clients, and most clients are highly complex socially as well as medically. The primary concerns of I-CAN student teams focus on housing, housekeeping/hygiene, health insurance, food access, health literacy, medication access, transportation, and primary care access. Clients who are concerned about where they will next sleep or eat may not prioritize keeping their medical appointments or filling their prescriptions. By addressing these competing concerns, students can help clients focus on higher-level priorities related to their health.

Population health

Client concerns and problems are often shared by others within the neighborhood, and student teams frequently identify population issues while exploring individual I-CAN client issues. Population health needs are validated with community agencies at NCAPP meetings, and students develop projects that address recognized community priorities. For example, an elderly client was referred to the I-CAN team by a community partner agency for missing primary care appointments. The students learned that the client was dependent on a walker for mobility and was housed in a third-floor walk-up apartment with a nonfunctioning elevator. Through student advocacy, the client was moved to a first-floor apartment so that he could get to his appointments. In follow-up, the student team completed a survey of elevators in single-resident occupancy apartment buildings in the neighborhood. Data collected about low-income housing accessibility have been shared with NCAPP partners and local organizations that focus on low-income housing within the neighborhood. The population health goal is to develop and implement policies addressing the unique criteria for housing needs of individuals with mobility challenges into all placement processes within this local neighborhood.

Health professions workforce

The I-CAN project provides students with authentic learning experiences in which they collaborate with clients, faculty, and community service agencies to meet health outcomes for clients and populations. Depending on their professional school and their curriculum, students work with clients from several hours over a 10-week term to several hours weekly over multiple terms. They learn firsthand about homelessness, poverty, and social and physical isolation, and they interact regularly with people who are very different from themselves in background and culture. Anecdotally, students experience situations that impact their personal and professional lives. One student stated, "I had no idea how difficult it is to get needed services if you don't have an address, or identification." Another student reflected on her goals as a nurse when

she said, "I thought I wanted to work in the hospital, but I see now that this is where health care needs to happen—in the neighborhood, in the home." Academic-practice partnership models such as I-CAN in which students have significant interaction with underserved clients and communities have the potential for impacting their career paths and effectiveness as practitioners.

CONCLUSIONS

The process of preparing health care professionals to lead interprofessional collaborative teams that are able to think outside the traditional box about health care delivery models is critical to resolving the health crises in the United States. The current health care delivery system in the United States is financially unsustainable, and the large financial outlay is not providing the hoped-for health outcomes. Instead, Americans are continuing to gain weight and have increasing rates of chronic illnesses. The opportunity for professional health care students to engage firsthand in the struggles of individuals who are challenged in managing, much less preventing, chronic illnesses for themselves and others in their lives has the potential to change their attitudes and practices. In addition, this awareness prepares future health care professionals for roles in reengineering the health care system into one that meets people where they are and focuses on their priorities to promote wellness and quality of life. Education and practice models such as I-CAN will contribute to the development of an inclusive and effective system of health care in the United States.

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