

The REFLECTIVE ESSAY – [REDACTED]

Introduction

Michigan State University, as a land grant university, is committed to **engaged scholarship** that blends community knowledge and academic expertise to pursue solutions to persistent societal problems. First modeled by [REDACTED], [REDACTED] describes engaged scholarship as research that takes on “the essential work of embedding an ever-increasing capacity for discovery, analysis, and innovation in the community” (2010). The College of Human Medicine’s (CHM) mission statement indicates that CHM seeks to enhance our communities by partnering to discover new knowledge that can be practically applied and disseminated. Further, CHM research strives to address socio-economic and racial/ethnic disparities and inequities in health and health care. ***My program of research exemplifies engaged scholarship, aligns with the missions of the university and the college, has generated ten million dollars in research funding in the context of long term state and community partnerships, and has resulted in large scale health care change.*** I consider it a privilege to conduct research in a university that values and invests in engaged scholarship and in a medical school that for over fifty years has demonstrated its commitment to our partner communities and underserved populations. Although my primary focus is research, the nature of engaged scholarship is that education and service is integrated into the research enterprise.

Overview of Program of Research

Since 1988, my research has targeted the health and health care of Medicaid insured pregnant women, many of whom live in difficult life circumstances, experience racism, have a higher prevalence of depressive disorders, and are more likely to have chronic health conditions and health risk behaviors. They are also more likely to have limited access to care, face health literacy barriers when they do seek care, and given their competing family priorities, have difficulty participating in health care. Their infants are more likely to be born preterm and/or at low birth weight, with long term consequences for school success. This is especially true for African American women and infants, who have more than double the rates of adverse birth outcomes and infant mortality.

My research is grounded in my professional training as a nurse and my education in human ecology, a perspective that views human health as shaped by the multiple contexts of an individual’s life (e.g. genomes to society). ***I use the tools of science and partner with providers, communities and policymakers to create new knowledge that drives innovation in real world settings to improve health care—and ultimately the health and life chances of vulnerable women and infants.*** My defined area of work is developing, implementing, and testing/evaluating interventions designed to reduce socio-economic and racial/ethnic health disparities. My research is conducted in collaboration with multi-disciplinary research teams and in partnership with health systems, health departments, community agencies, and the Michigan Department of Community Health (MDCH).

Community Health Workers

My initial research included the development and testing of peer support interventions for mothers with newborns in the Neonatal Intensive Care Unit (NICU), in partnership with Butterworth Hospital/Spectrum Health. Scholarship products included a peer training curriculum and a parent-infant activity book that synthesized the preterm infant interaction literature and translated the findings for parent use. Findings indicated that mothers with peer support had less anxiety, increased self-esteem,

as well as, better home environment and parent interaction at 12 months post birth when compared to a comparison group of mothers. The program continues today, 25 years later.

Based on the peer support work, Spectrum Health continued the collaboration with MSU (Office of the VP for University Outreach) for the development of a Community Health Worker (CHW) program to address the needs of Medicaid insured pregnant women and infants. CHW interventions build on the strength that exists in low-income communities--the expertise of women with limited economic resources who prevail, despite difficult life circumstances, and whose children thrive. A CHW is a frontline public health worker who is a trusted member of the community and serves as a liaison to facilitate access to services and deliver targeted interventions to improve health.

My collaborators and I developed and pilot tested an intervention that connected CHWs, in a team model, with nurse care coordinators in the state-sponsored, Medicaid care coordination program, the Maternal and Infant Health Program (MIHP). With a multi-disciplinary MSU research team, the CHW-MIHP intervention was tested in a randomized controlled trial (N=613), and women were followed across five research visits in their homes. Women in the team model had significantly reduced depressive symptoms over the first year of life, with a trend for stress reduction. For women with low psychosocial resources, there was also a significant reduction in perinatal stress. The CHW model was adapted for other health care settings at Spectrum Health including: a School Health Advocacy program within the Grand Rapids Public Schools; Core Health, a program for heart disease and diabetes self-management; and a program focused on helping Latino families navigate services, Program Puente—programs that function today.

Two CHW instruction curriculums were developed and implemented, one for the CHW program provider and the other to train CHWs in a Research Assistant role. For both of these curriculums, there was a significant challenge to develop materials appropriate to women with a high school education and low health literacy. MSU Extension was a key collaborator on this work. The CHW curriculum was then integrated into the Grand Rapids Community College programs.

Following the trial study, the CHW-MIHP team model was further developed to target services for African American women, with an expanded mental health component, and submitted by the community for funding to the federal Healthy Start program. The program, named Strong Beginnings, was funded in 2005. The Kellogg Foundation, in 2011, invested over 4 million dollars to expand the reach of the program and, in 2014, provided an additional 4 million dollars in resources to adapt the program to address the needs of Latina women and their infants. I currently lead a research and evaluation team for the Strong Beginnings/Kellogg work. We are conducting a quasi-experimental, propensity score matched study of the CHW-MIHP team model that will make it eligible for federal review as an evidence-based program, and will also provide a return on investment/cost analysis for policymakers. Strong Beginnings was awarded a five year 1.2 million dollar award from HRSA/Federal Maternal and Child Health Bureau on 11-1-14, and we are subcontracted to continue this program of research. We have also been engaged as a research partner for a Strong Beginnings proposal that addresses the Governor's new social impact funding model, PayForSuccess.

As I reflect on the CHW research, it is clearly an example of a sustained partnership with the community that has provided scholarship opportunities. But it takes time: the initial demonstration and pilot testing of the intervention was accomplished across six years and the trial study-- another 4 years. With the Strong Beginning program expanding, a new study was initiated in 2011 for the African American program and the Latina demonstration study will begin within months.

While this is an incredible opportunity, I have a small research team and the challenge will be to engage other researchers in CHW research. For example, over this time period, I have worked with Dr. [REDACTED] [REDACTED] as she developed a CHW program, the Kin Keeper Cancer Prevention model. I was able to connect her with the Spectrum Health CHWs who informed her model and participated in her pilot studies. I am a co-investigator on the Kin Keeper trial and Dr. [REDACTED] and I are working on how to integrate more women's health into traditional maternal and child health programs.

I now partner with CHW researchers in Michigan to translate CHW research and inform public policy as implementation of the Affordable Care Act moves forward in Michigan. My CHW studies have been cited in the report *Re-Inventing a Michigan Health Care System: Blueprint for Health Innovation*, Governor Snyder, January, 2014. Based on my research, I was appointed as a member of the Michigan Community Health Worker Alliance (MICHWa) Evaluation Board and am working with research colleagues at the University of Michigan on a statewide CHW Common Indicators project to collect standardized data across CHW programs in the program. We have just completed a state of Michigan survey of CHW programs in collaboration with Michigan Department of Community Health. I am also a member of the MICHWa policy and finance group that is creating policy bulletins, consulting with MDCH for submission of a Medicaid State Policy Amendment to federal CMS to address CHW reimbursement, and other financing policy work.

Redesign of a Medicaid Population Health Program: The Maternal and Infant Health Program (MIHP)

After the initial CHW study, I was invited to join CHM, coming from the office of Vice Provost of University Outreach. At the same time it became clear that the long term sustainability of the CHW-MIHP team model would be closely linked to the quality, impact, and sustainability of the MI Medicaid MIHP program. At this time, MSU had a growing relationship with MDCH Medicaid and I was invited to lead a large research and evaluation project to redesign the state MIHP program. MIHP is Michigan's largest care coordination and home visiting program for Medicaid-eligible pregnant women and infants, serving over 16,000 women/year in 83 counties. The redesign would include studies to inform the work and scholarship products (e.g. integrating evidence-based practices into intervention protocols) to strengthen the program, concluding in a rigorous study after full implementation. Named the Michigan Families Medicaid Program, eleven additional MSU researchers, five CHM physicians, multiple resident physicians, and staff from Biomedical Research Informatics Center and the Institute for Health Policy participated in the project over an eight year period. It was also possible to bring our Kent County/Grand Rapids partners into this work, which put up matching local funds for specific Kent County deliverables. This was an opportunity to bring the tools of science to the redesign of a large scale, state-wide, public health program, while still having the Grand Rapids "community lab" to observe implementation and inform the work.

Examples of scholarship products included: maternal and infant risk screening tools, with embedded evidence-based measures, and screener algorithms; white papers that synthesized the literature on evidence-based interventions to develop standardized program protocols; a population and community system of care model (used for a successful AHRQ grant); provider education/training for program implementation (e.g. workshops, videoconferences); and a population maternal and child health linked data base (vital records, Medicaid claims, programs) for about 60,000 women and their infants/year.

In addition to peer reviewed publications on this project, my publications are primarily applied scholarship products, reference materials or instructional materials, that are used in iterative fashion to

inform innovation -- and were primarily provided to stakeholders (e.g. clinicians, health administrators and health policymakers at the community and state level) who drive change in health care services. Favorable review is often measured by adoption and sustainability of programs, requests for materials or adaptation for other programs, implementation of recommendations, and standardization of interventions. Notably, selected MFMP scholarship products, the MIHP maternal and infant risk screening tools and the intervention protocols, have been codified in state of Michigan Medicaid policy.

Examples of MFMP studies include: predictors of adverse birth outcomes by race/ethnicity; mental health and smoking behavior; a qualitative analysis of MIHP provider-client relationships, and a quasi-experimental study of early program implementation that meets federal criteria for review as an evidence-based program. These studies resulted in the development of a quasi-experimental study of full program implementation, currently in progress. Findings to date indicate that women in the MIHP, who enroll by the second trimester and receive at least 3 contacts after their risk screening visit, have reduced risk for adverse birth outcomes and better maternal and infant service utilization (two publications). The birth outcomes paper received a conference award at the 2014 Maternal and Child Health Epidemiology/CityMatCH conference. The published studies to date will allow the Michigan program to be reviewed as an evidence-based program and eligible for federal funding.

Although the university secured about 3.9 million dollars for the MFMP work, it is important to acknowledge that MSU also made a significant investment in in-kind support for this project. While we now have publications and national interest in transforming a state based program to achieve important outcomes, similar to the CHW work—the MFMP Medicaid work also took a long term investment.

A Population based Perinatal System of Care

Based on our state Medicaid work, it became clear that implementation of the MIHP program gets stalled at the community level. Only 30% of the women in the state get risk screened and less than half get screened and receive a dosage of services consistent with reduced risk for adverse birth outcomes. My next proposal addressed the need for communities to redesign services to create a system of care to improve population outcomes. A key component is the integration of the MIHP program, which can provide care coordination to every Medicaid insured pregnant women, with prenatal and postnatal clinical practice.

Based on findings from a community process improvement event in Grand Rapids, MI, I engaged Spectrum Health, Cherry Street Health Services, Kent County Health Department, Network 180/Arbor Circle, Priority Health Plan, and the Michigan Department of Community Health as major partners to submit an R18 Research and Demonstration proposal. The proposal addressed the development and implementation of a community system of care model and a comparative study with other Michigan communities. Components of the model are based on evidence-based and/or community innovative strategies. Similar to the MIHP work, the development of scholarship products (e.g. depression decision aids; activated patient curriculum) precludes the outcomes study. The system of care model was awarded a conference Innovation award at the Maternal Child Health Epidemiology and CityMatCH Conference in 2014. The study will be completed in 2017.

Integration with Education

Although I have noted elsewhere how instruction has been integrated into the research, I do want to reflect on several issues. The CHW work is grounded in the theoretical notions of Brazilian educator,

██████████, who introduced the concept of popular education, a consciousness-raising coupled with activism, enabling the poor to transform their lives (Pedagogy of the Oppressed, 1971). The CHW interventions are important mechanisms to help many women raise consciousness and empower them to take control of their lives. For the CHWs themselves, there are often “helper therapy” benefits. While I spend the majority of my time with health providers and researchers, the CHW work benefitted and was shaped by my colleagues whose primary function is teaching and by my participation in an MSU “scholarship of engagement” learning community in the office of University Outreach and Engagement.

I have been so fortunate to have many physician partners on my research teams that keep my work grounded in “real life” clinical settings. However, in a new initiative, we will more closely integrate the CHW work with medical education. As part of the AHRQ project, we have a CHM team that is invested in adapting the MSU-developed “Patient Activation” curriculum for CHWs and their clients. We want to engage medical students in the training/skill building that will give them increased access to CHWs, a new type of health care provider, and a diverse group of pregnant women.

Integration with Service: CHM, Community and State of Michigan

When your program of research is engaged scholarship, service to the community and state is an integral part of your work. The MSU document Points of Distinction: A Guidebook for Planning and Evaluating Quality Outreach suggests that engaged scholarship be evaluated in terms of the impact on issues, institutions and individuals, as well as potential for sustainability and capacity building for partners. I will use this framework to evaluate my service.

ISSUE: My research has focused on issues of great importance: adverse birth outcomes (preterm birth, low birth weight), associated with infant mortality (IM). These health outcomes have glaring racial/ethnic disparities. For example, in Michigan, the IM for black infants is 18.4 vs. 6.0 for white infants. My research with MIHP and Strong Beginnings support the reduction of risk for adverse outcomes, especially for African American women

INSTITUTIONS: One of the most important components of my service to the college is the research related partnerships I have formed both within CHM and also with high profile stakeholder institutions. The Spectrum Health and the Michigan Department of Community Health partnerships are formalized with explicit data use agreements (my project was the first data use agreement with SH), contracts, and commitments. I think my work exemplifies how to successfully achieve and sustain these partnerships--- but also provides evidence of the importance of the scholarship resulting from the partnerships. For both institutions, our research has enhanced visibility of each of their programs in local and national venues, contributed to the sustainability of their programs, and built capacity.

For example, MDCH now has: 1) a standardized MIHP intervention based on evidence-based screeners and care protocols that is implemented statewide for 16,000 women and their infants/year; 2) a rigorous MIHP study that allows for federal review as an evidence-based program and thus, access to additional federal funding resources; 3) national attention as a model state-wide home visiting program; and, 4) a statewide, longitudinal Medicaid Maternal and Child Health database of linked records (i.e. vital records, Medicaid claims, programs), approximately 490,000 maternal and 450,000 infant records, available for research use.

My work has impacted Spectrum Health /Strong Beginnings in the following ways: 1) The Healthier Communities Department (Roman was founding Co-Director) continues to grow, with double the

investment (14 million dollars) in community partnered programs for the underserved, and multiple programming awards; 2) nationally and state recognized CHW programs (MOMS and Strong Beginnings); 3) adaptation of CHW role to other clinical populations that has demonstrated cost savings to the institution; and 4) a quasi-experimental study in progress that will meet federal standards for determining whether the program is evidence-based.

INDIVIDUALS: My scholarship has also impacted Medicaid insured pregnant women and infants:

- 145,000 MI Medicaid insured pregnant women were risk screened in Michigan (2008-14) with evidence-based screening/assessment with repeat screening in the first 6-8 weeks post birth.
- 120,350 MI Medicaid insured pregnant women (2008-2014) received evidence-based care using standardized MIHP program protocols
- For women who participated in the redesigned MIHP program (enrolled in the first or second trimester, risk screened, and a minimum of 3 additional contacts), there was a reduced risk for preterm birth and low birth weight rates. For Black women: a 24% reduced risk for LBW; 58% reduced risk for very LBW; 29% reduced risk for preterm; 59% reduced risk for very preterm birth.
- To date, about 42,000 Medicaid insured infants (2012-2014) have been screened for medical and social risk factors with periodic developmental screening in the first year of life
- Approximately 6,730 women and infants have received Nurse/Social Worker (MIHP) and Community Health Worker Team Care through the Spectrum Health MOMS since 2001 (end of research trial), with program sustainability for 13 years.
- Approximately 3,3000 African American women and infants have received Grand Rapids federal Healthy Start program, Strong Beginnings (2005-14) using an enhanced Nurse/Social Worker (MIHP) and Community Health Worker team care model.
- During the time period when the Spectrum Health MOMS and the Strong Beginnings Healthy Start program were fully implemented, black infant mortality rates decreased in Grand Rapids, MI., from a rate of 22.4 per 1,000 live births in 2001-2003 to 17.3 in 2007-2009; to 16.7 for 2008-10.
- About 25 Community Health Workers are now employed in MIHP and Strong Beginnings program, with many who completed degrees and continue in new health provider roles. For example, [REDACTED] the first CHW trained and employed in the MOMS program, is the director of a CHW program (Program Puente) for Latina families, and has received multiple awards for her work. Many CHWS began their career as clients who received services from programs.

Summary

I could not have imagined as a young nurse, frustrated with the care of vulnerable pregnant women and their infants, that research would allow me the opportunity to provide health care providers the knowledge and tools to improve health care and health outcomes. Nor could I have imagined that one of those health care providers would be low income women themselves; women trained to assume CHW roles and who focus on the social determinants of health.

Unlike many scholars, my leadership efforts have been focused at the state and community level. I have initiated, led, and was accountable for the work of a broad group of multiple stakeholders (scientists, policymakers, communities, health providers), often managing projects with budgets of almost a half a million dollars/year with annual deliverables. With my collaborating partners, I developed, implemented and tested large scale maternal and child health innovations, of importance to our CHM communities and the MI Department of Community Health, and am now partnering with other researchers to impact state policy.

I am pleased that CHM is now expanding engaged scholarship in our community-based campuses, with new positions to back up community commitments. I had a difficult choice to make in 1995; continue in a tenure stream position (that I left to complete the PhD) in the College of Nursing and forgo the extensive outreach research with Spectrum Health, or, with the help of University Outreach, seek a home for the partnerships and the work. While risky, I clearly made the right choice and am grateful that CHM and the Department of Obstetrics, Gynecology and Reproductive Biology became my home.

My portfolio will demonstrate that while engaged scholarship serves our communities and our state, impacts the health care of underserved women and infants, produces important scholarship, provides research opportunities for faculty, medical students, and resident physicians--- it can also generate significant research funding (over ten million dollars). I feel very fortunate to have had institutional support to do this type of work, and in return, I have built a strong community and state research infrastructure that can be expanded to other communities and could support the work of a next generation of scholars who are interested in the social determinants of health and health disparities and inequities.