Implications of Community Engagement in Faculty Research and Teaching in Family Medicine Residency Education

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Dedication

I dedicate this thesis to my parents, Rick and Nancy McElligott, who continue to teach me the value of working hard and believing in myself, and to my partner, Daniel Sopdie, whose unwavering support keeps me focused and working toward one ambitious goal after another.

Abstract

Community engagement concepts have been recommended to enhance research and teaching in medical education. This study explores of perceptions of family medicine residency education faculty regarding community engagement concepts and their implications to residency teaching and research. Findings of the survey administered to family medicine faculty who engage in residency teaching were grouped into the themes relating to the barriers and facilitators of highest and lowest influence to incorporating community engagement concepts into research and teaching, and factors of highest and lowest importance to community-engaged research and teaching. Results detail the pursuit of community-engaged research and teaching in family medicine residency faculty work, and the barriers and facilitators associated with using community engagement concepts. The results also illuminate areas for further research to better understand the place of community engagement in medical education and specifically in family medicine residency education, and discuss several implications for continued faculty development and institutional support of community-engaged research and teaching in medical education.

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Chapter 1

Introduction

Community engagement is a useful approach for higher education institutions to pursue in order to stay accountable to their surrounding communities. The prominence of community engagement is growing, especially in health professions education, where it can serve as an effective approach to teaching, research, and service, as well as addressing health issues in the community.

Community engagement can be defined as "the application of institutional resources to address and solve challenges facing communities through collaboration with these communities" (Seifer, Blanchard, Jordan, Gelmon, & McGinley, 2012). Seifer et al. (2010) propose one of many definitions, but highlight the important aspect of community engagement that sets it apart from other approaches: its collaborative nature between institutions and community in an equal partnership. Community engagement can involve all aspects of institutional work, from student learning, teaching approaches, and scholarship approaches (Seifer et al., 2012). Faculty who are either scholars of community engagement or who are public scholars or practitioners can perform community-engaged scholarship. Community-engaged scholarship follows the traditional process of scholarship, including research, teaching, and application that has clear goals, adequate preparation, appropriate methods, significant results, effective presentation, and reflective critique that is rigorous and peer-reviewed (Seifer et al., 2012). However, community-engaged scholarship differs in that it involves the scholar in a mutually beneficial relationship with the community (Seifer et al., 2012).

Community engagement can be performed in all disciplines across an institution. In the context of medical education, community engagement spans the entire range of community activities, including research, clinical care, community service, community-based education, and community development (Calleson, Seifer, & Maurana, 2002). Community-engaged medical education emphasizes mutual benefits and reciprocity

between medical schools and the communities served by their students, faculty, and staff (Strasser, Worley, Cristobal, Marsh, Berry, Strasser, & Ellaway, 2015). Strasser et al. argue that community involvement is a fundamental aspect of a medical school's missions of education, research, and development (2015). Community-engaged medical education addresses power inequities between the institution and community partners and aligns student learning objectives with health care needs in the community (Strasser et al., 2015). By aligning learning objectives with community needs, students learn about social determinants of health, health disparities, and will develop skills necessary to practice in community settings (Strasser et al., 2015).

Purpose, Rationale, and Research Questions

The purpose of this study is to compare perceived barriers and facilitators of community engagement in research, teaching, and learning to issues specific to medical education. Faculty perspectives on community engagement in family medicine residency education highlight faculty familiarity with community engagement principles, and barriers and facilitators unique to medical education. This study was guided by the following research questions:

1. Which aspects of community-engaged research and teaching are identified as barriers or facilitators in family medicine residency education?
2. What are the implications of community engagement in research and teaching to family medicine residency education faculty?

Community engagement concepts are recommended to enhance research and teaching in medical education (Calleson et al., 2002; Strasser et al., 2015); however, the use of community engagement in research and teaching can depend on the presence of barriers, facilitators, and faculty perspective of importance. Results from this study will demonstrate the perception of the influence and importance of community engagement concepts to research and teaching activities of family medicine residency education faculty.

Summary

To understand the perspectives of family medicine residency education faculty at a large research university in terms of barriers and facilitators to community engagement and community engagement concepts of influence and importance to research and teaching, a survey was distributed to 100 family medicine residency education faculty at a large research university in the Midwest. A survey was chosen for this study in order to determine what proportion of a target audience, family medicine residency education faculty, have certain attitudes, perceptions, or experiences, and to probe whether or not specific determinants predict certain perceptions at a statistically significant level. Furthermore, this survey will provide reliable baseline data and direction for any future planning if this research university chooses to implement faculty programs to support community engagement in family medicine residency education.

Paper

Following this introduction, the second chapter will review the literature focused on community engagement in medical education, including an explanation of community engagement and its place in medical education; rationale for community engagement's inclusion in medical education; principles of good practice; barriers to performing community engagement in medical education; facilitators of community engagement in medical education; and a discussion of the gaps and limitations in current research. The third chapter will outline the research methodology and present findings of the survey. The fourth and final chapter will discuss implications and offer recommendations and conclusions gathered from the study.

Chapter 2

Literature Review

This review of literature will include an explanation of community engagement and its place in medical education; rationale for community engagement's inclusion in medical education; principles of good practice; barriers to performing community engagement in medical education; facilitators of community engagement in medical education; and a discussion of the gaps and limitations in current research.

Rationale for Community Engagement in Medical Education

In the context of a higher education landscape filled with competing priorities, demands for increased accountability and tangible research impact, and the constant cry for more funding, community engagement arises in existing literature as a strategy for medical education institutions to pursue in order to transform education, faculty development, and the health of surrounding communities.

One such approach to pursuing community engagement in medical education is to perform community-based participatory research (CBPR). CBPR challenges the traditional notion of scholarship that knowledge is created within the walls of an institution by experts and instead emphasizes the participation and influence of community partners in the knowledge-creating process (Israel, Schulz, Parker, & Becker, 1998; 2001). Israel et al. (2001) define CBPR as a process in which "partners contribute their expertise and share responsibilities and ownership to increase understanding of a given phenomenon, and incorporate the knowledge gained with action to enhance the health and well being of a community" (p. 184). CBPR takes into account the people affected by an issue of study, such as patients, community members, or community health professionals, in order to co-create research (Jagosh, Macaulay, Pluye, Salsberg, Bush, Henderson,...Greenhalgh, 2012), and is becoming a widely-respected approach to research in the health professions.

By taking into account the perspective of the community, CBPR enhances usefulness and relevance of research data and improves the quality and validity by

involving local knowledge and theory (Israel et al., 1998; Jagosh et al., 2012). The research team is strengthened by diverse skills, knowledge, expertise, and approaches to problem solving (Israel et al., 1998). Jagosh et al. argue that CBPR solidifies relations between the community and institutions, ensures appropriate research questions are defined, increases capacity for data collection, strengthens analysis and interpretation, and enhances program sustainability (2012). CBPR is especially useful to health intervention research because it is responsive to community needs (Jagosh et al., 2012). While many health professions rely on objective, positivistic research in which the academician is the expert, CBPR encourages a more engaged, critical, and self-reflexive role for the researchers and also empowers community partners (Israel et al., 1998). Knowledge gained by all partners through CBPR can be used to influence policy and direct resources to benefit the community (Israel et al, 1998).

Israel et al. (1998) and Jagosh et al. (2010) list a number of other benefits of CBPR in health professions, such as informing a more effective practice, providing additional funds and employment for community members, and involving marginalized communities and attempting to reduce such marginalization. Furthermore, CBPR bridges cultural gaps between partners (Israel et al., 1998; Jagosh et al., 2012) and strengthens the bridge between the institution and the community, striving to eliminate distrust within communities that may have historically been maltreated by institutional research projects (Israel et al., 1998). Viewed over time, CBPR increases the quality of outputs and outcomes of research and increases sustainability of project goals throughout gaps in external funding (Jagosh et al., 2012).

There are many pressures that drive the pursuit of community engagement in medical education. Governments and other funding agencies concerned with sustainability and institutionalization of change and improved health outcomes contributes to the need of local partnerships (Freeman, Gust, & Aloshen, 2009), as well as evidence that interventions to improve health have thus far failed to adequately address racial, ethnic, and socioeconomic health disparities (Horowitz, Robinson, & Seifer,

2009). There is also growing evidence of the effectiveness of community engagement in teaching and student learning (Burrows, Chauvin, Lazarus & Chehardy, 1999; Hunt, Bonham & Jones, 2011; Seifer, 1998; Seifer & Sisco, 2006). Overall, rationale for community engagement in medical education can be grouped into three categories: enhancement of research impact, improved student learning, and the rise in professional interest in community engagement in medical education.

Community Engagement in Research: CBPR

Many scholars express a consensus throughout community engagement literature that CBPR is an important approach to conducting research that has a positive, lasting impact on communities. Horowitz, Robinson, and Seifer (2009) demonstrate that the few interventions that are successful in addressing health disparities often decline after funding disappears, so a more effective approach is needed that is sustainable. Community engagement allows for a focus on return of investment as it is inherently concerned with institutionalization, sustainability, and longitudinal partnerships (Freeman, Gust, & Aloshen, 2009) that can be sustained even if funding decreases. Strengthening community engagement is recognized as an effective approach to reach underserved populations and to verify that medical care reaches those most in need (Chung, Norris, Mangione, Del Pino, Jones, Castro,...Brown, 2015). There is wide agreement that community engagement in research is an effective strategy to address health disparities across diverse communities (Chung et al., 2015; Freeman et al., 2009; Horowitz et al., 2009).

Within medical education, researchers and other outside experts are beginning to reject traditional research practices that demand objectivity and create distance between the researcher and research subject at the expense of considering the impact and value of the practices to the research participants (Horowitz et al., 2009). Instead, researchers are partnering with inside experts whose lived experiences of the problem add value to the research process. Community members are “embodying the kind of local voice, participation, and action that can ignite new initiatives and approaches and lead to

sustainable long term results" (Horowitz et al., 2009, p. 2). CBPR empowers and mobilizes community members and their resources to implement new approaches to prevention of common health problems, with solutions that are systematic and clinically sound due to the collaboration of the research team and the community (Horowitz et al., 2009). CBPR allows the institution to build trust with local communities, and promotes the generation of creative ideas to meet health needs within the community population (Horowitz et al., 2009).

In fact, CBPR is able to enhance traditional research that has mainly focused on prevention, eliminating barriers to care, and developing culturally appropriate programs by giving an inside perspective and generating buy-in within affected communities (Horowitz et al., 2009). Horowitz et al. (2009) argue that CBPR succeeds in: developing and sustaining trust; building community capacity; recruiting study participants who have historically been underrepresented in research; facilitating intervention development; assessing assets for developing better health; translating research into change of practice and policy; and improving general health outcomes. Horowitz et al. (2009) further champion CBPR by providing evidence that CBPR is moving from the margin of research practices to the mainstream in health education institutions.

There is also a growing body of evidence to suggest that CBPR is a type of research that directly benefits the population under study (Ahmed, Beck, Maurana, & Newton, 2004). CBPR is increasingly perceived as an essential approach to recognize and confront social determinants of health (Seifer & Sisco, 2006) due to its collaborative and equitable nature. Capacity building in the community and shared vision and ownership between the community and the academy, and equitable ownership create relevant research with both immediate and long-term benefits (Seifer & Sisco, 2006). CBPR "equitably involves all partners in the research process and recognizes the unique strengths that each brings. CBPR begins with a research topic of importance to the community and the aim to combine knowledge and action for social change to improve community health and eliminate health disparities" (Minkler, Garcia, Rubin, &

Wallerstein, 2012). CBPR is a unique approach that allows for the use of multiple methods to collect comprehensive information on a problem. It can involve qualitative and quantitative measures, such as surveys, focus groups, secondary data analysis, and randomized controlled trials (Minkler et al., 2012). This hybrid approach promotes thorough information-gathering to systematically address research questions (Horowitz et al., 2009).

Minkler et al. (2012) declared that what is unique about CBPR is "the way in which the research is conceptualized and carried out; the heavy accent placed on genuine community engagement throughout the process; and the use of findings to help bring about change" (p10). CBPR recognizes the contributions that community members can make through engagement (Minkler et al., 2012). Minkler et al. (2012) also offer the following rationale for the utility of community engagement through CBPR in addressing health issues:

> The voices of lay leaders and residents of communities most affected by health disparities, when included in research and policy deliberations, can help bring about innovative and sustainable solutions, while also helping ensure that the conversation addresses the root causes of health inequities and broader policy changes that can improve health outcomes. (p. 13)

CBPR emerges as an approach used in research to have impact and meaning to communities. Nonetheless, there are limitations to using CBPR in research and teaching.

Minkler (2004, 2010) describes several limitations and challenges to utilizing CBPR. Funding constraints, either real or perceived, within the university and the community may cause challenges in implementing research (Minkler, 2010), and differences in ethnicity or race between the researcher or students and the community members may lead to tensions between power and rewards (Minkler, 2004). The timeline of the researcher and the community member also may not coincide, especially if the researcher wants a shorter-term outcome of a publication and the community would like to work toward long-term policy change (Minkler, 2010). Additionally, there can be a

number of ethical concerns regarding achieving a true community-driven agenda when the researcher may serve as the initiator of the project (Minkler, 2004). This can lead to challenges around what community participation means to the different actors (Minkler, 2004). Another limitation relates to issues surrounding the ownership and sharing of projects and the use of findings for action (Minkler, 2004), along with difficulties attributing outcomes, especially in policy change, directly to the use of CBPR. Even so, CBPR is acknowledged as a powerful approach to research, and community engagement has further use in medical student and resident learning, in addition to its value to research.

Community Engagement in Teaching and Student Learning

Community engagement concepts are also used in medical education for student learning, particularly the use of service-learning. Service-learning has many definitions; Seifer, Hermanns, and Lewis (2000) define service-learning as structured learning in which community service follows explicit learning objectives, adequate preparation, and reflection following the activity. Brush, Market, and Lazarus (2006) emphasize the aspects of a structured learning environment, preparation by the instructor, and reflection by the learner as important factors in service-learning. Service-learning differs from and enhances traditional medical education in a number of ways (Seifer et al., 2000). In traditional medical and resident education, emphasis falls heavily on meeting learning objectives, while service-learning offers a balance between learning objectives and service (Seifer et al., 2000). Service-learning also prioritizes reciprocal learning (Seifer et al., 2000), as opposed to traditional models in which the student learns from an expert teacher or the student is seen as the expert in a community, although the teacher or instructor still plays an instrumental role in guiding student learning. However, community engagement through service-learning is still often conceptualized as outreach or service rather than a collaborative partnership of reciprocal knowledge transfer between the institution and the community (Hunt et al., 2011).

The Liaison Committee on Medical Education, the accrediting body of medical education programs recognized by the United States Department of Education, endorses service-learning as an educational approach (Hunt et al., 2011). Service-learning highlights the importance of concerns identified by the community, giving a broader approach to population health and empowering all participants in learning, as opposed to traditional clinical education, which emphasizes student learning of knowledge and clinical skills and focuses mainly on interactions between patient and provider in which the provider is an expert (Seifer et al., 2000). Students learn factors that influence health and quality of life from service and from explicit curriculum (Seifer et al., 2000); Hunt et al. (2011) also argue that clinical scenarios in community settings expose students to sociocultural influences on individual and population health. Students are able to reflect on the integral role community members played in addressing a problem and their own lived experience through performing the service (Seifer et al., 2000).

Other studies are in agreement regarding the importance of service-learning to medical education curriculum. For example, one national study of service-learning in health professions education underlined the importance of working with communities and found it was personally transforming to learners and that "trainees learn to see people as 'people' and not solely as 'patients'" (Seifer, 1998, p. 403). Another study identified positive student attitude change and increased compassion for their patients (Burrows et al., 1999). However, scholars note the critical aspect of service-learning as being tied to clear educational objectives to give a structured learning experience (Seifer et al., 2000; Seifer, 1998; Enos & Troppe, 1996). Enos and Troppe (1996) argued that service-learning is best used when it meets course objectives and is not an add-on to other learning. Service-learning also promotes moral development, civic literacy, and critical thinking skills, and can be incorporated into any discipline (Enos & Troppe, 1996).

Service-learning does face challenges in the context of incorporation into medical education, however. Faculty in many disciplines do not believe that service-learning meets the rigor of traditional study (Enos & Troppe, 1996). Since the needs of the

community are intended to shape the development of service-learning experiences, some faculty also have difficulty not always having control over what happens in the classroom and fear the unpredictability of allowing those traditionally outside of the institutional realm to help create learning experiences (Enos & Troppe, 1996). In addition, it can be difficult to find standards of evaluation to measure learning and outcomes of educational experiences (Enos & Troppe, 1996), which is a prominent aspect of medical education culture involving continuous measurement of student competency and milestone measures. Hunt et al. (2011) also note the challenge for service activities to address needs identified by the community. Hunt et al. (2011) conducted a systematic review of literature on service-learning and community-based medical education and found that many articles had little to no discussion of how community needs were identified. In some cases, if the communities disputed the need for the project, it was often abandoned (Hunt et al., 2011). Burrows et al. (1999) and Hunt et al. (2011) also identified a lack of discussion of outcomes from the community perspective, although Hunt et al. (2011) did note some tracking of community outcomes such as patient satisfaction and community knowledge in some studies.

Despite challenges in implementation, service-learning is particularly effective in prevention education (Allan, Barwick, Cashman, Cawley, Day, Douglass…& Wood, 2004). Working with community outside of traditional clinical or institutional settings through service-learning or community-based learning is fundamental to prevention education, according to Allan et al. (2004). Allan et al. (2004) recommend rotations at public health departments and community health centers, as well as performing community-based research. Service-learning and other community-based education also helps trainees learn skills to community with a diverse population (Galiatsatos, Rios, Daniel, Colburn, & Christmas, 2015). Galiatsatos et al. refer to studies conducted that show partnerships with communities and institutions can foster a sense of social accountability while providing valuable service, as well as skills to communicate effectively with people possessing various levels of health literacy (2015). Eliciting

beliefs and values about health from patients is crucial for medical students and residents, and community engagement through service-learning provides invaluable practice. In a study performed by Galiatsatos et al. (2015), residents who participated in a community-engaged education program increased their perceived readiness to communicate with diverse community members, had greater confidence providing health education to community members, and stronger awareness of the concerns and beliefs of the community patients.

The utility of community engagement to medical student and resident learning is also emphasized heavily by Seifer (1998), who wrote:

> At a time when policy makers and citizens expect increased accountability and community responsiveness of publicly funded institutions, health professional schools need to pay particular attention to the nature of their community relationships and the potential community-based learning has not only for educating students but for concurrently addressing unmet community needs. (p. 404)

Seifer (1998) argued that community-based learning contributes to positive change in attitudes toward diverse patient populations, knowledge about resources available in the community, and knowledge of social determinates of health. Furthermore, community engagement in medical education promotes competency in primary care practice due to student learning of teamwork skills and communication techniques (Seifer, 1998), similar to Galiatsatos et al.'s (2015) statement of the importance of community-based learning in developing communication skills to interact with diverse community members.

Rise of Community Engagement in Medical Education

In addition to growing evidence of the effectiveness of community engagement in research and learning, there is an increase in the number of professional and peer-scholar groups encouraging and promoting community engagement in medical education. National bodies are continuing to advocate for expanded education in community-based settings; a growing number of organizations also demand community-engaged aspects of

grant projects, such as the National Institute of Health, Center for Disease Control and Prevention, Community Campus Partnerships for Health, and private foundations such as the Kellogg Foundation and the Robert Wood Johnson Foundation (Seifer, 1998; Seifer & Sisco, 2006). Seifer and Sisco (2006) claim that increased awareness of the various factors influencing health coupled with growing acknowledgement that traditional methods may not always effectively reach communities also drives research and teaching in new manners to address health issues. Community engagement surfaces as one such manner, as evidenced by the literature discussed previously in relation to research and teaching.

More specifically, national initiatives are beginning to engage higher education institutions in community partnerships to pursue community engagement for transformative change. One such endeavor is a partnership between Community Campus Partnerships for Health, the University of North Carolina at Chapel Hill, and the University of Minnesota (Seifer et al., 2012). The Faculty for the Engaged Campus project aims to "strengthen community-engaged career paths in the academy by developing innovative competency-based models of faculty development, facilitating peer review and dissemination of products of community-engaged scholarship, and supporting community-engaged faculty through the promotion and tenure process" (Seifer et al., 2012, p.1). This national movement set goals to facilitative faculty preparation programs for community-engaged careers, to facilitate appropriate peer-review of community-engaged health professional scholarship, and to facilitate high quality promotion and tenure review of community-engaged scholarship (Seifer et al., 2012).

Additional promotion from peer professional groups is the evolving requirements of accrediting bodies to involve community engagement concepts, investments of funding agencies, and positive results of community-based education and research studies (Commission on Community-Engaged Scholarship in the Health Professions [CCESHP], 2005; Seifer et al., 2012). The Commission on Community-Engaged Scholarship in the

Health Professions declared in 2005 that community engagement was widely recognized as essential to health professional school missions and purpose. Further support for community education emerges from the growing number of fellowship programs, workshops, peer-reviewed articles and journals, funding opportunities, career paths for CBPR faculty, and national membership organizations supporting CBPR (Horowitz et al., 2009).

Principles of Good Practice

As the evidence in favor of the effectiveness of community engagement in medical education grows, the literature produced by scholars coalesces toward a consensus around a guiding set of principles for good practice of community engagement in medical education. These principles revolve around an institutional definition, faculty scholarship, and experiences in the community.

At the institutional level, a clear definition of what it means to be community-engaged is paramount. Seifer et al., 2012 stressed the need for institutions to be clear about how terms are defined and how actions are guided by these definitions. Accountability to definitions of community-engagement is also important, so that faculty are building consistent and reliable partnerships with the community (Seifer et al., 2012). Once an institution has a clear definition of community engagement and its value to the institution, faculty scholarship can be guided by principles of engaged scholarship and the definition can be applied to different contexts while maintaining fidelity to the institutional definition. Faculty should recognize the community's unique identity, build on assets within the community, facilitate collaborative partnerships in all stages of the research, pursue mutual benefit, promote co-learning and empowerment, and disseminate findings to all partners (Israel et al., 1998). Minkler et al. (2012) additionally highlighted the need for evaluation process to respect the empowerment of the community and high level engagement that is intrinsic to the work. As such, evaluation measures may be more focused on growth, functioning, or achieving outcomes and objectives, rather than ways

in which traditional scholarship is evaluated (Minkler et al., 2012). The issue of faculty scholarship will be elaborated in greater detail in a subsequent section.

In terms of practice, Seifer (1998) proposed the Johnson Foundation's ten principles for good practice of combining service and learning as a guide for effective community-based learning and practice. Seifer (1998) claimed that these principles create learning and practice in health professions that is accountable and responsive to community needs. Indeed, many other scholars cite the Johnson Foundation's principles or declare a set of their own, adapted from these existing principles (Seifer, 1998, 2007). Seifer (1998, 2007) outlined principles of good practice as follows: engage people in trusting, equitable, and diverse relationships to pursue to common good; provide structured opportunities for critical reflection by participants; allow those with needs to define the needs and articulate clear service and learning goals for everyone; demand genuine and sustained organizational commitment and pursue tangible benefits; commit to program participation from all levels and partners to create a sustainable impact; disseminate findings collaboratively; and enact ongoing assessment, improvement, and recognition of efforts. Seifer (1998, 2007) argued that by following these principles, institutions and faculty members can develop meaningful relationships with community partners through community engagement to pursue impactful, lasting outcomes of programs and research.

Barriers to Community Engagement in Medical Education

Although a well-defined set of guiding principles surfaces in the literature for health professions education to pursue community engagement, a number of barriers and challenges to utilizing community engagement in medical education also emerge in the literature. These barriers, from the institution's perspective, revolve largely around institutional structures and the nature of faculty work. As Seifer (1998) stated, the transition from viewing the community as a learning laboratory to an equal partner in scholarly pursuit is a challenging process.

Institutional Barriers

Barriers to community engagement in medical education at the institutional level are found in issues of time, funding, leadership, and the culture of medical education perpetuated by institutional structures (Ahmed et al., 2004; Butin, 2007; Calleson et al., 2012; CCESHP, 2005; Seifer & Calleson, 2004; Wallerstein & Duran, 2006). For instance, a number of studies indicated funding and fiscal concerns as a main barrier to community engagement in medical education (Butin, 2007; CCESHP, 2005; Seifer & Calleson, 2004). The hierarchy of how funding is determined, as well as funding agency priorities and expectations may not always favor community-engaged approaches (CCESHP, 2005). Furthermore, there is often insufficient funding available from both the institution and external grants (Seifer & Calleson, 2004), and programs that are externally grant funded are often not sustainable (Butin, 2007).

Within the structure of the institution and culture of medical education, there are several other barriers found. Calleson and Seifer (2004) and Seifer and Calleson (2004) agree that lack of support by academic leaders is a significant barrier. Seifer and Calleson (2004) also identify inadequate partnerships between the institution and the community as another barrier. A lack of effort from institutional leaders to develop quality partnerships does not promote trust with community partners (Seifer & Calleson, 2004). In addition, if an institution does not demonstrate the willingness to promote capacity building and professional development within the community, relations suffer (Seifer et al., 2012). In terms of research, CBPR demands systematic effort to incorporate community participation and decision making (Wallerstein & Duran, 2006), and lack of support from institutional leaders does not facilitate such systems to support community engagement.

Community engagement is also inherently collaborative and interdisciplinary in nature (CCESHP, 2005), but structures within health professions education schools in an institution do not always provide opportunities to collaborate (Calleson et al., 2002). Lack of collaboration between schools and disciplines leads to competition with other schools or programs for a limited number of community sites (Calleson et al., 2002;

CCESHP, 2005). If medical school leadership, in addition to institutional leadership, does not take a comprehensive approach to foster collaboration, competition may lead to confusion within the community and may inhibit partnerships from forming and growing. Specific to medical schools, the culture of medical education also serves as a barrier to community engagement (Ahmed et al., 2004). Traditional research produced by health profession schools favors objective research and does not often respect community knowledge or expertise (Ahmed et al., 2004). Faculty and leadership may perceive that community-engaged work does not carry the rigor of traditional faculty pursuits, and few grants, rewards, or incentives may exist to motivate faculty to pursue community-engaged scholarship and teaching (Ahmed et al., 2004; Calleson et al., 2002). These barriers contrast with components that promote institutionalization of community engagement in higher education; facilitators are outlined in the following section and will counter these barriers by describing actions institutions can take to strengthen support for community engagement.

Lack of institutional support, structure, and leadership support leads to even larger barriers for faculty to pursue community-engaged endeavors throughout their career. Rising out of the persistence of institutional barriers are a number of challenges to supporting and encouraging faculty to conduct community-engaged research and teaching.

Barriers to Faculty Work in Community Engagement

Faculty work around community engagement is widely studied; themes of barriers to faculty pursuing community engagement in medical education are found in the question of community engagement's place in faculty work, the perception of community engagement as activism, the lack of recognition of community-engaged scholarship, and insufficient support and rewards for community-engaged work. (Ahmed et al., 2004; Butin, 2007; Calleson & Seifer, 2004; CCESHP, 2005; Freeman et al., 2009; Minkler, Breckwich, Vásquez, & Miller, 2008; Seifer & Calleson, 2004; Seifer et al., 2012; Seifer,

Wong, Gelmon, & Lederer, 2009; Shore, Ford, Wat, Brayboy, Isaacs, Park…& Seifer, 2015; Strasser et al., 2015).

Place in faculty work for community engagement. One of the first distinctions that should be made by institutions is the recognition of CBPR as research and not solely as service (CCESHP, 2005). There is a tendency to classify community engagement as service due to the location where it is performed, but there are many other factors to qualify the work as scholarship (Seifer et al., 2009). Classification challenges can be due to the fact that standard metrics for judging scholarship are not always applicable to community engagement (Seifer et al., 2009), which will be discussed in greater detail. Furthermore, while there are many professional development efforts and support systems for developing research skills, there are few established professional development systems and pathways for community-engaged careers (Seifer et al., 2009). Basic science research often features structured mentorship and career development programs, whereas community-engaged faculty members in medical education are often left to themselves to decipher their own pathway with few resources or technical assistance (Minkler et al., 2008; Seifer & Calleson, 2004; Seifer et al., 2009). To be successful, faculty need to be supported to pursue community engagement in all dimensions of their work by infrastructure, development opportunities, and formal recognition of the value of community engagement (Seifer et al., 2009).

Perception of community engagement as activism. Another challenge for faculty to pursue community engagement in medical education is the perception by some that community engagement is activism or advocacy for social justice (Butin, 2007; Minkler et al., 2008; Strasser et al., 2015). Strasser et al., (2015) argue that community engagement is an ethical stance of social accountability and modeling values for future generations of health professionals. According to Strasser et al., (2015), community engagement addresses challenges and opportunities between society and medical professions through education, research, and service directed toward a goal of health equity. As such, community engagement can sometimes be labeled as liberal or radical

social activism (Butin, 2007). Butin (2007) further elaborated by claiming that many faculty gravitate toward community engagement because of its potential to ameliorate social injustices and disparities. However, many other faculty eschew community engagement because they perceive it as antithesis to a traditional academics' stance of objectivity and neutrality (Butin, 2007). Meanwhile, Minkler et al. (2008) state that community engagement is intrinsically tied to politics and near activism because of its goals of affecting change. Minkler et al. (2008) claim that "there is a realization that to effect change, research in public health and related fields must be policy relevant" (p. 13). The link between community engagement and activism is another aspect that faculty must grapple with during their community-engaged pursuits.

Community-engaged scholarship. In addition to the place where community engagement fits within the faculty members' scope of practice and its perception, another barrier to faculty work in community engagement is the lack of recognition of community-engaged scholarship (Seifer et al., 2009). In the first place, there is often not adequate time release given to faculty to develop community partnerships for scholarship (Calleson & Seifer, 2004; CCESHP, 2005; Seifer & Calleson, 2004). If release time is given, there may be too many differences in the research timeline of the faculty member and the community partners; faculty are often hoping for fast data gathering and analysis and release of findings for scholarship, and are not necessarily interested in using results to promote change (Minkler et al., 2008). A second challenge is in the appropriate peer review and evaluation of community-engaged scholarship (Seifer et al., 2012; Seifer et al., 2009). Many institutions do not have a method in place to peer-review alternate products of community-engaged scholarship, such as training or process tools, so these products are not always given sufficient credibility (Seifer et al., 2009). Peer-review is central to faculty scholarship (CCESHP, 2005) so a lack of appropriate review presents significant barriers to faculty motivation to perform community-engaged research.

Additionally, it can be difficult for institutions to define metrics and criteria with which to evaluate faculty research. In many cases, traditional requirements for

scholarship are not completely relevant to community-engaged research (Seifer et al., 2009). If institutions create diverse indicators for community-engaged scholarship to be evaluated against, it is still a challenge to decide when those indicators should be evaluated; either the process or outcomes of a community-engaged program may be evaluated (Seifer et al., 2009). Furthermore, the nature of community-engaged research, such as CBPR, celebrates the involvement of numerous stakeholders, so it is difficult to single out the role of the institution, faculty member, or community member in achieving results (Minkler et al., 2008). Evaluation is a critical aspect in which institutions and leadership should provide structured metrics of diverse measures of quality, productivity, and impact (CCESHP, 2005) to promote faculty involvement in community-engaged scholarship.

Support and rewards for community-engaged work. Supplemental to the issue of evaluation is the inadequacy of formal rewards to motivate faculty to pursue community-engaged research (Ahmed et al., 2004; Seifer & Calleson, 2004; Seifer et al., 2009); the largest reward existing, of course, as promotion and tenure. Calleson, Jordan, and Seifer stated that creating a portfolio for promotion and tenure can be intimidating for faculty who pursue community engagement, especially when review committees are not familiar with community-engaged scholarship (as cited in Seifer et al., 2009). In addition to institutional promotion and tenure review committees, some scholars suggest a community-based research review process to complement institutional review boards and promotion and tenure review committees (Shore et al., 2015). Involvement of the community from beginning to end ensures accountability and ethical practice, as well as a space for community committees to evaluate faculty work (Shore et al., 2015).

In fact, scholars argue that community members should have their own role in the review of promotion and tenure materials for community-engaged faculty (CCESHP, 2005; Freeman et al., 2009; Seifer et al., 2012). While it can be argued that the institution is more interested than the community in the promotion and tenure process and that community partners may view tenure through a lens of the privilege of a guaranteed job,

community partners are increasingly concerned with the reliability of their faculty partner's influence in the institution (Freeman et al., 2009), Freeman et al. (2009) argue in favor of community members sharing power with the institution by submitting letters of support for dossiers of faculty who perform community engagement, claiming that tenure is a shared interest between faculty and community. These shared interests include pursuing institutional change, recognition of the value of scholarship with community benefit and impact, and promoting capacity for social change and the responsiveness of both the institution and the community to shared concerns (Freeman et al., 2009). An increasing amount of literature examines the role of community members in the faculty promotion and tenure process and many recommendations for change involve review and restructuring of promotion and tenure guidelines to facility community engaged scholarship (Freeman et al., 2009).

Facilitators of Community Engagement in Medical Education

There are a number of facilitators to community engagement in medical education that have been identified in the literature. These facilitators revolve primarily around access to funding, steps the institution can take, and processes to support faculty in community-engaged work. Table 1 compares barriers and facilitators in institutional culture and faculty culture.

Table 1

Comparison of Barriers and Facilitators to Community Engagement

	Barriers	**Facilitators**
Institutional Culture	Lack of funding Lack of support from leadership Culture of traditional medical education Structure – inadequate promotion of interdisciplinary work	Access to internal and external funding Strategic plan from leadership Familiarity with community organizations Faculty and student interest
Faculty Culture	Lack of recognition of community-engaged scholarship Insufficient support and rewards; time Place in work – research vs. service Perception of activism	Recognition of community-engaged research approaches Roles and rewards – recognition in promotion and tenure policies Time to build reciprocal relationships

Funding for Community Engagement

Seifer and Calleson (2004) and Gelmon, Blanchard, Ryan, and Seifer (2012) both suggest that faculty access to external grants is a significant facilitator to community-engaged work. In a study performed by Seifer and Calleson (2004), external grant funding was related to the ability of faculty to pursue community engagement in research. Seifer and Calleson (2004) argued that the recent increase of investment in CBPR from public health organizations like the National Institutes of Health and Center for Disease Control, as well as from private foundations such as the WK Kellogg Foundation's Community Health Scholars Program and the Robert Wood Johnson Foundation, indicated support for faculty work in community engagement. Since having external grant support is correlated with faculty promotion and tenure (as cited in Seifer & Calleson, 2004), external grants serve as a strong motivation and facilitator for faculty to pursue community-engaged work (Gelmon et al., 2012; Seifer & Calleson, 2004).

The type of funding that best facilitates community engagement in medical education is still under investigation. Seifer and Calleson (2004), in addition to their argument in favor of external grants, also highlight the necessity for increased federal funding of community-engaged research, since federal grants pay substantial overhead costs. Conversely, Butin (2007) claims that more sustained funds, perhaps from the institution, make a greater difference than external grants. Indeed, one indicator of an institution's commitment to community engagement evaluated in context of how effectively community engagement is institutionalized is sustained funding from departments, schools, and colleges, as opposed to relying on soft money such as grants (Furco, Weerts, Burton & Kent, 2009). It is clear that the issue of which type of funding best facilitates community engagement demands further study; however, most scholars are in agreement that increased funding from any avenue facilitates greater community-engaged efforts (Butin, 2007; Gelmon et al., 2012; Seifer & Calleson, 2004).

Institutional Facilitators of Community Engagement

Scholars propose that sustained institutional commitment to community engagement involves change at all levels: top-down, bottom-up, outside-in, and inside-out approaches (Seifer et al., 2012). Investment from institutions is as crucial as buy-in from the community partners (Ahmed et al., 2004). Strong agreement exists between scholars that the greatest facilitators at the institutional level for community engagement are institutional leadership, familiarity with community organizations, faculty and student interest, and institutional structures (Ahmed et al., 2004; Calleson et al., 2002; CCESHP, 2005; Minkler et al., 2012; Seifer & Calleson, 2004).

Ahmed et al. (2004) claim that CBPR needs to be valued in the institution's repertoire of supported research approaches. If the institution can accept a CBPR framework in discovery, teaching, and implementation, institutions will have more effective solutions to health problems in the community (Ahmed et al., 2004). The research culture and overall climate of a university is established by institutional leadership and policy; support from institutional leaders is widely agreed upon as a strong facilitator of community engagement (Ahmed et al., 2004; Calleson et al., 2002). An explicit institutional mission of community engagement, as well as a strategic plan that values community engagement is also beneficial (Calleson et al., 2002). Faculty roles and reward policies, as well as release time policies stemming from the strategic plan will also promote community engagement (Calleson et al., 2002). Once institutional leadership is engaged and the mission and strategic plan of the institution focus on community engagement, structures can be put into place to support community-engaged work (Calleson et al., 2002). Minkler et al. (2012) promote the following structures to facility community engagement: cultural and linguistic accommodations, understanding of health disparities, and structures to promote partnership between health departments. Leadership, mission, strategic plan, and structure can thus facilitate community engagement.

Institutional familiarity with community organizations and community leaders also acts as a facilitator to community-engaged work (Calleson et al., 2012). Some

medical education colleges utilize Community Action Models (CAM) that focus on community assets and asset mapping to mobilize community members and create change (Minkler et al., 2012), and are able to do so because of familiarity with communities and the use of approaches that reflect local community cultures (Minkler et al., 2012). Building relationships between the institution and community also bolsters public perception of the university and promotes community involvement in planning and implementation of programs (Calleson et al., 2012; Seifer & Calleson, 2004).

Ahmed et al. (2004) propose changes in academic culture, led by leadership and relationships with the community, to value community knowledge, share work and rewards, educate key decision-makers, embrace many forms of scholarship, invest in grants for CBPR, and reward faculty for community engagement. Ahmed et al. (2004) and CCESHP (2005) both also emphasize that an institution should recruit and mentor faculty who pursue community engagement. Health profession schools should invest in retention of community engaged faculty (CCESHP, 2005) and mentoring programs should be established to provide faculty development opportunities (Ahmed et al., 2004). However, for community engagement to be fully embraced by faculty, the institution must integrate community engagement with the academic culture, and faculty must be given sufficient skills, experience, and rewards to perform community-engaged work (Ahmed et al., 2004).

Facilitators for Faculty to Pursue Community Engagement

Clinical faculty interest is an essential facilitator for community engagement (Calleson et al., 2002), and there are a number of actions an institution can take to facilitate faculty involvement in community-engaged work. Faculty must have sufficient release time to build respectful and reciprocal relationships with community members (Butin, 2007), and must have appropriate incentives in addition to the time to complete community-engaged research. Faculty roles and rewards and recognition of community engagement in the promotion and tenure review process are significant facilitators of community engagement (Calleson et al., 2002; Seifer & Calleson, 2004). Butin (2007),

Jones and Gold (1998), and CCESHP (2005) offer the following recommendations for revision of the promotion and tenure process:

1. Definition and inclusion of diverse scholarship: Medical schools should adopt a definition of scholarship that values community-engaged scholarship and recognizes a diverse array of scholarship products, including publications, development of learning tools and curricula, clinical service programs, and more (Butin, 2007; Jones & Gold, 1998). Institutions should also revise promotion and tenure policies to reward community engagement (CCESHP, 2005)
2. Inclusion of community members in promotion and tenure process: When community-engaged faculty submit a dossier for review, community partners should be involved in a meaningful way with the review, promotion, and tenure process (CCESHP, 2005).
3. Educate review committees to recognize community engagement: Health professions schools should prepare members of review committees to understand community engagement and to apply new review, promotion, and tenure guidelines to community-engaged faculty (CCESHP, 2005).
4. Establish and nationally promote appropriate peer-review: Institutions should establish appropriate peer-review mechanisms for community-engaged scholarship and promote national coalitions of other community-engaged faculty to ensure appropriate peer review of scholarship (CCESHP, 2005).

In addition to recommendations for promotion and tenure, other scholars highlight the necessity of professional development and peer support to equip faculty with curricular tools to effectively perform their work (Butin, 2007; Gelmon et al., 2012; Seifer & Calleson, 2004).

Gaps and Limitations in Community Engagement Literature

A thorough review of literature on community engagement in medical education allows several gaps and limitations of existing studies to be identified. In addition to the need to further examine effective types of funding to facilitate community engagement discussed earlier, further study is needed to determine the real impact of community-engaged research and CBPR's capacity to promote change, the actual use of CBPR by institutions, the community perspective, and the limitation of context in conclusions drawn from community engagement studies.

There is a lack of research on CBPR and its impact on public policy (Chung et al., 2015; Minkler et al., 2008). It is difficult to attribute changes in public policy to a single factor, and Chung et al. (2015) identified the paucity of investigation regarding the impact of community-engaged research on policy and other real world outcomes. Additionally, Wallerstein and Duran (2006) discussed the paradox of declaring CBPR as a force for change while lacking ability to link research data directly to policy change; concentrated political action appears to be a greater driving force for change. Participatory research does play a critical role as an educational framework for analysis, but "rarely as the structural framework for change" (Wallerstein & Duran, 2006, p. 317).

Furthermore, much of the community-engaged research performed at institutions and examined in various studies may not actually be considered true engaged research (Seifer & Calleson, 2004). Seifer and Calleson (2004) emphasize the difference between community-based research and community-based *participatory* research, with a critical distinction being the participation of community in an equitable and meaningful partnership. In a study performed by Seifer and Calleson (2004), the authors concluded, "as one moves from the identification of community health concerns, to determining the research question and methods, to analyzing the data and disseminating the results, respondents perceived less and less involvement of the community" (p. 425). Further research is needed to understand community participation in CBPR. It is also vital to draw attention to the lack of community perspectives in many of these scholarly sources. Seifer and Calleson (2004) declared the need for further research from the perspective of

community agencies and members. Leiderman, Furco, Zapf, and Gross (2003) and Sandy and Holland (2006) are examples of studies that present the community perspective on what makes an effective partnership, but greater attention is needed in community engagement literature, particularly in the health professions education field, on community perspectives.

Another aspect that can be overlooked in the process of research and student learning is the development of the teaching skills by faculty. Butin (2007) argued that community engagement "has immense potential to improve that situation [of education], but today's faculty are not trained, prepared, or rewarded for linking their courses to their communities; grounding their research in real-life community dilemmas; or disseminating their research to non-academic audiences" (p. 37). Studies of medical education over the past ten to twenty years indicate that faculty can identify their own training deficiencies in responding to needs of ethnic and cultural groups, understanding the role of community organizations, and promoting equitable access to quality health care (Seifer, 1998). Further examination of skills that faculty need to perform community engagement in research and teaching is necessary to identify best practices and support mechanisms that institutions should develop.

Finally, a large limitation to research on community engagement in medical education is the extent to which study results are applicable beyond the context in which the study took place. Many studies within medical education revolve around a specific intervention with a targeted population and, as such, are not always generalizable to other institutions or communities, although they can be useful for comparison for policy and practice implications. Skills desired, incentives, and rewards and significant barriers or facilitators of community engagement and these vary greatly between institutions (Gelmon et al., 2012). There is also a wide difference in institutional policies that inhibit or promote community engagement, as well as the types of faculty career tracks that may or may not include community engagement (Coleman & Richard, 2011). Other factors significant to faculty involvement in community engagement that are different between

institutions are the chosen method of professional development – seminars, grand rounds, self-directed learning – as well as the level of participation in such development, and formal mentorship programs offered by institutions (Chung et al., 2015). While there appears to be agreement over many aspects of community engagement in medical education as evidence by this literature review, the fact remains that interventions to promote community engagement will vary depending on the context and climate of the institution. Therefore, more targeted studies may be needed to determine themes in community engagement that may not depend on context, and analysis of commonalities between studies should take context into consideration when recommending conclusions or future directions for further study.

Conclusion of Literature Review

Community engagement is an increasingly utilized approach for higher education institutions and medical education colleges to pursue to build productive relationships with and remain accountable to their surrounding communities. Medical education can involve community engagement in research, teaching, and other learning approaches. An overview of the literature on community engagement in medical education reveals common themes regarding the place of community engagement in medical education, its utility to teaching, research, and service, and its impact on health issues in the community. The rationale for pursuing community engagement in medical education is growing and presents strong evidence to justify the place of community engagement in medical education. Principles of good practice, barriers, and facilitators of community engagement in medical education have emerged in commonality across many studies, which provide helpful guidance for institutions to consider in their implementation of community-engaged efforts. Further study on community engagement in medical education should investigate best practices for sustained funding, its impact on public policy, the use of true community-engaged research, faculty skills and development opportunities, and examination of the context and its influence on study outcomes, as well as the extent to which recommendations can be generalized across contexts.

Continued focus on community engagement in medical education will illuminate ways to strengthen current community-engaged efforts and help promote the spread of community-engaged approaches to other higher education institutions.

Chapter 3

Methods and Findings

This study was guided by questions to identify family medicine residency education faculty perceptions of community engagement and the importance and influence of community engagement concepts to research and teaching, as well as barriers and facilitators to community engagement. The analysis of survey results sought to identify themes related to the most influential barriers to research and teaching, most influential facilitators to research and teaching, and highest factors of importance to research and teaching.

Research Questions

To compare perceived barriers and facilitators of community engagement in research, teaching, and learning to issues specific to medical education, faculty perspectives on community engagement in family medicine residency education were explored to determine faculty familiarity with community engagement principles, and barriers and facilitators unique to medical education. This study was guided by the following research questions:

1. Which aspects of community-engaged research and teaching are identified as barriers or facilitators in family medicine residency education?
2. What are the implications of community engagement in research and teaching to family medicine residency education faculty?

Assumptions

Based on a thorough review of literature, two assumptions guided the creation of the survey. First is the assumption that family medicine faculty who are tenured or on a tenure track will identify different community engagement concepts as having high or low influence on their research and teaching than those who are not seeking tenure. Second is an assumption that faculty from diverse backgrounds will be more likely to identify community engagement concepts as having higher influence on and higher importance to their research and teaching. These assumptions are formed due to the

evidence existing in prior studies about the relationship between faculty rewards and role and participation in community engagement, faculty backgrounds and participation in community engagement, and barriers and facilitators to community engagement.

Quantitative Methodology

As stated in the introduction, a survey was chosen as the method for this study to provide quantitative data around the perceptions, attitudes, and experiences of the target audience of family medicine residency education faculty at a large Midwestern research university. A quantitative approach allows for an assessment of whether or not specific determinants predict behaviors at differing levels, and can also provide baseline data to guide any potential future planning around faculty participation in community engagement in family medicine residency teaching and research.

Additionally, a survey was chosen as the most appropriate method to use for the target population of family medicine residency education faculty because it allows for data to be collected in a relatively short period of time, in consideration of the limited schedule that this population has for activities outside of teaching, research, clinical duties, administrative activities, and other related responsibilities. The survey can be found in Appendix A.

Participants

Participants were selected based on their faculty affiliation with family medicine residency education at a large Midwestern research university. Faculty surveyed were those that engage in residency teaching either directly within a residency program or through an affiliate center or program that involves residency teaching and research. A total of 100 faculty were surveyed through an online survey; this represents the total population of family medicine faculty who engage in residency teaching and research at this institution. The online survey was distributed via a one-time link and kept open over a period of two weeks with one reminder sent. Of the 100 surveys distributed, 36% of participants responded and completed the survey, which is within the range of the average survey responses of similar studies, between 30% to 40%.

Measures and Analysis

This study used a survey to gather information regarding faculty perspectives on knowledge, perceptions, and need for further development, designed consistent to other survey designs on faculty needs, participation, and perception of community engagement.

Survey questions were designed based off of themes that emerged from a thorough literature review of community engagement in medical education. Demographic information collected was based on common descriptors in academia related to faculty rank, tenure status, tenure track, and time employed in the department of Family Medicine. Ethnic background descriptors were based off of qualifiers used on the United States Census. Barriers, facilitators, aspects of research, and aspects of teaching listed in the survey were based off of community engagement principles in general and those specific to medical education identified in the literature review.

For questions rating barriers or facilitators, scaling was designed to range from one to four as follows: 1=not at all influential; 2=slightly influential; 3=very influential; 4=extremely influential. For questions rating factors of importance, scaling ranged from one to four to maintain consistency with the following scale: 1=not at all important; 2=slightly important; 3=very important; 4=extremely important**.**

Analysis

Data was analyzed through descriptive statistics and emergent coding. Descriptive statistics, such as mean, standard deviation, and frequency, allowed themes to emerge relating to the highest and lowest factors indicated on various survey questions. Data was also disaggregated into two categories based of tenure status: one group of respondents who were tenured, tenure-track, or would seek tenure in the future, and one group who were not seeking tenure or unsure, to determine if tenure status affected outcomes.

Findings

Demographics

Of the 100 surveys distributed to family medicine faculty engaged in residency teaching and research, 36 participants completed the survey for a response rate of 36%.

Of those respondents, 94% identified their ethnic background as Caucasian/white; 3% identified as Asian, and 3% identified as Other and specified East Indian. When describing their position in the department of Family Medicine, 4 respondents selected adjunct/affiliate professor (11%); 26 selected assistant professor (72%); 4 selected associate professor (11%); and 2 selected full professor (6%). The minimum number of years employed in the department of Family medicine was one year, and the maximum number of years employed in the department was 35. The average number of years employed as 9.43 with a standard deviation of 8.69.

Participants were also requested to select their status within the department of Family Medicine as related to tenure status. Responses indicated that 47% of participants are not seeking tenure (17/36); 31% are tenure-track (11/36); 3% are tenured (1/36); 11% will seek tenure in the future (4/36); and 8% were not sure of their current or future status (3/36).

Familiarity with and Participation in Community Engagement

Participants were requested to assess their familiarity with community engagement, as defined by the Carnegie Community Engagement Classification: collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity. The levels of familiarity indicated 3% as not at all familiar with community engagement in their field of study (1/36); 39% as slightly familiar (14/36); 31% as moderately familiar (11/36); 19% as very familiar (7/36); and 8% as extremely familiar with community engagement in their field of study (3/36).

In the past year, 36% (13/36) of respondents had participated in a community-engaged project (one time; defined beginning and end); 27% (10/36) of respondents had participated in a community-engaged program (ongoing; multiple projects); 44% (16/36) of respondents had participated community-engaged teaching activities; and 14% (5/36) of respondents had participated in a community-engaged research project or study.

Respondents were asked to choose all that applied, leading to percentages greater than one hundred.

Types of Research and Teaching

Respondents were requested to indicate all types of research and teaching in which they engaged; respondents selected one or more fields of research and teaching in which they engaged. Table 2 details the findings below.

Table 2
Types of Research and Teaching

Types of Research	% (out of 36)	Types of teaching	n
Curriculum development/educational	23 (64%)	Lectures/didactics	32 (89%)
Clinical research	14 (39%)	Precepting	30 (83%)
Health disparities	9 (25%)	Modeling/demonstration	27 (75%)
Community-based research	9 (25%)	Community-based teaching	15 (42%)
Population health	7 (19%)	Service-learning	10 (28%)
Other (included health policy, health delivery, competency assessment)	4 (11%)	Evaluation	1 (3%)
Not currently engaged in research	1 (3%)	Not currently engaged in teaching	0 (0%)

Barriers Identified

Participants identified barriers to carry out research or teaching as outlined in Table 3. The top three and bottom three are bolded for emphasis.

Table 3
Barriers to Research and Teaching

Barrier	Total Responses	Mean	Standard Deviation
Insufficient time for research with communities	33	3.61	0.70
Lack of grants or other funding	34	2.38	0.89
Unfamiliarity with leaders of community-based organizations/community agencies	33	2.36	1.08
Lack of convenient opportunities to develop community partnerships	33	2.15	0.87
Insufficient rewards or roles for research with the community	33	2.09	1.07
Encouragement of leadership (program, department, university) to perform research with the community	33	2.00	0.90
Low resident interest in working with communities	33	1.73	0.98
Competition of sites for community-based research or teaching	33	1.64	0.70
Low personal interest level in working with communities	33	1.55	0.79
Low personal interest to engage in activism/social change	33	1.36	0.65

Responses were selected based on the following scale: 1=not at all influential; 2=slightly influential; 3=very influential; 4=extremely influential.

Across all respondents, low interest in working with communities and to engage in activism or social change was a low barrier to family medicine residency faculty research and teaching, with averages of 1.55 (SD=0.79) and 1.36 (SD=0.65), respectively. This could suggest that faculty have interest in working with communities and in creating social change. Insufficient time to conduct work with communities (mean=3.61, SD=0.70) and lack of grants or other funding (mean=2.38, SD=0.89) were selected as the highest barriers, which is consistent with existing conclusions in literature on community engagement (Butin, 2007; Calleson & Seifer, 2004; CCESHP, 2005; Seifer & Calleson, 2004).

Unfamiliarity with leaders of community organizations or agencies also emerged as a higher barrier with an average of 2.36 (SD=1.08), along with a lack of opportunity to develop partnerships in the community with an average of 2.15 (SD=0.87). This suggests that faculty may not be familiar with the communities in which they work to the extent that they would feel supported doing research and teaching in the community, or that they may not believe they have skills to interact in certain ways with community

organizations, or other barriers that may be associated with familiarity with community leaders. Faculty may need support from their university and from their employers to develop relationships with community leaders. These results are consistent with findings from Butin (2007), who stated that community engagement has high potential to improve education, but faculty are not trained or prepared to link courses to communities.

However, unfamiliarity with community leaders as a barrier had the highest standard deviation of all barriers (SD=1.08), which could have a number of implications. Unfamiliarity with community leaders could range from being a slightly influential barrier to a very influential barrier to family medicine faculty. Further study on family medicine faculty relationships with community leaders and community organizations could explore this outcome to determine other implications of this barrier, such as skill development for partnering with community organizations, orientation to community resources or agencies, or need of professional development around relationship building with community leaders. This outcome does not allow any claims to be made regarding family medicine faculty willingness to become familiar with leaders of community-based organizations, but suggests that further development or support may be needed to assist faculty in building and sustaining relationships in the community so that this barrier may be ameliorated.

Encouragement from leadership of the program, department, or university was only slightly influential to family medicine faculty research and teaching. As a barrier, it received an average across all respondents of 2.00 (SD=0.90) and as a facilitator, the average across all respondents was 2.22 (SD=0.91), which was the lowest average facilitator. Calleson and Seifer (2004) and Seifer and Calleson (2004) both argued that lack of support by academic leaders was a large barrier to faculty work. Seifer and Calleson (2004) and Seifer et al. (2012) also stated that lack of effort from institutional leaders was inimical to building trust within communities. Findings from this study appeared to be inconsistent with existing literature, suggesting that family medicine faculty may be motivated by factors other than formal support from program, department,

or institutional leaders. Another barrier that was only slightly influential was competition for sites for community-engaged research or teaching, with an average of 1.64 (SD=0.70). Lack of collaboration between disciplines or schools can lead to competition for a limited number of community sites (Calleson et al., 2002; CCESHP, 2005), but respondents did not indicate competition as a barrier of high influence.

Having adequate roles and rewards for community-engaged work was also a slightly influential barrier (mean=2.09, SD=1.07). This factor had a larger standard deviation, which could mean that the influence of roles and rewards as a barrier to community-engaged research and teaching could depend on the individual respondent's status and motivation for promotion and tenure, which is tantamount to roles and rewards. In fact, responses differed when results were grouped according to tenure status into two groups to compare outcomes between those tenured, on a tenure track, or interested in tenure, and those not seeking tenure or unsure. Table 4 below details the highest and lowest three barriers by tenure status.

Table 4
Highest and Lowest 3 Implications of Tenure Status on Barriers

Tenure, tenure-track, seeking tenure – Barriers (n=15)	Mean (SD)	Not seeking tenure, unsure – Barriers (n=18)	Mean (SD)
Insufficient time for research with communities	3.67 (0.99)	Insufficient time for research with communities	3.56 (0.99)
Lack of grants or other funding	2.63 (1.02)	Unfamiliarity with leaders of community-based organizations/community agencies	2.44 (1.03)
Unfamiliarity with leaders of community-based organizations/community agencies	2.40 (1.03)	Lack of convenient opportunities to develop community partnerships	2.28 (0.96)
Competition of sites for community-based research or teaching	1.47 (0.72)	Low personal interest in working with communities	1.72 (0.96)
Low personal interest in working with communities	1.33 (0.49)	Competition of sites for community-based research or teaching	1.47 (0.70)
Low personal interest to engage in activism/social change	1.27 (0.46)	Low personal interest to engage in activism/social change	1.44 (0.78)

Responses were selected based on the following scale: 1=not at all influential; 2=slightly influential; 3=very influential; 4=extremely influential.

Of the respondents that were either tenured, on a tenure track, or interested in tenure in the future, the top three barriers indicated were insufficient time (mean=3.67, SD=0.62) lack of grants or other funding (mean=2.63, SD=1.02), and insufficient roles and rewards for community-engaged work (mean=2.40, SD=0.99). The lowest three barriers were low resident interest in working with communities (mean=1.47, SD=0.92), low personal interest in working with communities (mean=1.33, SD=0.49), and low personal interest to engage in activism or social change (mean=1.27, SD=0.46). Encouragement from leadership at the program, department, or university level was indicated as not at all influential (mean = 1.80, SD=0.86).

For those respondents who were not seeking tenure or unsure, the top three barriers differed from those related to tenure. The top barriers for those not seeking tenure or unsure were inadequate time (mean=3.56, SD=0.78), unfamiliarity with leaders of community organizations (mean=2.44, SD=1.15), and lack of convenient opportunities to develop partnerships in the community (mean=2.28, SD=0.96). This suggests that for universities or departments looking to support their faculty to perform community-

engaged research and teaching, those who are tenured, tenure-track, or interested in tenure may face different challenges and need different support than those faculty who are not tenured.

Facilitators Identified

Participants identified facilitators to carry out research or teaching as outlined in Table 5. The top three and bottom three are bolded for emphasis.

Table 5
Facilitators to Research and Teaching

Facilitator	Total Responses	Mean	Standard Deviation
Adequate time for research with communities	32	3.13	1.13
High personal interest to engage in activism/social change	32	2.97	1.03
High personal interest level in working with communities	32	2.81	1.09
Access to grants or other funding	32	2.59	0.91
Convenient opportunities to develop community partnerships	32	2.56	0.72
Availability of sites for community-based research or teaching	32	2.50	0.95
Familiarity with leaders of community-based organizations/community agencies	32	2.44	0.98
High resident interest in working with communities	32	2.34	0.94
Adequate rewards or roles for research with the community	32	2.22	0.97
Encouragement of leadership (program, department, university) to perform research with the community	32	2.22	0.91

Responses were selected based on the following scale: 1=not at all influential; 2=slightly influential; 3=very influential; 4=extremely influential.

Strong agreement exists between scholars that the most influential factors to utilizing community engagement are institutional leadership, familiarity with community organizations, and faculty and student interest (Ahmed et al., 2004; Calleson et al., 2002; CCESHP, 2005; Minkler et al., 2012; Seifer & Calleson, 2004). Results from this study were somewhat consistent with this conclusion. In fact, all factors on the survey received an average rating of influence of at least 2.00, indicating that all facilitators were slightly influential to research and teaching.

Having adequate time was selected by all respondents as being the greatest facilitator of influence to community engagement in research and teaching (mean=3.13, SD=1.13), which is logical since having inadequate time was a high barrier (mean=3.61, SD=0.70). Roles and rewards for community engagement were also indicated as slightly influential for all respondents (mean=2.22, SD=0.97), as was funding (mean=2.59, 0.91), which are both consistent with conclusions from other scholars of facilitators to community engagement (Gelmon et al., 2012; Seifer & Calleson, 2004). One facilitator that all respondents indicated as influential was high personal interest in engaging in activism and social change (mean = 2.97, SD=1.03), which is inconsistent with conclusions drawn in literature on community engagement. Butin (2007), Minkler et al. (2008), and Strasser et al. (2015) all argued that a great challenge to faculty pursuit of community engagement in medical education is the perception that community engagement is activism or advocacy for social justice. This inconsistency suggests that family medicine residency faculty may not be deterred by engaging in activism or social change; further investigation could explore whether or not this is related to family medicine as opposed to other specialties, political climate of the area and university, or other factors.

Although still slightly important across all respondents, having adequate roles and rewards surfaced in the lowest three factors of influence with a mean of 2.22 (SD=0.97), indicating that roles and rewards may not be as influential to family medicine residency faculty in particular as the literature might suggest. Ahmed et al. (2004), Seifer and Calleson (2004), and Seifer et al. (2009) point to the inadequacy of formal rewards to motivate faculty to pursue community-engaged research and teaching as a challenge and state that the presence of roles and rewards acts as a great facilitator. This factor may apply differently to family medicine residency faculty.

When the respondents were disaggregated by tenure status into two groups, different themes emerged. Table 6 below details the highest and lowest three facilitators by tenure status.

Table 6
Highest and Lowest 3 Implications of Tenure Status on Facilitators

Tenure, tenure-track, seeking tenure – Facilitators (n=15)	Mean (SD)	Not seeking tenure, unsure – Facilitators (n=18)	Mean (SD)
Adequate time for research with communities	3.50 (0.95)	Adequate time for research with communities	2.83 (1.20)
High personal interest to engage in activism/social change	3.36 (1.01)	Convenient opportunities to develop community partnerships	2.78 (0.73)
High personal interest level in working with communities	3.07 (1.14)	High personal interest to engage in activism/social change	2.67 (1.04)
High resident interest in working with communities	2.21 (1.12)	High resident interest in working with communities	2.44 (0.78)
Adequate rewards or roles for research with the community	2.14 (0.95)	Encouragement of leadership (program, department, university) to perform research with the community	2.39 (0.85)
Encouragement of leadership (program, department, university) to perform research with the community	2.00 (0.96)	Adequate rewards or roles for research with the community	2.28 (1.02)

Responses were selected based on the following scale: 1=not at all influential; 2=slightly influential; 3=very influential; 4=extremely influential.

When responses were grouped according to relation to tenure, those that were tenured, tenure-track, or interested in tenure in the future indicated roles and rewards as a slightly influential factor with a mean of 2.14 (SD=0.95), which was the second-to-lowest indicated factor of importance. For those respondents that were not seeking tenure or unsure, the presence of adequate roles and rewards for community-engaged work received a mean of 2.28 (SD=1.02), which was the lowest indicated factor of importance. The difference between average influence to tenured, tenure-track, or future tenure-seeking faculty and those not seeking tenure or unsure, coupled with conclusions drawn in literature on community engagement merit further study on tenure status of family medicine faculty and its relation to the influence of roles and rewards as a facilitator of community-engaged research and teaching.

In both groups, however, tenure status did not appear to be related to the facilitators of greatest influence, which were adequate time and high personal interest in engaging in activism or social change as stated above. These factors received responses of higher average influence across all responses as well as when examined in relation to

tenure status; release time and pursing a passion for social change appear to be facilitators across the family medicine residency faculty involved in this study.

Factors of Importance to Research

Respondents were involved in a variety of types of research and teaching, which introduces the challenge for community-engagement concepts to be applicable and relevant to a broad spectrum of research and teaching activities. Only one respondent (3%) indicated no involvement in research, which shows that the majority of family medicine residency faculty engage in research. Additionally, 77% of respondents indicated involvement in curriculum development and educational research, which introduces further opportunity for community engagement concepts to be integrated into teaching and subsequent research on those teaching methods and outcomes.

Participants rated the level of importance that each factor in Table 7 had on their research. The top three and bottom three are bolded for emphasis.

Table 7
Factors of Importance to Research

Factors of Importance to Research	Total Responses	Mean	Standard Deviation
Relevance of topic to the group under study	29	3.52	0.59
Relevance of topic to my interests	29	3.52	0.67
Ability of findings to improve health outcomes	29	3.41	0.82
Perception of use of results to create change in practice and policy	29	3.24	0.79
Participation and partnership of the group under study	29	3.03	0.82
Inclusion of underrepresented populations/participants historically underrepresented	29	2.79	1.18
Use of expert knowledge from other physicians or academics	30	2.73	0.78
Use of experiential knowledge of the group under study	29	2.62	0.73
Search for root causes of issues under study	29	2.55	0.83
Convenience of topic and quick timeframe	29	2.52	0.91
Ease of publishing my findings	29	2.52	0.87
Ease of finding peer review for my research	28	2.18	0.90
Perception of the rigor of my research	29	2.17	0.71
Objectivity or distance from group under study	30	1.90	0.84

Responses were selected based on the following scale: 1=not at all important; 2=slightly important; 3=very important; 4=extremely important.

Themes emerged in the factors of highest importance to research, such as faculty interest and the ability to make a difference. Other factors of importance, receiving a

range of average importance from 2.55 to 2.79, were the inclusion of underrepresented populations (mean=2.79, SD=1.18), use of experiential knowledge of the group under study (mean=2.62, SD=0.73), and search for root causes of the issues under study (mean=2.55, SD=0.83). These are all concepts of community engagement and factors of importance that strategies such as community-based participatory research can address.

Factors of importance to research that received lower averages were some of the factors that are typically found in traditional research, indicating that community engagement concepts may have higher importance to family medicine faculty research. The ease of publishing findings, ease of finding appropriate peer review, and the perception of the rigor of faculty research all received lower average ratings of importance across all faculty with averages of 2.52, 2.18, and 2.17, respectively; the lowest factor of importance to research was objectivity or distance from the subject under study with an average of 1.90 indicating it was not at all influential. These factors of lower importance to faculty research have implications when compared with Ahmed et al. (2004), who argued that traditional research from health professions schools often did not respect community knowledge or expertise and favored objective research. This highlights that family medicine faculty research may not be consistent with traditional health professions research, since factors found more often in traditional research were rated of lower importance; factors of greater importance to family medicine faculty that are community-engaged concepts may not be respected by health professions schools, as Ahmed et al. concluded (2004).

When the respondents were disaggregated by tenure status into two groups, different themes emerged. Table 8 below details the highest and lowest three factors of importance to research by tenure status, which were similar between the two groups of tenured, tenure-track, or interested in tenure in the future, and those not seeking tenure or unsure.

Table 8
Highest and Lowest 3 Implications of Tenure Status on Research

Tenure, tenure-track, seeking tenure – Research (n=15)	Mean (SD)	Not seeking tenure, unsure – Research (n=18)	Mean (SD)
Ability of findings to improve health outcomes	3.71 (0.47)	Relevance of topic to the group under study	3.47 (0.83)
Relevance of topic to my interests	3.64 (0.50)	Relevance of topic to my interests	3.40 (0.63)
Relevance of topic to the group under study	3.57 (0.51)	Ability of findings to improve health outcomes	3.13 (0.99)
Objectivity or distance from group under study	2.20 (0.68)	Ease of finding peer review for my research	2.27 (0.80)
Perception of the rigor of my research	2.14 (0.66)	Perception of the rigor of my research	2.20 (0.77)
Ease of finding peer review for my research	2.08 (0.95)	Objectivity or distance from group under study	1.60 (0.91)

Responses were selected based on the following scale: 1=not at all important; 2=slightly important; 3=very important; 4=extremely important.

Factors of Importance to Teaching

Participants rated the level of importance that each factor in Table 9 had on their teaching. The top three and bottom three are bolded for emphasis.

Table 9
Factors of Importance to Teaching

Question	Total Responses	Mean	Standard Deviation
Having adequate time to prepare a lesson or activity	31	3.42	0.56
Providing experiences for residents to learn about resources available in the community	29	3.24	0.95
Providing experiences to personally transform residents	29	3.07	0.84
Designing curriculum based on input from the population I hope to impact	29	3.07	0.84
Providing time for learners to self-reflect	30	3.00	0.69
Meeting required learning objectives	29	2.93	0.70
Serving as an expert to my learners	29	2.76	0.83
Encouraging residents to partner with community members/organizations	29	2.76	0.87
Providing experiences for residents to conduct community-based research	29	2.59	0.91
Providing rotations at public health departments or community health centers	29	2.52	1.09
Providing service-learning opportunities	30	2.43	0.67
Using a "see one, do one, teach one" model	29	2.24	0.91

Responses were selected based on the following scale: 1=not at all important; 2=slightly important; 3=very important; 4=extremely important.

Respondents indicated that they were involved in a variety of teaching activities. All respondents were involved in giving lectures or other didactic sessions, 94% were engaged in precepting residents, and 84% performed modeling or demonstration while teaching. Only 47% indicated involvement in community-based teaching, and only 31% taught with service-learning concepts. The accrediting body for medical education programs recognized by the United States Department of Education, the Liaison Committee on Medical Education, endorses service as an educational approach to medical education (Hunt et al., 2011), but results from this survey show that service-learning may not be as widely utilized by family medicine faculty as other methods of teaching. However, all factors of importance to teaching were at least slightly influential to all respondents, which demonstrate that community engagement concepts may be utilized broadly across types of residency teaching.

Themes that emerged in the top three and even top five factors of importance to teaching are all consistent with community-engaged teaching concepts widely recognized in the literature. Time to prepare (mean=3.42, SD=0.56), providing experiences for residents to learn about resources in the community (mean=3.24, SD=0.95), providing experiences to personally transform learners (mean=3.07, SD=0.84), designing curriculum based on input from the population faculty hope to impact (mean=3.07, SD=0.84), and providing time for learners to self-reflect (mean=3.00, SD=0.69) were all selected as very influential factors to teaching. Factors of importance to teaching that are more consistent with traditional medical education, such as serving as an expert to the learner, were selected as slightly influential, with an average of 2.76 (SD=0.83). Other factors that were selected as slightly influential to teaching were consistent with community-engaged teaching, such as encouraging residents to partner with community organizations (mean=2.76, SD=0.87), and providing opportunities for residents to conduct community-based research (mean=2.59, SD=0.91).

Factors that were selected of lower importance to teaching, although still slightly influential, were arranging rotations at public health or community health centers

(mean=2.52, SD=1.09), which seemed contradictory. Providing experiences for residents to learn about community resources and organizations and to conduct community-based research could be conducted at public health departments or community health centers. Service-learning also appeared as a lower factor of importance (mean=2.43, SD=0.67), albeit still slightly influential, which also seemed inconsistent with literature praising service-learning as a teaching method to promote reciprocal learning, transform residents, and promote moral development, civic learning, and critical thinking skills (Enos & Troppe, 1996; Seifer, 1998; Seifer et al., 2000).

Table 10 below details the highest and lowest three factors of importance to teaching by tenure status, illuminating different themes.

Table 10
Highest and Lowest 3 Implications of Tenure Status on Teaching

Tenure, tenure-track, seeking tenure – Research (n=15)	Mean (SD)	Not seeking tenure, unsure – Research (n=18)	Mean (SD)
Having adequate time to prepare a lesson or activity	3.40 (0.63)	Having adequate time to prepare a lesson or activity	3.44 (0.51)
Providing experiences for residents to learn about resources available in the community	3.23 (0.83)	Providing experiences to personally transform residents	3.25 (0.93)
Providing time for learners to self-reflect	3.21 (0.58)	Providing experiences for residents to learn about resources available in the community	3.25 (1.06)
Providing rotations at public health departments or community health centers	2.69 (1.18)	Providing experiences for residents to conduct community-based research	2.50 (0.82)
Providing experiences for residents to conduct community-based research	2.69 (1.03)	Providing rotations at public health departments or community health centers	2.38 (1.02)
Providing service-learning opportunities	2.57 (0.94)	Providing service-learning opportunities	2.31 (1.01)

Responses were selected based on the following scale: 1=not at all important; 2=slightly important; 3=very important; 4=extremely important.

When results were grouped thematically between tenure status, all factors remained at least slightly important to both groups of tenured, tenure-track, and seeking tenure in the future, and of not seeking tenure or unsure. In fact, both groups had similar themes emerge between the highest factors of importance and the lowest factors of importance. In both groups, the lowest factors of importance to teaching were providing

experiences for residents to perform community-based research and providing service-learning opportunities. The highest factors of importance were time to prepare, and providing experiences for residents to learn about resources in the community. The consistency of these results between the two groups of tenure status demonstrates that factors of importance to teaching may remain constant across family medicine residency faculty and that teaching methods may not differ between rank or tenure status.

Limitations

The use of data from one university limits the generalizability of the results, although it does provide an outline of the current context at this institution that could be useful in guiding interventions. The survey did not collect information on the type of degree(s) earned by participants so did not take into account the academic training that faculty members have received. Participants may also teach medical students in addition to residents and although the survey specifically requested participants to use examples from residency teaching or research, participants may have conflated the two types of learners.

Chapter 4

Implications and Conclusion

Community engagement concepts are recommended to enhance research and teaching in medical education (Calleson et al., 2002; Strasser et al., 2015), but the application of community engagement concepts in research and teaching can depend on the presence of barriers, facilitators, and faculty perspective of its importance to research and teaching. The findings of this study have implications to the use of community engagement concepts in medical education and their use in family medicine residency teaching and research. Perception of barriers, facilitators, factors of importance to research, and factors of importance to teaching will be described as they relate to the results from all respondents followed by discussion of perceptions of tenured or tenure-track faculty and non-tenured or non-tenure-track faculty.

Implications

Since 94% of respondents identified as Caucasian/White, no conclusions were able to be drawn about the relation between ethnicity and familiarity or interest in community engagement. Further study could delve into the influence of ethnicity, academic training, or practice location to determine any possible correlation between these other factors and familiarity with or pursuit of community-engaged research and teaching, and to identify the community members under study and their relations with faculty performing research and teaching in their communities.

Many of the perceptions of barriers, facilitators, and factors of importance to research and teaching varied in their consistency with existing literature. Results that were consistent with existing literature are the influence of time, funding, and roles and rewards as both barriers and facilitators to community engagement in medical education. In addition, themes that emerged from factors of importance to teaching to this population were all consistent with concepts of community engagement agreed upon in existing literature: time to prepare, providing experiences for residents to learn about resources in the community, providing experiences to personally transform learners,

designing curriculum based on input from the population faculty hope to impact, and providing time for learners to self-reflect.

Other outcomes appeared to be inconsistent with the majority of the existing literature on community engagement in medical or other health professions education. For example, many scholars cite perception of community-engaged research or teaching as activism as a barrier to utilizing community engagement concepts. However, family medicine faculty in this study indicated a higher influence of interest to engage in activism or social change as a facilitator, and importance of making a difference in policy or practice as factors of importance to research and teaching. This contradiction highlights the need for further study into family medicine faculty willingness to participate in activism for healthier communities; other factors such as location, academic training, advocacy training, and specialty in medical education could also be related to the desire to engage in activism for social change.

Another outcome that this study revealed was low use of service-learning and low average rating of service-learning as an important factor to teaching, which is inconsistent with the general consensus in community engagement literature on community-engaged teaching and student outcomes. Community engagement literature commonly praises service-learning – when conducted appropriately and following best practices – as an influential teaching method for reciprocal learning and to transform learners. Family medicine residency education's place in the medical school and the routine curriculum of rotations, demonstrations, and procedural practice may not be an ideal environment to utilize service-learning; however, another factor at play may be unfamiliarity with service-learning as a teaching method. Further study could explore family medicine faculty familiarity, interest, and use of service-learning as a specific community-engaged teaching method.

Other differences appeared between the two groups split by tenure status of tenured, tenure-track, or seeking tenure in the future, and not seeking tenure or unsure. Roles and rewards differed slightly as a barrier or facilitator for these two groups, as did

factors of importance to research and teaching. Roles and rewards such as promotion and tenure policies may have a large impact on a faculty member's willingness to conduct community-engaged research or teaching (Calleson et al., 2002; Seifer & Calleson, 2004). Family medicine faculty may be motivated to use community engagement concepts by other factors in addition to roles and rewards, but it is clear that tenure status or future tenure status has implications on community engagement in residency research and teaching.

Within all responses, faculty interest in a research topic emerged as a high factor of importance to research (mean=3.52, SD=0.67). The relevance of the topic to the group under study was an equal average factor of importance to research (mean=3.52, SD=0.59), which has implications in consideration of where, how, and why the research topic is initiated, especially those that are community-engaged. In order to meet community needs, faculty should involve the community they hope to impact in the design of the research or teaching activity for greater impact. Ability of research findings to improve health outcomes had an average level of importance of 3.41 (SD=0.82) and perception of use of research results to create change in practice and policy had an average level of importance of 3.24 (SD=0.79). Since having an impact on the population was a higher factor of importance for research, faculty may need to learn the skills necessary to adequately engage community members from the beginning of their research or teaching design, since meeting community needs and collaborating with community members from the start will allow for greater impact.

In addition, encouragement from leadership at the program, department, or university level across all responses was rated as the lowest facilitator to research and teaching, although still slightly influential, with a mean of 2.22 (SD=0.91). As a barrier, encouragement from leadership was only slightly influential with a mean of 2.00 (SD=0.90). These results suggest that individual interest may be a greater motivational factor than support from institutional leaders, which have several implications including a potential lack of collaboration of faculty efforts in communities and possible replication

of work, if faculty are pursuing their interests without encouragement and possibly involvement or strategy from leadership.

There are a myriad of avenues that future research on community engagement in family medicine residency education could pursue. As mentioned, service-learning and tenure status surfaced as areas that merit further attention. Faculty skill and faculty development is another area that demands additional study in order to determine the current level of faculty knowledge, skill, and comfort in performing community-based research and teaching in order to strengthen ties with the community, educational outcomes, and ultimately patient health outcomes. Community perspectives should not be overlooked; research should take into account the community view point on many of these issues and the community perception of family medicine faculty and residents engaging in teaching and research activities in their communities.

Further attention is also needed to explore greater implications of program, department, or institutional leadership on family medicine faculty use of community engagement principles. Strategic plans could be analyzed for inclusion of community engagement concepts and vision to guide faculty research and teaching in communities. Additional research is also needed to examine the impact of community-engaged research and teaching on educational outcomes and other outcomes, such as policy or practice change. It is difficult to attribute changes in public policy, for example, to methods such as community-based participatory research since there are many factors influencing changes. Chung et al. (2015) recently demonstrated the dearth of investigation into the real-world impact and outcomes of community-engaged research.

Conclusion

This study sought to address questions around which aspects of community-engaged research and teaching are identified as barriers or facilitators in family medicine residency education; and what are the implications of community engagement in research and teaching to family medicine residency education faculty. Results indicated a consensus around barriers, facilitators, and perception of importance of community

engagement to family medicine research and teaching that differed when disaggregated by tenure status, demonstrating that the assumption that family medicine faculty who are tenured or on a tenure track will identify different community engagement concepts as having high or low influence on their research and teaching than those who are not seeking tenure may have some merit.

This study served as an appropriate introduction to the implications of community engagement concepts to family medicine residency faculty research and teaching and highlighted a number of implications and areas for future research. Results can serve as introductory data for further study on community-engaged research and teaching in family medicine residency faculty work and the barriers and facilitators involved in these pursuits. The results also concentrate focus on areas for further research to better understand the place of community engagement in medical education and specifically in family medicine residency education.

In this study, 97% of respondents engaged in research and all were involved in teaching, demonstrating the opportunity to utilize community-engaged concepts to enhance family medicine research and teaching. Community-engaged teaching and research methods, such as community-based participatory research, can eliminate barriers to care, develop culturally appropriate programs through application of inside perspective from the community, and can generate greater buy-in with communities (Horowitz et al., 2009). Community-engaged research and teaching present opportunities to address factors of influence and importance in residency education research and teaching, and community-engaged methods can address factors that family medicine faculty hold in higher importance in their field. Strong engagement with community is recognized as an effective approach to benefit underserved populations and to ensure that medical care reaches populations in need (Chung, Norris, Mangione, Del Pino, Jones, Castro,...Brown, 2015); as such, family medicine residency faculty are poised to not only enhance research and teaching but also to improve health outcomes through their own practice and the practice of future residents.

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APPENDIX A: OLPD MA FM Faculty Perception of CE Survey
(Distributed through Qualtrics)

Implications of Community Engagement in Faculty Research and Teaching in Family Medicine Residency Education

The following survey explores the implications of community engagement in research and teaching to family medicine residency education faculty in terms of barriers, facilitators, and factors of influence and importance to the research and teaching. Results from this study will compare barriers and facilitators to community engagement in research and teaching in residency education.

I would greatly appreciate if you would take 5-10 minutes to fill out this survey. Participation is voluntary and individual answers will be kept confidential. If you wish to obtain a copy of the results, please enter your email address on the last page.

This research study is in partial fulfilment of the requirements for the Master's degree of Organizational Leadership, Policy, and Development - Higher Education at the University of Minnesota. (IRB Study 1601E82843; Exempt)

Thank you for your time and consideration in participating in my study.
Elizabeth McElligott Candidate, MA, Higher Education
Department of Organizational Leadership, Policy, and Development

Which best describes your position in Family Medicine & Community Health?

- ❍ Adjunct/Affiliate Professor (1)
- ❍ Assistant Professor (2)
- ❍ Associate Professor (3)
- ❍ Full Professor (4)
- ❍ Other (please specify) (5) _____

How many years have you been in the position indicated above in the department of Family Medicine & Community Health?

_____ Please slide the bar to select the number of years

How many years overall have you been employed in the department of Family Medicine & Community Health?

_____ Please slide the bar to select the number of years

Which best describes your status in the department of Family Medicine & Community Health?

- ❍ Not seeking tenure (1)
- ❍ Tenure-track (2)
- ❍ Tenure granted (3)
- ❍ Will seek tenure in the future (4)
- ❍ Other (please specify) (5) _____

If you are tenured or on a tenure track, which best describes your track?

- ❍ Teaching (1)
- ❍ Research (2)
- ❍ Clinical Scholar (3)
- ❍ I am not tenured or on the tenure track (4)
- ❍ Other (please specify) (5) _____

Please select the ethnic background(s) you most identify with (choose all that apply):

- ❑ Caucasian/White (1)
- ❑ African American (2)
- ❑ American Indian/Alaska Native (3)
- ❑ Asian (4)
- ❑ Native Hawaiian/Other Pacific Islander (5)
- ❑ Hispanic/Latino (6)
- ❑ Other (please specify) (7) _____

Please read the following definition of "Community Engagement" as defined by the Carnegie Community Engagement Classification. Please refer to this definition of "Community Engagement" for the following questions.
Community Engagement describes collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity.
Please select the level of your familiarity of community engagement in your field of study:

- ❍ Not at all familiar (1)
- ❍ Slightly familiar (2)
- ❍ Moderately familiar (3)
- ❍ Very familiar (4)
- ❍ Extremely familiar (5)

In the past year, have you participated in a community-engaged...(check all that apply):

- ❑ Project (one-time; defined beginning and ending) (1)
- ❑ Program (ongoing; multiple projects) (2)
- ❑ Teaching activity (3)
- ❑ Research project/study (4)
- ❑ None of the above (5)

Please select the level of influence these barriers have on your ability to carry out research or teaching in your field of study:

	Not at all influential (1)	Slightly influential (2)	Very influential (3)	Extremely influential (4)
Lack of grants or other funding (1)	❍	❍	❍	❍
Lack of convenient opportunities to develop community partnerships (2)	❍	❍	❍	❍
Insufficient rewards or roles for research with the community (3)	❍	❍	❍	❍
Unfamiliarity with leaders of community-based organizations/community agencies (4)	❍	❍	❍	❍
Encouragement of leadership (program, department, univeristy) to perform research with the community (5)	❍	❍	❍	❍
Low personal interest level in working with communities (6)	❍	❍	❍	❍
Insufficient time for research with communities (7)	❍	❍	❍	❍
Competition of sites for community-based research or teaching (8)	❍	❍	❍	❍
Low resident interest in working with communities (9)	❍	❍	❍	❍
Low personal interest to engage in activism/social change (10)	❍	❍	❍	❍

Please select the level of influence these facilitators have on your ability to carry out research or teaching in your field of study:

	Not at all influential (1)	Slightly influential (2)	Very influential (3)	Extremely influential (4)
Access to grants or other funding (1)	❍	❍	❍	❍
Convenient opportunities to develop community partnerships (2)	❍	❍	❍	❍
Adequate rewards or roles for research with the community (3)	❍	❍	❍	❍
Familiarity with leaders of community-based organizations/community agencies (4)	❍	❍	❍	❍
Encouragement of leadership (program, department, univeristy) to perform research with the community (5)	❍	❍	❍	❍
High personal interest level in working with communities (6)	❍	❍	❍	❍
Adequate time for research with communities (7)	❍	❍	❍	❍
Availability of sites for community-based research or teaching (8)	❍	❍	❍	❍
High resident interest in working with communities (9)	❍	❍	❍	❍
High personal interest to engage in activism/social change (10)	❍	❍	❍	❍

Please select all types of research you engage in:

- ❑ Clinical research (1)
- ❑ Curriculum development/educational (2)
- ❑ Community-based research (3)
- ❑ Population health (4)
- ❑ Health disparities (5)
- ❑ Other (please specify) (6) _____

Please rate the importance of the following aspects to the research in your field:

	Not at all important (1)	Slightly important (2)	Very important (3)	Extremely important (4)
Objectivity or distance from group under study (1)	❍	❍	❍	❍
Use of expert knowledge from other physicians or academics (2)	❍	❍	❍	❍
Use of experiential knowledge of the group under study (3)	❍	❍	❍	❍
Participation and partnership of the group under study (4)	❍	❍	❍	❍
Relevance of topic to the group under study (5)	❍	❍	❍	❍
Relevance of topic to my interests (6)	❍	❍	❍	❍
Convenience of topic and quick timeframe (7)	❍	❍	❍	❍
Inclusion of underrepresented populations/participants historically underrepresented (8)	❍	❍	❍	❍
Perception of use of results to create change in practice and policy (9)	❍	❍	❍	❍
Ease of publishing my findings (10)	❍	❍	❍	❍
Ability of findings to improve health outcomes (11)	❍	❍	❍	❍
Perception of the rigor of my research (12)	❍	❍	❍	❍
Ease of finding peer review for my research (13)	❍	❍	❍	❍
Search for root causes of issues under study (14)	❍	❍	❍	❍

Please select all types of residency teaching activities you engage in:

- ❑ Precepting (1)
- ❑ Lectures/didactics (2)
- ❑ Community-based teaching (3)
- ❑ Service-learning (4)
- ❑ Modeling/demonstration (5)
- ❑ Other (please specify) (6) _____

Please rate the importance of the following aspects to the teaching activities in your field:

	Not at all important (1)	Slightly important (2)	Very important (3)	Extremely important (4)
Providing time for learners to self-reflect (1)	❍	❍	❍	❍
Having adequate time to prepare a lesson or activity (2)	❍	❍	❍	❍
Providing service-learning opportunities (3)	❍	❍	❍	❍
Meeting required learning objectives (4)	❍	❍	❍	❍
Serving as an expert to my learners (5)	❍	❍	❍	❍
Encouraging residents to partner with community members/organizations (6)	❍	❍	❍	❍
Using a "see one, do one, teach one" model (7)	❍	❍	❍	❍
Providing experiences to personally transform residents (8)	❍	❍	❍	❍
Designing curriculum based on input from the population I hope to impact (9)	❍	❍	❍	❍
Providing rotations at public health departments or community health centers (10)	❍	❍	❍	❍
Providing experiences for residents to conduct community-based research (11)	❍	❍	❍	❍
Providing experiences for residents to learn about resources available in the community (12)	❍	❍	❍	❍

Please provide your email address if you would like a copy of the study results: