

HEALTH PROFESSIONALS TRAINING IN THE ERA OF THE PATIENT  
PROTECTION AND AFFORDABLE CARE ACT (P.L. 111-148): EDUCATING TO  
MEET WORKFORCE DEMANDS

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## DEDICATION

In loving memory of my grandmother, Jean E. Klusaritz (1924-2011), who was beyond proud and excited for her granddaughter to get a doctorate. I wish I had finished in time.

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## ABSTRACT

### HEALTH PROFESSIONALS TRAINING IN THE ERA OF THE PATIENT PROTECTION AND AFFORDABLE CARE ACT (P.L. 111-148): EDUCATING TO MEET WORKFORCE DEMANDS

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The 2010 Patient Protection and Affordable Care Act (P.L. 111-148) (PPACA) heralds new challenges for the education of health professionals and the development of a healthcare workforce primed to meet the influx of previously marginalized populations into healthcare systems. Changes in insurance coverage and mechanisms coupled with the focus on preventive care will require a healthcare workforce skilled in navigation, care coordination, ambulatory care models, and care for underserved populations. This dissertation is comprised of three studies that examine the current state of education for two professions impacted by the PPACA: social workers and physicians.

The first study, a systematic review of accredited MSW programs (n=200), was undertaken to investigate the level of health-related preparation provided by social work training program. Bivariate statistics and logistic regression models revealed that of the 200 programs, only 13 (6.5%) offer targeted health concentrations (HC). Controlling for university-level characteristics, university size ( $\beta=1.69$ ,  $p < .001$ ) and presence of an MPH program ( $\beta=2.0$ ,  $p<.0001$ ) were associated with having a HC.

The second study focused on education of medical students to meet PPACA stipulations of community-based training and graduates who go on to provide primary care. Using a grounded theory framework, 468 written assignments from a community-

based experience were examined. Five domains emerged. Themes reflected a continuum of students' abilities to understand the experiences and perspectives of community members and communicate their understanding.

The third manuscript examined resident experiences (N=22) in underserved communities through the lens of curricular requirements of community-based training. The assessment tool was found to have good reliability with Cronbach's alpha coefficients for the scales in the assessment tool ranging from 0.88 to 0.95. Significant differences in pre- and post- educational intervention mean scores were found.

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## CHAPTER ONE

### Introduction & Conceptual Framework

On March 23, 2010, President Obama signed into law health care reform legislation, the Patient Protection and Affordable Care Act (P.L. 111-148) (PPACA). This landmark piece of legislation has profound implications for millions of Americans, expanding insurance access and increasing the number of providers trained in primary care and preventive medicine. The PPACA will significantly impact the U.S. health care system, thrusting millions of Americans who previously were unable to access care, into care relationships with providers. Underserved populations in particular are highlighted by the PPACA, and the need to train providers to meet the health care needs of these populations is paramount if we are to deliver quality, efficacious care.

#### *Conceptual Framework*

This dissertation is guided by the World Health Organization's (WHO) framework for health professional education (2011). The WHO posits that we are experiencing a global health professionals workforce crises that must be addressed through a "transformative scale-up" of education. Not only must we educate more health professionals, but we need to improve the quality and relevance of educational programs and the trainees they produce. While the 2011 WHO report is global in scope, its recommendation of a "radical transformation that puts population health needs at the center of health professional education and positions health outcomes as a crucial component by which the educational process is assessed" (p.16) is applicable to the current state of the field in the U.S. post-PPACA. The entrance of previously uninsured,

historically marginalized persons into the health care system, through the PPACA mandated health exchanges, will result in increased demand for providers trained to work with underserved populations. The PPACA also directs significant funding toward the development of community-based collaborative care networks and patient-centered medical homes as innovative models of care for chronic medical conditions. Providers will also need to be trained in these new models of ambulatory-based chronic care in order to comply with insurance industry-based incentive mechanisms and evidence based practices. Training programs will need to realign skills and competencies with the post-PPACA workforce demands.

This transformative scale-up includes the education of social workers and physicians. The PPACA expands training programs under Title VII, Section 747, of the Public Health Services Act; to programs that aim to increase the number of physicians and behavioral health providers delivering care in underserved areas. The United States is currently facing a critical primary care provider shortage (Bodenheimer, Chen, & Bennett, 2009; Council on Graduate Medical Education, 2010; Iglehart, 2010; Rieselbach, Crouse, & Frohna, 2010; U.S. Department of Health & Human Services, 2010) with a projected 27 percent shortage of adult physicians by 2025 (Colwill, Cultice & Kruse, 2008) or a shortage of primary care providers of approximately 45,000 (Dill & Salsberg, 2008). Trends in graduate medical education such as an increase in specialty positions (Bodenheimer, Grumbach, & Berenson, 2009), a decline over the last decade in primary care graduates (Jaffe, Whelan & Andriole, 2010), and a six percent unfilled rate of residency positions in both family medicine and internal medicine-primary (National

Resident Matching Program, 2011) have decreased the primary care workforce in the U.S. The entry of the previously uninsured coupled with the aging baby boom population will put considerable additional strain on our primary care shortage (Institute on Medicine, 2008) with an estimated 15 to 24 million additional primary care visits by 2019 (Hofer, Abraham & Moscovice, 2011). Council of Graduate Medical Education recommends a minimum increase in the primary care workforce from 32 percent to 40 percent (2010). Not only is the U.S. facing a shortage of primary care providers, but we are also facing a workforce not prepared to practice with underserved populations in ambulatory models (Institute of Medicine, 2008; Ku, Shin & Rosenbaum, 2009; Rieselbach et al., 2010; Pew Health Professions Commission, 1998; Rosenbaum, Jones, Shin & Ku, 2009). While increases in the number of graduate medical education spots in primary care (National Resident Matching Program, 2011), and incentives within the PPACA will likely increase the number of physicians, training programs will need to examine the potential mismatch between old educational models (focused on hospital-based training) and “scale-up” to meet the demand for physicians trained in community based models of care (Goodson, 2010; Mullen, Chen, Peterson, Kolsky, & Spagnola, 2010). Further, the current emphasis on aging-in-place and the provision of care in the least restrictive environment for elders and individuals with disabilities, both mental and physical, requires training programs to develop educational models focused on the delivery of care in the community (Davitt & Gellis, 2011; Fields, Anderson, & Dabelko-Schoeny, 2011; Reder, Hendrick, Guihan, & Miller, 2009).

Medical training programs are not alone in their need to enact a transformative scale-up. Social work programs will also need to address workforce shortages and educate social workers to deliver services in ambulatory health care centers. Occupational growth for social workers in health care is projected to increase by 33 percent by 2020 and within health care, ambulatory health social work is expected to increase by 48 percent by 2020 (Bureau of Labor, 2009). Social work's professional orientation to social justice and caring for marginalized populations aligns the profession's values with the impending influx of marginalized populations into the health system. Further, social workers are primed for the delivery of services in community based models of care that will be the norm under the PPACA (Golden, 2011). Where social work will need to concentrate its transformative scale-up efforts will be in increasing the number of social workers trained to work in health care (Bureau of Labor, 2009; Ofusu, 2011).

This work is further informed by conceptual modes of health care utilization, access and quality. At root, the need to educate health care professionals trained to meet the population health needs heralded by the PPACA, is grounded in the supply of health care professionals or more broadly, health system resources. The Andersen model of health care utilization, initially developed as an individual behavioral model to understand and predict why individuals use health care services and how to measure equitable access to health care (Andersen, 1968), has been further developed for use in understanding population level access to health care services as well (Andersen, 1995; Andersen & Aday, 1978). The original Andersen model described an individual's use of health services as a function of predisposition, factors that enable service use, factors that

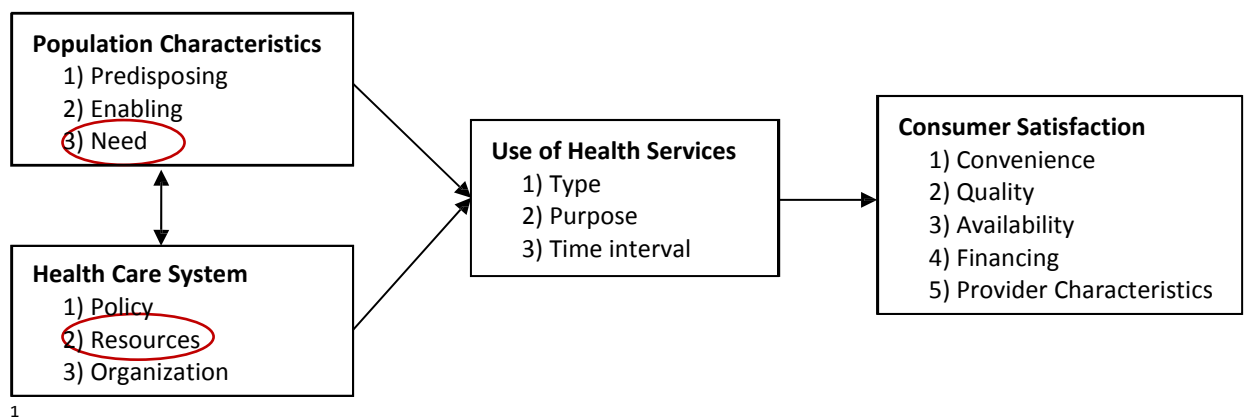
impede service use, and need for care (Andersen, 1995; Andersen & Aday, 1978; Gold & Kuo, 2003).

Predisposing characteristics include demographics, health beliefs, and an individual's social structure, a construct that incorporates both individual social position and environmental social forces (Andersen, 1995). Enabling factors are those characteristics of the individual, community, and health care system that facilitate access to and use of health care services such as socioeconomic status, health insurance, transportation, and provider supply (Andersen, 1968; Andersen, 1995; Gold & Kuo, 2003). Impeding factors are those characteristics of the individual, community, and health care system that inhibit access and utilization. Individual need for health care services includes both perceived need (self) and evaluated need (professional judgment) (Andersen, 1968; Andersen, 1995; Andersen & Aday, 1978). The expanded model takes into account predisposing, enabling, impeding, and need characteristics at the population level as well as the characteristics of the health care system and the external political and social environment (Andersen & Newman, 2005; Andersen et al., 2002). This model also incorporates dynamic feedback loops which serve to influence both subsequent population characteristics such as health beliefs, and characteristics of the health care system such as patterns of service delivery.

Utilization of health care services by underserved populations is a function of social determinants, individual determinants and health system resources. This dissertation uses the Andersen model to conceptualize how changes in the supply of health care providers, social workers and physicians, will impact utilization of health care

services, which will then influence health outcomes. More specifically, this work posits that increases in the number of social workers and physicians trained to work with underserved communities represents a change in the characteristics of the health services system, specifically a change in resources. In addition, the expected influx of patients into the health care system post-PPACA represents a change in demand or expressed need for services (Kettner, Moroney & Martin, 2009). In the early population-level iteration of the Andersen model posited in the 1970s, the need construct is captured within the Population Characteristics and the resources construct is captured within the Health Care system (see Figure 1). This dissertation posits that the Population Characteristics impact the Environment as well, specifically the Health Care Systems

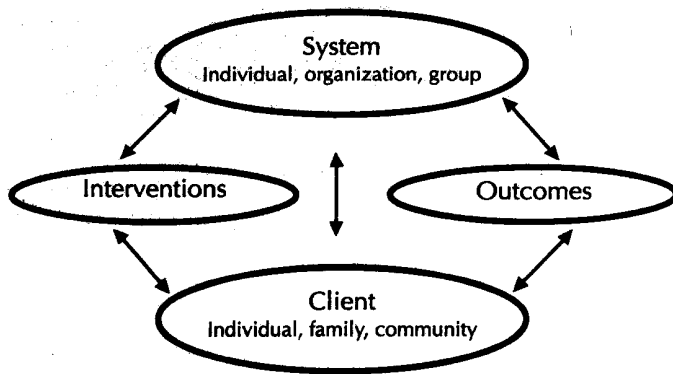
Figure 1: Andersen's Model of Health Care Access



<sup>1</sup> Adapted from Andersen, 1995



Figure 2: Mitchell, Ferketich, & Jennings Quality of Health Outcomes Model



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Yet changes in resources, or changes in the number of healthcare providers is not enough. This dissertation posits that we want to improve the quality of the providers that training programs produce. Not only do we need to produce more social workers and physicians to meet the workforce demands of the PPACA, but we want to produce providers who are knowledgeable of the challenges underserved communities face and can empathize with their patients. Donabedian's conceptualization of quality attempted to move beyond utilization of services as the sole indicator of access (1968). Instead, Donabedian focused on the quality of health care services and developed a structure–process–outcome model to evaluate quality (1968). Donabedian (1980) defines *structure* as the physical and organizational properties of the health care settings; *process* is the care or treatment a patient receives; outcomes the results of care or treatment. Donebedian further refined the model to account for the reciprocity between patients, the provision of care, agencies and systems (1980). This dissertation uses the Donabedian

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<sup>2</sup> Mitchell, Ferkeitch, & Jennings 1998.

model to conceptualize how changes in the *structure* and *process* impact the care provided to underserved populations. If we produce providers trained in the challenges of underserved communities and more able to empathize with their patients we can expect access and quality to improve, and lead to enhanced patient outcomes. Mitchell and colleagues (1998) refined the Donabedian model to posit additional reciprocity, or two-directional relationships between components in the system (Figure 2). Thus not only can more adequately trained providers influence outcomes, but client-level factors (in this case, characteristics of the population seeking care) will impact outcomes as well as the system. The three studies which comprise this dissertation aim to gain a better understanding of how changes in health system resources (namely in the form of enhanced training) may influence both provider supply and quality. This dissertation does not measure the relationship between changes in provider training and patient-level outcomes. Rather, it lays initial groundwork in exploring that relationship by examining the state of education for social workers and physician trainees.

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## CHAPTER TWO

### Manuscript #1: “Where is Health in Social Work Education?”

#### *Introduction*

The 2010 Patient Protection and Affordable Care Act (P.L. 111-148) brings a growing demand for social workers trained in health. This landmark legislation will require a cadre of workers able to navigate an increasingly complex insurance marketplace and an on-going shift toward ambulatory/community-based delivery models. Driven by the geriatric demographic shift and the accompanying increase in health care needs of the population, the U.S. Department of Labor, Bureau of Labor Statistics estimates the social work industry will grow by 16 percent over the next decade (2009). Occupational growth for social workers in health care is projected to increase by 33 percent by 2020 and within health care, ambulatory health social work is expected to increase by 48 percent by 2020 (Bureau of Labor, 2009). This growth is much faster than the average job growth rate of 7-13 percent. Recruitment and retention of social workers continues to challenge the profession, exacerbating potential workforce shortages (Council on Social Work Education [CSWE], 2008). Despite widespread recognition of the demographic shifts in the U.S., the increasing complexity of the U.S. healthcare system, and the adoption of ambulatory-based healthcare models as evidence for the need to increase the numbers of social workers trained in health (Berger & Ai, 2000; Berkman et al. 1996; Berkman, Gardner, Zodikoff, & Harootyan, 2006; Feldman, 2001; Kadushin & Egan, 1997; NASW, 2005; Spitzer & Nash, 1996), the education of social workers equipped to practice within healthcare continues to lag behind (Bronstein,

Kovacs, & Vega, 2007; Kadushin & Egan, 1997). While the John A. Hartford Foundation's Geriatric Social Work Initiative has made great strides in the last decade in bringing geriatric social work to the forefront of the profession's attention and to prepare our workforce to meet the population demands (2009; Damron-Rodriguez, Lawrance, Barnett, & Simmons, 2006; Fenster, Zodikoff, Rozario, & Joyce, 2010; Hooyman & St. Peter, 2006; Volland & Berkman, 2004), the adoption of adequate training models for health care social workers in non-aging health care tracks is unclear. This study details a systematic review of all CSWE accredited social work programs in the United States (U.S.) to determine concentration year curriculum and course offerings in health and public health for accredited MSW programs in the United States.

### *Background*

The demand for social workers trained specifically to meet the needs of a changing health care field and recognition that the training demands exceed current educational initiatives was identified over 20 years ago (Borland & Strauss, 1982; Caroff, 1988; Caroff & Mailick, 1985; Lane 1982). Specific knowledge of health care systems, public and private insurance, the health care safety net, interdisciplinary team work, social determinants of health and theories of health behavior change have been identified in the literature as foundational knowledge for any social work practitioner in the field of health (Berkman, 1996; Berkman et al., 2006; Berger & Ai, 2000; Dewees, 2004; Gehlert, 2006; Howe, Hyer, Mellor, Lindeman, & Liptak, 2001; Lu, Hiller & Chen, 2002; Marshall & Altpeter, 2005; Pecukonis, Cornelius, & Parrish, 2003; Vourlekis, Ell & Padgett, 2001). However, there is a dearth of information regarding the implementation

of this fund of knowledge in social work education programs. The first step towards advancing the state of social work training in health is a descriptive study to identify the types of health related training programs offered in social work education programs and their level of responsiveness to training recommendations outlined in the literature.

In an effort to address the shifting climate of health care provision in the United States the Future Search Conference Standards Working Group (FSCSWG, 2005) developed a set of standards and competencies to guide and govern social work practice and education within a public health perspective. These 14 professional standards were intended to address, “the issues of public health effectively through a core body of social work knowledge, philosophy, code of ethics, and standards” (FSCSG, 2005, p. 4). At its base, the standards include principles of social epidemiology, theories of population-based health promotion, an intergenerational and lifespan perspective, inclusion of the social determinants of health, theories of organization, and policy level regulation (FSCSWG, 2005).

One opportunity to advance the state of social work training in health is further collaboration with public health (Van Pelt, 2009). Public health social workers provide services at both the individual and population level. As defined by the Group for Public Health and Social Work initiatives (2011, p.1), public health social work is, “a contemporary, integrated, trans-disciplinary approach to preventing, addressing, and solving social health problems” which includes prevention (as well as intervention), incorporates research, policy, advocacy, and clinical approaches, works across population levels, and uses an approach emphasizing resilience and strengths to promote health and

reduce risk. While still a burgeoning field, health social workers now have the possibility to expand educational opportunities through affiliated public health learning. This professional coupling will help academics and the field to promote transdisciplinary collaboration, as well as increase recognition, coordination, and marketing of the field of public health social work (Ruth, Sisco, Wyatt, Bethke, Bachman, & Piper, 2008). Further, such collaboration holds great potential for social work educators to meet the complex training demands of social work in the healthcare arena, particularly given past challenges confronted by educators in creating relevant social work curriculum (Vourlekis, et al., 2001). Common practices shared by social work and public health include an ecological view of health, a focus on advocacy, and direct practice change with individuals, groups, communities, and systems. This is carried out through work in health education and health promotion, counseling and case management services, and policy initiatives. A difference between public health and social work is that health training in social work has most commonly taken place within health service delivery systems, constrained by a biomedical framework, dictated by the fiscal pressures of managed, episodic care, and has been tertiary (treating an issue that has already occurred). Public health training sites have historically been far more diverse, allowing for the integration of epidemiological and ecological frameworks and a proactive preventive focus (Calhoun et al., 2008).

### *Limits of Existing Literature*

There has not been a systematic review of accredited Masters of Social work programs and their requirements in the United States via a health care training lens since

Perretz's (1976) and Caroff and Mailick's (1985) seminal surveys in the early 1970s and 1980s respectively. These surveys revealed a specialization in its infancy (Perretz, 1976), with little consensus around concentrations or specialization tracks in health (Caroff & Mailick, 1985). Kadushin and Egan (1997) evaluated one component of social work training in health, health care practice course outlines from 53 accredited schools of social work. Their findings revealed only moderate inclusion of content related to the rapidly changing health care environment and dated, non-empirical course materials, and little content on ambulatory care treatment settings. Volland and colleagues (2003) reviewed a random selection of course catalogs in the late 1990s for concentration, specialization and course offerings. Their review highlighted the need to explicitly designate core competencies to guide social work education in health. However, it remains to be seen whether the competencies identified by Volland and colleagues have been acted upon by schools of social work. While the Council on Social Work Education's 2009 Annual Program Survey found 17.9 percent of programs offered a health-specific concentration, however this survey does not offer detailed information about curricular requirements.

Previous research has explored social work training in health from the perspective of practitioners' perceived fit between practice in healthcare settings and education (Bronstein et al., 2007), students' perspectives on adequacy of training (Liley, 2003), the educational continuum between classroom and field ( Marshack, Davidson & Mizrahi, 1988), the knowledge and skills required for practice (Browne, et al. 2006), interventions to bridge the gap between field and the classroom (Peleg-Oren, Aran, Even-

Zahav, Macgowan, & Stanger, 2007), and the state of health education in social work (Caroff & Mailick, 1985; Kadushin & Egan, 1997; Perretz, 1976; Volland, Berkman, Phillips, & Stein, 2003). While critical areas of knowledge for healthcare social workers have recently been identified (Berkman et al., 2006; Bronstein et al., 2007) no studies have assessed health care social work curricula since Copeland and colleagues' compendium of syllabi in 1999. This compendium was a result of a CSWE call for syllabi and represented model healthcare social work courses in the 1990s. Copeland and colleagues (1999) did identify primary content in social work healthcare courses; Gehlert (2006) notes that this compendium highlighted the dearth of theory requirements in these courses. Further, the practice environment for healthcare social workers has changed since the 1990s. Seminal new legislation expanding access to health insurance, continued demographic changes, and increasing adoption of ambulatory care models have sculpted a new landscape for healthcare social workers.

The advent of historic healthcare legislation coupled with growing acknowledgment of the collaborative opportunities with public health highlight the need to better understand health social work education. Social work, a profession grounded in social justice, advocacy and client self-determination is uniquely suited to meet the population health needs driven by the PPACA (Gorin, Gehlert, & Washington, 2010). More specifically, social work's primary mission of service for the vulnerable and oppressed (National Association of Social Workers, 2008) provides a unique professional foundation for the provision of health care services to marginalized populations. The influx of 32 million newly insured Americans (Congressional Budget Office [CBO],

2011), will require a workforce trained to navigate the complex insurance marketplace and state-provided insurance eligibility as well as trained to navigate access to health care. Seventeen million of the newly insured will access Medicaid and CHIP plans (CBO, 2011) that they were previously ineligible for, creating a population of previously marginalized consumers who will now be able to access care. Social work's professional orientation is primed to meet both the direct care and advocacy needs of these consumers. What remains to be seen is if schools of social work have developed educational programs to meet the increased workforce demands. An evaluation of the current state of training programs is essential to planning for future educational needs and to evaluate whether schools of social work have been responsive to the training recommendations outlined in the literature. Specifically, we seek to fill a gap in the literature on MSW healthcare specific training programs, curricular requirements within such programs, and the convergence of social work and public health educational opportunities.

#### *Aims and Hypotheses*

- ♦ **A1:** To document the proportion of concentration tracks devoted to health in accredited MSW programs in the U.S.

**H1:** Less than 25% of accredited MSW programs offer a health concentration or specialization.

- ♦ **A2:** To document the state of joint MSW/MPH programs in accredited MSW programs in the U.S.

**H2:** Less than 10% of accredited MSW programs offer a joint MSW/MPH program.

- ♦ **A4:** To describe the curricular requirements of health concentration tracks within accredited MSW programs in the U.S.
- ♦ **A5:** To examine the relationship between university characteristics and the presence of social work health concentrations.

**H5:** The presence of a health concentration or specialization is associated with the presence of a joint-MPH program.

**H6:** The presence of a health concentration or specialization is associated with the presence of an academic medical center.

*Primary outcome variables:*

Presence of Health Concentration tracks (yes/no)  
 Presence of Health Specialization options (yes/no)  
 Presence of joint MSW-MPH program (yes/no)

*Secondary outcome variable:*

Health-related course offerings in Practice, Theory, Policy, Research, HBSE

*Key Independent variables*

Presence of medical school (yes/no)  
 \*no=excluded group

Presence of joint MPH program (yes/no))  
 \*no=excluded group



## *Controls*

### University size

Carnegie Classification<sup>3</sup>Very small two-year, Small two-year , Medium two-year, Large two-year, Very large two-year, Very small four-year, primarily nonresidential, Very small four-year, primarily residential, Very small four-year, highly residential, Small four-year, primarily nonresidential, Small four-year, primarily residential, Small four-year, highly residential, Medium four-year, primarily nonresidential, Medium four-year, primarily residential, Medium four-year, highly residential, Large four-year, primarily nonresidential, Large four-year, primarily residential, Exclusively graduate/professional)

\*Not Classified = excluded group

### Region of the U.S.

(U.S. Census Regions and Divisions<sup>4</sup>: North, Midwest, West, South)

\*South=excluded group

### Control of University

(Carnegie Classification derived from the National Center for Education Statistics, IPEDS Data Center<sup>5</sup>: Public, Private not-for-profit, Private for-profit)

\*Private for-profit =excluded group

### Degree of urbanization

(Carnegie Classification derived from the National Center for Education Statistics, IPEDS Data Center<sup>6</sup>: City Large, City Midsize, City Small, Suburban Large, Suburban Midsize, Suburban Small, Town Fringe, Town, Distant, Town Remote, Rural Fringe, Rural Distant, Rural Remote)

\*Not assigned =excluded group

## *Methods*

A systematic review of all accredited MSW programs was undertaken to understand the concentration year curriculum and course offerings of each program.

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<sup>3</sup> See [http://classifications.carnegiefoundation.org/lookup\\_listings/standard.php](http://classifications.carnegiefoundation.org/lookup_listings/standard.php) for category definitions.

<sup>4</sup> See [http://www.census.gov/geo/www/us\\_regdiv.pdf](http://www.census.gov/geo/www/us_regdiv.pdf)

<sup>5</sup> See <http://nces.ed.gov/ipeds/datacenter/Default.aspx>

<sup>6</sup> See <http://nces.ed.gov/ipeds/datacenter/Default.aspx>

### *Data Collection*

A list of all accredited Master's in Social Work programs was compiled using the Council of Social Work Education (CSWE) Directory of Accredited Programs (CSWE, 2010). Inclusion criteria included: (1) offer a Master's in Social Work, and (2) have a current status of "Accredited". To do this sort, the filter system in the Directory was set to include only Master's level programs and only those with accreditation status "Accredited" (those who were "accredited – conditional", "withdrawal in process" or "candidacy" were excluded). Of the 712 programs listed in the Directory, 200 met the inclusion criteria. Once the list of programs was generated, we undertook an in-depth review of each school's website. This included mission statements, foundation and concentration/selection year language and content (all content reviewed was read on-line in English except for the information from the two programs in Puerto Rico; their sites were reviewed by the second author who is bi-lingual). The following information was extracted and catalogued for use in these analyses:: (1) whether in the concentration year of the program there was an option to select "health", (2) if there was no health concentration, was there a health specialization option, (3) course requirements and offerings for health concentration or specialization programs, (4) if no concentration year health concentration or specialization option, were there health-related courses, and (5) for all programs was there a joint degree option with a health-related masters degree (Masters in Public Health). Data on concentration year options) were collected from the schools' MSW program-level webpage and indicated by the presence of language denoting the option to pursue a specific program of study during the advanced year of the

program. Specialization (a designation given to programs who had a health focus – including both a practice and policy course – but not a specific health concentration) was denoted by the language on the school’s website or if it had both a health specific policy and practice course. While most schools course listings (including a description of courses) are listed on their websites, if course listings were not found on the Master’s in Social Work program pages, a search of course listings via the University’s course schedule was completed for the 2009-2010 academic year. Search terms for courses relevant to health included: (1) health, (2) hospital, (3) human sexuality, (4) HIV, (5) medical, (6) disability, and (7) aging. All data were entered into a spreadsheet and managed using Excel.

Accredited programs were linked to the 2005 Edition of the Carnegie Classifications of Institutions of Higher Education Data File (updated through February 2010 at time of data download) for university-level characteristics. This classification system includes all U.S. accredited, degree-granting universities and colleges. For these analyses, we merged data on university size, region of the U.S., public or private control, the enrollment profile and degree of urbanization for all 200 schools listed as accredited by the CSWE and providing a Master’s in Social Work. Merging the datasets allowed for a more robust examination of the qualities of the universities which house currently accredited Master’s in Social Work programs and allowed for the exploration of the influence of university factors on health social work curriculum.

### *Data Analysis*

Univariate, bivariate and logistic regression procedures were conducted using

SPSS 12. Univariate level statistics provided an understanding of general descriptive characteristics of the field related to region, number of schools with concentration/specializations, and availability of health related electives at schools of social work. Pearson's two-tailed correlations were run for those variables hypothesized to have a relationship with the presence of a health concentration or specialization. Logistic regression models including concentration as the dependent variable and university level variables as covariates were then performed.

### *Results*

Of the 712 listings in the CSWE Directory of Accredited Programs, 200 met the inclusion criteria. The accredited schools represented all four regions of the country and Puerto Rico. Breakdown by region was as follows: 55 in the Northeast, 39 in the West, 59 in the South, 50 in the Midwest, and two in Puerto Rico. South Dakota was the only U.S. State that did not have an accredited Master's level social work program. Forty-nine (49) programs (24.5%) listed health as either a concentration or a specialization within a clinical or macro (policy/administration) track. Health focused programs were clustered in the Midwest and Northeast; Thirty-four percent (n=17) of these programs were in the Midwest, 26.5% (n=13) were in the Northeast, 20.4% (n=10) in the West, and 18.4% (n=9) in the South.

Of the 49 programs that listed health as a concentration or specialization, 29 (59%) schools were housed on a campus with an academic medical center. Forty-one of the 49 (83%) health concentration/specialization Master's in Social Work programs were housed on a campus with a Master's in Public Health program, however only 19 (39%) of

those with the MPH offered a joint degree with a Master's in Public Health. Three schools which did not have a health concentration or a listed specialization did have a joint degree with a Master's in Public Health. As joint degrees were not a main focus of this investigation, an extensive search was not completed on this item; only schools that had the joint degree clearly listed on the school's website were noted in the data extraction.

Only 34 of the 49 programs found to have either a concentration or specialization designation were an advanced year concentration in health with a clearly designated program of study bringing the percent of all accredited Master's in Social Work schools with a health-related concentration to just 17 percent. As can be seen in Table 1, concentration names varied; 16 distinct titles for the health concentrations were identified. Strikingly, of the 34 programs with a health related concentration, less than half (38.2%, n=13) specifically focused on health. The remainder of health related concentrations combined health with another area: 16 (47.1%) combined health and mental health, two (2; 6%) combined health and aging, one (2.9%) was a public health concentration, one combined health and human services administration (1; 2.9%), and one (1; 2.9%) combined health and urban development. Therefore, of the 200 accredited Master's in Social Work programs, only 13 (6.5%) offer a health specific concentration without a combination focus.

The 13 programs that offer an undiluted health concentration varied in the number and type of courses required to meet the concentration (see Figure 1). Ten of the 13 programs (77%) required a health-specific practice course in the concentration year.

Seventy percent (n=9) also required a health-specific policy course in the concentration year. Other health-specific course requirements were much less stringent with only 3 of 13 programs (23.1%) requiring a health-specific theory course and only 3 of 13 programs (23.1%) requiring a health-specific human behavior and the social environment (HBSE) course. Of those that required a health-specific theory course, all courses covered theories of behavior change. Only one of the 13 concentration programs required a health-specific research course. Health-related elective options offered by the health concentration programs were extensive (see Figure 2), with elective offerings in Substance Abuse/Addiction (92.3% of programs), Death & Dying/Grief & Loss (76.9%), Mental Health Practice/Diagnostics (76.9%), and Chronic Illness/Disability (76.9%) the most popular.

The presence of an academic medical center was highly associated ( $r = .85$ , [ $p < 0.01$ ]) with having a health concentration/specialization (Figure 3). A Master's in Public Health program was moderately associated ( $r = .48$ , [ $p < 0.01$ ]) with having a health concentration/specialization, as was university size ( $r = .41$ , [ $p < 0.01$ ]). Controlling for university-level characteristics, university size ( $\beta = 1.69$ ,  $p < .001$ ) and presence of a Master's in Public Health program ( $\beta = 2.0$ ,  $p < .0001$ ) were associated with having a Master's in Social Work health concentration/specialization. There was no relationship between private/public control or degree of urbanization and having a Master's in Social Work health concentration/specialization.

## *Discussion*

This review of the field of social work education in health care revealed a substantial gap between the demand for social workers trained to practice in the arena of health and specific programs of study in health among accredited Master's in Social Work programs. Despite three decades of social work literature highlighting the need to improve social work training in health, and the identification of "Health" as the second most common practice area among licensed MSW's (Center for Workforce Studies [CWS], 2006) the increase in health concentration tracks has been minimal; there are only seven more programs (49) in 2010 than there were in 1982 (42) (Caroff & Mailick, 1985). Interestingly, the trend to combine health and mental health training noted by Perretz (1976) in the 1970s and Kadushin and Egan in the mid 1990s continues today with almost half (47.1%) of concentration tracks offering an intertwined health-mental health focus. Less than 10 percent of accredited Master's in Social Work programs offer a health specific concentration not blurred by a dual focus. For those programs with a singular focus in health, requirements are far from standardized, with great variability in requirements for practice, policy, theory and HBSE. In addition to great variability, the requirements can be described as less than rigorous with none of the programs requiring concentration courses in all four core content areas (practice, policy, HBSE, and theory). Given the necessary skill-sets identified in the literature, this can hardly be described as dedicated effort on behalf of the profession to train social workers in healthcare who are adequately prepared to meet the current practice demands. For the past three decades, educators and researchers have been calling for improved training especially in the areas

of managed care/insurance models, ambulatory/community care models, interdisciplinary teamwork, theories of preventive care and empirically based intervention models (Berkman, 1996; Berkman et al., 2006; Berger & Ai, 2000; Dewees, 2004; Gehlert, 2006; Howe, et al., 2001; Lu, et al., 2002; Marshall & Altpeter, 2005; Pecukonis, et al., 2003; Vourlekis, et al., 2001). Further, the 2006 national survey of licensed social workers reported significant changes in the service delivery system that increase barriers to care (CHWS, 2006). Yet this review of health focused social work training programs reveals little movement in that direction.

One approach to building health in social work is the creation/utilization of dual degree programs. Although a growing number of universities offer a Master's in Public Health degree, we found that only slightly more than a third of health concentration/specialization Master's in Social Work programs take advantage of this critical workforce development opportunity with dual Master's in Social Work / Master's in Public Health degrees. For programs that may not have the internal capacity to add courses in health or create a health concentration, utilizing on-campus resources for training social workers in health is vital. To do so, social work master's programs will need to consider allowing students to take electives outside the school/programs of social work and/or partner with existing health specific programs on the university campus or at an allied university.

Despite the current transformative changes in the delivery of health care services and a mounting focus on public health and preventive care, no programs have requirements in related courses such as health care systems. While some of the other



courses offered by programs may cover material on these critical topics, very few programs have taken a dedicated approach to ensuring their MSW students who graduate from a health concentration track receive comprehensive education in these areas. It is imperative that social work education works to develop health specific educational tracks to meet the demographic and ambulatory care provision challenges of our nation's health. In addition to improving the rigor and comprehensiveness of classroom based education, we need to begin to think about how we can expand the locations where students are trained. As noted in the literature review, traditionally, field education in social work has placed health focused students in hospitals. This typical arrangement has been driven both by field educators (social work departments in hospitals have been relatively stable) as well as students who (1) are aware that to work in hospitals post-master's having hospital experience is an unspoken pre-requisite and (2) recognize that hospital based social workers have traditionally received higher salaries than community-based social workers in non-profit organizations. Further, social work placements often focus on service to those who are already having health issues as opposed to health education and health promotion options. This is taking place more often at community based health clinics. Funding in these environments, however, can be less stable; Schools of Social Work may consider alternative models (such as external field supervision) to provide opportunities for students in agencies that do not have a licensed social worker who can supervise students. Further, social work field education has underutilized placements in governmental organizations (e.g. local and federal health departments) as well as national health policy and practice organizations (Jarman-Rhode, McFall, Kolar, & Strom, 1997).

Creating new ways to integrate into non-traditional field placements for students interested in health social work will allow for more breadth and depth within the discipline. Partnering with these types of organizations will also position social work trainees to fill future workforce needs which will increasingly be community-based and prevention and maintenance focused.

### *Limitations*

These findings are limited by study design: this research relied upon published material on accredited schools of social work websites and University registrars. Non-current website materials have the potential to bias the findings on concentration/specialization tracks, course requirements and elective offerings and dual Master's in Social Work / Master's in Public Health degrees. Further, this review of health-specific course requirements in practice, policy, theory, and HBSE is limited by what was available on the School and University website. Unpublished materials may increase the percent of health concentration programs with health-specific course requirements reported here. We also did not collect or review course syllabi for specific content, rather examined offered courses. Therefore health-specific content may have been covered in other courses and thus not reflected here. However, these limitations highlight the information available to prospective students who are looking for Master's in Social Work programs that offer health concentrations. Finally, the Carnegie Classifications are retrospective in nature and thus do not reflect current changes in institutional policy, programs, or infrastructure. In order to minimize this issue, we used

the data file that was updated as of February 11, 2010, to more closely match the timeliness of the information gathered from schools' websites.

### *Implications for Practice*

Despite some data limitations, this review provides a telling look at the current state of social work education in health and offers key points of intervention to shore up our workforce to meet training demands following the 2010 Patient Protection and Affordable Care Act. Demand for health care social workers is highlighted by the Center for Workforce Studies 2006 survey of licensed social workers. This national survey of licensed social workers in health reported 13 percent of respondents experienced vacancies in their practice setting and 19 percent reported difficulty in filling vacancies. Vacancies were reported as most common in the public sector, and most difficult to fill in micropolitan areas, highlighting the need to increase supply of social workers trained to work with populations served in these sectors. In addition, the U.S. Bureau of Labor projections clearly point to a need to increase the supply of social workers trained in health if we are to meet the job growth expectations over the next decade. Given that those projections were estimated prior to the PPACA, it is reasonable to assume that the health care social work job growth may exceed rates estimated in 2009. First, it is critical that more accredited Master's in Social Work programs develop health-specific concentration tracks. Whether the undiluted health-only focus is essential remains unclear. However, if not pursued by more programs, those dual-focus programs will need to integrate course content specific to the current healthcare practice environment including systems, insurance policies, the safety net for vulnerable populations,

preventive care, and social determinants of health. Second, without explicit training in healthcare policy, recent legislative changes and the impact on client populations cannot be understated. Social work has a long professional history of helping to eliminate or develop work-a-rounds to access barriers. Social workers will need to know how to navigate the new insurance market landscape, how to advocate within this patchwork system to meet client insurance coverage needs, and how to evaluate the impact on client populations in order to influence future policy development (Reardon, 2011). While some of this material can be learned in the field, required health-policy specific courses will teach students essential skills for understanding legislation and translating it into practice. Finally, schools of social work need to substantially increase theory requirements in health concentrations. Incorporating theories of health behavior change will be a step forward in preparing social workers for the demands of an ambulatory based care environment where the focus is on prevention and chronic disease management. Elective offerings of such courses no longer represent adequate training for healthcare social workers. Programs need to more stringently prepare the healthcare workforce to meet current and projected demand by the U.S. Department of Labor and rise to the challenge laid out by researchers and educators of the last three decades.

### *Conclusion*

This review of social work education revealed a substantial gap between the demand for social workers trained in health and specific programs of study in health in accredited Master's in Social Work programs. Less than 10 percent of programs offer a health-specific concentration without a dual focus, therefore diminishing the depth of

health-specific training students receive. It is imperative that social work education works to develop health specific educational tracks with more stringent requirements in practice, policy and theory to meet the insurance and ambulatory care provision challenges of the U.S. health care system. Strengthening social work education must involve training students in preventive care and health promotion, providing services that are proactive versus reactive and including community level activities into training.

Table 1. List of Health Related Concentration Titles

| Concentration Name* (N=34)             |
|--|
| Health and Mental Health (12)          |
| Health (6)                             |
| Clinical Practice in Health (2)        |
| Health Care (2)                        |
| Health/Behavioral Health with Adults   |
| Physical and Mental Health             |
| Health/Mental Health/Disabilities      |
| Interdisciplinary Health Practice      |
| Social Work in Health Settings         |
| Public Health Social Work              |
| Direct Practice in Health Services     |
| Health and Gerontology                 |
| Community Health and Urban Development |
| Health/Aging/Disabilities              |
| Behavioral and Physical Health         |
| Health and Human Services              |

\*number in parentheses denotes number of programs using this title

Figure 3. Percent of programs requiring Health-Specific Courses for Undiluted Concentration Programs (N=13)

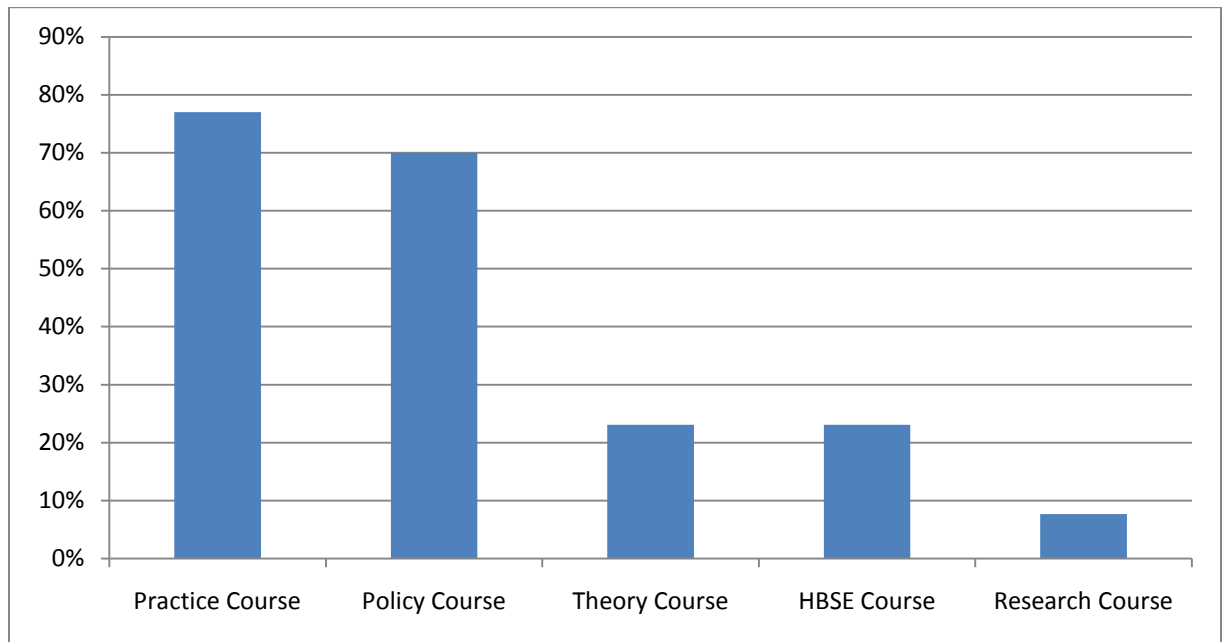


Figure 4. Elective Offerings in Health-Specific Concentration Programs (N=13)

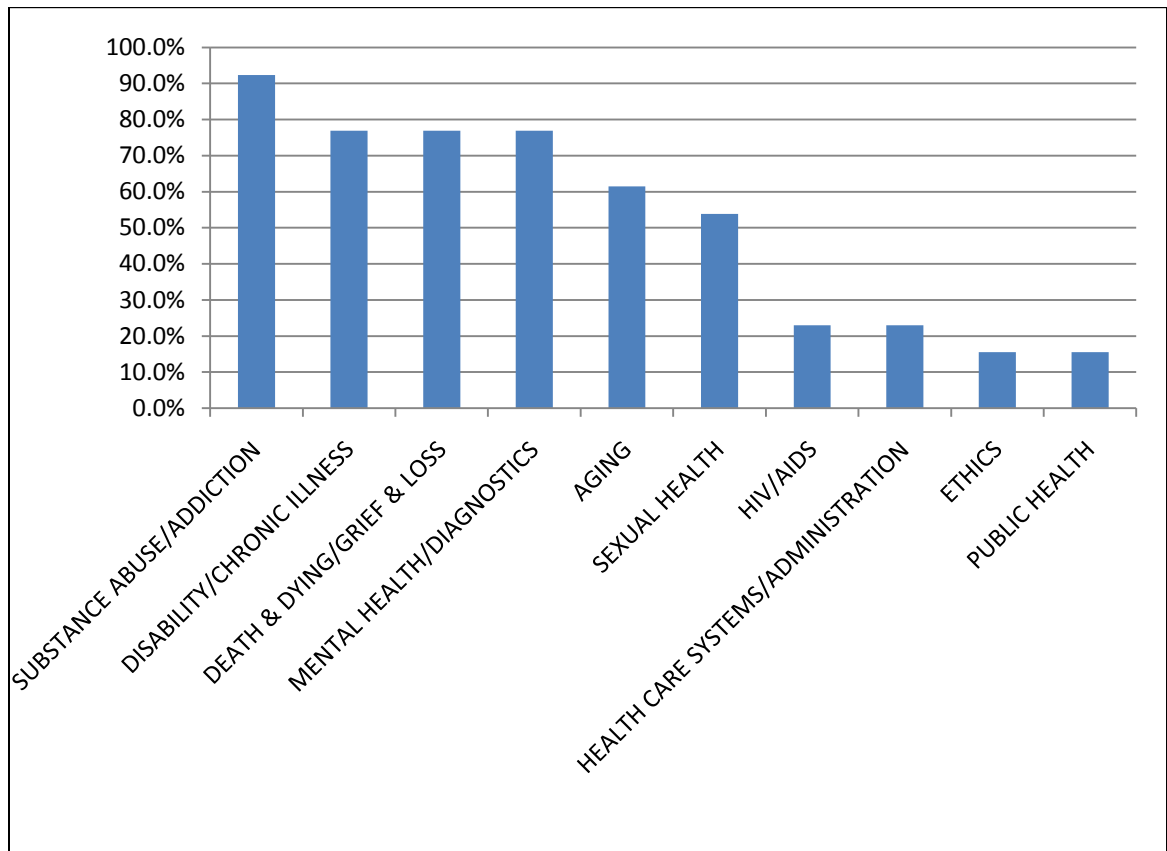


Figure 5. Intercorrelations for Measures of University-level Characteristics (N=200)

|  | 1       | 2       | 3       | 4       | 5       | 6     | 7 |
|--|---------|---------|---------|---------|---------|-------|---|
| 1. MSW Health Concentration/Specialization | –       |         |         |         |         |       |   |
| 2. University Offers a MPH program         | 0.482** | –       |         |         |         |       |   |
| 3. University has a Medical School         | 0.850** | 0.529** | –       |         |         |       |   |
| 4. Region of the US                        | 0.045   | 0.071   | -0.059  | –       |         |       |   |
| 5. Size of University                      | 0.405** | 0.519** | 0.368** | 0.223** | –       |       |   |
| 6. Public or Private                       | -0.031  | -0.150* | 0.025   | 0.306** | 0.340** | –     |   |
| 7. Degree of Urbanization                  | -0.098  | -0.067  | -0.100  | 0.163*  | -0.062  | 0.043 | – |

\*  $p < 0.05$  (2-tailed)

\*\*  $p \leq 0.01$  (2-tailed)



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## CHAPTER THREE

### Manuscript #2: “Medical Student Reflections on Community-Based Observations of Health: Empathy for Marginalized Populations and Specialty Choice”

#### *Introduction*

The 2010 Patient Protection and Affordable Care Act (P.L. 111-148) (PPACA) stipulates community-based training for physicians and provides financial incentives for physicians who provide care in underserved areas. While the need for additional primary care providers to work with underserved populations has long been recognized (American College of Physicians, 2008; Bodenheimer, Grumbach, & Berenson, 2009; National Association of Community Health Centers, [NACHC], 2004; NACHC, 2009; U.S. Department of Health and Human Services, Health Resources and Services Administration [HRSA], 2000; HRSA, 2012), the PPACA reemphasizes the urgency of this growing need (P.L. 11-148; Goodson, 2010). Through reauthorization of Title VII, Section 747 of the Public Health Service Act, the PPACA provides financial support for primary care training programs and incentivizes work with vulnerable or underserved populations (P.L. 11-148; Goodson, 2010). Financial incentives to attract providers to primary care and underserved areas are important (Bazargan et al., 2006; Hofer, Abraham, & Moscovice, 2011; Sempowski, 2004), however they may not be sufficient to produce physicians who are adequately trained and suited to such work (Goodson, 2010; Vaughn, DeVrieze, Reed & Schulman, 2010; Walker et al., 2010; Wayne, Timm, Serna, Solan, & Kalishman, 2010). If physicians are to be effective providers for underserved populations, we need to develop programs that cultivate an understanding of the barriers

to health in impoverished communities (Mohan & Mohan, 2007; Mullen et al., 2010; Pew Health Professions Commissions, 1998; Wear & Kuczewski, 2008). Given the shift toward ambulatory, preventive care, academic medical centers need to prioritize a workforce that is able to provide primary prevention (Goodson, 2010) and determine efficacious methods to engender interest in working with underserved populations, reducing health disparities and system burden.

### *Background*

The Liaison Committee on Medical Education (LCME) considers community-based experiences a critical component of the professional development of pre-doctoral students (2011). Community experiences are foundational to the clinical education medical students receive, providing a sense of context to the community-identified concerns and an understanding of the interplay between patients' living situation, environment, and health. Such experiences provide a venue for students to explore the socioeconomic and cultural factors influencing the health and treatment of patient populations (Astin, Sierpina, Forys, & Carridge, 2008; Cene, Peek, Jacobs & Horowitz, 2009; Dent, Mathis, Outland, Thomas, & Industrious, 2010; Hervada-Page, Fayock, Sifri, & Markham, 2007; Scott, Harrison, Baker, & Wills, 2005; Wayne et al., 2011). Implementation of experiential learning opportunities at all levels of medical professional training can have positive effects on learner satisfaction and attitudes towards marginalized communities (Huang & Malinow, 2010; Hufford, West, Paterniti, & Pan, 2009; McIntosh, Block, Kapsak, & Pearson, 2008; Meurer et al., 2011). Moreover, they may allow students to overcome fears and apprehension related to working with



challenging populations (Brill, Jackson & Stearns, 2002; Brill, Ohly & Sterns, 2002; Cronholm et al., 2009) and help students re-conceptualize their role with vulnerable populations (Paterniti, Pan, Smith, Horan, West, 2006).

Previous research on experiential community-based learning has focused on self-reported student satisfaction, student interest level, as well as the influence of such training on future specialty choice. Various factors influencing the likelihood of the future provision of care to underserved populations have been identified including: positive attitude toward the population group (Wayne, Timm, Serna, Solan, & Kalishman, 2010), tolerance of ambiguity (Wayne et al., 2010), low levels of burnout during training (Dyrbye et al., 2010), under-represented minority status of medical trainee (Weissman, Campbell, Gokhale, & Blumenthal, 2001; Xu et al., 1997), having grown up in an underserved area (Tavernier, Conner, Gates & Wan, 2003; Xu et al., 1997), and participation in international health electives (Thompson, Huntington, Hunt, Pinsky, & Brodie, 2003). In addition, several other studies have suggested that exposure to medically underserved areas (MUAs) and training in community health during medical education has an influence on interest in future practice in MUAs (Campos-Outcalt, Chang, Pust, & Johnson, 1997; Haq, Grosch, & Carufel-Wert, 2002; Ko et al., 2005; O'Toole, Hanusa, Gibbon, & Boyles, 1999; Norris, House, Schaad, Mas, & Kedlay, 2003; Smith & Weaver, 2006; Tavernier et al, 2003; Tippetts & Westpheling, 1996). However the commitment to practice in a MUA has been found to decline during medical training (Crandall et al., 2007; Ko et al., 2005). Significant clinical experiences and training content may be necessary to maintain student interest in working in underserved

areas (Carufel-Wert et al., 2007; Steiner, Pathman, Jones, Williams, & Riggins, 1999). Interest in primary care specialties is an important factor, as these specialties are the frontline providers in underserved areas. Levels of social compassion and positive attitudes toward underserved populations (Bazargan et al. 2006) as well a sense of professional responsibility, early expressed interest in primary care, and female gender (Vaughn et al., 2010) have been found to be associated the likelihood of choosing primary care specialties. Finally, service learning interventions, in which students work with underserved communities, have had some success in promoting positive attitude change in medical students (Cox et al., 2006; Olney, Livingston, Fisch, & Talamantes, 2006; Seifer, 1998). However, almost all are voluntary or elective (Wear & Kuczewski, 2008), thus only reaching a portion of learners. Experiential community-based learning therefore, may influence trainees' attitudes, knowledge and skill base as well as positively influence career choice and practice location; however the relationship between experiential community-based learning and the development of physician attributes compatible to working with underserved populations remains under-explored.

The opportunity to experience people and the neighborhoods where patients live has the potential to engender empathy – a key attribute for working with underserved populations, however one that has also been found to decline during the training of medical professionals (Bellini, Baime, & Shea, 2002; Bellini & Shea, 2005; Chen, Lew, Hershman & Orlander, 2007; Chen, LaPopa, & Dang, 2008; Craig, 1992; DasGupta & Charon, 2004; Diseke, & Michielutte, 1981; Hojat et al., 2004; Hojat et al., 2009; Mangione, et al., 2002; Neumann et al., 2011; Newton, Barber, Clardy, Cleveland, &

O’Sullivan, 2008; Poole & Sanson-Fisher, 1980; Sherman, & Cramer, 2005; Woloschuk, Harasym, & Temple, 2004). Empathy has been defined in the medical literature as “a predominantly *cognitive* (rather than emotional) attribute that involves an *understanding* (rather than feeling) of experiences, concerns and perspectives of the patient, combined with a capacity to *communicate* this understanding” (Hojat, 2007, p.80). Such an understanding of the patient experience is critical to practice with vulnerable populations, and is an essential component of physician training (Gianakos, 1996; Halpern, 2003; Rosenfield & Jones, 2004). Research has demonstrated that higher physician empathy has a positive impact on patient adherence (Frankel, 1995), provider-patient communication (Feighny, Monaco, & Arnold, 1995), health outcomes (Hojat et al., 2011), patient satisfaction (Frankel, 1995; Kim, Kaplowitz, & Johnston, 2004), professional satisfaction (Larson & Yao, 2005), medical trainee well-being (Shanafelt et al., 2005), lower levels of professional burnout (Thomas et al., 2007), quality of care, (Mercer & Reynolds, 2002), and lower resource utilization (Nightingale, Arnold & Greenberg, 2001). Given the demonstrated links between empathy and outcomes at the patient, provider and systems levels, empathy is an important construct to foster in medical trainees.

The distribution of empathy in physician and medical trainee populations has been extensively documented over the past decade, primary via self-report survey measures. The *Jefferson Scale of Physician Empathy (JSPE)* has been used extensively to document the distribution of empathy in health professionals and trainees. This self-administered, 20-item, Likert-scale tool was developed specifically to measure empathy

in physicians and health professionals (HP version) and medical students (S version), and health professions students (HPS version) (Thomas Jefferson University, n.d.) and has been found to be a valid and reliable scale for measuring medical students' attitudes toward empathy (Hojat et al., 2002b; Hojat, Spandorfer, Louis, & Goneela, 2011; Tavakol, Dennick, & Tavakol, 2011). Women have been found to score higher than men on empathy measures (Berg, Majdan, Berg, Veloski, & Hojat, 2011; Chen et al., 2007; Hojat et al., 2002a; Hojat et al., 2002b; Hojat et al., 2005) although the decline in empathy seen during medical school has been observed to be similar for both women and men (Hojat et al., 2009). No differences between ethnic groups have been found on measures of empathy (Berg et al., 2011). Mean empathy scores for medical have been found to be associated with measures of clinical competence as assessed by faculty, but not associated with objective exam scores such as the USMLE (Hojat et al., 2002a). Empathy had been found to be related to specialty choice with graduates in "patient-oriented" specialties, or "primary care core" (such as family medicine, internal medicine and psychiatry) scoring higher on various empathy scales than "patient-remote" or non-primary care specialties (such as surgery, pathology and radiology) (Chen et al., 2007; Hojat et al., 2002b; Hojat et al., 2005; Hojat et al., 2009; Newton et al., 2000; Newton et al., 2008).

While there is a debate about whether empathy can be taught (Benbassat & Baumal, 2004; Brock & Salinsky, 1993; Hojat, 2009; Mercer & Reynolds, 2002; Platt & Keller, 1994; Pence, 1983; Shapiro, 2002; Singh, 2005; Spencer, 2004; Spiro, 1992; Stepien & Baernstein, 2006; Wear & Zarconi, 2008) with studies demonstrating both

successes in increasing levels of empathy (Afghani, Besimanto, Amin & Shapiro, 2011; Chen et al., 2008; Coulehan et al., 2001; Das Gupta & Charon, 2004; Elizur & Rosenheim, 1982; Feighny et al., 1995; Feighny, Arnold, Monaco, Munro, & Earl, 1998; Fernandez-Olano, Montoy-Fernandez, & Salinas-Sanches, 2008; Fine & Therrien, 1977; Kramer, Ber, & Moore, 1987; Lancaster, Hart, & Gardner, 2002; Seaberg, Godwin, & Perry, 2000; Shapiro, Morrison, & Boker, 2004; Varkey, Chutka, & Lesnick, 2006; Wilkes, Milgrom & Hoffman, 2002; Winefield & Chur-Hansen, 2000), and no effects of interventions on levels of empathy (Afghani et al., 2011; Discker, & Michielutte, 1981; Henry-Tillman, Deloney, Savidge, Graham, & Klimberg, 2002; Winefield & Chur-Hansen, 2000) or difficulty maintaining effects (Craig, 1992; Poole & Sanson-Fisher, 1980; Singh, 2005), exposing students to community-based field experiences has high face validity for activities that may mitigate the erosion of empathy and support factors which shape patient-provider relationship formation and understanding the patient context (Buckner, Ndjakain, Banks & Blumenthal, 2010; Wear & Kuczewski, 2008). In addition, experiences outside the traditional learning arena of the hospital and clinics have been found to have profound impact on student attitudes (Brazeau, Schroeder, Rovi, & Boyd, 2011; Hsieh, Arenson, Eanes, & Sifri 2010; Rosenthal et al., 2011). However, research on the effectiveness of empathy teaching strategies is limited to skills workshops, classroom based-learning, reflective writing, service-learning projects and clinical experiences (Stepien & Barnstein, 2006; Wear & & Kuczewski, 2008).

### *Limits of Existing Literature*

Previous work on empathy has documented the decline of this attribute during medical training, the differential empathy scores by medical specialty, and efficacious strategies to develop empathy in students. However, our understanding of this attribute and the effectiveness of educational approaches is limited by measurement and study design issues. Evans and colleagues (1993) highlight the potential inadequacy of surveys to capture the complex emotional and behavioral components of the construct. While measurement tools have improved in construct validity, with the JSPE, biases inherent with a self-report tool such as the halo effect, and social desirability bias remain (Spencer, 2004; Stepien & Baernstein, 2006). A systematic review of the literature on educational interventions to increase empathy in physician trainees revealed limitations in study design such as reliance on self-selected groups (i.e. student voluntary or elective courses), small sample sizes, lack of control groups and inadequate measurement tools (Stepien & Baernstein, 2006). Our study examines a non-voluntary student educational experience and is therefore more representative of the underlying distribution of empathy in a medical student population. Further, the potential for social desirability coloring student responses is countered by the design of the experience. A qualitative lens applied to student reflections can provide valuable insights into student views of such learning experiences (Maxwell, Passow, Plumb & Sifri, 2002). Hunt and Swiggum (2007) argue that reflective learning is essential for students experiencing communities very different from their own as it is through reflection that transformational learning takes place. Reflection on one's own attitudes and prejudices allows students to gain awareness of

their own world view and perhaps begin to develop empathetic understanding (Novack, Epstein, & Paulson, 1999; Spencer, 2004). By examining student reflections of a community-based learning experience we can gain insight to their state of empathy and meaning-making towards underserved communities. Such insight will then allow educators to then tailor community learning experiences and challenge students to develop greater insight to empathy toward underserved populations.

#### *Aims/Research Questions*

- ♦ **R1:** Do students use language reflective of empathetic understanding in a community medicine written assignment?
  - A1:** To characterize student language in reflective writing.
  - A2:** To compare the distribution of empathy in medical students' reflective writing to the distribution of empathy in medical students established in the literature base as measured quantitative self-report measures
- ♦ **R2:** Is there are relationship between the presence of empathy language in student writings and the choice or residency specialty?
  - A3:** To examine the relationship between expressions of empathy in writings and choice of medical specialty.
  - A4:** To examine the relationship between expressions of empathy in writings and dual degree classification.

#### *Primary outcome variables:*

##### Categorical Themes

##### Expressed Empathy

Using Hojat's (2007) definition, sub-codes were developed for depth of perspective-taking and understanding of the other as a proxy for expressions of empathy (see Data Analysis section for further detail).

*Secondary outcome variables:*

Residency Program Specialty Choice

Three variables were created to explore residency specialty choice. The first two variables categorize residency specialty choice as described in the empathy literature. The third variable was created to reflect the reality that many residents who first match in the specialties of internal medicine and pediatrics, go on to subspecialize in fields such as cardiology, endocrinology or pulmonology, where they do not delivery primary care. Therefore Frontline primary care includes those specialties in which the initial residency match can most likely be equated with the provision of primary care as defined by the Institute of Medicine's (1996) definition, "Primary care is the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community" (p.31).

1. People-oriented/Technology-oriented as described in Hojat and colleagues (2002; 2009), and Chen and colleagues (2007).

People -oriented =1

- Internal Medicine
- Family Medicine
- Pediatrics
- Obstetrics & Gynecology
- Emergency Medicine
- Psychiatry
- Medical Subspecialties

Technology-oriented=0

- Pathology
- Radiology
- General Surgery
- Surgical Subspecialties
- Anesthesiology

2. Core primary care/ Non-core as described in Newton and colleagues (2000; 2008).

Core primary care= 1

- Internal Medicine
- Family Medicine



- Pediatrics
  - Psychiatry
- Non-core = 0
- All other specialties

### 3. Primary care frontline/ Non-primary care frontline

Primary care frontline=1

- Family Medicine
- Internal Medicine, primary care track

Non-primary care frontline=0

- All other specialties

### Dual-degree Participation

Dichotomous variables (yes=1, no=0) were created for all dual degree

possibilities:

- MD/PhD
- MD/MPH
- MD/MBE
- MD/MBA
- MD/MS

### *Methods*

This study employed a grounded theory framework to ascertain themes present in the language used by medical students within a required community-based field assignment (n=468, 2008-2010) in the Family Medicine and Community Health Clerkship at an urban, northeastern university.

#### *Data collection*

Clinical clerkship rotations at this institution begin in the second year of training, following 18 months of classroom-based learning. The Family Medicine clerkship curriculum is a 4-week block which involved weekly didactic sessions covering clinical care across the lifespan of acute and chronic illness in the primary care setting,

prevention and wellness, and community and population medicine. Didactic sessions were complemented by hands-on training in the primary care setting as well as community-based experiences to familiarize medical students with the basic concepts of multiple determinants of health, the ecology of health and health care, and the social influences on health. The curriculum objectives included acquisition of knowledge in population and neighborhood level social determinants of health, etic and emic perspectives on health and disease, as and community-based learning opportunities to explore neighborhood-level health influences and emic perspectives on health. Students (1) received a 1.5-hour didactic presentation on community medicine, (2) were asked to complete a worksheet with data (e.g. available resources and public transportation routes, census data, mortality data, and other health statistics) about a neighborhood they picked using Internet-based resources, (3) completed a 4-hour community-based field activity, (4) participated in a 1-hour debriefing session intended to discuss community perspectives regarding health-related issues of their selected neighborhood, and (5) prepared a written report on a potentially influential health concern from a medical and community perspective. The goal of the community based assignment was to highlight the importance of environment, neighborhood, culture and context in the lives and health of individuals. The written assignment asked students to describe their observations about a neighborhood they visited, to consider etic (i.e. outsider – administrative) and emic (insider – from community observation or interactions with community members) data on health issues challenging the community, to reflect on any identified health issues, and to rate the likelihood they will revisit the health issue in the future (see Appendix A).

Students were instructed specifically to “Use this opportunity to gain an internal perspective on the community’s health from a community member; search for ideas about causality or solutions.” Assignments were de-identified, transcribed and entered into NVivo 9 for analysis. Residency match data were collected from the school of medicine website and directly linked to the assignment data in NVivo. More specifically, two dichotomously coded variables were created from the residency specialty data based on the distribution of physician empathy in the literature: *People-oriented/Technology-oriented* as described by Hojat and colleagues (2002; 2009), and Chen and colleagues (2007), and *Core primary care/Non-core* as described by Newton and colleagues (2000; 2008). Dual degree status (MD/PhD, MD/MPH, MD/MBE, MD/MBA, MD/MS) was collected from student records and linked to the assignment data in NVivo.

### *Data Analysis*

This study used a Grounded Theory framework to examine student written assignments for a community medicine experience to ascertain themes present in the language used to describe marginalized neighborhoods and community members. Grounded theory is a methodology that involves iterative development of theories about what is occurring in the data as they are analyzed (Glaser, 2002; Strauss & Corbin, 2008). The process develops themes that emerge “from the ground” based on responses to the open-ended questions developed for this study. Student writings provide textual data that was analyzed for themes, patterns, and relationships. Student assignments were transcribed, de-identified and entered into a NVivo 9 database. A multidisciplinary team of investigators from primary care, social work, and anthropology created broad codes

reflecting categories of student responses to their community field activity; memos were created for these codes to guide the coding process (Holton, 2010). A 20 percent sample of transcripts was double-coded for themes to ensure reliability of coding and discrepancies in coding were resolved by group consensus. The multidisciplinary team was involved in both coding and analyzing the transcripts. Broad codes reflecting categories of student responses were created, including descriptions of community members and places, identified health issues, proposed solutions to problems, assumptions, judgment and rhetoric. Attribute nodes were assigned to each participant, coding for demographic information, residency program specialty choice, and dual degree status. Themes were compared across student groups to ensure that they were both representative and inclusive of all cases. Using Hojat's (2007) definition of empathy as an understanding of the experiences, concerns and perspectives of the other *and* the capacity to communicate this understanding, we examined student reflections on who they spoke to in the community for examples of perspective taking. Specifically, we coded for the level of detail in describing their interactions with community members and the passages which conveyed a sense of understanding of the life experience of the community member. Four sub-codes were developed to represent the various levels of depth and understanding. Matrix coding queries were run to analyze differences in frequencies among the themes for sub-groups of students.

## *Results*

### *Sample Description*

Transcripts from 468 students who rotated through the Family Medicine and Community Health clerkship 2008-2010 were included in the analysis. Sample characteristics are reported in Table 2. There were slightly more males (51.4%) than females in the sample, and 19 percent of sample were underrepresented minority status students. Residency match data was available for 331 of the students in the sample. Of these students, 62.8 percent matched in a people-oriented specialty, 37.2 percent matched in a technology-oriented specialty. Forty-one percent of students matched in a core primary care specialty and 49 percent matched in a non core specialty (people-/technology oriented and core-/non-core are not mutually exclusive groups). One hundred and twenty-seven students were dual-degree students; 15 percent of students were MD/PHD's, 4.3 percent were MD/MBA's, 3.2 percent were MD/MBE's, 2.6 percent were MD/MS's, and 1.9 percent were MD/MPH students.

### *Summary of Primary Themes*

The team identified five main domains: (1) Individual Perspective Taking, (2) How Students Know About Community Health, (3) Solutions to Community Health Problems, (4) Education as a Gift, and (5) Knowledge as a Tool for Mediating Interaction with the Community. This manuscript focuses themes identified within the first domain<sup>7</sup>. Themes emerging from the domain of Individual Perspective Taking included (a) the ability understand the perspective or life circumstances of others, (b) race labeling, and

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<sup>7</sup> The other four domains and respective themes are discussed in forthcoming manuscripts.

(c) SOAP notes. These themes reflect a continuum of the level of engagement with members of the community, students' abilities to understand the experiences and perspectives of community members, and the ability to communicate their understanding. There were minimal differences in themes between student sub-groups.

#### *Understanding the Perspective of Others*

Student writings varied in their expressed perspective taking, or ability to understand the life circumstances of the community members they spoke with. Some students provided in-depth, detailed descriptions of the community members they engaged with, that reflected an attempt to learn about the other person, their experiences, and their health issues. These descriptions contained information about where individuals live, work, and play, how long they had lived in the community and their perceptions about healthcare. Often the descriptions highlighted the hardships individuals were struggling with.

*The young father spoke with me about access to health care for his 4 year old daughter. Since he was self-employed and he found it difficult to pay health costs for his kids. She (the daughter) was supposed to start school in the fall of 2008 but he was having a hard time finding a school that would be both safe and within his financial and logistical capabilities.*

Many of the descriptions referred to individuals by name, reflecting personalization of the life circumstances that were shared with them.

*....a woman Precious with her 2 sons. All of them homeless when I spoke to them they had not eaten anything yet for the day. The son dreams of being "superman". Precious cannot read (she is 25) they sometimes live with their mom which is a crack addict. Precious is trying to find a job but*

*it is very difficult. They go to church every Sunday still, praying for a safe place to live.*

These descriptions represent more than a surface level conversation; community members shared intense, intimate details about their lives, tough topics to talk about with someone they had just met. Somehow students who had these experiences were able to connect with the individuals they met, establish rapport and get them to share their life circumstances.

*His name was Jabrill, 17 y.o.....We asked him to share his story with us. He said his stepfather hit his mom yesterday, so he got into a physical altercation with him. Jabrill was not hurt, but said he couldn't go back for several days until things cooled off. He was on his way to Newark, NJ to live with his grandmother for the weekend and needed \$10 for the trip. Whitney shared her lunch w/ him and I bought him a donut. We each contributed \$1 to his fund..... We initially identified it by allowing Jabrill to present his story. He was thankful for listeners. We further explored possibilities for violence, asking about his experience in school and with friends. He stated that there is gun violence and frequent fights at school ("West"), with students ending up in jail for assault. Police patrol the school. He avoids the "drama."*

These conversations represent a connection made between the student and the community members they engaged with. They sought out information about the families, life experiences, neighborhoods, cultures, and concerns of the individuals they spoke with. They were able to hear the experiences of the other person, process the information, identify it as meaningful and thus include it in their writings.

On the opposite end of the spectrum were student descriptions of community members that were sparse, contained no personal details, didn't identify anyone by name

and seemed to highlight a lack of engagement in their interactions. Many students simply provided a one-liner on who they interacted with and didn't seem to seek out information that would help them understand more about the other person's perspective

*Latino youth aged 15-25 yrs playing soccer. All male however.*

*Spoke with 3 comm. members about food choices, nutrition, & exercise (reading labels, cost of food, making better choices)*

Interestingly, these descriptions often seemed to contain language or word choices that implied some judgment.

*We talked to a number of people enjoying lunch at McDonald's. They were average community members, most of which seemed pretty responsible for their health.*

*Yes, we spoke with a group of 11<sup>th</sup> graders who were ages 15-16 yo. They were probably some of the more academically gifted students since they were taking Anatomy and Physiology.*

*Yes. I talked to many community members. People that owned food shops, people that were at the church or health fair. I would say these people were average members of the community, if not a bit more health conscious.*

These students either didn't engage fully with community members they spoke with or didn't describe their interactions in a way that demonstrated an attempt to seek out information that would help them understand the perspective of the other. While this could be due to the fact that they simply didn't encounter community members who were as forthcoming as those described above, it also may reveal the inability to connect with others on a more personal level. Students who did not go in depth in their descriptions



may also have experienced more detailed, intimate interactions but they did not reflect on the information and/or incorporate it into their writing.

### *Race labels*

Another theme identified by the team was that of use of race labels when describing individuals. While one of the questions on the Discussion Guide did ask students to identify the role of the person they spoke with, students frequently used race or ethnicity as a descriptor throughout their writings to identify the individuals they spoke with.

*There is a large number of Latinos in Allentown*

*I went to the corner of 43<sup>rd</sup> and Locust streets and talked with the UCD security officer (African American).*

*The customers were all African American, with the majority being men in either jump suits or jeans.*

*Black teenagers mostly hanging out on the street corners.*

*We were the only two white people. Everyone else was black. Half wearing Muslim attire and some of these people spoke very limited English.*

*Spoke to residents of community: 2 skinny young black people (male and female), 2 women from Ecuador, 1 middle-aged black man, overweight 30ish black woman, ~50 y.o. black grocery store worker, ~40ish y.o. black female and 8 y.o. daughter. Students: skinny white Drexel student, skinny black Penn student.*

*...no white people; all minorities, mostly blacks; row homes, many rundown; garbage lines the streets.*

For some reason, students felt that the identification of race was important to the description of the community members. In some instances this was within a context that

revealed the identification of race/ethnicity as key to their understanding of the culture of the community. However in many instances it was simply a label added to the description of a person. The use of such labels may have been a way of differentiating the other from themselves, and seemed to represent a way of knowing the person that stopped at the color of their skin or ethnic background.

#### *SOAP Note*

A final theme in the Individual Perspective Taking Domain was that of the SOAP note, or subjective, objective, assessment, and plan, the standard method of documentation in a patient's health care record. This is the method of documentation taught to clerkship year students in both the inpatient and outpatient settings, and includes information on the patient's "chief complaint", history and physical, vitals and physical examine, differential diagnosis and the plan for treatment. The instructions for this assignment did not include any mention of describing health conditions of community members, students found it difficult to move away from the standard method of gathering information about individuals and describing them in this manner. Many of the writings contained descriptions of community members that read like patient charts.

*AA male – 60s – has a thyroid problem and also a defibrillator that was placed for him at Pennsy. – goes there every 3 mo and has no trouble getting appt – describes himself to be “part of the furniture there” because he goes so regularly.*

*AA male – 50-60s – local food vendor – w/o health insurance – had to go to clinic in the neighborhood if he needs treatment – was able to tell us where the nearest health clinic was. Suffers from diabetes, HTN, lower back pain. Says appointments are easy to come by – there at 15 walk-ins/day otherwise appointments take 2-3 weeks. Does*

*feel the pressure from health centers to get insurance in the future.*

*- AA woman in 60s- lives nearby and stops in when she drops off her laundry at Laundromat across the street. She has no cuff at home but was encouraged by her PCP and sister (recent stroke) to measure. She takes HCTZ and consistently runs 130s-170/80s-100. She admits to fairly good adherence and sees her PCP regularly.*

*70 year old white woman shopping at discount stores:*

*-had her cataract removed last week*

*-she has medicare*

*-very happy with her care*

*-no trouble getting around to appts- Wills eye picked her up*

Students seemed to have difficulty moving away from the comfort zone of the SOAP note style of writing, and this style of gathering information about a patient and then documenting it perhaps kept them from engaging in or reflecting upon more detailed personal discussions that would allow them additional insight to the life circumstances of the community members. Instead these writings represented a rote format for gathering and reporting information.

### *Sub-Group Findings*

Differences in themes between sub-groups were compared for males versus females, people-oriented versus technology-oriented residency specialties, core primary care versus non-core residency specialties, and dual-degree versus non-dual degree students. Dichotomizing residency specialty choice into Primary care frontline and Non-primary care frontline resulted in a distribution heavily skewed toward Non-primary care frontline (94.3% of the sample). Thus the results of the matrix query for community

member descriptions by specialty choice resulted in too few codes (only 8 total across all categories) for the Primary care frontline subgroup to examine differences in frequency of coding. No differences were found in the thematic content among males and females in the sample. No distinct patterns in the type of language used in descriptions of community members were found for sub-groups of students based on people-oriented versus technology-oriented specialty choice (Figure 1) or for primary care core versus non-core specialty choice (Figures 2). While there were slight differences in the frequencies of level of detail in the descriptions of community members, the content of these descriptions were not markedly different. Students in all sub-groups used language that fell into the identified themes of the understanding the perspective or life circumstances of others, race labeling, and SOAP notes. We also examined differences among groups of dual and non-dual degree students. No patterns of differences in themes were found for the students with dual degrees compared to non dual degree students.

### *Discussion*

The qualitative assessment of student writings for a community-based experience revealed a spectrum of expressed understanding of perspectives and life experiences of the community members students interacted with. This study demonstrated that students differ markedly in the depth of engagement at a personal level with community members. Their descriptions of individuals exposed variations in gathering and reflecting on information about the other, the use of race/ethnicity labels, and the tendency to write in the style of patient chart documentation. The themes identified in student writings are directly related to Hojat's definition of empathy as an "attribute that involves an

*understanding* (rather than feeling) of experiences, concerns and perspectives of the patient, combined with a capacity to *communicate* this understanding” (2007, p.80). Students engaged with community members, gathered information about them through conversation and then used that information to express an understanding of the other’s life circumstances to varying degrees. Thus, this study suggests an underlying distribution of empathy among this student population revealed through their reflective writings. The results of this study confirm the findings of previous quantitative survey work on levels of empathy in the medical student population in that there were varying levels of perspective taking (Berg, Majdan, Berg, Veloski, & Hojat, 2011; Chen et al., 2007; Hojat et al., 2002a; Hojat et al., 2002b; Hojat et al., 2005), however unlike previous work we found no differences between men and woman in the level of expressed empathy.

Previous research has also established marked differences in scores on the JSPE for medical students choosing people-oriented versus technology oriented specialties and for core primary care specialties versus non-core specialties (Chen et al., 2007; Hojat et al., 2002b; Hojat et al., 2005; Hojat et al., 2009; Newton et al., 2000; Newton et al., 2008). Our findings did not confirm this pattern of differences. While there were some slight differences in the frequency of perspective taking themes among these sub-groups, the thematic content for the sub-groups was not markedly different. This suggests that reflective writings offer a different medium through which students are able to reflect on the life circumstances, concerns and perspective of others and communicate their understanding of the other. Perhaps this different medium, as a real life experience,

captured a different construct than quantitative scales such as the JSPE. The different construct may not have triggered the same differences in responses among student sub-groups as the JSPE. However, it is important to note that although sub-group differences were not found among the traditional groups (people-/technology-oriented and core-/non-core), there was a clear continuum of expressed empathy or ability to take the perspective of the other reflected in the student writings. Of particular note is that students in the people-oriented and primary care-core sub-groups also expressed varying levels of expressed empathy. Learners in all specialties vary in their comfort level engaging with community members, eliciting intimate details about their lives, and communicating those experiences in writing. Given the debate about the effectiveness of teaching strategies to engender empathy, this study sheds light on potential points of intervention. The work of Afghani and colleagues' (2011), Shapiro (2002), and Wear and Zarconi (2008) suggests that good role models are essential for student learning of empathetic behavior. Medical educators will need to consistently model perspective taking and engagement beyond the level of gathering information required for the SOAP note, if we hope to instill in students the importance of this attribute.

This study incorporated a community-based learning experience as a tool for students to gain awareness of the multiple determinants of health and gain an appreciation the internal (emic) perspective on community health from a community member. Students engaged in this experience in varying levels, reflecting perhaps the level of importance or utility they assigned to the experience. While previous research has used community based experiences and service-learning as a tool for students learn about the multi-dimensional

factors influencing the health and treatment of patient populations, to improve student attitudes towards working with underserved populations, and to identify student characteristics predictive of future work with underserved populations, little research has explored the relationship between students' empathy and community-based learning experiences. Huang and Malinow (2010) did find that longitudinal curriculum the underserved that included community-based immersion experiences did increase students' self-rating of their empathy. However, this measurement is hindered by self-selection into the course and biases inherent in the self-assessment survey tool. Although not measuring changes in levels of empathy, our study establishes that there are varying levels of empathy towards underserved communities and populations expressed by medical students who participate in a community-based learning experience.

### *Limitations*

This study has several limitations that should be considered when interpreting the results. First, the results are limited in generalizability given the specificity of the sample. Students were clerkship year learners at a large, private, school of medicine in an urban setting in the northeast of the U.S. which, as an institution, has not proactively encouraged students to enter into primary care residency specialties. Students are shaped by the culture of the learning environment, and this institution has a culture embedded in biomedical research and the prestige of non-primary care specialties. While perhaps not generalizable to institution without similar learning cultures, many academic medical centers are located in urban settings with similar patient populations and surrounding underserved communities. Second, these results were exploratory in nature and aimed to

reveal the underlying distribution in a medical student population via a reflective lens. The associations between student characteristics and expressed perspective taking cannot be interpreted as casual in nature. Third, while the study design minimizes the potential for biases inherent in survey responses via analysis of required component of the curriculum and an analysis of reflective writings in which students were not directed to discuss empathy or perspective taking (thus potentially leading their reflections), the fact that it was an assignment carries its own biases. More specifically, students may have written to what they believed course instructors wanted to see rather than being true to their personal thoughts, beliefs and attitudes. Given the range of perspective taking and engagement with community members present in the student writings, we believe this bias is limited in scope. Finally, the assignment did not direct students to be reflective about empathy for community members or to attempt to understand the perspective of others. We are gleaning this information from their descriptions and commentary and thus may be assuming the presence of a construct. However, we believe that the very fact there is a wide distribution of the level of detail provided by students and their thoughts on community members life circumstances does provide evidence of their ability to engage with others and understand the perspective of the another person.

### *Implications*

Despite these limitations this study holds important findings for schools of medicine and physician educators. Many students actively engaged in conversations with community members, eliciting personal stories and intimate details that afforded them a window into the life experiences of the other person. This perspective taking is a proxy



for the students' ability to empathize with others. Unfortunately, just as many students were not able to engage to this extent and instead gathered or reported few details about the community members they spoke with, used labels to refer the individuals, and reverted to the comfort zone of the SOAP note. Medical schools who strive to produce physicians suited to work with underserved populations will need to address the varying levels of empathy in student populations, and this study highlights the potentially insufficient levels of empathy in those student sub-groups most likely to engage in future work in MUAs. It is not enough to assume that because previous research has established higher levels of empathy in primary care specialties on self-report surveys, we need not address these learners. Rather, sound educational tools will need to be developed to engender empathy for the underserved that target those most likely to work with this population.

This study establishes the distribution of expressed empathy in student writings following a community medicine learning experience. Future research will need to explore the utility of a community-based learning experience for improving empathy via pre- and post-intervention measures. In addition, the effectiveness of role modeling of empathetic behavior with underserved populations outside of the inpatient domain is an important next step of inquiry.

| Table 2: Sample Characteristics (N=468)      |  |      |
|--|--|------|
| Gender (%)                                   |  |      |
| Female                                       |  | 48.6 |
| Male   |  | 51.4 |
| Underrepresented Minority Student (%)        |  |      |
| Yes  |  | 19.0 |
| No   |  | 81.0 |
| Residency Specialty <sup>†</sup> (%) (N=331) |  |      |
| People-oriented                              |  | 62.8 |
| Technology-oriented                          |  | 37.2 |
| Core primary care                            |  | 41.0 |
| Non-primary care core                        |  | 49.0 |
| Primary care frontline                       |  | 5.7  |
| Non-primary care frontline                   |  | 94.3 |
| Dual Degree Status (%) (N=127)               |  |      |
| MD/PhD                                       |  | 15.0 |
| MD/MBA                                       |  | 4.3  |
| MD/MBE                                       |  | 3.2  |
| MD/MS  |  | 2.6  |
| MD/MPH                                       |  | 1.9  |

<sup>†</sup>Categories are not mutually exclusive

Table 3: Patient-oriented versus Patient-remote specialty choice

| <b>How community members are described</b>                        | <b>Patient-oriented specialty choice<br/>N=208</b> | <b>Patient-remote specialty choice<br/>N=123</b> |
|---|--|--|
| Person referred to by name/description contains personal details  | 14.9%  | 19.5%  |
| Description of person based on demographics, job, disease or role | 31.3%  | 34.1%  |
| No description of individual community members                    | 12.0%  | 13.8%  |
| Community member referred to as a patient                         | <1%  | <1%  |

Table 4: Core Primary Care versus Non-Core Primary Care specialty choice

| <b>How community members are described</b>                        | <b>Core primary care specialty choice<br/>N=137</b> | <b>Non-core primary care specialty choice<br/>N=194</b> |
|---|---|---|
| Person referred to by name/description contains personal details  | 13.90%  | 18.60%  |
| Description of person based on demographics, job, disease or role | 32.10%  | 32.50%  |
| No description of individual community members                    | 10.20%  | 14.40%  |
| Community member referred to as a patient                         | <1%   | <1%   |

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*APPENDIX A: Field Activity Discussion Guide*

1. What community did you decide to explore?

Community Name: \_\_\_\_\_

2. Did you collect etic or external data before you went into the community you chose? Where did you find it?
3. Where did you go in this community? Please describe.
4. What did you observe about the environment there?
5. Did you talk to anyone? Who? What was their role in the community?
6. What health issue did you identify? How did you initially identify it?

7. What is available to improve the issue? (knowledge, materials, resources, changes in the physical environment, cultural changes)

8. What is needed to improve the issue?

9. Please rate the likelihood that the issue you identified could be improved in the next 3 years:

*Place x on line*

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|            |     |            |
|------------|-----|------------|
| 0%         | 50% | 100%       |
| Not at all |     | Absolutely |

10. What is the likelihood that you will revisit this issue in the future (3 years)?

*Place x on line*

---

|            |     |            |
|------------|-----|------------|
| 0%         | 50% | 100%       |
| Not at all |     | Absolutely |

11. What is the likelihood that you will revisit this issue in this community in the future (3 years)?

*Place x on line*

---

|            |     |            |
|------------|-----|------------|
| 0%         | 50% | 100%       |
| Not at all |     | Absolutely |

12. Please comment on your perspective on the community, the issue, the etic data, the emic data, or your experiences.

## CHAPTER FOUR

Manuscript #3: “The impact of a multidisciplinary community medicine rotation on awareness, knowledge, comfort and skills in family medicine resident education”

### *Introduction*

The U.S. currently faces a shortage of providers to care for marginalized populations (American College of Physicians, 2008; Bodenheimer, Grumbach, & Berenson, 2009; National Association of Community Health Centers [NACHC], 2004; NACHC, 2009; U.S. Department of Health and Human Services, Health Resources and Services Administration, 2000; Robert Graham Center, 2008). The 2010 Patient Protection and Affordable Care Act (P.L. 111-148) (PPACA) promotes community-based training for physicians as a critical component to workforce development. The PPACA reauthorizes Title VII, Section 747 of the Public Health Service Act, providing financial support for primary care training programs and incentivizes to work with marginalized or underserved populations (P.L. 11-148; Goodson, 2010). Financial incentives to attract more medical graduates to primary care and underserved areas have been suggested as a potential solution to the shortage (Barnighausen, & Bloom, 2009; Boex, Kirson, Keyes-Welch, & Evans, 1994; Hofer, Abraham, & Moscovice, 201; Sempowski, 2004), however they do not address the need to adequately train providers to work with marginalized populations (Goodson, 2010; Vaughn, DeVrieze, Reed & Schulman, 2010; Walker et al., 2010; Wayne, Timm, Serna, Solan, & Kalishman, 2010). While some studies have identified characteristics of physicians associated with increased likelihood of future practice in underserved areas (Rabinowitz, Diamond, Veloski, & Gayle, 2000; Weissman, Campbell, Gokhale, & Blumenthal, 2001; Xu et al., 1997), the literature on

the efficacy of programs in increasing the knowledge, awareness and skills needed to work in underserved areas is mixed (Plescia, Konen, & Lincourt, 2002). Given the anticipated need for a transformative scale-up of our primary care workforce (World Health Organization, 2011) residency programs will need to develop educational opportunities and experiences that impart the awareness, knowledge and skills necessary to deliver care in underserved communities, and enhance a desire to work in underserved areas (Future of Family Medicine Project Leadership Committee [FFMPLC], 2004; Cene, Peek, Jacobs & Horowitz, 2009; Goodson, 2010).

### *Background*

Marginalized communities experience disproportionate access barriers such as under-insurance, high rates of public insurance, a dearth of providers, fragmented safety nets, and a lack of understanding on the part of healthcare providers to the economic and social conditions of the population served (Andrulis 1998; Andrulis, 2000; U.S. Department of Health and Human Services; 2011; Fang & Alderman, 2003; Fossett & Perloff, 1999; Grumbach, Vranizan, & Bindman, 1997; Komaromy et al., 1996; Reilly, Schiff, & Conway, 1998; Smedley, Stith, & Nelson, 2003; Wear, & Kuczewski, 2008). Urban, academic medical centers have a responsibility to respond to the needs of the surrounding communities, however they face challenges in countering barriers at both the institutional and structural level (FFMPLC, 2004; Gordon & Hale, 1993; Mohan & Mohan, 2007; Morris & Chen, 2009; Oandasan, Malik, Waters, & Lambert-Lanning, 2004; Redington, Lippincott, Lindsay, & Wones, 1995). Training providers to “Incorporate the multiple determinants of health in clinical care”, to” Partner with



communities in health care decisions”, to “Improve access to health care for those with unmet health needs”, and to “Provide culturally sensitive care to a diverse society” are among the 21 Competencies for a 21<sup>st</sup> Century identified by the Pew Health Professions Commission (1998, p. vii) as critical to meet the needs of the nation’s changing healthcare system and population. These competencies are integral to addressing the barriers to care in marginalized communities.

Family medicine providers are uniquely suited to respond to these challenges through the discipline’s commitment to treating patients in the community context and emphasis on disease prevention and health promotion (Bucholz et al., 2004; Candib & Gelberg, 2001). In 2002, the Residency Education Subcommittee of the Academic Family Medicine Organizations and the Board of Directors of the Association of Family Practice Residency Directors developed a set of recommendations and a strategic plan for education that identified service to vulnerable and underserved populations as a core competency. Further, the Future of Family Medicine Task Force (2004), identified community and population level care as critical components of education, and highlighted the importance of integrating the community and larger social context in a biopsychosocial model of patient care. Finally, the Accreditation Council for Graduate Medical Education (ACGME) Family Medicine Residency Review Committee (FMRRC) requires curricula to include didactic and experiential components that address: “factors associated with differential health status among sub-populations” (IV.A.5.b).(9)) and home visits as a part of continuity care training ((IV.A.5.a).(2).(a).(iii)). Each residency program develops an independent curriculum to meet the RRC requirements. It is hoped

that experiences in the home and the community will provide the basis for an understanding of how factors such as race, language, geography and socio-economic variation impact the health of their patients and communities. In spite of these recommendations, current training does not offer many opportunities for physicians to experience the socio-cultural realities of their patients creating a provider-patient divide (Astin, Sierfphina, Forys, & Carridge, 2008; Plescia, Konen, & Lincourt, 2002). Additionally, there is a dearth of research available on the extent to which this training is taking place, and those studies that have evaluated training programs report limited content in community relevant material (Dobbie, Kelly, Sylvia & Freem, 2006; Steiner, Pathman, Jones, Williams, & Riggins, 1999; Weissman et al., 2001).

Community-based training programs offer both educational opportunities as well as increase the likelihood providers will practice with underserved populations (Hill, Patrick, Avila, 1996; Morris, Johnson, Kim, & Chen, 2008; Scott, Harrison, Baker, & Wills, 2005; Tavernier, Conner, Gates & Wan, 2003; Smilkstein, 1990; Strelnick et al., 2008; Tippetts & Westpheling, 1996). Community-based learning experiences have been incorporated into residency training programs in an attempt to increase knowledge about access barriers in marginalized communities, social determinants of health, community medicine, and to engender interest in future work with underserved populations. Hufford and colleagues (2009) report an anecdotal positive influence on resident attitudes in a pediatric, longitudinal, community-based advocacy experience, however they did not measure acquired knowledge or skills. Two studies evaluated changes in knowledge and attitude following a community-oriented primary care (COPC) model in a family

medicine residency program; Donsky and colleagues (1998) found significant improvement in knowledge of COPC, but a significant decline in positive attitudes toward the curriculum. Oandasan and colleagues (2000) found no significant differences between the study and control groups. Paterniti and colleagues (2006) found a community-based advocacy experience increased resident awareness of the relevance of community-based issues and knowledge of community resources. Other studies describe longitudinal community medicine curricula, or community-oriented primary care programs, however do not report evaluation or educational outcomes (Brill, Ohly, & Stearns, 2002; Fisher, 2003; Harper, Baker, & Reif 2000; Palfrey et al., 2004; Richert & Dibner, 2000; Parenti & Moldow, 1995; Thompson, Haber, Fanuile, Krohn, & Chambers, 1996; Wolf et al., 2007).

Home visits have also been incorporated into residency training as a means to both increase home visit medical skills as well as to improve trainee knowledge in the importance of community context in health outcomes. Increases in knowledge have been identified, including awareness of and screening for geriatric neglect/abuse (Jogerst & Ely, 1997; Laditka, Fischer, Mathews, Sadlik, & Warfel, 2002), and assessment and referral for community services (Laditka et al., 2002; Neale, Hodgkins & Demers, 1992). Positive reflection on the value of such programs has also been reported (Perkel et al., 1994; Sadovsky & Brecher, 1986; Tandeter, Peleg, Menahem, Biderman, & Fried, 2003). Hayashi and colleagues (2011) reported significant increases in knowledge, attitudes and skills in home care medicine for internal medicine residents who participated in home visits for a geriatric population, yet they do not address community knowledge or skills.

### *Limits of Existing Literature*

The impact of the family medicine training requirements on resident knowledge of community-level economic and social factors that impact care and health outcomes remains largely unknown, and what research is available is limited by study design (Dobbie et al., 2006). The majority of research in this field has been either descriptive or based on self-evaluative learner feedback (Perkel, Silenzio, Kairys, 1996). Further, there are no national benchmarks or normed instruments used to measure changes in resident-level outcomes (Dobbie et al., 2006), despite the requirements of the FMRRRC to include such curricular elements. To our knowledge, only two studies, one in the U.S. (Donsky et al. 1998) and one in Canada (Oandasan, Ghosh, Byrne, & Shafir, 2000), have evaluated the impact of a longitudinal community medicine block rotation in an urban population on resident attitudes and knowledge, in community medicine relevant content. This study addresses these gaps through the development of an assessment tool to measure changes in awareness, knowledge, comfort and likelihood to use information in community medicine relevant topics. The purpose of this study was to pilot the assessment tool and to determine if the community medicine curriculum effected significant change in family medicine residents' awareness, knowledge, comfort and likelihood to use information. This study is the first step in the development of an instrument that can be used to measure changes in knowledge acquisition among the curricular components required by the FMRRRC. Efficacious community-based training programs have the potential to cultivate those competencies identified by the Pew Health Professions Commission as necessary to meet U.S. healthcare needs. However, the

development of such an instrument is critical to determining the efficacy of community medicine curricula.

### *Aims and Hypotheses*

#### *Aims:*

- ♦ **A1:** To develop a community medicine assessment measuring resident awareness, knowledge, comfort and likelihood to use skills of/in community medicine and public benefits/social health resources.
- ♦ **A2:** To measure change in resident scores on the self-assessment tool of awareness, knowledge, comfort and skills of/in community medicine and public benefits/social health resources.

**H1:** Resident scores on the self-assessment tool of awareness, knowledge, comfort and skills of/in community medicine and public benefits/social health resources will increase post participation in the community medicine rotation.

#### *Primary outcome variables:*

Awareness of multiple domains of community medicine and social health resources

- 0= Not at all
- 1= Not very much
- 2 = Not sure
- 3= Somewhat
- 4= Very much

Knowledge of multiple domains of community medicine and social health resources

- 0= Not at all
- 1= Not very much
- 2 = Not sure

3= Somewhat  
4= Very much

Comfort in multiple domains of community medicine and social health resources

0= Not at all  
1= Not very much  
2 = Not sure  
3= Somewhat  
4= Very much

Skills in multiple domains of community medicine and social health resources

0= Not at all likely  
1= Not very likely  
2 = Not sure  
3= Somewhat likely  
4= Very likely

## *Methods*

### *Curriculum Description*

The study sample included second year family medicine residents (PGY2s) at the University of Pennsylvania Family Medicine Residency program during years 2008-2011. All PGY2s and PGY3s in the program completed a required two-week long block rotation in community medicine. This structured curriculum included didactic and experiential components on health disparities, community-based disease screening, prevention and health promotion, population health management, assessment of risks for abuse, neglect, and family and community violence, and public benefits/social health resources. The curriculum also included community medicine clinical experiences in the form of multidisciplinary home visits, geriatric home care visits, LBGT care at a community clinic, hospice care, group visits for diabetes care, and care provided at a community-based free health care clinic. Students engaged with a core multi-disciplinary faculty for didactic sessions on community medicine content, were assigned a reading list

on community medicine relevant topics, and participated in learning sessions at the Department of Public Health, the Hunger Coalition, a Domestic Violence shelter, and the Occupational Health Department. Residents complete a pre- and post-rotation questionnaire that assesses Awareness, Knowledge, Comfort and Likelihood of Use of information.

### *Assessment Tool*

The pre- and post- rotation assessment questionnaire was a subjective, self-administered, self-report questionnaire designed by faculty in the Department of Family Medicine and Community Health. This tool was designed to capture respondents' awareness, knowledge, comfort and likelihood of use of information on community-medicine relevant topics. Both the pre- and post-test instruments consist of four scales: the Awareness Scale aims to capture a respondent's sense of the clinical impact, importance and relevance of the issues as they related to caring for patients; the Knowledge Scale is meant to capture a respondent's level of mastery of information, facts, descriptions, or skills related to the issues in caring for patients; the Comfort Scale aims to capture how able a respondent feels in utilizing their awareness, knowledge, and skills to address the issues in caring for patients; and the Likelihood of Use Scale aims to capture how likely a respondent was to utilize their awareness, knowledge, and skills to care for patients (See Appendix A). Because we were interested in how participants scored on the items that corresponding to curricular components, subscales were created for each of the four pre- and four post-assessment scales, grouping the items that captured the topics for three domains: Public Benefits, Violence, and Public Health. These

subscales were applied to each of the Awareness, Knowledge, Comfort and Likelihood of Use scales. All items were answered using a Likert scale with responses ranging from Not at all – Very much. The scale was scored from 0-4, where 0 corresponded to Not at all and 4 corresponded to Very Much. The Likert scale scale had a Not Sure category originally scored at the mid-point (value=2), however the placement of this category on the far right of the page (see Appendix B) may have led participants to rarely use the category. Only six (27%) of the participants responded Not Sure to items on either the pre- or post-instrument, and those that did used the category very sparingly (the highest number of Not Sure responses was four on the Awareness pre-test). We therefore tested the sensitivity of scoring the scales without this category (see analysis section).

#### *Data Collection*

Only data from PGY2s is included in this analysis as complete PGY3 data is only available for a limited number of residents. Data were entered into SPSS12.0 for analysis, and double entered for accuracy. A total score was calculated by summing item responses for each of the four scales, Awareness, Knowledge, Comfort and Likelihood of use. In addition, subscale totals were calculated by summing item responses for each subscale, Public Benefits, Violence, and Public Health, on each of the four scales. Thus each participant had four total pre-test scores, 12 total pre-test subscale scores, four total post-test scores, and 12 total post-test subscale scores.

#### *Data Analysis*

Univariate and bivariate procedures were conducted using SPSS 12.0. To test the



psychometric properties of the instrument, we used Cronbach's alpha to measure the internal consistency of the scales and the degree to which the scales are measuring a unidimensional latent construct. Correlations of each of the items with the overall score were performed for the four scales and the three subscales and Cronbach's alpha reliability values were calculated. Univariate level statistics provided an understanding of general descriptive characteristics of participants. For this repeated measures design, Wilcoxon Signed Rank Tests were run for each of the three subscale scores as well as a total score for each of the four scales, to analyze change between pre- and post-rotation measures. Individual items were not analyzed separately. In addition, sensitivity testing for the inclusion of the Likert scale category Not Sure was run. Wilcoxon Signed Rank Tests were run for the subscale scores and total score for each of the four scales with and without the inclusion of the Not Sure category.

## *Results*

### *Sample Characteristics*

Twenty-eight PGY2s have completed the community medicine rotation and the pre-rotation assessment. Six residents did not completed both the pre- and post-measures limiting our final sample to 22. Descriptive characteristics are included in Table 4. Sixty-four percent of the sample was female, 34 percent male, and respondents ranged in age from 27 to 38. The sample was 18 percent African American, 64 percent Caucasian, and 18 percent Asian. Those respondents who completed both measures did not differ from those who did not in any significant ways with the exception of race. The non-completing group included one Hispanic resident; otherwise the racial composition was similar. A

little over half of the sample (N=12) has graduated from the program and current practice location is available for this group. Our residents practice family medicine in private offices, academic medical centers, Federally Qualified Health Centers (FQHC), and the Veterans Health Administration (Table 1). Almost two-thirds of the residents are practicing in locations that serve medically underserved populations (FQHCs, academic medical centers, private rural practice).

### *Scale Properties*

The Awareness Scale had a Cronbach's alpha of 0.956, and the scale did not have any items that correlated with the total scale at  $\leq 0.46$ . The Knowledge Scale had a Cronbach's alpha of 0.882, and did not have any items that correlated with the total scale at  $\leq 0.17$ . The Comfort Scale had a Cronbach's alpha of 0.954, and did not have any items that correlated with the total scale at  $\leq 0.45$ . The Likelihood of Use Scale had the lowest Cronbach's alpha of 0.541, and had three items that correlated with the total scale at  $\leq 0.15$ : Transportation, Disease Screening and Disease Prevention. The deletion of these items from the scale improved the Cronbach's alpha to 0.951, therefore these items were not included in analysis. Three subscales were created from the items that captured the topics for each domain: Public Benefits, Violence, and Public Health. These subscales were applied to each of the Awareness, Knowledge, Comfort and Likelihood of Use scales. Correlations of each of the subscale items with the total subscore were performed for the subscales and Cronbach's alpha reliability values were calculated using SPSS. The Cronbach's alphas for the Public Benefits subscale were ranged from 0.608 to 0.906 (once the Transportation item was removed), and no items correlated with the total

subscale at  $\leq 0.20$ . The Cronbach's alphas for the Violence subscale ranged from 0.757 to 0.922, and had no items with that correlated with the total scale at  $\leq 0.37$ . The Cronbach's alphas for the Public Health subscale ranged from 0.833 to 0.917, and no items correlated with the total subscale at  $\leq 0.17$ .

### *Questionnaire Results*

Because of the small sample size and non-normal distribution of data, Wilcoxon Signed Ranks Tests were run to calculate changes in mean score for the three subscales and total score for each for the Awareness, Knowledge, Comfort and Likelihood of Use Scales, (Table 7). Significant changes in pre- and post-intervention scores were found for the Benefits Awareness subscale ( $z=-2.56$   $p \leq 0.01$ ), the Benefits Knowledge subscale ( $z=-3.42$   $p \leq 0.001$ ), and the Likelihood of Use of Benefits subscale ( $z=-2.42$   $p \leq 0.05$ ). Significant differences were also found for the Violence Knowledge subscale ( $z=-2.96$   $p \leq 0.01$ ), the Violence Comfort subscale ( $z=-3.33$   $p \leq 0.001$ ), and the Likelihood of Use of Violence information subscale ( $z=-1.97$   $p \leq 0.05$ ). The only significant pre- post-intervention difference for the Public Health subscales was for Knowledge ( $z=-2.45$   $p \leq 0.01$ ). Differences in Total Scale mean scores were significant for Awareness ( $z=-2.19$   $p \leq 0.05$ ) Knowledge ( $z=-3.30$   $p \leq 0.001$ ) and Comfort ( $z=-3.25$   $p \leq 0.001$ ). The median scores for all subscales pre-and post-intervention changed by at least three points for all subscales, (ranging from a 2.7 point change in mean rank for the Knowledge of Public Health subscale, to a 7.7 point change in mean rank for the Knowledge of Violence subscale) indicating a meaningful change, with the exception of the Likelihood of Use of Violence information subscale which only had a 0.03 point

change in mean rank. Finally, the exclusion of the Not Sure category points had no impact on the findings of significant change for any of the subscales or Total Scale scores.

### *Discussion*

These findings confirm those of Donsky and colleagues (1998) and Paterniti and colleagues (2000) that community-based learning experiences can increase resident knowledge of community oriented care and topics relevant to community medicine. The study expands the literature base by establishing the efficacy of a curriculum in increasing resident awareness of community medicine issues, their comfort in addressing them and the likelihood that they will use their acquired information, skills and resources to address those issues. Further, this study contributes to the field of knowledge on community medicine learning experiences by establishing an assessment tool to measure change post an educational intervention. While Oandasan and colleagues (2000) developed a similar tool, it was based on a Canadian family medicine residency program and no further work has been published on the development of this tool. Our study, while a pilot, holds promise for the development of a U.S. normed instrument for measuring resident acquisition of knowledge and skills. It is important to note however, that this educational intervention and the assessment tool require further refinement as well as triangulation with alternative data sources to establish validity. Next steps include the development of an objective measure of knowledge acquired in each of the domains as

well as the development of virtual patient cases (see fmCASES)<sup>8</sup> that assess learners' ability to apply acquired knowledge to patient care.

Residents' awareness, knowledge, comfort and likelihood of use of information to address community medicine relevant topics increased after participating in the curricular rotation. The rotation is currently only two weeks in length and does not incorporate longitudinal learning opportunities. This design limits the potential to effect change in knowledge and skill acquisition, and likely serves as an introduction to topical areas and the delivery of community based care for most residents. If residency programs hope to train physicians committed to future work in underserved areas, a curriculum that allows for longitudinal engagement in the practice of community oriented medicine will be necessary.

### *Limitations*

This study has several limitations that should be considered when interpreting the results. First, the sample size (N=22) is small and although we had significant findings, there is the potential that these findings are false positives. However the changes in mean rank score did represent a meaningful change given the magnitude of change ranged from three to almost eight.. This study was a pilot of this instrument with a convenience sample, and therefore results should be interpreted with caution. Second, this sample is a convenience sample drawn from a family medicine residency program at a large, private, school of medicine in an urban setting in the northeast of the U.S. and therefore is very limited in its generalizability, especially to institutions without similar characteristics.

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<sup>8</sup> [http://www.med-u.org/virtual\\_patient\\_cases/fmcases](http://www.med-u.org/virtual_patient_cases/fmcases)

The surrounding communities of this institution are largely African-American (76.4%), 71.4 percent of residents are below 200% or more of poverty, 43.0 percent of residents are uninsured, and many rely on FQHCs core their primary care. The community medicine rotation is shaped by and resident experiences in surrounding community. These community characteristics are not unique, rather many urban areas share a similar demographic profile, therefore results may be transferrable to residents who train in programs whose surrounding communities share similar characteristics. Third, the subjective, self-report study design carries with it biases inherent in survey responses such as score inflation, social desirability, and rote responding. We were unable to control for social desirability in this study, future work should incorporate a study design such as an online, anonymous survey instrument that aggregates data and that investigators cannot access until the end of the data gathering phase. Despite the study design limitations, it is hoped that because the assessment tool was presented as an education aid, used to gauge learners current awareness, knowledge, comfort and likelihood of use so that didactic sessions can be tailored to need, that these biases were limited in scope.

### *Implications*

These findings hold important implications for family medicine residency programs looking to develop an experiential community medicine curriculum that increase resident knowledge and skills in the domains of public health, community violence, and public benefits/social health resources. These skill sets will be essential for working in communities plagued by access barriers, violence, and a lack of resources (Pew Health Professions Commission, 1998). The findings suggest such a curriculum can prepare residents to work with underserved populations. In addition, this study

established an assessment tool for measuring change in resident awareness, knowledge, comfort and likelihood to use information in community medicine domains. While the tool is in the preliminary stages of establishing reliability and validity, and will require more rigorous testing of psychometric properties, it does hold promise for a field which previously lacked an instrument to measure the effectiveness of interventions. This will be very important as more family medicine residency programs look to implement programs to meet the Accreditation Council for Graduate Medical Education (ACGME) Family Medicine Residency Review Committee (FMRRC) requirements. Finally, longitudinal research needs to be done to examine the impact of this curriculum on the likelihood of future practice in underserved communities. Family medicine is primed to meet the workforce demands and population needs post PPACA, however more research is necessary to investigate the efficacy of programs in training residents to work with underserved populations.

Table 5: Sample Characteristics (N=22)

|                    |            |
|--------------------|------------|
| Gender (%)         |            |
| Female             | 63.6       |
| Male               | 36.4       |
| Race/Ethnicity (%) |            |
| African American   | 18.2       |
| Caucasian          | 63.6       |
| Asian              | 18.2       |
| Age (Mean, Range)  | 31 (27-38) |

Table 6: Practice Location

| Type of Practice        | N    |
|-------------------------|------|
| Private urban           | 1    |
| Private rural           | 1    |
| Private suburban        | 3    |
| FQHC                    | 3    |
| Academic medical center | 3    |
| VHA                     | 1    |
| Total                   | N=12 |



Table 7: Wilcoxon Signed Rank Test pre- and post-intervention scores

| Test Statistics <sup>(a)</sup>   | Z <sup>(b)</sup> |
|--|------------------|
| Post-Awareness Benefits Domain - Pre-Awareness Benefits Domain                   | -2.56**          |
| Post-Awareness Violence Domain - Pre-Awareness Violence Domain                   | -1.43            |
| Post-Awareness Public Health Domain - Pre-Awareness Public Health Domain         | -1.78            |
| Post-Knowledge Benefits Domain - Pre-Knowledge Benefits Domain                   | -3.42***         |
| Post-Knowledge Violence Domain - Pre-Knowledge Violence Domain                   | -2.96**          |
| Post-Knowledge Public Health Domain - Pre-Knowledge Public Health Domain         | -2.45**          |
| Post-Comfort Benefits Domain - Pre-Comfort Benefits Domain                       | -2.91            |
| Post-Comfort Violence Domain - Pre-Comfort Violence Domain                       | -3.33***         |
| Post-Comfort Public Health Domain - Pre-Comfort Public Health Domain             | -1.05            |
| Post-Likely to Use Benefits Domain - Pre-Likely to Use Benefits Domain           | -2.42*           |
| Post-Likely to Use Violence Domain - Pre-Likely to Use Violence Domain           | -1.97*           |
| Post-Likely to Use Public Health Domain - Pre-Likely to Use Public Health Domain | -0.43            |
| Post-Global Awareness Score - Pre-Global Awareness Score                         | -2.19*           |
| Post-Global Knowledge Score - Pre-Global Knowledge Score                         | -3.30***         |
| Post-Global Comfort Score - Pre-Global Comfort Score                             | -3.25***         |
| Post-Global Likely to Use Score - Pre-Global Likely to Use Score                 | -1.81            |

\* p< 0.05

<sup>a</sup> Wilcoxon Signed Ranks Test

\*\* p≤ 0.01

<sup>b</sup> Based on negative ranks; Asymp. Sig. (2-tailed)

\*\*\*p≤ 0.001

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## APPENDIX B: Assessment Tool

### Community Medicine Pre-Rotation Assessment

Name: \_\_\_\_\_ Date: \_\_\_\_\_ PGY: ☐ 2 ☐ 3

Please note, there are **4 pages** to this document seeking a self-assessment of your awareness, knowledge, comfort, and likelihood to use information related to the issues listed in each table **before** your community medicine rotation.

Please put completed form in Dr. Cronholm's 6-Mutch mailbox when completed.

For purposes of this survey, **AWARENESS** is meant to capture your sense of the clinical impact, importance and relevance of the issues below as they related to caring for your patients.

| Rate your AWARENESS of the following issues: | Not at all               | Not very much            | Some-what                | Very Much                | Not Sure                 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Transportation                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community health                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community assessments                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health care safety net                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insurance (e.g. Medicaid, CHIP, Medicare)    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public assistance (e.g. TANF, SSDI)          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public housing                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Child abuse/neglect                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Elder abuse/neglect                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Intimate partner violence/abuse              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community violence                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Violence services                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Long-term care of older adults               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In-home services for older adults            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mental health services                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communicable diseases                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Environmental illness                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Immunization strategies                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease screening                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease prevention                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health promotion                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health literacy                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Social determinants of health                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Epidemiology                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

For purposes of this survey, **KNOWLEDGE** is meant to capture your level of mastery of information, facts, descriptions, or skills related to the issues below in caring for your patients.

| Rate your KNOWLEDGE of resources for the following issues: | Not at all               | Not very much            | Some-what                | Very Much                | Not Sure                 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Transportation   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community health   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community assessments                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health care safety net                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insurance (e.g. Medicaid, CHIP, Medicare)                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public assistance (e.g. TANF, SSDI)                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public housing   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Child abuse/neglect  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Elder abuse/neglect  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Intimate partner violence/abuse                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community violence   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Violence services  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Long-term care of older adults                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In-home services for older adults                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mental health services                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communicable diseases                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Environmental illness                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Immunization strategies                                    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease screening  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease prevention   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health promotion   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health literacy  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Social determinants of health                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Epidemiology   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

For purposes of this survey, **COMFORT** is meant to capture how able you feel in utilizing your awareness, knowledge, and skills to address the issues below in caring for your patients.

| Rate your COMFORT in dealing with the following issues: | Not at all               | Not very much            | Some-what                | Very Much                | Not Sure                 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Transportation  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community health  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community assessments                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health care safety net                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insurance (e.g. Medicaid, CHIP, Medicare)               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public assistance (e.g. TANF, SSDI)                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public housing  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Child abuse/neglect                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Elder abuse/neglect                                     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Intimate partner violence/abuse                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community violence                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Violence services                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Long-term care of older adults                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In-home services for older adults                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mental health services                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communicable diseases                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Environmental illness                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Immunization strategies                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease screening                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease prevention                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health promotion  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health literacy   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Social determinants of health                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Epidemiology  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

For purposes of this survey, we would like to get a sense of **HOW LIKELY YOU ARE TO USE** your awareness, knowledge, and skills to address the issues below in caring for your patients.

| Rate HOW LIKELY ARE YOU TO USE skills/tools for the following issues in your practice? | Not at All likely        | Not very likely          | Some-what likely         | Very likely              | Not Sure                 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Transportation   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community health   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community assessments  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health care safety net   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Insurance (e.g. Medicaid, CHIP, Medicare)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public assistance (e.g. TANF, SSDI)  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Public housing   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Child abuse/neglect  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Elder abuse/neglect  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Intimate partner violence/abuse  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Community violence   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Violence services  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Long-term care of older adults   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| In-home services for older adults  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mental health services   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Communicable diseases  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Environmental illness  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Immunization strategies  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease screening  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Disease prevention   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health promotion   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health literacy  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Social determinants of health  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Epidemiology   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |