Community Health Worker Programs in Chicago's Health Care Institutions: Research and Evaluation

Annual Progress Report
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Progress Report

Project Summary

Racial and ethnic minority groups are at greater risk for poor health, yet they experience numerous obstacles in accessing health care. Over the past two decades, one of *Healthy People's* overarching goals has focused on the reduction and elimination of disparities.[1-3] This national imperative, coupled with recent socioeconomic pressures, have focused attention on the Community Health Worker (CHW) model as a mechanism towards improving the health of underserved and marginalized communities. CHWs are indigenous, trusted, and respected members of the community they are serving. They function as a bridge between their peers and health professionals. The CHW profession is developing and defining itself and the work of CHWs is becoming more mainstream. Yet, CHWs are still underutilized and underfunded due in part to a lack of understanding of the CHW concept and a lack of evaluation confirming the effectiveness of CHWs.[4] While specific CHW studies and programs have proven effective in reaching significant outcomes, meta-analyses contain mixed evaluations of CHWs and their effectiveness.[5-8] This is due in part to the dramatically different CHW job functions, intervention approaches, and health issues. In addition, in most available studies a rigorous study design and sound evaluation methods are lacking, and throughout the CHW field there is no good systematic evaluation of CHW models. Several studies have explicitly called for the creation of guidelines for common measures to be used in research and evaluation related to CHWs,[9-11] however, no study has yet to be conducted.

The primary aim of this project is to clearly delineate CHW effectiveness and best practices in terms of evidence-based science. To our knowledge, there is no study of this kind that has been conducted, though its importance is undeniable.[5, 11,12] The project will answer research and evaluation questions posed throughout the CHW field.[10, 11, 13] Information collected in the study will be synthesized and analyzed to produce: 1) Guidelines for the Implementation of CHW Models in Health Care Settings; and 2) standardized process and outcome evaluation tools for CHW programs being implemented in a health care setting.

The following report documents progress towards goals set in our original proposal for the first year of funding. Progress and major activities are described for the interval of 7/1/11-5/31/12. Planned activities for the remainder of the project and a plan of action are set forth for the second year of funding.

Project Activities

Survey Development

As set forth in our original proposal, the Project Director (PD) finalized the study's protocol and work plan and a Research Assistant (RA) was hired and trained. The PD and RA created the survey instruments based primarily from the surveys used in the landmark *Community Health Worker National Workforce Study,*[10] while modifying them to fit the project's needs. Existing questions were redesigned and/or new questions added to increase the survey's relevancy in medical settings. Sections of the survey requiring the most revisions related to CHW duties, supervision, and program evaluation. Literacy level was considered throughout. Often, multiple choice responses were made to include health care relevant options. For instance, we added "medical record review" as an answer choice regarding types of program evaluation. Similarly, the administrator survey inquires about CHW duties on the job, including "chart review," "discuss lab results," "respond to patient questions in clinic," and "provide culturally appropriate patient education in

clinic," as possible selections among others. Many other examples of this type of question tweaking exist, whereas additional response choices were inserted into existing questions.

In a few cases, entirely new questions were developed. While the *Community Health Worker National Workforce Study*[10] surveys only ask questions about the data *processes*, our study also asks about *actual* program results. For example, we wanted to know what specific outcomes, such as improved clinic show rates, greater medication/treatment adherence, or others, have resulted due to CHW efforts. As the integration of CHWs into medical teams is a fairly new concept, we wanted to determine the "value added" of CHWs to health care environments. We also wanted to probe further as to the specific process and outcome measures that agencies collect. Answer choices reflect measures most often reported based on the available literature regarding CHWs in health care settings. Outcome measures included "emergency department usage," "medical record review," and "improvement in knowledge," to name a few. The options for process measures included "timeliness of services," "number of services/ screenings provided," "percent follow-up visits kept," among other selections. We also included a question which aims to determine whether CHWs agree with the widely adopted American Public Health Association (APHA) definition[4] of the profession. Lastly, an entirely new section on CHW supervision was included. In our literature review, we found little research on this topic, yet we theorized that practical knowledge such as this might be relevant to those currently implementing or wanting to implement CHW programs. In this section, we included questions regarding the level of CHW supervision and how often supervisory meetings occur. We also have an open-ended question regarding the challenges, if any, that organizations have faced in supervising CHWs.

In summary, two surveys were developed, along with corresponding consent forms. The first survey was for use with CHWs working in health care settings and featured questions on CHW titles, definition, job duties, training, hiring, pay, and benefits. A certified interpreter translated the survey and consent form to Spanish in order to accommodate Spanish-speaking CHWs. The second survey was for use with program administrators at health care agencies employing CHWs. The employer survey featured questions similar to the CHW survey, with additional questions added regarding program details, CHW supervision, program funding, and evaluation. The final survey instruments can be found in Appendix A and B. Both surveys were available in paper form. However, soon after initiating recruitment we found need to create online versions of the survey, for purposes of accommodating persons with all types of disabilities, including those whose mobility issues would preclude them from participating in a paper survey. Fortuitously, we found most agencies preferred an online survey as well for convenience purposes. Qualtrics® survey building software was used to create online adaptations of both the CHW and administrator surveys.

The project was approved by Mount Sinai Hospital's Institutional Review Board (IRB) December 8, 2011. The original approval letter can be found in Appendix C as a part of this continuation application. Since the project was approved by an IRB, memorandums of understanding did not need to be completed to work with organizations and to share program information. In one case, the project needed to be approved by one health care center's research review committee. The study was approved and we successfully worked with this agency.

Literature Review

In tandem to this work, the RA conducted an extensive literature review on Community Health Workers (CHWs) to enlarge our knowledge and better inform the study. The complete CHW literature review can be found in Appendix D. Primarily, the RA used the computerized databases PubMed and CINHAL to locate the most current and relevant studies regarding the profession. CHWs are referred to by varying titles, therefore, to be most inclusive, over 18 terms for CHWs were used in our search, including "Community

Health Worker," "Lay Health Educator," "Outreach Worker," "Patient Navigator," "Promotores(as)," "Lay Health Advisor," "Community Health Representative," "Community Health Educator," "Peer Educator/ Counselor," and more. Articles relevant to the following topics were reviewed, including CHW definition, roles, duties, CHW models, workforce profile, intervention types (asthma, cancer, diabetes, hypertension, and maternal and child health), CHW training, credentialing, workforce development, program effectiveness, and cost-effectiveness. Articles with intervention settings outside the United States were excluded so that the review remains pertinent to domestic health care concerns. Additional research was gathered by hand-searching the citations of relevant articles to ensure important studies were not missed.

Organized into four sections, the literature review summarizes over 115 CHW articles from the professional literature. To begin, Section 1 covers the definition and scope of the CHW workforce, providing a background on *who* CHWs are and *what they do*. It discusses CHW job titles, workforce definition, roles, duties, and workplace settings. Section 1 gives an overview on the types of programs CHW's most often work in and the various models of CHW practice. Section 2 further discusses the CHW workforce profile, highlighting current workforce trends including demographics, pay, training, and credentialing. It also touches on workforce development, providing a brief overview of the profession's history, including its current state and possible future trends. Section 3 reviews CHW research, featuring some of the most common chronic conditions and maternal/child health issues found in the literature, including asthma, diabetes, hypertension, cancer, pregnancy, and child health. Lastly, Section 4 discusses the current state of evaluation science in regards to CHW effectiveness and cost-effectiveness. It covers the challenges of data collection and evaluation, possible solutions to common barriers, and recommendations for future research.

In development of this project, the literature review proved vital to our understanding of CHWs, overall and more specifically, in health care settings. There are many unexplored areas of research involving CHW integration into health care teams, CHW roles, supervision, and evaluation in health care settings. Consequently, with a shortage of published studies, there remains limited guidance for health care agencies who wish to implement CHW programs in medical settings or improve upon their existing programs. As such, several studies have explicitly called for further exploration of this CHW role.[14-17] Our project aims to answer these questions, providing guidance to Chicago-area health care agencies currently implementing or wanting to implement CHW programs in health care settings with regards to both program evaluation and evidence-based practices.

<u>Recruitment of Health Care Institutions</u>

From the onset of the project, both the PD and RA have been reaching out to health care institutions located on Chicago's Westside or those serving a majority of Westside residents, facilitating relationships and informing key institution members about the study. Additional relationships were developed via our continued attendance at various partnership meetings. The PD has networked and collaborated with other groups working on CHW topics, including Center for the Excellence in Eliminating Disparities (CEED@Chicago), Health & Medicine Policy Research Group, the CHW Local Network, the CHW Alliance, and the Chicago Institute of Medicine. To begin the recruitment process, the RA developed a list of Westside clinics and hospitals derived from a comprehensive online health care directory compiled by the Chicago Asthma Consortium. The RA began gathering background information informally via websites and published reports for each agency located on the Westside (zip codes: 60608, 60612, 60622, 60623, 60624, 60644, and 60651). Each Westside agency was contacted to determine whether it met additional recruitment criteria, as follows:

1. The agency must be a health care setting (clinic, hospital, outpatient facility, health department);

2. The agency currently employs CHWs, based on the APHA definition[4], and meet additional education restrictions (workers must have less than Master degree education, no RN degree); and
3. The agency must be willing to work with us and learn more about our study.

Next, the PD and RA more formally set up individual meetings with key members of each health care institution which met the recruitment criteria.

Recruitment of Westside health agencies into the project occurred between October 2011 and April 2012. Contact was attempted for 25 organizations. In total, 11 organizations (44%) said that they do not have CHWs, and 6 said they worked with CHWs and went on to complete the full administrator survey. An additional 8 organizations were non-responsive. In total, 15 programs at 6 organizations were surveyed, totaling 42 CHW surveys and 12 administrator surveys.

After the project met its recruitment goal, outreach was expanded Chicago-wide in hopes of bolstering the sample size of the study for analysis purposes. We reasoned that additional surveys might provide further insight and a more robust sample concerning the scope of CHW models, implementation approaches, and evaluation capacities of local health care agencies. A list of Chicago area clinics and hospitals were derived from the same comprehensive online health care directory compiled by the Chicago Asthma Consortium, which was used in our initial study, and by email, health care agencies citywide were notified of the survey. Additional recruitment consisted of advertisements through networking meetings and professional contacts. These recruitment efforts resulted in eligible and complete surveys for 12 additional CHWs and 8 additional administrators.

The project has encountered some challenges, mostly around recruitment. However, given the challenges, we have succeeded in meeting our recruitment goals. The largest barrier centered on the widely adopted American Public Health Association (APHA) definition of CHWs,[4] on which we based our recruitment criterion. The definition is broad and loose-fitting in order to encompass the diversity of the profession; however, we found this creates confusion for employers. With a nebulous definition for CHWs, employers showed lack of clarity in determining which workers qualify under the CHW title. Additionally, we found that not all CHWs and administrators have adopted or identify with the title of CHWs. In fact the survey revealed that only 2% of CHW respondents went by the title, Community Health Worker. An additional, 28% went by the title Community Health Educator. Further preliminary results can be found below in the 'Preliminary Results' section. Competition from other health care providers can be a formidable recruitment barrier. Some agencies expressed hesitation and/or distrust in sharing privileged organizational information, such as pay, program design, and implementation, with agencies that are competitors for funding. As such, future studies may benefit from strengthening anonymity and/or emphasizing confidentiality if requesting "insider" information from organizations.

Data Collection

CHWs and Administrators at each of the participating agencies completed surveys. After agencies filled out the CHW and administrator survey, they were asked to provide a variety of data collection tools, reports, and/or tracking methodologies and to meet with project staff to informally discuss how they evaluate their programs. By working with both CHWs and administrators at collaborating agencies, data were collected via surveys, interviews, and meetings. In addition to the survey, we collected process (tracking tools, log sheets, enrollment and outreach information) and outcome metrics (data collected, case notes, medical records, etc) which are being used to measure and evaluate program effectiveness at our participating agencies. On the job shadowing was not an effective way of garnering information. In fact, we found that

extensive interviewing and hosting meetings with CHWs and administrators served as a preferred method of obtaining in-depth information about CHW activities and program evaluation.

Data Analysis

The data process entailed creating a database, collecting the data, entering it into a database, monitoring and cleaning the data, and then analyzing it using the appropriate survey analysis technique. SAS 9.2 was used to analyze survey findings. SAS programs were written and the survey results analyzed.

Preliminary Results

Preliminary results are presented for 54 CHW survey respondents. The 54 CHWs come from approximately 12 different health care organizations from across Chicago with 6 of those organizations located on the Westside of Chicago. Appendix E contains all the preliminary results in 9 data tables.

Demographics: Table 1 displays the demographic characteristics of the CHWs. The majority of the CHWs are female (68.5%) and were on average 41 years old. The majority of CHWs are Non-Hispanic Black (48%), but many are Hispanic (37%), with the rest being Non-Hispanic White (4%) or other (11%). Surprisingly, most CHWs had some college education (33%) or had a college degree (32%). 11% had only a high school degree. All CHWs that we surveyed were paid employees. They have worked on average of 8.6 years as a CHW and 5.7 years in their current organization.

CHW Relationship with Community Served: Table 2 displays data regarding the CHWs' relationship with the community they serve, along with their belief in association with the widely accepted American Public Health Association (APHA) definition. 72% of CHWs had racial/ ethnic similarities with the community they serve, 52% lived in the same community, 52% had cultural similarities, 39% had common life situations and 28% had a common health condition. The APHA has five main components to the definition. In the survey these were deconstructed and CHWs were asked whether or not they agreed with the statement. All agreed with at least one statement and the majority (60%) agreed with at least two traits. The five traits are: 1) I am a trusted member of the community I work with (41% agreement); 2) I have a close understanding of the community I work with (41% agreement); 3) I improve the quality of health and/or social services for my clients (37% agreement); 4) I help my clients access health and/or social services (33% agreement); and 5) I improve the cultural competence of health and social services for my clients (24% agreement).

CHW Titles and Assignments: Table 3 contains information on CHW titles on the job and work assignments. In the literature, and in much of the political jargon, CHWs are commonly referred to as "Community Health Workers"; however, only one respondent stated that they go by the title Community Health Worker. The majority go by the term Community Health Educator (28%) or Patient Navigator (15%). The term "peer" often appeared in CHW titles: Peer Educator (9%), Peer Mentor (7%), Peer Counselor (7%). When asked about the assignments they perform at their job as a CHW, 61% reported providing health services, screenings, and or education, 57% said outreach/ enrollment, 41% said that they were integrated as part of the health care team, and 39% said patient navigation is one of their assignments. 81% of CHWs stated that they were part of a health care team. The majority of CHWs worked with the Program Manager (59%) and other CHWs (50%). Many reported working with doctors (46%), nurses (46%), and social workers (30%).

CHW Job Duties and Functions: Table 4 contains information on CHW job duties and functions in health care settings. 50% of CHWs surveyed assisted their clients in gaining access to medical services and programs. 44% provide culturally appropriate health education to their clients. 41% assist their clients in

gaining access to social services, and 35% provide social support. Only 22% conduct outreach and recruitment.

Populations Served, Service Area and Location of Service Delivery: Table 5 displays data on what populations are served by CHWs who work in the health care setting. In general, the majority served women (74%), but surprisingly men were also commonly a population of concern (61%). More specifically, elderly and children were the populations served the most by CHWs in health care settings (46% and 43% respectively). CHWs tended to provide services to the entire city of Chicago and to clients receiving health care services at their organization. Table 6 contains location of health service delivery data. Health and social services were mainly provided on-site at the organization (70%), in the hospital (52%), and at community events (52%). Different from CHWs who are based in Community-Based Organizations, only 26% of CHWs in health care settings deliver services in a client's home.

Health and Social Issues: Table 7 contains data on health and social issues addressed by CHWs in health care settings. On average CHWs work to address 5 different health issues in their role. The main health topics being addressed by CHWs include nutrition (37%), diabetes (33%), asthma (32%), women's health (32%), violence (30%), injuries (28%), and heart disease (26%). These health topics are also major health concerns for Westside Communities. Therefore, it is encouraging to see that the issues being addressed match with the health topics that are most burdensome for the community. CHWs also seek to improve social issues affecting their clients. The main social issues CHWs address with their clients are health information access (61%), health insurance (32%), housing (24%), and violence (22%).

CHW Training, Frequency, and Skills Gained: Most CHWs receive training on the job (87%); however, it is surprising that not all CHWs receive on-the-job training. Table 8 and 9 contain data on CHW trainings and skills gained from work trainings. For most CHWs, they only receive training at the time of initial hiring (49%). Some receive training on a monthly (7%), quarterly (21%), or annual basis (12%), while others receive training on an as needed basis (12%). For most CHWs, the bulk of their training is done during the initial orientation (60%). 57% receive training through continuing education/ trainings, 40% receive additional classroom instruction, and 38% receive training through mentoring. The topic areas for which CHWs receive training are abundant. However, the main skills gained through training are the ability to access resources for their clients (56%), education on a specific disease (48%), knowledge of medical services (46%), being a CHW (43%), and record keeping/ data reporting (41%). Skills that are least gained through training include home visiting (15%), health insurance coverage (19%) and first aid/CPR (22%). It is important for this information to be fed back to administrators so they know if the topics they intend to train CHWs on are actually the knowledge being gained and retained by CHWs.

Administrator Survey: Administrator survey data is still being analyzed. In brief, administrators report that the two main barriers to implementing a CHW model in a health care setting included lack of funding and lack of qualified candidates, a key reason that the current project and similar initiatives are pertinent to the advancement of CHWs. Organizations generally employed CHWs because they believed that CHWs are connected to the target population and effective at improving the health of clients. When administrators were asked about their program evaluation, they stated that CHWs have shown positive impact on patient satisfaction, health outcomes, and quality of care. Additional data analysis on the administrator survey data is underway. In addition, cross tabulations will be run between CHW surveys and administrator surveys when possible. Comparisons to national data will also be made.

Cost Data: Although we sought to work with the Department of Health and Family Services to obtain Medicaid and Medicare cost data, we found that in this current year it was not feasible. However, we were able to obtain cost data from Sinai Health System on asthma health resource utilization and conducted a large scale cost-benefit analysis on the Sinai Asthma Program, which implements the CHW model in a community based setting. The cost data offers a compelling story, especially at this junction given the State of Illinois' cuts to Medicaid and in turn people's well being and health care.

Using careful evaluation analyses of the Sinai Asthma Program, we have discovered that CHW programs for reducing asthma mortality are enormously cost-effective. For example, the Sinai Asthma Program generally saves about $7 for each $1 spent on prevention or an average about $3000 for each participant in the program. This savings really adds up. For example, if we were to enroll 1,000 children with uncontrolled asthma in this program we would: a) greatly improve their health; and b) save $3 million. But even this is small potatoes. We estimate that there are about 120,000 Medicaid-insured children just in Illinois with asthma who would be eligible for a program such as ours. If we were able to work with all of them, the State of Illinois could save about $360,000,000 over two years, or about $1.8 billion over 10 years. While this dollar amount is staggering, the potential cost-savings are even greater. These cost-savings only adjust for direct medical costs and do not take into account the long-term savings of added years of life, increased work and school productivity, less children suffering from the symptoms of asthma, etc.

This is just one such cost analysis that can be done to look at the potential cost savings that can be realized from CHW programs. In the section discussing the proposed work for next year, we discuss our plans to continue to develop our cost analysis activities.

<u>Lessons Learned</u>

Lessons learned are broken into four categories; outreach, recruitment criteria, working with organizations and implementation of the survey.

Outreach: Program managers were identified as the initial point of contact for telephone and email communications regarding recruitment. However, buy-in from higher level administration, such as the organizational Director, may be a crucial first step. In almost all cases, those in upper-level management were gatekeepers to research implementation at their respective facilities. Outreach took multiple attempts at contacting organizations. As many public health agencies are understaffed and/or overwhelmed by community need, it is important to stress the benefit that an organization will receive in participating in the study.

Recruitment criteria: Recruitment criteria for identifying CHW workers can be difficult as CHWs are called by a wide variety of titles. The definition is broad and loose-fitting in order to encompass the diversity of the profession; however, we found this creates confusion for employers in determining which workers qualify under the CHW title. For example, as it lacks an educational restriction, some agencies considered registered nurses as CHW. Future research should give full consideration to CHW definitions when developing recruitment criteria, creating additional educational and occupational parameters.

Working with organizations: Competition from other health care providers can be a formidable recruitment barrier. Some agencies expressed hesitation and/or distrust in sharing privileged organizational information, such as pay, program design, and implementation, with agencies that are competitors for funding. As such, future studies may benefit from strengthening anonymity and/or emphasizing confidentiality if requesting "insider" information from organizations.

Implementation of the Survey: The surveys were conducted through online or paper form without the assistance of a Research Assistant. This was convenient for all parties but left more data errors (unanswered questions or unclear answers). It's possible that we would have obtained richer, more detailed information through interviews rather than paper or electronic survey. However, both CHWs and administrators favored the former method for convenience (and time) purposes.

Dissemination

Disseminating the results, lessons learned, and next steps of the project is central to our activities. We want to get information out to local audiences as well as national audiences about the work and the collaboration between SUHI and others with funding from the Lloyd A. Fry Foundation. We have been working to disseminate program efforts and findings. In April 2012, the PD and RA presented the project's work to date and preliminary findings to networking colleagues at the CEED@Chicago CHW Alliance meeting. The PD has also made a host of presentations at academic conferences. In June, she participated in a roundtable discussion on CHW models at the Midwestern Psychology Association Conference and also presented at the Academic Chicago EMED Collaborative to Improve Public Health. On June 7th, the PD discussed CHW models and cost-effectiveness of CHW models for reducing asthma mortality and morbidity at the EPA Asthma Conference. Furthermore, the project submitted two abstracts for the American Public Health Association's Annual Conference in October 2012 and was accepted to present both, one being an oral presentation, "Community Health Workers in Chicago's Health Care Centers: Roles, Program Structure, and Evaluation," which highlights our current project's efforts and results, and the second, "Community Health Workers to Health Policy Advocates: Engaging CHWs in the Policy Development Process," a roundtable discussion on our policy work in collaboration with the CHW Local Network and Health and Medicine Policy Research Group.

Collaborating with other CHW Initiatives

Both the PD and RA have been actively involved with several groups working on CHW initiatives both locally and nationally. Locally in Chicago, the PD and RA have been active members of the CHW Alliance formed by CEED@Chicago since its inception back in 2011. The CHW Alliance mission *is to act as a unified voice of organizations that empower, employ, train, and advocate for CHWs and CHW stakeholders to advance the profession of the CHW throughout Illinois and the greater Chicago region and improve community health.* Recently, the PD has been nominated to sit on the Steering Committee for the Alliance. She has also been active in the Chicago CHW Local Network. She is a member of the policy sub-committee and attends their meetings regularly. In addition to meetings, the group has been hosting CHW policy workshops across the city and recently the state of Illinois. The CHW policy workshops are used to gather information from CHWs and CHW stakeholders on how they would like CHW policy and CHW certification policy shaped in Illinois. This work is being led by the Chicago CHW local network and Health and Medicine Policy Research Group.

Nationally, the PD is a member of the American Public Health Association CHW Section. This is the lead national organization on CHW affairs. She is also the head of the awards committee, leading the efforts to select the winner for the first annual APHA CHW Section CHW of the Year. Actively working with the APHA CHW Section has allowed her to connect with prominent national researchers in the CHW field. It is the intention that some of our colleagues in the APHA CHW Section Executive Council will be advisors of our work on this project in the next year.

Proposed Work for the Upcoming Project Year

Over the next 13 months (6/1/12-6/30/12) we will continue to critically analyze the data to determine which CHW models and training models show greater promise based on the available evidence for improving health outcomes for particular diseases and particular populations. The main focus of the next 13 months is the development of both standardized metrics and evidence-based guidelines for CHW programs in health care settings. The project will critically examine the process (tracking tools, log sheets, enrollment and outreach information) and outcome metrics (data collected, case notes, medical records, etc.) currently being used by participating agencies to understand what measures are being collected and to gauge the average health care agency's capacity for evaluation. We will utilize a combination of local and nationally recognized quality improvement measures, such as those set forth by the Agency for Healthcare Research and Quality (AHRQ) and others to create proposed standardized process and outcome evaluation tools for CHWs in health care settings. A key step in ensuring their relevance and feasibility is to gather local stakeholders to establish a review committee, consisting of CHW researchers, CHWs themselves via the Chicago CHW Local Network, program managers, and others working in the CHW field at various health centers. The main goals of the committee will be to: 1) provide feedback and further shape our proposed standardized process and outcome metrics; and 2) use available data to create evidence-based guidelines to inform the CHW model in health care settings. We anticipate the insight provided by the review committee will be invaluable to our success in achieving relevant and valuable end products. All findings will be available to the public with the intention of supporting the CHW model and those agencies currently implementing or wanting to implement CHW programs. It is our intention that the work done on this project will lead to better implementation of the CHW model, better training, higher standards of evaluation, improved patient care, improved community connection with the health care system, and ultimately improved health outcomes and quality of life for vulnerable communities.

The project will also further explore cost-savings data and research outcomes. We aim to create a user-friendly Return on Investment (ROI) template available for use by programs wanting to more critically examine the cost and cost-benefits associated with their CHW programs. We intend to develop a cost-savings template that can be used to calculate the impact of a CHW model on various health care services. This will be done by combining data and information available in the literature and data collected in surveys. Potential cost-benefit analyses will be conducted looking at surveyed CHW program reach and inputs from possible reductions in morbidity and mortality. This will provide an initial estimate of the savings due to the addition of CHW models in health care settings. This data is intended to help with buy-in from hospital administrators, policy makers, and researchers.

Activities that will require our attention over the next 13 months include: follow-up with participating agencies; data analysis (continual); collaboration with key stakeholders and networking partners; formation of and collaboration with the review committee; development of project tools/end products (standardized metrics, evidence-based guidelines), creating policy recommendations, preparing a report and manuscript on findings, and dissemination of results. Each of these provides a vital building block towards the project in achieving success and attaining significant long-term impact.

While data is still preliminary, we have already begun to disseminate program efforts and preliminary findings to networking agencies. Furthermore, the project has had two abstracts accepted at the 2012 American Public Health Association for their Annual Conference. During the course of the next year and thereafter, we will continue to disseminate project activities, survey development, project findings, and the resultant tools (evaluation metrics, guidelines, etc.) to a variety of audiences, including participating agencies, networking partners, health care organizations, the community, and academic audiences. We will report back individually to each participating agency and present at Grand Rounds, scientific meetings,

CHW group meetings, and other venues as are appropriate. We will prepare written manuscripts with the project's findings and recommendations. Nearing the conclusion of the project, we will also work with the CHW Network to convene a meeting with key stakeholders to discuss our findings and move our policy recommendations to actions.

Short-term Outcomes

We have had much success in meeting our short-term outcomes and are laying the foundation for achieving a long-term impact. Below are our short-term outcomes as listed in the original proposal with an update of where we are with achieving each outcome. Many of the short-term outcomes are on track to be completed at the end of year two.

- Collaborate between groups working on CHW models, research, and policy
    - Active and continuing to work with other organizations. See *Collaborating with other CHW Initiatives* section. We have not only been active in working with other groups, in several we are in lead roles.
- Develop the CHW Health Care Setting Survey
    - The CHW and administrator surveys have been developed, tested, and implemented. They can be found in Appendix A and B.
- Collect data from 10-20 CHW programs at 4-8 health care institutions serving the Westside of Chicago
    - Collaborating with 15 programs at 6 organizations, the project has well met its goal of collecting data from 10-12 programs at 4-8 health care institutions serving the Westside of Chicago
- Synthesize data from 10-20 CHW programs at aforementioned health care institutions
    - Data from the aforementioned agencies has been collected, entered, and the PD has begun synthesizing results – preliminary results are included in this report.
- Disseminate findings back to organizations so they know if CHWs are being used effectively, trainings are being conducted effectively, supervision, etc.
    - We first disseminated our findings at our report back meeting to be held on Thursday, July 26, 2012. We will continue to disseminate our findings to each participating institution, to other local audiences, and at national conferences.
- Determine how CHWs are used in a variety of health care settings
    - Preliminary results are included in this report in the Preliminary Results section. All data tables can be found in Appendix E. Data analysis will continue throughout year two. Additional data analysis on the administrator survey data is underway. In addition, cross tabulations will be run between CHW surveys and administrator surveys when possible. Comparisons to national data will also be made.

Year 2 short-term goals

We have conducted an extensive literature review on CHWs and begun exploring CHW return on investment. Through our extensive data analysis we will continue to explore and meet these short-term goals throughout our second year of funding

- Determine how CHWs are used in a variety of health care settings
- Critically examine a variety of CHW training models used
- Analyze a variety of CHW models to determine if there are models that show greater promise based on the available evidence, for improving health outcomes for particular diseases and particular populations

- Determine if there are cost savings associated with the use of CHWs
- Improve the capacity for program evaluation at health care institutions utilizing CHWs by serving as technical experts to these institutions
- Develop standardized process and outcome evaluation tools for CHW programs affiliated with health care institutions
- Produce Best Practice Guidelines for the Use of CHWs in Health Care Settings
- Disseminate findings to a variety of audiences, organizations, and venues

Long-term Impact

The CHW Research and Evaluation project will offer solutions to a range of organizations struggling to provide quality care to vulnerable populations in the health care field. The project will move forward strategies by which to fund effective health care delivery models, will yield information on the effectiveness and potential cost savings associated with CHW programs, and will offer evaluation tools that will be vital in ensuring CHW programs are meeting their intended goals. In the end it is the intention of this project to create evaluation metrics that can be used by health care organizations to not only evaluate their CHW programs, but also show their effectiveness to funders and policy makers (perhaps to diversify payment models for such programs). The CHW evaluation metrics also serve as an opportunity for CHW programs to make improvements where needed. Researchers will also be able to compare CHW programs across health care centers, programs, and throughout the country.

In order to fully test the newly developed CHW standard evaluation measures and CHW cost-savings templates, it makes logical sense to pilot test these measures in local health care institutions to determine their effectiveness and improve upon as needed. Fry and SUHI will then disseminate these measures to national audiences, including such agencies as AHRQ and Centers for Medicaid and Medicare.

Summary

We are on track, meeting the goals listed on our work plan/ timeline. Thus far, all major short-term outcomes set forth in our original proposal have been met or are in the process of being met in year two as laid out in the work plan. Next year's planned activities are exciting and offer promise to meet the two main aims of the project to create 1) Guidelines for the Implementation of CHW models in Health Care Settings; and 2) Standardized process outcome evaluation tools for CHW programs being implemented in a health care setting.

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