Implementation and Evaluation of Community Health Workers to Address Patient No-Show Rates in Catholic Health Medical Practices: Results of Qualitative Analysis

By Renee Cadzow, PhD

and

Jessica Bauer Walker, Executive Director

Community Health Worker Network of Buffalo

Background

Implementation and Evaluation of Community Health Workers to Address Patient No-Show Rates: Results of Qualitative Analysis of Monthly Meeting Minutes

Community Partners of Western New York (CPWNY- a NYS DSRIP PPS) partnered with the Buffalo Urban League (BUL- an urban, community-based organization with health, human services and educational programs) and the Community Health Worker Network of Buffalo (CHWNB-a non-profit organization focused on training and support for CHWs and other frontline professionals, as well as community-based projects and initiatives) to develop an innovative program to reduce no-show rates of high-risk perinatal patients within the Catholic Health System. By increasing attendance at prenatal and postpartum visits, the program sought to address several key HEDIS measures (listed below). Community Health Workers (CHW's) were hired by the Buffalo Urban League and trained by the Community Health Worker Network to call, visit, and accompany women who met with numerous barriers in their access and adherence to prenatal and postpartum care. This approach was expanded to pediatric well visits, lead screening up to 24 months, and addressing adult no-show rates.

Measures were established by the NCQA (National Committee for Quality Assurance) to evaluate the quality of care provided by Centers for Medicare and Medicaid Services Special Needs Plans. These measures, collectively called Healthcare Effectiveness Data and Information Set (HEDIS) include more than 90 measures across 6 domains of care. Because this CPWNY collaborative initiative is funded by DSRIP (Delivery System Reform Incentive Payment) Program, HEDIS measures are used to measure the impact of programs, projects, and initiatives. The following are HEDIS measures specific to maternal and child health outcomes:

- Frequency of ongoing prenatal care
- Lead screening in children
- Low birth weight
- Well care visits in the first 15 months
- Childhood immunizations
- Postpartum care visits
- Timeliness of prenatal care
- Early elective delivery

In early assessments of the issue within the Catholic Health System, data indicated that perinatal patients were exhibiting several risk factors related to positive birth outcomes, including not keeping regularly scheduled appointments, not following through on labs/screening, and even not scheduling necessary prenatal or postpartum appointments in the first place. Reasons for missing appointments included: lack of motivation/not seeing value in the appointment (stating "I feel fine/I don't need to"), mental health issues, transportation, childcare and other responsibilities at home, and cost of getting to the appointment or missing work.

Community Health Workers (CHW's) were identified as a way to address these issues and improve these measures.

> "A CHW is a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the CHW to serve as a liaison/link/ intermediary between health/social services and the community to facilitate access to

services and improve the quality and cultural competence of service delivery. A CHW also builds individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support and advocacy."

American Public Health Association. Community Health Workers. 2014;
http://www.apha.org/membergroups/sections/aphasections/chw/

CHW's have roles, skills, and qualities that are different from those of health care providers. They are NOT clinical providers. Rather, their scope of work spans the community and institutions and they bridge these spaces for the people they help. They often can do this well because they have had the same or very similar life experiences as the patients/clients they serve. The following table provides a broad overview of these roles, skills and qualities.

Table 1: Community Health Worker Roles, Skills, and Qualities (C3 Project)

CHW Roles	**CHW Skills**
1. Cultural Mediation Among Individuals, Communities, and Health and Social Service Systems 2. Providing Culturally Appropriate Health Education and Information 3. Care Coordination, Case Management, and System Navigation 4. Providing Coaching and Social Support 5. Advocating for Individuals and Communities 6. Building Individual and Community Capacity 7. Providing Direct Service 8. Implementing Individual and Community Assessments 9. Conducting Outreach 10. Participating in Evaluation and Research	1. Communication Skills 2. Interpersonal and Relationship-building Skills 3. Service Coordination and Navigation Skills 4. Capacity Building Skills 5. Advocacy Skills 6. Education and Facilitation Skills 7. Individual and Community Assessment Skills 8. Outreach Skills 9. Professional Skills and Conduct 10. Evaluation and Research Skills 11. Knowledge Base
Qualities	
1. Connected to community: of and from the community/shared experience 2. Strong and courageous (healthy self-esteem and the ability to remain calm in the face of harassment) 3. Friendly/outgoing/sociable 4. Patient 5. Open minded/non-judgmental 6. Motivated and capable of self-directed work, caring, empathetic, committed/dedicated, respectful 7. Honest 8. Open/eager to grown/change/learn 9. Dependable/responsible/reliable 10. Compassionate 11. Flexible/adaptable, desires to help the community, persistent, creative/resourceful	

CHWs' are well-documented as improving healthcare outcomes (including those related to prenatal care and birth outcomes), as well as other outcomes related to quality of life and "social determinants of health" (i.e. food, housing, transportation, social services). These include avoiding unnecessary emergency department use, helping to control diabetes, supporting positive mental health and substance abuse outcomes, securing safe and stable housing, and more.[1-9]

Community Partners of Western New York and Catholic Health System partnered with the Buffalo Urban League to employ and oversee Community Health Workers in hospital and community clinics to address no-shows for prenatal and postpartum medical visits. BUL was well-positioned to serve this role as a mid-to-large community-based organization with a variety of supports and services in line with social determinants of health, and a level of trust in the community that was able to bridge the gap that often exists between patients and the healthcare delivery system. The Community Health Worker Network of Buffalo (CHWNB) has expertise in training CHWs as well as helping to define how they can be implemented within various types of organizations, within and outside of healthcare. The CHWNB supported the project through assisting with program design, developing measurable outcomes and a research methodology with both quantitative and qualitative measures, and providing training and technical assistance to CHW's, the project team, and staff at clinics (in cultural competency, social determinants of health, community engagement, etc.) Community Partners of Western New York is largely comprised of medical practices and hospitals within the Catholic Health System. These healthcare sites are located across the Western New York region and serve a large volume of the region's low income community.

The CHW prenatal project was aimed at reducing adverse infant and maternal health outcomes (as measured by HEDIS indicators). Upon initial success of the initiative, it was expanded to include pediatric patients (specifically well baby visits and lead screening) and also adult patients (particularly those with chronic conditions). As demonstrated in the following pages, the initiative began with one clinic who serves a large number of patients enrolled in Medicaid/Medicaid Managed Care. As the details within the first clinic were developed and refined, the initiative gradually expanded into other sites and reached other populations.

The strategies that CHW's adopted to do this work included:

- Assist with obtaining health care coverage, including the navigation through the web application and paperwork required to obtain and/or maintain it
- Help individuals and families with access to resources/social determinants of health including food, housing, quality child care, social services, and health care/information
- Provide referrals to neighborhood community service agencies for additional, complementary services
- Advocate for community-specific health needs to mitigate/ameliorate health and healthcare disparities

- Provide links and referrals to transportation assistance in order to ensure individuals are able to receive the healthcare they require.
- Help people understand their health condition(s) and develop strategies to improve their health and well being
- Help to build understanding to support healthier behaviors and lifestyle choices, with a focus on a strengths-based/stages of change approach
- Make home visits as required
- Provide support and follow-up services to help maximize sustained positive health changes.

The project was gradually phased into regional clinics and hospitals over the course of 2 years. The phase in and expansion is ongoing, with the most recent plans to expand to the emergency department. Table 2 provides an overview of the timeline and details of the project implementation.

Table 2: Timeline of CHW Implementation

Month	Key actions at meeting	Site and CHW
October 2016	Introductory meeting, plan for staffing, training and placement	• MCCC to be first site
November 2016	Meeting with Buffalo Prenatal Perinatal Network to discuss the role of BUL CHWs and networking with BPPN programs	
February 2017	Project meeting. Bella is first CHW hired and active at MCCC. Learning eCW and integrating into clinic. Story collection.	• MCCC (Bella) • Planned expansion to Sister's and Mercy
April 2017	Project meeting. Initiation of case notes/logs to track work Overview of protocol for addressing terminations, time period for getting post-partum visits. Discussion of increasing awareness among providers about what CHWs do Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • Exploration of expansion to 9th St and OLV
May 2017	Discussion of work flow strategies unique to each location. Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • 9th St. (Christy) • Exploration of expansion to OLV
June 2017	Project meeting. Introduction to UB music study for babies. Discussion of referral slip and patient tracking strategies. Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • 9th St. (Christy) • Exploration of expansion to OLV
July 2017	Project meeting. Beginning to address lead screening at MCCC. Addressed work flow and staff interaction difficulties and how to navigate. Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • 9th St. (Christy) • Exploration of expansion to OLV

Month	Key actions at meeting	Site and CHW
August 2017	Project meeting. Discussion of collaboration between CHWs to reach patients in each other's regions. Review initial findings reported by MCCC and schedule meeting. MCCC has requested a CHW for adult patient care. Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • 9th St. (Christy) • OLV (Letitia)
September 2017	Project meeting. Discussion of work-flow and responsibilities. Setting parameters/limits to transportation assistance (i.e. CHWs shouldn't frequently transport patients) Discussion of learning the community around the clinic and who are the gatekeepers. Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • 9th St. (Christy) • OLV (Letitia) • Exploration of expansion to KenTon
October 2017	Project meeting. Discussed issue of hospital recording of birth and updating of clinic records to reflect this. Outreach to influx of Puerto Rican population. Discussed processes of delivering secure email, eCW access for CHWs. Outreach at other organizations (tabling at health fair, food pantry, Jesse Nash clinic) and integration of other program at Sister's (Belmont – helping with housing) Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • 9th St. (Christy) • OLV (Letitia) • Exploration of expansion to KenTon
November 2017	Project meeting. Overview of Health Homes (Medicaid and 2 chronic conditions or HIV or serious mental illness). Bella promoted to supervisor of CHWs. Addressing issues of CHW roles/responsibilities with clinic staff (asked to do other tasks) Making progress with eCW access – able to create notes/telephone encounters Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (Mariana) • 9th St. (Christy) • OLV (Letitia) • KenTon (new hire in progress)
December 2017	Project meeting. Working on strategy to reach pediatric population before 24 month cut-off for lead screening. eCW telephone encounter training and read-only access. Navigation of resistance among staff at site Story collection.	• MCCC (Bella) • Mercy (Belinda) • Sister's (*Mariana out, Bella covering*) • 9th St. (*searching, Bella helping to cover*) • OLV (Letitia) • KenTon (Shanta)
December 2017	Data meeting. Review of preliminary chart review data. Creation of poster for presentation of results.	
January 2018	Project meeting. Ongoing eCW training/access Discussion of the importance of laptops for effective work. Creation of excel spreadsheet for log and plan to submit electronically monthly. Story collection.	• MCCC (*searching, Bella and Shanta covering*) • Mercy (Belinda) • Sister's (*Mariana out, Bella and Shanta covering*) • 9th St (*searching*) • OLV (Letitia) • KenTon (Shanta)

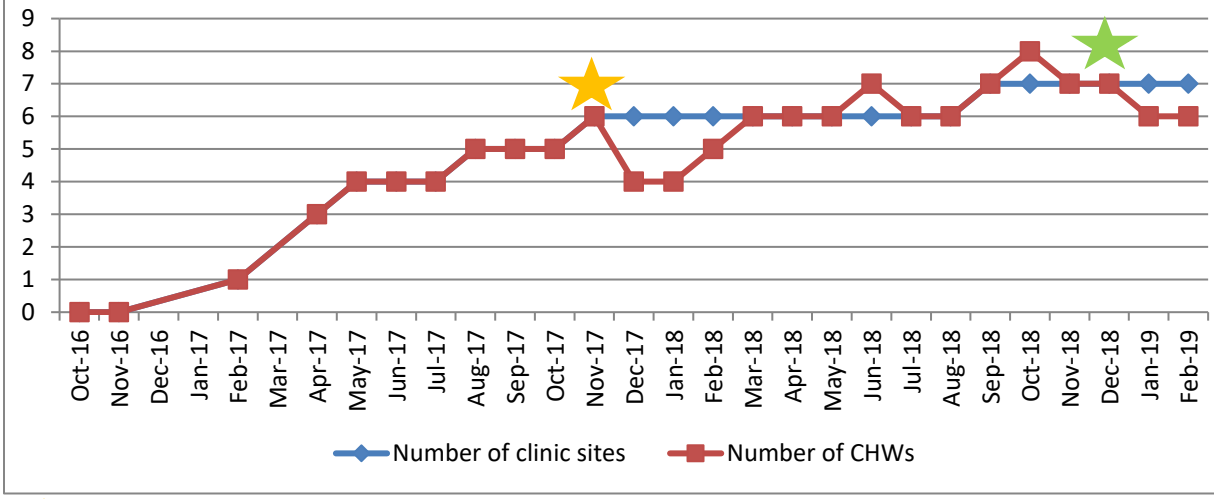
Month	Key actions at meeting	Site and CHW
February 2018	Project meeting. Discussion of work flow, source of no show lists, access to eCW. Movement away from use of referral slips. Story collection.	• MCCC (Elizabeth) • Mercy (Belinda) • Sister's (*Mariana out, Bella covering*) • 9th St (*pending . . .)* • OLV (Letitia) • KenTon (Shanta)
March 2018	Project meeting. Focus on the data and HIPAA compliance. Discussion of the ID numbers for the patient tracking logs and how to create structured data for analysis. Use of telephone encounter with "CHW" as a drop-down option.	• MCCC (Elizabeth) • Mercy (Belinda) • Sister's (Mariana) • 9th St (*pending . . .)* • OLV (Letitia) • KenTon (Shanta)
April 2018	Project meeting. Clarification of phone etiquette when checking on patients (in the event there was a termination or infant death) Discussion of roles/responsibilities in attending patient appointments that last beyond work hours. Discussion of navigating difficult staff dynamics. eCW tracking form discussion for structured data Story collection	• MCCC (Elizabeth) • Mercy (Belinda) • Sister's (Mariana) • 9th St (*pending . . .)* • OLV (Letitia) • KenTon (Shanta)
May 2018	Project meeting. Discussion of tracking form, electronic entry, and monthly submission Discussion of how to address patients who have been dismissed from other clinics. How to prioritize large lists of patients. Access to laptops needed for all CHWs	• MCCC (Elizabeth) • Mercy (Belinda) • Sister's (*searching, covered by Bella and others*) • 9th St (Keisha) • OLV (Letitia) • KenTon (Shanta)
June 2018	Project meeting. Presentation on smoking cessation resources. Story collection.	• MCCC (Elizabeth w/ help from Letitia) • Mercy (Belinda) • Sister's (*Emily to start, covered by Bella and others*) • 9th St (Keisha) • OLV (Letitia) • KenTon (Shanta)
July 2018	Project meeting. Discussion of lead screening and mother's fear of compromising housing status Continuing discussion of chart update following delivery Story collection.	• MCCC (Elizabeth) • Mercy (Belinda) • Sister's (*Emily with help from Bella*) • 9th St (Keisha) • OLV (*Letitia out, Bella covering*) • KenTon (Shanta)
August 2018	Project meeting. Continued discussion of transportation issue for many and need for more resources. Tablets have been ordered for CHWs Information on purpose of post-partum visit	• MCCC (Elizabeth) • Mercy (Belinda) • Sister's (Emily) • 9th St (Keisha) • OLV (*Belinda covering*)

Month	Key actions at meeting	Site and CHW
	Story collection.	• KenTon (Shanta) • Exploration of expansion to 2 MCCC CHWs • Exploration of establishment of ED CHW
September 2018	Project meeting. Discussion of bringing in CPS and when it is appropriate (medical neglect?) Discussion of standardization of the work-flow and processes within the clinics to allow for easier CHW substitution as needed Suggested changes to hospital protocol for post-partum scheduling before discharge Debrief from the NYSDOH listening session for women who lost a child/had severe complications Story collection.	• MCCC OB/Peds (Elizabeth) • MCCC Adults (Melissa) • Mercy (Belinda) • Sister's (Emily) • 9th St (Keisha) • OLV (*Belinda covering*) • KenTon (Shanta) • Exploration of establishment of ED CHW
October 2018	Project meeting. Discussion of the role of adult protective services, connection to health homes. Prioritization of no-shows – high risk vs. everyone. Also – discussion of the role of the clinic to make first attempts o contact no-shows before referring to CHW Discussion of the ability of CHWs to schedule patients (reduce extra steps and take advantage of the moment that they have the patient engaged). Story collection.	• MCCC OB/Peds (Elizabeth) • MCCC Adults (Melissa) • Mercy (Belinda) • Sister's (Emily) • 9th St (Keisha) • OLV (*Desiree, with Belinda's help*) • KenTon (Shanta) • Exploration of establishment of ED CHW
November 2018	Project meeting. Discussion of process to update contact information/address in the system. Continued discussion of staff responsibilities with reminders and the referral to CHWs to address high risk, chronic no-shows Ideas to reach patients in need of lead screening – outreach to women who delivered a year ago. Discussion of discretion in phone calls if not speaking with patient. eCW training. Story collection.	• MCCC OB/Peds (Elizabeth) • MCCC Adults (Melissa) • Mercy (Belinda) • Sister's (*Emily out, Bella covering*) • 9th St (Keisha) • OLV (Desiree) • KenTon (Shanta) • Exploration of establishment of ED CHW
December 2018	Project meeting	• MCCC OB/Peds (Elizabeth) • MCCC Adults (Melissa) • Mercy (Belinda) • Sister's (Emily) • 9th St (Keisha) • OLV (Desiree) • KenTon (Shanta) • Exploration of establishment of ED CHW
January 2019	Project meeting	• MCCC OB/Peds (Elizabeth) • MCCC Adults (*Bella covering*) • Mercy (Belinda) • Sister's (Emily) • 9th St (Keisha)

Month	Key actions at meeting	Site and CHW
		• OLV (Desiree-last day 1-18) • KenTon (Shanta) • Exploration of establishment of ED CHW
February 2019	Project meeting	• MCCC OB/Peds (Elizabeth) • MCCC Adults (*Bella covering)* • Mercy (Belinda) • Sister's (Emily) • 9th St (Keisha) • OLV (*Belinda covering*) • KenTon (Shanta) • Exploration of establishment of ED CHW

This implementation is captured visually by Figure 1.

Figure 1: Expansion of Buffalo Urban League/Catholic Health CHW Program by Number of Sites and Number of CHWs



Bella promoted to supervisor. There should be 1 more CHWs than site going forward. Lower numbers of CHWs during some months reflects either turn-over of medical leave.

Belinda promoted to supervisor. There should be 2 more CHWs than sites going forward.

In addition to the long term tracking of health outcomes using HEDIS measures, one of the methods by which this initiative is being evaluated is through monthly team meetings wherein the evaluator takes detailed notes of progress, problems, and processes. CHWs are asked to share stories from the month that represent the types of encounters they have. There are key themes to these stories that have been identified over the course of these two years. These include:

- Persistence: Focusing on staying with a patient/client despite initial difficulty in making progress
- Locating the Hard to Find: Using multiple strategies and skills to locate patients/clients who may be transitory and/or where communication barriers are present
- Addressing Cultural, Socioemotional and Mental Health Risks: Having a culturally competent, socio-ecological lens to ensure inclusive, responsive approaches when complex individual, family, community and historical issues and traumas may be present
- Transportation: Navigating and creating access regarding a key barrier to accessing healthcare appointments
- Life Saving Actions: Intervening at critical times and places in a way that may have literally saved a patient's life.

The following pages provide these stories within each theme. For some of them, CHWs were able to retrospectively review records to identify the outcomes of the patients in the stories (whether they stayed engaged, had healthy birth outcomes, etc.). For others, the information was not easily found due to limited staff time to search, the structure of the electronic medical record, and the limited level of access that the CHWs had to review medical outcomes data.

Examples of CHW Persistence

While the persistence of CHWs is illustrated in nearly every story, there are some in particular that capture this characteristic exceptionally well. On average, CHWs may visit 10 or more homes per day and talk on the phone with even more. This fills a critical gap in the healthcare delivery system, where there are few other providers who are conducing out-of-office outreach, let alone at this level of intensity. Often patients/clients are not home or do not answer the door, so CHWs will leave their cards and notes indicating why they stopped by. Sometimes, once the appointments are made, CHWs will still go out to the house to make sure they can get to the appointment on the scheduled day.

- *Multiple home visits to engage*: One CHW told of how she worked hard to engage a post-partum patient who seemed depressed. She had left her card and had offered gift cards but the patient still resisted. Finally, the patient felt ready to make an appointment and did so. On the day of the appointment, the CHW visited the patient to ensure that any barriers to attending the appointment were addressed. Because the patient didn't have a phone, the CHW took the initiative to personally check-in about 40 minutes before appointment. (CHW: Belinda; Month: August 2017)
    - *Outcome indicator: After getting past the barrier of attending that first appointment, the patient consistently scheduled and kept appointments through the remainder of her pregnancy.*
- *Seventh time is the charm*: One CHW went seven times to the home of a woman who had missed several prenatal appointments. She visited at different times of day and each time she left her card with a note to contact her and/or make an appointment. On a day when the CHW stopped there in the morning and left yet another card, the woman finally walked into the clinic that afternoon, without an appointment. She said that she knew the CHW had been coming often – she just was not answering the door. The CHW learned that she was early in her

pregnancy, and struggling with substance abuse issues. Connecting her to care was especially important so that this condition could be treated and managed during her pregnancy. (CHW: Belinda, Month: April/May 2017)

  - *Outcome indicator: This patient entered care at 31 weeks and birthed her baby at 39 weeks. She did not show up for her first post-partum appointment but, with help with rescheduling from Belinda, she attended a post-partum appointment soon after, receiving critical care and support..*

- *Frequent follow-up and addressing barriers*: A 15 year-old patient had come in to the clinic at 6-7 weeks gestation for her prenatal appointment and to receive treatment for an STD. She missed an appointment at 14/15 weeks; as well as the second dose of treatment for the STD. The CHW pursued her persistently, finally succeeding in getting her back to the clinic at 23 weeks. The young woman was consistently hesitant to engage in care and regularly attend appointments– the CHW had to persist in her reminders. When the CHW offered to send a cab to the young woman's school to pick her up, her mom began to take her daughter's appointments more seriously, and began assisting with getting her daughter to them. (CHW: Mariana, Month: November 2017)
- *Frequent visits and pursuit of additional supports*: A CHW visited one woman three times in one month. The woman had a wound that had not been effectively treated. She would not come to the door. In one instance, she raised the window with a baseball bat and spoke to her through the window. The CHW and care team had been trying to get her to go to the hospital – but the patient was morbidly obese and worried that the firefighters would be called to move her. This made her feel full of shame and embarrassment. In researching the situation, the CHW learned that Adult Protective Services had been called about the issue and had indicated that the only way she can be removed from the home is if she becomes septic or is in danger of losing her limb. A month later, the CHW reported that the woman finally got to the emergency department to get critical care; in the process she was signed up to receive SNAP benefits (food stamps). Adult Protective Services had become involved. The infected wound was finally taken care of. (CHW: Letitia, Month: November/December 2017)
  - *Outcome indicator: Per the chart, the patient had been missing from the medical practice since August 2015 and was therefore on the Performance Improvement Project (PIP) list for outreach. Once she was re-engaged, she had three no-shows to appointments, two cancelled appointments, two hospitalizations, and attended four appointments. Sadly, she passed away in October 2018. This was about 10 months after initial outreach from the CHW. Appropriate supports were in place for her at the time of her death due to outreach and intervention by the CHW. This was an unfortunate situation where earlier intervention by the CHW and others may have prevented what was an ultimately tragic outcome.*

Sometimes CHWs have to be persistent in the context of defensiveness or even aggressiveness. Many patients/clients have experienced significant individual, family, community and historical trauma; and have developed protective mechanisms that are difficult for health and human service providers to understand and overcome. Comfort with conflict is an important attribute; knowledge of how to diffuse

these situations is key. It also often helps in these situations to be familiar with the community and be willing to engage in discussion on the level at which they are comfortable. In some situations, meeting an aggressive or defensive person head-on without backing down fosters respect and trust, thus allowing for the establishment or rapport.

- *Home visits and phone calls*: Lab results showed that a baby's hemoglobin level was 5.2 and the pediatrician wanted her to go to a hematologist (*for an infant, healthy range is 9.5-13 g/dL*). The mother of the baby had not done this and had not taken the infant into the emergency department either. When the CHW called her, the mom was defensive and stated- "this is a threat – do you want to fight me?" As she was having no effect on the phone, the CHW drove to the woman's home in Niagara Falls and called her from outside her home. The woman responded, still defensively, "you wasted your gas, I'm not home." The CHW conveyed this back to the pediatrician who then called the mother and left a message confirming the urgency of medical attention. Approximately 5-6 days later the mother finally took the baby to the hematologist. (CHW: Elizabeth, Month: September 2018)
- *Diffusing an angry, defensive patient*: A patient of the clinic had tested positive for an STD and she was also pregnant. When these lab results came back, the doctor wanted the woman to be seen at the clinic as soon as possible to initiate appropriate treatment. The clinic referred the case to the local health department who then assigned the case to a triage nurse. The triage nurse called the patient to explain the situation and the urgent need for care. The patient "cussed him out and told him to never call again." The triage nurse discontinued outreach and referred the patient back to the clinic. The CHW at that clinic was then asked to visit the patient's home and attempt to re-engage her in care. When the CHW arrived at the house and knocked on the door, she noticed a guy sitting in the second floor window. She asked if he knew the patient (provided her first name) and asked if she was home. He replied that she was there at the home and then called back to her to answer the door. The CHW reported that she could hear the woman stomping down the stairs, swearing along the way. She flung open the door and demanded to know who the CHW was. She wanted to know what lab work they were talking about. The CHW was hesitant to disclose the details of the lab results, but maintained composure, answering the patient's questions. After the patient persisted, the CHW finally said that she had tested positive for an STD. The patient said she" f**ing knew that" and she had gone to ECMC for it. As the patient's anger gradually dissipated and she began to feel comfortable talking with the CHW, the CHW explained her role. The patient explained that she does not come to her appointments because she does not have a ride. The CHW helped her plan for transportation and then guided her through scheduling an appointment. The patient subsequently attended the scheduled appointment. Shortly after, though, the CHW received another alert that the provider urgently needed to see this patient and had been unsuccessful in reaching her by phone. The CHW called and the woman picked up. She said "I know who you are . . " She was not as angry and defensive as she had been in their first encounter. She then said "what, do I need an appointment?" and proceeded to work with the CHW to make one. (CHW: Emily, Month: October 2018)

- *Outcome indicator: Subsequently, the CHW had 8 encounters with this client. The initial encounter had been immediately following her New Ob appointment. The woman gave birth at 36 weeks and the baby was in the NICU for 2 weeks.*

Examples of CHWs Finding the Hard-to-Find

As illustrated in many of the stories, patients are often hard to find. Often they move but do not update their address in the clinic records. Sometimes their address is updated in the billing record but not in the medical record. CHWs have learned to navigate these systems to track down all possible addresses. They also often rely on the emergency contact phone numbers to track patients down. Sometimes the role of a CHW is synonymous with that of a detective. Being of and from the same community as the patients often increases the success of this detective work. Several stories capture this well.

- *Pediatric no-shows- finding grandma*: A CHW was trying to locate two pediatric patients who had not attended an appointment in over a year. She suspected they were also somewhat high risk, as she had seen in the chart that, at birth, the babies were "not on saboxone," which suggested to her that the mother may have been using opiates during her pregnancy. The last known address was the grandmother's house, which was only two streets away from the clinic. The CHW visited multiple times at various times of day with no success in connecting to the patients. There were toys outside and the house appeared well kept from the outside, which suggested that someone was routinely there, but that they may be avoiding answering the door. One day while driving home, the CHW drove by the house and saw a large group of people outside the house. She drove around the corner and waited for 10 minutes, as she did not want to approach the house with so many people around, out of respect for the family she was seeking. When she did approach, the crowd had left and the screen door was still open. A woman saw her through the door and started screaming. She thought the CHW was Child Protective Services (CPS). The CHW was able calm her down, explain that she was not CPS, and then initiate a conversation. They related to eachother on people they both knew – " you are the sister of (mutual acquaintance)? Oh yeah, I know you! etc. " The woman was relieved that it was not CPS to the point of being nearly in tears with gratitude. In their conversation, the CHW asked things like, "Are you going to another clinic?" "Why haven't you brought the babies to the doctor?" The woman said she had some trouble with her medical insurance – she thought she had recertified but it did not seem active. The CHW said she could help her with that and the best first step would be to go to social services and complete the paperwork. The CHW also asked for her phone number so she could follow-up. The CHW called her on the following Monday. When she called, the woman said she was at the social services building at that moment. (CHW: Keisha, Month: September 2018)
    - *Outcome indicator: The CHW completed a total of 3 home visits with this family. She assisted with scheduling an appointment for October 4, however the patients did not show up. The CHW subsequently forwarded the case to the site manager for follow-up.*

Sometimes patients are hard to find because they have become homeless, experienced moves throughout the foster system, and/or have relied on short-term stays with friends and family.

- *Evicted and in tenuous relationship*: A pregnant patient had missed her appointments for nearly three months and was in the last few weeks of her pregnancy. After multiple attempts, the CHWs found her at her last know residence but found out that she was being evicted. Once they engaged her in care and transported her to the hospital clinic, they connected her to a housing support program. She delivered her baby shortly after this appointment and was still without housing. She had three other children and the CHW described her boyfriend as "rowdy." Examples of the home environment were captured with stories of the neighbors calling the police for her daughter not wearing a helmet on her bike. The CHW reported, however, that the last time the police came to the home, they had guns drawn, which may suggest a more serious accusation or cause. The CHW referred the patient to additional supports to assist. (CHWs: Bella and Shanta, Month: June 2018)
- *Foster teen ages out and becomes homeless*: A CHW shared a story of a young teen pregnant girl who was "bouncing between houses". At 18 years old she had aged out of the foster system in which she grew up. She had gone to at least one appointment at the clinic but then had missed the following prenatal appointments. The social worker at the clinic asked the CHW to find the patient and attempt to re-engage her in care. The CHW located her at her family member's house and assisted her with scheduling an appointment, which she subsequently attended. She also succeeded in getting her linked to housing through HomeSpace and engaged in programs at the Buffalo Urban League. At the time of the story, the patient was 25 weeks and was successfully navigating her pregnancy and medical care after the CHW intervention. She was also linked to Buffalo Prenatal Perinatal Network and learned how to advocate to be linked with a CHW that worked well with her on an ongoing basis. (CHW: Bella, Month: August 2017)

Sometimes these issues are compounded by concomitant mental health issues.

- *Pregnant and homeless with severe mental health issues*: A patient was 37-38 weeks pregnant, had medical documentation of severe mental health issues, and had not been coming to appointments. When the CHW finally found her, she was living with a friend of the family in public housing. She had been living in her own apartment but explained to the CHW that people were coming into her apartment when she was not there and that she no longer felt safe there. She had grown up in foster care, her dad had been in jail, and her mom lived out of state and was addicted to crack cocaine. The CHW picked her up for appointments and, because she was technically homeless, referred her to various housing agencies (HomeSpace, Girard Place, Cornerstone, etc.). She also referred her for additional CHW supports through Buffalo Prenatal Perinatal Network. (CHW: Bella and Shanta, Month: June 2018)

Examples of CHWs Addressing Cultural, Socioemotional and Mental Health Risks

The evidence of CHWs addressing situations with numerous adverse social and environmental factors can be found throughout the stories. Some stories, though, particularly capture the way that CHWs are able to address complications related to cultural norms, socioemotional issues, and people who have been victims of violence (and the subsequent trauma) due to their familiarity, their level of empathy, and their ability to establish trust and rapport.

- *Resistant husband:* A CHW was trying to re-engage a woman who had not attended her prenatal appointments. She was a recent immigrant to the United States, did not speak English and was religiously and culturally Muslim. In a previous visit, her baby had been diagnosed with IUGR (intrauterine growth retardation, or poor fetal growth). According to her healthcare provider, she had been "noncompliant" with fetal testing appointments at the hospital clinic. Upon investigation of the issue, the CHW found that the husband did not think she should be coming to appointments; he was resistant to his wife's care. The CHW began picking her up at her house for fetal testing appointments. On one of their visits, her water broke in the lobby of the hospital and she went straight to labor and delivery where she had a healthy baby. (CHW: Mariana, Month: August/September 2017)
- *Multiple moves and unsupportive family*: One CHW worked with a woman, who had been a Buffalo native, left to live in Las Vegas, became pregnant, and then came back to Buffalo. She reported that her dad was not supportive of the pregnancy and she had a lot of emotional anguish. During her pregnancy she was suffering from depression. She had been meeting with the clinic social worker but the CHW made sure to keep her engaged after the baby was born. She was able to connect with her, sit with her at her house, and schedule her post-partum visit within the 6-8 week time period. She also linked her to resources for post-partum depression at Sisters Hospital. (CHW: Bella, Month: May 2017)
    - *Outcome indicator: the CHW conducted total of four home visits. The patient did attend her post-partum appointment despite persistent outreach.*
- *Weight loss a sign of housing insecurity*: A CHW received a referral from the clinic's dietician because one of the pregnant patients had been losing weight. The CHW discovered that the patient had been living in the attic and was trying to pursue better accommodations through the Buffalo Municipal Housing Authority (BMHA). The CHW persistently called, texted and visited the patient to keep her engaged in care. When the patient finally came in to the clinic, she reported that she had an appointment for section 8 housing. The CHW also learned that the father of the baby was in jail and that she not only cares for her own children but his other children from different relationships as well. The CHW referred her to a job program and Buffalo Prenatal Perinatal for ongoing support. (CHW: Mariana, Month: May 2017)
- *Assaulted and robbed by a known acquaintance*: A pregnant woman who came for her appointment on a Tuesday reported that she had been assaulted on Saturday. The assailants had taken her $400 from a recently cashed paycheck (at a check cashing facility) and assaulted her in the process. The CHW spoke with the patient and informed her of resources that would help her recover the funds. She ensured that she got the application for this before she left. The woman was also able to get an order of protection (because she knew the person who attached her). Her medical appointment revealed that the baby was unharmed in the attack. The CHW also explored the availability of short-term emergency relief funds for people in situations like this. (CHW: Mariana, Month: May 2017)
- *Elder living along and forgetful*: A CHW visited an older woman who was living by herself in an apartment. She seemed very forgetful. The CHW saw some indicators suggesting she might be the victim of manipulation and deception by other residents in the building. There was money

wrapped in tissue paper. She could not find her house key one day. The CHW worked with the social worker to call Adult Protective Services. They contacted the patient's family who indicated that they were aware of her forgetfulness. They explained that her husband had been her primary caregiver but was currently incarcerated. The CHW worked closely with the Adult Protective Services representative to ensure her needs were met. (CHW: Melissa, Month: October 2018)

- *Outcome indicator: After scheduling an appointment with the assistance of Adult Protective Services, the patient did not attend the appointment. Adult Protective Services maintained involvement to address this and other issues.*

Examples of CHWs Addressing Transportation Needs

One of the most common reasons that patients do not make it to appointments is transportation. As seen throughout the stories, sometimes the CHWs offer to drive patients to their appointments in the absence of other resources. This is not a sustainable solution, though. While CHWs use this in more urgent situations or ones in which there are numerous barriers to other modes of transportation (e.g. language barrier or disability), they also help patients identify transportation modes that they can secure and use when they have appointments. This primarily includes bus, train, and Medicaid cab. The following are excerpts from descriptions of these situations:

- Another person called her yesterday and "chewed her (the CHW) out" about difficulty getting transportation to appointment. She said she spoke to three office staff and they directed her to the CHW. One of the reasons for the patient's difficulty was the requirement that the call for Medicaid transportation must be placed from the medical provider's office. (CHW: Bella, Month: N/A)
- The CHW scheduled the appointment and asked how to make it easier to get there. She planned to come back to the house the day of the appointment just to make sure they have the Medicaid cab, bringing tokens, making sure they have the ride. (CHW: Belinda, Month: June 2017)
- If someone is on the list for appointments the day before and the CHW does not see them in the morning, she calls them (before the letter goes out) and asks, "what happened? You were supposed to be here 30 minutes ago." The patient, if she answers, often says "oh I didn't know how to get there. . . " The CHW then says, "OK – let's get you set up with transportation." (CHW: Mariana, Month: N/A)
- The CHW convinced her to go in Monday, gave $10 gift card from Tops. The Monday visit led to a necessary follow-up on early Thursday morning. The CHW transported her because the transportation company (Medicaid cab) would not accommodate the early appointment. (CHW: Mariana, Month: June 2017)
- A Swahili speaking patient had a new OB appointment in July but did not schedule an appointment again until October. They had closed her file, so they had to code it as another "new OB." Because of this lag in time, they referred her to the CHW, who learned that she does not have a phone and she speaks very little English. The CHW used google translate and wrote

the Swahili on a sticky note. The CHW went to her house to confirm the appointment and arrange for transportation. The woman opened the door and recognized her from July when she had initially gone to the clinic. They established a good rapport, even through their limited shared language. The CHW opted to pick her up for her appointments as she experienced a language barrier with the cab companies and an inability to call, due to lack of phone. (CHW: Mariana, Month: October 2017)

- A CHW who was trying to re-engage a pregnant patient had been going out to the house every day of the week until finally her boyfriend answered and let her in. The patient was about 35 weeks at this time but thought she was only 30 weeks. She said she had been meaning to make an appointment but that the Medicaid cab had declined her so she stopped coming. One of the doctors was supposed to sign a paper and hadn't done so. (CHW: Belinda, Month: June 2017)

Examples of CHWs Saving Lives

Finally, as evidenced indirectly in many of the previous stories, CHWs take actions that result in patients receiving care that may ultimately improve their health outcomes and their life expectancy. In some situations, the actions of CHWs result in patient receipt of life saving measures that may not have otherwise happened. Several examples of stories from the field illustrate this.

These examples of life-saving situations range from CHWs being able to physically track down and engage a patient to persistently negotiating with a resistant patient to agree to medical treatment.

- *Ectopic pregnancy*: At Sister's Hospital, a woman came for an appointment with symptoms of an ectopic pregnancy. This was confirmed by tests after she had left the hospital. The office staff had difficulty tracking her down via telephone so referred the case to the CHW. The CHW went out to her house and convinced her to come back to the hospital right away. If she had been much later in reaching her, there would likely have been a burst – which would have resulted in the need for a higher level of medical attention and potentially internal infection. (CHW: Mariana, Month: October 2017)
- *Low Hemoglobin Levels*: A middle aged gynecological clinic patient refused to return to the clinic, even after a specialist doctor found that her hemoglobin was 4.9 and alerted the primary care provider of the need for follow up. CHWs were asked to follow up with her, so went out to the woman's house. She answered the door when they arrived and they explained who they were and why they were there. She was upset and explained that her husband was severely ill (on dialysis) and that she didn't have time for this. She cussed them out. They persisted – indicated that it was really important to go into the doctor. As the CHWs were leaving, a van arrived and a man jumped out. They quickly learned he was the woman's husband. The CHWs asked the woman if they could share her health information with him in their discussion. In their conversation, he shared that because he was ill, his wife was the breadwinner but was already struggling with work because of missing days due to his health issues. He had applied for public assistance but was denied. The CHWs insisted that his wife's health condition was so important because she could "drop dead." He didn't understand what hemoglobin was (thought it was related to women's issues) but seemed compelled by what they were telling him. She came into

the clinic the following day. The doctors determined that she needed to be hospitalized – which resulted in 4 transfusions and a stay in the hospital for a couple of days. This likely saved her life. MCCC says they have a lot of adult patients that need help like that. (CHW: Bella, Month: May 2017)

- *Heavy bleeding*: A patient had been coming to her primary care provider due to heavy bleeding over the course of 5 months upon starting her menses. Her primary care provider ran tests during an office visit and referred her to OB/GYN. They said it would be 2 weeks. In the meantime her labs came back with concerning values and he asked the CHW to go out to her house and get her to go to the emergency department. The woman came to the door and was noticeably gray. The CHW was able to convince her of the need to go to the emergency department. She then had to convey that to her family, who did not speak English. (her family doesn't). Being unfamiliar with the area as newcomers and with his daughter interpreting, the father asked the CHW to put the hospital emergency department into his google map app on his phone and he immediately drove his daughter. She was in the hospital for a week. Several weeks later she came up to the CHW at a community tabling event and thanked her, indicating she was feeling much better. (CHW: Letitia, Month: October 2017)

Often pregnant patients are reticent to come in for appointments because they are worried there could be adverse consequences of their current substance use behaviors. They avoid contact with clinic representatives for fear of losing the child they are currently carrying or their other children to the Child Protective Services (CPS) system.

- *Pregnant and Using*: The OB/GYN clinic was trying to track down a pregnant patient who had only attended two appointments and was estimated to be 29 weeks pregnant. She had missed most of the recommended prenatal appointments to date. The CHW explained to the nurse that she can try to track her down at her last known residence. First she called her and explained who she was and why she wanted to come visit. She also tried multiple times to meet her at house and they finally connected. The pregnant woman was there and answered the door. She explained that she was worried that the baby would be taken away because her other children were. She was afraid of losing baby because she does cocaine. The CHW explained the importance of getting that prenatal care and that once she's in care, they can get help for her. She offered to come pick her up to bring her to her appointment. While she did not agree at that time, she did finally come into the clinic. The CHW was there at the time and was able to talk with her. She shared that she had managed to schedule two OB appointments for the following day. In telling this story, the CHW conveyed that the patient seemed to recognize that she actually cared. (CHW: Elizabeth, Month: August 2018)

The CHWs in this project expanded their reach to include adults in general who had not attended appointments and had complex and/or chronic conditions that needed medical monitoring. The effectiveness of a home visit is demonstrated in numerous stories like the following.

- *Loner patient with complex chronic conditions*: After multiple attempts, a CHW was able to track down an older male patient with many medical conditions including COPD and a personality

disorder that resulted in him being somewhat of a "loner." Because the trailer park numbers were not in sequence, the CHW had to ask someone for directions to his home. The person provided directions and said "You are the first person anyone has seen visit this man in a long time." "I don't know if he's there." Upon arrival, the CHW noted that his house was unkempt and he could barely stand, though he did have food in the house. She also learned his wife had died recently. He said "I can't believe you came out to visit me." "You're an angel. You were sent from God." He explained that he calls a cab to pick up mail twice a month to get his check and pay bills but that he struggles financially to make this work, let alone get to the clinic. The CHW communicated this back to the clinic's care coordinator, who determined that he was not eligible for Medicaid due to making slightly more money but she referred him to alternate financial services. He needs some household assistance but cannot afford to pay out of pocket for it. The CHW worked with the clinic to get him an appointment and means of transportation and she met him at the appointment to provide additional support. (CHW: Keisha, Month: July 2018)

- *Outcome indicator: The CHW conducted three home visits, scheduled three appointments and followed up on two no-show appointments. At last report, the patient was actively seeking treatment and receiving the needed services.*

In addition to reaching hard-to-reach people in these life-threatening situations to seek help for themselves, CHWs often have to advocate for infants and children in situations that, if left untreated, could have life-long lasting effects.

- *Baby with high iron and lead*: One of the doctors at the clinic sought out the CHW to go out to a family's home and bring them back with the baby. After attempting to call, it was discovered that the parents' numbers had changed. Labs had come back for the baby indicating a high iron level and had previously had been diagnosed with high blood lead levels. The baby had been receiving care for these issues but had missed appointments. Upon arrival at the house, the CHW explained the need to go to the clinic. The woman had 3 children under age 3 in the house. The CHW worked with her to ask her mom, who lived next door, to come over and watch the other two while the CHW brought the woman and her baby to the clinic. They got the medication needed and made a follow up appointment. Her husband was out of the country, but said when he was back would make sure they made the appointment. (CHW: Elizabeth, Month: February 2018)
- *Baby with high fever*: A woman arrived at the Mercy emergency department with her two month old baby who was running a fever of 103 degrees. The providers at the Mercy emergency department instructed her to take the baby to the Oishei Children's Hospital for appropriate care. The CHW, who was at the hospital at the time, tried to encourage her to go to the hospital. She kept calling the woman, over and over again. Finally, after trying numerous other approaches to convince her to bring the baby in, she said she would have to call CPS for medical neglect. Three hours after going to Mercy, she finally showed up at Children's hospital. High fevers in infants so young often involve a higher level of intervention than normal. It is possible that the CHW's persistence was life-saving. (CHW: Elizabeth, Month: May 2018)

Discussion

These stories capture the day-to-day experiences of Community Health Workers who work to re-connect patients with medical care. As evidenced by many of the stories, as well as the follow-up notes, oftentimes the outreach and persistence results in positive outcomes, i.e. the patient becoming re-engaged with their care, receiving life-saving treatment, experiencing a full-term pregnancy, or having a shorter NICU duration than they may have if they had not received care.

To get a sense of the healthcare dollars saved due to CHW intervention:

- The average cost of no-shows is about $200 per unused time spot and add up to $150 billion annually to the US Healthcare System.
- The average cost of infants hospitalized in the Neonatal Intensive Care Unit is approximately $3,000 per day
- The average cost for a premature baby throughout the first year of life is approximately $32,000 compared to $3,000 for a full-term infant.

  Examples of sources: (https://www.managedcaremag.com/archives/2010/1/how-plans-can-improve-outcomes-and-cut-costs-preterm-infant-care; https://costsofcare.org/the-cost-of-poor-prenatal-outcomes/)

Each time a CHW ensures that a patient is able to make it to their appointment or is able to reschedule an appointment before the patient no-shows, they not only save the practice the loss of about $200, they also maximize the chances that the practice will be subsequently reimbursed for the services rendered during the visit (if the patient has health insurance).

Attendance at prenatal appointments maximizes the chances that pregnancy complications are identified and addressed, which will reduce the chances of preterm birth as well as NICU stay. Each day of reduced NICU stay is $3,000+ saved for the healthcare system. This does not account for the savings to the health care system in all subsequent years of health complications that routinely result from preterm birth and the resultant insufficient in uterine growth and development. Early nutritional intervention alone can reduce the chances for conditions like spina bifida (which results from inadequate folic acid). Hospital costs during the first year of life for a baby born with spina bifida range from $21,900 to $1,350,700. Costs continue in subsequent years for many of those children. This is in addition to the costs to quality of life for the children and their caregivers.

Earlier diagnosis and treatment of chronic conditions and consistent follow-up to encourage self-management will allow more years of healthy life for patients with complex, chronic, co-morbid conditions. This results in reduced hospitalizations as well as improved quality of life. This is also connected to workforce productivity. Patients whose medical concerns are met are able to function at a higher level in their employment and in their daily personal life.

Other times there does not appear to be a positive outcome. A woman still has a baby in need of NICU care; a patient with multiple comorbidities who had not attended appointments dies nine months after

being reengaged in care. Anecdotally, however, there were still some bright spots in these cases. People were connected to care when they otherwise would not have been. Patients, often for the first time ever, felt a sense of someone looking out for them; that they were not all alone. Perhaps the outcome, while still not optimal, was better than it might have been. Maybe the person who dies despite intervention died with more supports in place and had an extended and/or higher quality of life than they would otherwise; as opposed to alone from sepsis due to lack of medical attention. Social, family and community networks and supports were critically lacking in many of the patients served through this project, and there is ample research that highlights that loneliness is a risk factor that is more significant than smoking, unhealthy eating patterns, and a sedentary lifestyle.

Summary and Application of Lessons Learned

Due to their close connection to the communities they serve, CHWs are uniquely positioned to reach out to disengaged and high-risk patients. They are perceived as more trustworthy and relatable by patients. In this project, the use of CHWs who are employees of a community-based organization (the Buffalo Urban League) rather than the health care provider, is an additional trust-building strategy that has resulted in heightened patient responsiveness (compared to outreach by staff of institutions like the healthcare provider or the county health department). As evidenced by our stories, they may even know the patients who are targets of their outreach.

They are also skilled at engaging people without expressing judgement. There are numerous stories of CHW success in connecting with pregnant women who struggle with drug use, custody of their children, safe housing and safe and healthy relationships. The CHW is able to meet people where they are, work with them to identify goals, and help move them toward completion of those goals.

Sometimes it is enough for someone to know that there is someone else who cares and they reconnect to medical care right away.

Sometimes it takes persistence, patience, and creativity to get someone in the door.

The short term outcomes of this work can be gleaned from the stories. The longer term health outcomes are often not detectable until several months or years later and will require adaptations to the data fields available in electronic medical record systems and the ability to produce reports of patients who have received CHW support using measures that align with the targeted HEDIS measures.

References

1. Chen FP. Developing community support for homeless people with mental illness in transition. Community Mental Health Journal. Jul 2014;50(5):520-530.
2. Price M. Study: Charlotte's apartments for homeless save money. The Charlotte Observer2014;Local News.
3. Allan J. Engaging primary health care workers in drug and alcohol and mental health interventions: challenges for service delivery in rural and remote Australia. Australian Journal of Primary Health. 2010;16(4):311-318.
4. Dixon L, Stewart B, Krauss N, Robbins J, Hackman A, Lehman A. The participation of families of homeless persons with severe mental illness in an outreach intervention. Community Mental Health Journal. Jun 1998;34(3):251-259.
5. Cabral L, Strother H, Muhr K, Sefton L, Savageau J. Clarifying the role of the mental health peer specialist in Massachusetts, USA: insights from peer specialists, supervisors and clients. Health & Social Care in the Community. Jan 2014;22(1):104-112.
6. Pitt V, Lowe D, Hill S, et al. Consumer-providers of care for adult clients of statutory mental health services. The Cochrane Database of Systematic Reviews. 2013;3:CD004807.
7. Walker G, Bryant W. Peer support in adult mental health services: a metasynthesis of qualitative findings. Psychiatric Rehabilitation Journal. Mar 2013;36(1):28-34.
8. Godecker AL, Harrison PA, Sidebottom AC. Nurse versus community health worker identification of psychosocial risks in pregnancy through a structured interview. Journal of Health Care for the Poor and Underserved. Nov 2013;24(4):1574-1585.
9. Roman LA, Lindsay JK, Moore JS, et al. Addressing mental health and stress in Medicaid-insured pregnant women using a nurse community health worker home visiting team. Public Health Nursing. May-Jun 2007;24(3):239-248.