

Georgia State University

ScholarWorks @ Georgia State University

GHPC Articles

Georgia Health Policy Center

1-9-2016

A Guide to Identify and Address Risk Factors, Reduce Costs, and Improve Outcomes

Georgia Health Policy Center

Community Care Coordination Learning Network

The Pathways Community HUB Certification Program

Follow this and additional works at: https://scholarworks.gsu.edu/ghpc_articles

Recommended Citation

Georgia Health Policy Center, Community Care Coordination Learning Network, and The Pathways Community HUB Certification Program, "A Guide to Identify and Address Risk Factors, Reduce Costs, and Improve Outcomes" (2016). *GHPC Articles*. 105.

https://scholarworks.gsu.edu/ghpc_articles/105

This Article is brought to you for free and open access by the Georgia Health Policy Center at ScholarWorks @ Georgia State University. It has been accepted for inclusion in GHPC Articles by an authorized administrator of ScholarWorks @ Georgia State University. For more information, please contact scholarworks@gsu.edu.



Pathways Community HUB Manual

A Guide to Identify and Address Risk Factors,
Reduce Costs, and Improve Outcomes



Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov

Pathways Community HUB Manual

A Guide to Identify and Address Risk Factors, Reduce Costs, and Improve Outcomes

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
5600 Fishers Lane
Rockville, MD 20857
www.ahrq.gov

Developed by:

Community Care Coordination Learning Network and The Pathways Community HUB Certification Program (PCHCP)

Editorial Team

Mary Applegate
Laura Brennan
Valerie Kuenkele
Sarah Redding
Mark Redding

Supporting PCHCP Core Team

Brenda Leath
Veronica Nieva
Annette Pope



AHRQ Publication No. 15(16)-0070-EF
Replaces AHRQ Publication No. 09(10)-0088
January 2016

This document is in the public domain and may be used and reprinted without special permission. Citation of the source is appreciated.

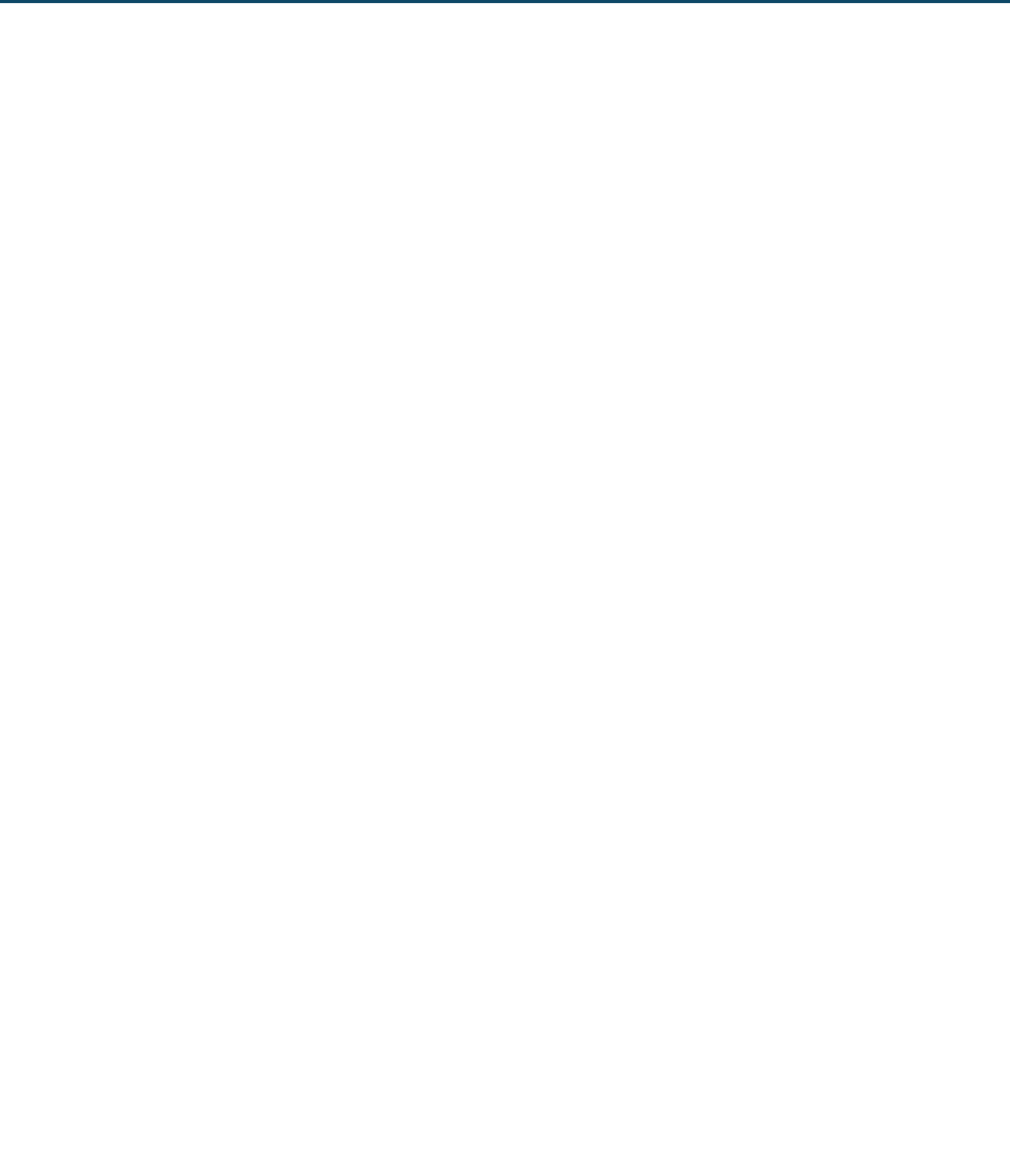
Suggested citation:

Pathways Community HUB Manual: A Guide to Identify and Address Risk Factors, Reduce Costs, and Improve Outcomes. Rockville, MD: Agency for Healthcare Research and Quality (AHRQ); January 2016. AHRQ Publication No. 15(16)-0070-EF. Replaces AHRQ Publication No. 09(10)-0088.

The information in the *Pathways Community HUB Manual* is intended to assist service providers and community organizations in creating a HUB to coordinate delivery of health care and social services. The content was developed by the Pathways Community HUB Certification Program. This manual is intended as a reference and not as a substitute for professional judgment. The findings and conclusions are those of the authors, who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this manual should be construed as an official position of AHRQ or the U.S. Department of Health and Human Services. In addition, AHRQ or U.S. Department of Health and Human Services endorsement of any derivative products may not be stated or implied. None of the investigators has any affiliations or financial involvement that conflicts with the material presented in this manual.

Contents

Introduction and Purpose.....	1
Current Difficulty in Identifying and Addressing Risk Factors	2
Evidence Related to Risk Factors.....	3
The Broken Business Model of Care Coordination.....	4
A Way To Solve the Problem: Pathways Community HUB.....	6
The Hub At Work - Part 1	7
The Hub At Work - Part 2	9
Summary of the Pathways Community HUB Model.....	11
Elements of a HUB	11
Infrastructure	11
Governance.....	12
Quality Improvement	12
Sustainability.....	12
A Step-by-Step Guide to Building a Pathways Community HUB.....	14
Phase 1: Planning a HUB	14
Step 1: Form a Planning Group	14
Step 2: Create a New Umbrella Organization or Designate a Lead Agency.....	15
Step 3: Complete Community Needs Assessment.....	16
Step 4: Discuss Sustainability Issues and Develop a Plan To Secure Funding.....	18
Phase 2: Creating Tools and Resources for the HUB	20
Step 5: Determine Initial Focus Outcomes and Related Pathways.....	20
Step 6: Create Supporting Tools and Documents for Care Coordinators.....	29
Step 7: Develop Sustainable Funding Strategies for HUBs	32
Step 8: Develop Systems To Track and Evaluate Performance	38
Phase 3: Launching the HUB	39
Step 9: Hire HUB Staff.....	40
Step 10: Train and Organize CCCs and Staff at Participating Agencies	40
Step 11: Conduct a Community Awareness Campaign	43
Conclusion	44
References	45
Appendix	47
Community HUB Template.....	47
Community Care Coordination Learning Network	48
Primary Resources for Current Evidence.....	51
Sample Pathways Forms.....	56
Sample Checklists	58
Glossary of Abbreviations Used in This Report.....	65
Other Resources.....	66



Introduction and Purpose

The Pathways Community HUB Manual is designed as a guide to help those interested in improving care coordination to individuals at highest risk for poor health outcomes. The Pathways Community HUB (HUB) model is a strategy to identify and address risk factors at the level of the individual, but can also impact population health through data collected. As individuals are identified, they receive a comprehensive risk assessment and each risk factor is translated into a Pathway. Pathways are tracked to completion, and this comprehensive approach and heightened level of accountability leads to improved outcomes and reduced costs.¹

The most important functions of the Pathways Community HUB are to:

- Centrally track the progress of individual clients (to avoid duplication of services and identify and address barriers and problems on a real-time basis);
- Monitor the performance of individual workers (to support appropriate incentive payments);
- Improve the health of underserved and vulnerable populations; and
- Evaluate overall organizational performance (to support appropriate payments, promote ongoing quality improvement, and help in securing additional funding).

Community-based care coordination has a critical role in ensuring that individuals at risk connect to the evidence-based interventions and services that will improve their outcomes. The current siloes and fragmented approaches to care coordination that exist in communities often result in duplication of services, ineffective interventions, and uncoordinated care.

The HUB provides centralized processes, systems, and resources to allow accountable tracking of those being served, and a method to tie payments to outcomes. This guide describes the model, infrastructure needed, and implementation strategies through a step-by-step approach.

Three overarching principles make up the foundation of the HUB model:

1. **Find:** Identify individuals at greatest risk and provide a comprehensive assessment of all health, social, and behavioral health risk factors.
2. **Treat:** Ensure that each identified risk factor is assigned to a specific Pathway that will ensure the risk factor is addressed with an evidence-based or best practice intervention (e.g., prenatal care, specialty care, parenting education, housing, food, clothing).
3. **Measure:** Completion of each Pathway confirms that the risk factor has been successfully addressed. Measurement also includes other outcomes that involve multiple risk factors (e.g., improvement in chronic disease, reduction in emergency department [ED] visits and hospitalizations, adult education, employment).

The intended audience includes all those involved in coordinating care for individuals at risk for poor health outcomes. Key stakeholders include but are not limited to:

- Federal, State, and local government agencies.
- Community-based organizations using community health workers (CHWs) or community care coordinators.
- Safety net clinics.

- Health plans.
- Accountable care organizations.
- Social service agencies.
- Local public health departments.
- Private practitioners.
- Hospitals.
- Public health departments.
- Charitable organizations.
- Private practitioners and businesses.
- Individuals served and the communities that serve them.

Current Difficulty in Identifying and Addressing Risk Factors

The United States spends significantly more money per capita on health care services than any other nation in the world.² The reality is that the United States lags behind most other developed countries in terms of key outcome measures, including infant mortality, health equity,³ and patient perceptions of safety, efficiency, and effectiveness. The primary sources of these adverse health and social outcomes are risk factors.^{4,5} If risk factors are the source of poor outcomes and related expense, why isn't the focus of our health and social services system the coordinated and comprehensive identification and reduction of risk?

The purpose of the HUB is to identify and address risk factors—primarily at the individual level but also at the community-population level. Finding the specific individuals within communities who are most likely to have a poor health outcome, addressing their specific needs, and accountably measuring their results will influence the overall health of the larger community. The first community that piloted the HUB model showed a countywide reduction in low birth weight by targeting the women most likely to have a poor birth outcome.

Published and ongoing research shows that community care coordinators can successfully find and engage the right individuals, complete a comprehensive risk assessment, and then partner with them to overcome barriers to successful outcomes.¹ This work can be done with accountability, cultural competence, and a pay-for-performance approach that results in reduced risk, better outcomes, and reduced cost.^{1,6,7}

The HUB model requires that we look at risk from a new perspective. Some of the questions we need to ask include:

1. Who is most at risk in our community?
2. What risk factors tie to the adverse health and social outcomes we need to address?
3. How can we comprehensively assess risk for each individual served?
4. In addition to identifying, tracking, and improving individual risk factors, how can we look at population health?
5. How can we measure the economic benefit?

Evidence Related to Risk Factors

Care coordination is currently part of many health and social service funding streams, but it is usually not evidence based. Evidence-based approaches are at the foundation of our modern health care system, but the same rigor has not been applied to care coordination. There is great potential to improve outcomes by using key strategies of comprehensive risk assessment, identification and tracking of risk factors, and payment tied to reduction of risk.⁸

Five percent of the population represents more than half of the total health care cost.⁹ We need to find and engage vulnerable individuals with proven strategies to improve health equity and outcomes. Cultural competence is an essential factor in the workforce deployed to achieve this goal.

Risk factors related to health care represent less than 15 percent of the risk factor burden. If we were able to identify the most at-risk individuals and confirm that they received the best health care possible, it is estimated that we would only see a 10 to 15 percent improvement in their health outcomes.⁴ Social determinants of health represent the largest percentage of the drivers behind many poor health outcomes.^{4,10} Therefore, it is important to conduct a comprehensive risk assessment to identify and quantify all the risk burden an individual faces. In addition, accountability and pay-for-performance strategies can be used to confirm that all identified risk factors are addressed and resolved.¹

Fragmented approaches to care coordination are usually not effective. Care coordination is already part of many local, State, and Federal health and social service funding streams, but it is delivered in a silo-based structure. Multiple care coordinators can be assigned to one person based on the specific needs that care coordinator is addressing. For example, one care coordinator might work with a client to address effective use of her asthma medication puffer, while another might address infant safety, and still another might address food issues or domestic violence. Across the spectrum of health, social, and behavioral health services, a comprehensive approach centered on individuals and their risk factors is needed to achieve better health, social, and economic outcomes.¹¹

Some risk factors are considered to be “upstream” and some are “downstream.” When dealing with downstream risk, the damage has been done, and the care coordinator is working to minimize further damage. For example, an adult with a long history of smoking and severe chronic obstructive pulmonary disease might experience multiple hospital admissions. Upstream risk factors are those that can have an intervention before damage is done. In this case, a healthy newborn baby with no medical issues may leave the hospital to go home to a house full of smokers. Intervention at this point has substantial potential to affect health and related health care expenses many years later.

Lack of insurance and access to health care is a critical component of risk. Medicaid expansion under the Affordable Care Act has significantly increased the number of individuals who now have insurance.¹² Unfortunately, some of the most vulnerable individuals at highest risk do not sign up. Care coordination is an important component to address this risk factor as part of a comprehensive approach to risk reduction.

Barriers for people who are insured. Health insurance is critical, but barriers still exist for many individuals with insurance. Some of those barriers include inability to navigate the complex physical and mental health care systems, high copayments and deductibles, lack of information on how to use their insurance, and other issues such as lack of transportation, inadequate housing, and difficulty meeting other basic needs.¹³

Disparate level of risk for racial and ethnic minority groups. Racial and ethnic minority populations face additional barriers leading to poorer health outcomes. African-American women have substantially higher rates of low birth weight (LBW) babies,¹⁴ while Hispanics have disproportionate rates of diabetes.¹⁵ Unequal access to care is one factor leading to poor hypertension control among Hispanic populations.¹⁶ Risk factors involved in accessing care can include language and cultural differences, mistrust of the health care system, financial constraints, and racism encountered within the health and social systems of care.

Risk factors for those living in rural areas. Individuals living in rural areas represent 20 percent of the population, yet only 9 percent of practicing physicians work in these areas.¹⁷ Therefore, rural residents must often travel long distances for care and can experience long waits at clinics. Many do not receive needed care in a timely manner.¹⁸ Basic social supports and services (e.g., medical and social service providers, cell phone service, transportation) may not be as readily available in rural areas.

Risk factors for other groups. Other high-risk populations have specific needs that must be addressed. Some groups to consider include adolescents, those with behavioral health conditions, individuals leaving prison, and individuals with high medical debt. For example, care coordination using Pathways has been used in Muskegon, Michigan, to reduce rates of recidivism for ex-offenders.

Not identifying, assessing, and addressing risk factors for individuals in a timely manner has two major consequences. First and foremost, the consequence is human suffering. Second, costs are significantly higher because delays in risk factor intervention and prevention result in expensive and catastrophic health and social outcomes such as frequent ED visits, repeat hospitalizations, and failure to finish school.

The Broken Business Model of Care Coordination

The process of identifying at-risk individuals and connecting them to the health and social services they need is often referred to as care coordination. Care coordination is a broad term that is often thought of as a process that occurs within the health care system. The HUB model specifically addresses community care coordination, which can be defined as the coordination of services beyond the “walls” of the health care system. A community care coordinator (CCC) in the HUB model is trained to meet individuals in their homes or in a community setting to address all their identified issues. These needs may include help with housing, transportation, employment, and education in addition to accessing health care services.

Care coordination occurs within many different and most often isolated domains of the health, behavioral health, and social service system. The current business model for delivering care coordination services remains inadequate. For example, it is most common for care coordination services to focus on “activities” that may or may not produce positive outcomes. And while more than one organization may provide care coordination services within a given geographic area, generally little or no collaboration occurs across these programs. Individuals fall through the cracks and efforts are duplicated. A high-risk pregnant woman may have multiple care coordinators who do not interact with each other and another high-risk person may have no care coordinator.

Three fundamental business model problems exist with the current approach to care coordination—lack of meaningful work products, duplication of effort, and failure to focus on those most at risk. The fragmentation and duplication of services and poor outcomes resulting from poor care coordination increase health care costs.

The care coordination services purchased often have no confirmed benefit to the individual served.

Most care coordination services are purchased through local, State, and Federal government funding streams. These contracts typically purchase “work products” that do not confirm a comprehensive approach to the effective identification of and intervention with an individual’s risk factors. Payments are based on process measures, such as number of individuals on a case list, visits or phone calls made, or notes charted.

Duplication of care coordination is a burden to the budget and the individual served. Members of the Pathways Community Care Coordination Learning Network (CCCLN) have reported situations where clients have had 10 or more care coordinators at one time. It is quite common for an at-risk individual to have four or five care coordinators. In most communities, these services are not coordinated and result in significant duplication. Care coordination can cost up to \$2,000 or more per year per client served.

At-risk individuals have reported that it is challenging to have multiple people and agencies in their homes collecting personal information and sometimes offering conflicting information. There may be times when it is appropriate and necessary to have more than one care coordinator in a home, but the reasons should be clearly documented. Communitywide standards for care coordination can help identify and eliminate unnecessary duplication of services, leading to improved costs and outcomes.

There is no requirement or incentive to focus on high-risk individuals and to ensure that each risk factor is addressed. It takes less time, expense, and cultural competency skills to serve lower risk populations. Contracts that do not require services to those at greatest risk encourage agencies to “cherry pick” by serving low-risk individuals and avoiding those with the greatest need.

For example, in current funding models, a care coordination program may be working to confirm that 80 percent of children in a defined population have received lead testing. Most children (85 percent) may be relatively easy to reach. However, the remaining 15 percent of children and families may have language barriers, lack telephones, or mistrust care coordinators who are not from their neighborhood. If a care coordination program serves higher risk individuals, then they will have to work harder, provide more hours of service, and ultimately make less money serving them under current contracting strategies.

Fixing these problems requires a fundamental change in the way care coordination contracts are written. Payments need to be scaled to recognize the number of risk factors an individual has and the time, resources, cultural competence, and skills needed to effectively serve those at greatest risk. We need to build a system of care with incentives to seek out and effectively serve those at greater risk instead of our current system with unintentional financial incentives to avoid them.

American business has developed many service, product delivery, and tracking structures that support accountability, quality, and confirmed results. Airports, package delivery firms, technology companies, and other business models hold tremendous examples. Business leaders have brought their insights and innovations to the development of the Pathways Community HUB model.

The business concept of “value stream analysis” works to identify and select the best value alternatives for designs, materials processes, and systems to achieve more effective products/results. This concept was originally applied to manufacturing and led to a transformative improvement.¹⁹

In a parallel manner, can the health and social service system identify each component needed to achieve a positive health or social outcome? Can we then identify financial and programmatic strategies that focus interventions on the populations most likely to benefit from them effectively and efficiently? Can we comprehensively identify and address each risk factor in a business model approach?

American business and manufacturing score at the top for efficiency and effectiveness within international rankings. In contrast, American health and social service systems and related expenses rank near the bottom. Business system models combined with a community-connected, culturally competent approach represent a substantial opportunity for significant improvement.

According to the latest National Standards from the Pathways Community HUB Certification Program (PCHCP), HUBs must demonstrate both cultural competence and a business model approach that ensures a comprehensive assessment and documentation of intervention for all risk factors identified. Fifty percent or more of the HUB's funding must be tied to specific health and social service outcomes produced. This accountability of tying dollars to specific results has been demonstrated to produce better outcomes, improved documentation, and increased efficiency.^{1,6}

A Way To Solve the Problem: Pathways Community HUB

Building a Pathways Community HUB will bring together an accountable team of community-based agencies that deploy CCCs to reach out to those at greatest risk, assess their risk factors, and ensure that they connect to care. As individual risks are reduced, population-level health improves and overall costs are reduced.

The codevelopers of the HUB model spent several years in Alaska working with community health workers (CHWs). Alaska has a large network of certified CHWs located within high-risk communities. Alaska has progressed from reporting some of the worst infant mortality statistics in the United States in the 1960s to some of the best today. The CHW experience in Alaska and its regional supporting network were key building blocks in the development of the HUB model.²⁰

The Pathways model was the precursor to the Pathways Community HUB model. Pathways were developed by the Community Health Access Project (CHAP) in the late 1990s, about the same time that CHW programs were being established in Ohio. CHAP created Pathways as a response to funders asking how the work that CHWs did could connect to improved outcomes.

CHAP designed and began using Pathways for all their enrolled clients in 2000 and started to see noticeable changes in outcomes, specifically around LBW. Pathways were simply a tool used to identify, track, and measure each risk factor through to a measurable outcome. Pathways were triggered by the comprehensive risk assessment completed by the CHW when a client was enrolled. CHAP worked with funders to change all contracts to outcome-based payment and developed strategies for payments related to successful Pathway completion.



The success of implementing Pathways within a single agency, CHAP, led to the realization that the model would be more successful if it could be used by all the agencies within the community working with high-risk populations. CHAP worked with key stakeholders in Richland County, Ohio, including local government agencies, community-based organizations, health care providers, community leaders, and others, to develop the first HUB approach.

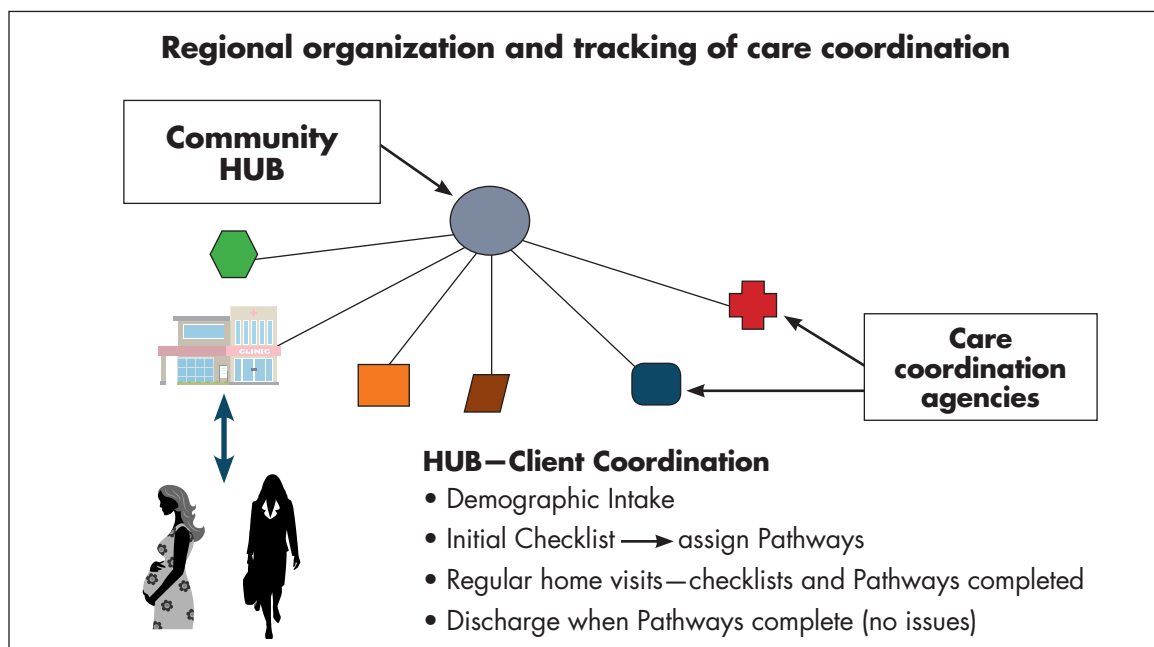
The CHAP Pathways Community HUB grew out of this first attempt to bring all care coordination agencies together within the county. The HUB is the network that brings together care coordination agencies and provides the infrastructure that is missing in most communities. The Pathways are the specific tools the HUB uses to track an individual’s identified risk factors through to a measurable outcome.

HUB initiatives then developing in Toledo and Cincinnati, Ohio; Albuquerque and Rio Arriba, New Mexico; Oregon; Michigan; and other locations have substantially informed and shaped the model. Today, the HUB model represents a national learning and quality improvement network organized by the Agency for Healthcare Research and Quality and supported through a broad base of funding streams. Certification and related collaborative efforts among national health improvement initiatives provide an opportunity for continued improvement, development, and spread.

The Hub At Work - Part 1

See the HUB Community Template in the Appendix for an illustration of how the HUB works. Following is an example of the HUB in action.

Leah is 17 and pregnant. She is staying at a friend’s house for a few days because her parents threw her out of the house for getting pregnant. Her friend has heard of a CHW named Kim who helped her cousin when she was pregnant last year. Her cousin has Kim’s number, and they place a call.



Kim works for one of the local care coordination agencies (CCAs), Community Vision, that is part of the HUB network. There are a total of eight CCAs connected to the HUB that work with at-risk pregnant women.

Kim meets the requirements to serve as a CCC in her HUB as she has been trained and certified as a CHW. Kim is from the same community where Leah lives. The following day, Kim meets with Leah at her friend's house. Immediately, Kim explains the program and obtains an appropriate release of information that protects Leah's personal health information. Kim then checks in with the HUB to make sure that there is not another CCC from one of the other agencies within the HUB network already working with Leah. Using tablet-based technology, Kim determines that Leah is not yet enrolled in the HUB and she is eligible for HUB community care coordination.

In a manner that is consistent across the HUB network, Kim goes through a checklist with Leah to evaluate her medical, behavioral health, and social risk factors. As Kim works through the checklist with Leah and comprehensively identifies risk factors, she begins to discuss options for housing, food, clothing, medical care, and other supportive services. Kim begins to encourage her to client to reenroll in school. Through conversation, Kim learns that Leah has always wanted to be a nurse and had been making good grades in school before she got pregnant. After completing the initial checklist and learning about the risk factors most important to Leah, Kim sends the risk factor information to her supervisor.

Kim collaboratively works with both her supervisor and Leah to develop a care plan that addresses all the identified risk factors. From Kim's checklist, it is documented that Leah does not have housing, adequate food, or health insurance; has not started prenatal care; and recently dropped out of school. In addition, the two checklist questions related to depression were positive. Kim completed a full depression screen that indicates Leah is at risk for depression. Each of these risk factors is identified and tracked using Pathways in Leah's plan of care.

Within a couple days, Kim finds Leah temporary housing. The establishment of stable housing completes the Housing Pathway, and that outcome will take months of work. Kim links Leah to the local WIC program for food and helps her enroll in the Medicaid program for insurance. Kim's nurse supervisor calls the local obstetric office and sets an appointment for Leah early the following week. As each risk factor is addressed, the corresponding Pathway is completed.

Over a period of 18 months, Kim continues to work with Leah through regular home visits. During the pregnancy she usually sees her twice a month. When the situation is more stable, she sees her every 2 months. At each home visit a new checklist is completed and the number of risk factors identified and related Pathways needed goes down. Leah's overall risk status improves as Kim tracks her progress over time.

Leah attends almost all her prenatal visits. With help from Kim, she receives an initial evaluation, diagnosis, and support from the behavioral health center. Three months after enrollment, Kim helps Leah reengage with her family. Kim supports Leah in reenrolling in school and helps her look for child care. During Leah's pregnancy, Kim makes it a priority for Leah to receive education supporting breastfeeding, safe sleep, evidence-based parenting, and many other critical items.

Leah has a healthy, normal weight baby girl. Kim visits her at the hospital and works with the nursing staff to make sure everything is set up for going home, including a car seat and a pediatric appointment for the baby. Kim even helps Leah get an outfit for the baby pictures. Kim follows up with Leah to make

sure she gets back to her obstetrician and completes the Postpartum Pathway involving the selection of an acceptable method of family planning.

In the following months, Leah completes her GED and enrolls in community college. Leah's risk evaluation is monitored and revisited by Kim's supervisor on a regular basis. Leah's risk assessment is much lower now than when she was first identified and enrolled in the HUB. Leah has been stable over the past 6 months, and Kim lets her know that she will not be visiting as often but is available if needed.

Understanding and addressing Leah's comprehensive risk factors through Pathways and the supportive culturally connected relationship Kim has with Leah are the keys to improved outcomes and reduced costs. The personal connection, combined with confirmed evidence-based interventions, helps Leah stabilize her most basic needs, change her behaviors, and begin to make progress toward goals that can lead to economic stability and better health for her and her family.



The Hub At Work - Part 2

As a CCC, Kim does not provide direct services. Kim's role is to engage Leah and identify the factors that place her at risk for poor health outcomes. As a CCC, Kim's role is to find and connect Leah to the evidence-based or evidence-informed interventions and services that address each identified risk factor. Kim works with an interdisciplinary team of experts and resources.

Although Kim is a CHW, a CCC can be any trained professional working through a CCA that works with individuals in the community setting. The HUB then works as the center of the network to organize and coordinate all the CCAs that deploy CCCs serving in the same role as Kim.

Payment from the local Community HUB is scaled and based on risk. The information that Kim gathers is reported to her CCA, Community Visions, and to the community HUB. Reports are run to determine risk status and to evaluate the speed and effectiveness of addressing each risk factor. Barriers to addressing specific risk factors are recorded and evaluated individually and in combination with other CCCs to identify barriers and inadequacies in the community service structure, both at the individual and community-population level.

In addition to outcome reporting, the completed Pathways are tied to the billing report. Community Visions reports their data in an ongoing manner to the HUB, which submits an invoice for payment either biweekly or monthly. The payer in this case may be a Medicaid managed care plan, a State-funded maternal and child health initiative, a local foundation, or any number of other funders. The HUB works to diversify funding so that at-risk pediatric, pregnant, and adult clients who are identified have a funding source to support outcome-focused community care coordination.

The HUB is responsible for ensuring that the entire CCA network adheres to the Pathways Community HUB Certification Standards (available at <https://pchcp.rockvilleinstitute.org/certified-hubs/>). These national standards help ensure quality and fidelity to the evidence-based HUB model of care coordination, as well as improved outcomes, reduced costs, and increased equity.

Pediatric, pregnant, and adult clients are each served in a similar manner from identification, engagement, assessment of risk, and resolution of risk factors tied to Pathways. The Pathways are standardized and when supported through Medicaid managed care have been tied to specific billing codes acceptable to the Centers for Medicare & Medicaid Services (CMS). Pathways have been implemented in a large variety of geographic and cultural settings, and many different care coordination funding streams.

This story is not as dramatic as many told across the CCCLN. Families with small children have been found in the winter living in the back of deserted factories. Clients have been found under bridges, in tents, and on the streets. The work of the CCC begins with establishing a supportive relationship, identifying basic social supports, and helping individuals address health and behavioral health needs. As the relationship grows, clients are supported to go back to school or to find work leading to real health and economic stability. This basic approach of addressing survival-based priorities first is well established based on Maslow's hierarchy of human needs.



Even in the ancient story of the Good Samaritan, there is a comprehensive approach. The Samaritan does not just bandage wounds, e-script an antibiotic, and bill for an office visit. He bandages the individual's wounds, provides transportation, finds him a place to stay, ensures that he has food, and then checks back in to make sure he is getting back on his feet. Unless our health and social service system begins to focus on those in greatest need and recognize a comprehensive approach to risk factors, the revolving door at the ED, intensive care unit, and unemployment center will continue, and so will the expense.

The HUB model recognizes the significant importance of trusting relationships. The individuals capable of serving as effective CCCs are most often found within the communities at greatest risk targeted to be served. When CHAP began the initial work in Mansfield, Ohio, they found their CHWs at the local churches within the neighborhoods with the greatest poverty, highest LBW rates, and worse infant mortality measures. The women identified were already serving their community through local church initiatives. They were known and trusted by the community.

Knowledge and experience of the developers of the model from the Alaska Community Health Aide Program led to the development of specific community college accredited training for CHWs. The combination of specific training, practicum experience, and supervision by an engaged clinical provider was found to be a critical factor to success.

Nurses and social workers in some communities have a history of serving at-risk neighborhoods and can also serve very effectively in this role. Communities starting a new initiative should work to find individuals who are known, trusted, and already connected to the most at-risk communities and grow the program based on their foundation of experience and leadership. It was the wisdom and insight of the CHWs that led to the basic principles and priorities of comprehensive assessment and a focus on social determinants in addition to health care needs. The latest national recommendations for care coordination now support their wise recommendations.¹¹

A HUB, its network of CCAs, and their employed CCCs are an accountable community-based system of care coordination. A HUB lends itself to managing multiple and diverse payer sources and ensuring accountability for risk reduction and outcome improvement across its network.

Summary of the Pathways Community HUB Model

The HUB model is summarized by the following three steps:

1. Find.
2. Treat.
3. Measure.

1. Find

Find and engage those at greatest risk. Comprehensively identify each of their risk factors.

2. Treat

Each risk factor identified is assigned a specific Pathway. Pathways addressing health, behavioral health, and social service interventions are tracked simultaneously to ensure evidence-based and best practice interventions are received addressing each risk factor.

3. Measure

As risk factors are addressed, the Pathways are completed and a reduction in risk is recorded. Nationally standardized Pathways are required.

Measures related to addressing many risk factors, such as reductions in emergency department visits, reduced hospitalization rates, and improvements in hemoglobin A1c are tracked separately from Pathways. They represent potential outcome improvements that are a result of multiple health, social, and behavioral health risk factors and the completion of multiple Pathways. Pathways that cannot be completed with the desired outcomes reached are recorded as “finished incomplete.”

The HUB model of care coordination provides the tools, outcome reporting, and payment strategies to help improve quality and outcomes while reducing costs. Through communication, collaboration, and built-in incentives, the HUB increases the efficiency and effectiveness of care coordination services.

Elements of a HUB

Infrastructure

The HUB links together CCAs in a community or region. Although most communities already have agencies that provide care coordination services, they are delivered in a fragmented approach. It is not uncommon for a family to have three to five care coordinators in their home. This is not a fault of the agencies, but rather the narrow programmatic funding for services at the local, State, and Federal level.

There can only be one Pathways Community HUB in a defined service area. To prevent duplication and fragmentation of services, a HUB is needed as the central registry to track community care coordination. The HUB is often described as “air traffic control” because it is constantly tracking and monitoring service delivery and outcomes. The HUB must also be based in the region it serves because it must have a thorough understanding of capacity, both of the CCAs and the direct service providers.

The HUB is a neutral entity and operates in a transparent and accountable manner. This means that the HUB does not refer clients to any CCC that it may employ. The HUB's role is to coordinate a network of CCAs. CCCs employed by those agencies reach out to clients and ensure that they connect to needed services: health, behavioral health, social, educational, and environmental.

Governance

The HUB is committed to improving the health of the community and is ultimately responsible to the community. The HUB is required to have a community advisory board made up of members who reflect the community and region the HUB serves. Engaged local leaders and community members are essential to the creation of a successful HUB.

Quality Improvement

The HUB is responsible for monitoring and improving the quality of care coordination services provided to those at risk as measured through clearly defined reduction of risk evaluated and quantified by the completion of Pathways. Specific reporting of process, outcomes, and payment is required as discussed below. The HUB must have a clearly defined quality improvement (QI) plan that defines how services are evaluated at multiple levels, including the CCC, CCA, and HUB. There should be an identified individual on the HUB staff specifically responsible for QI.

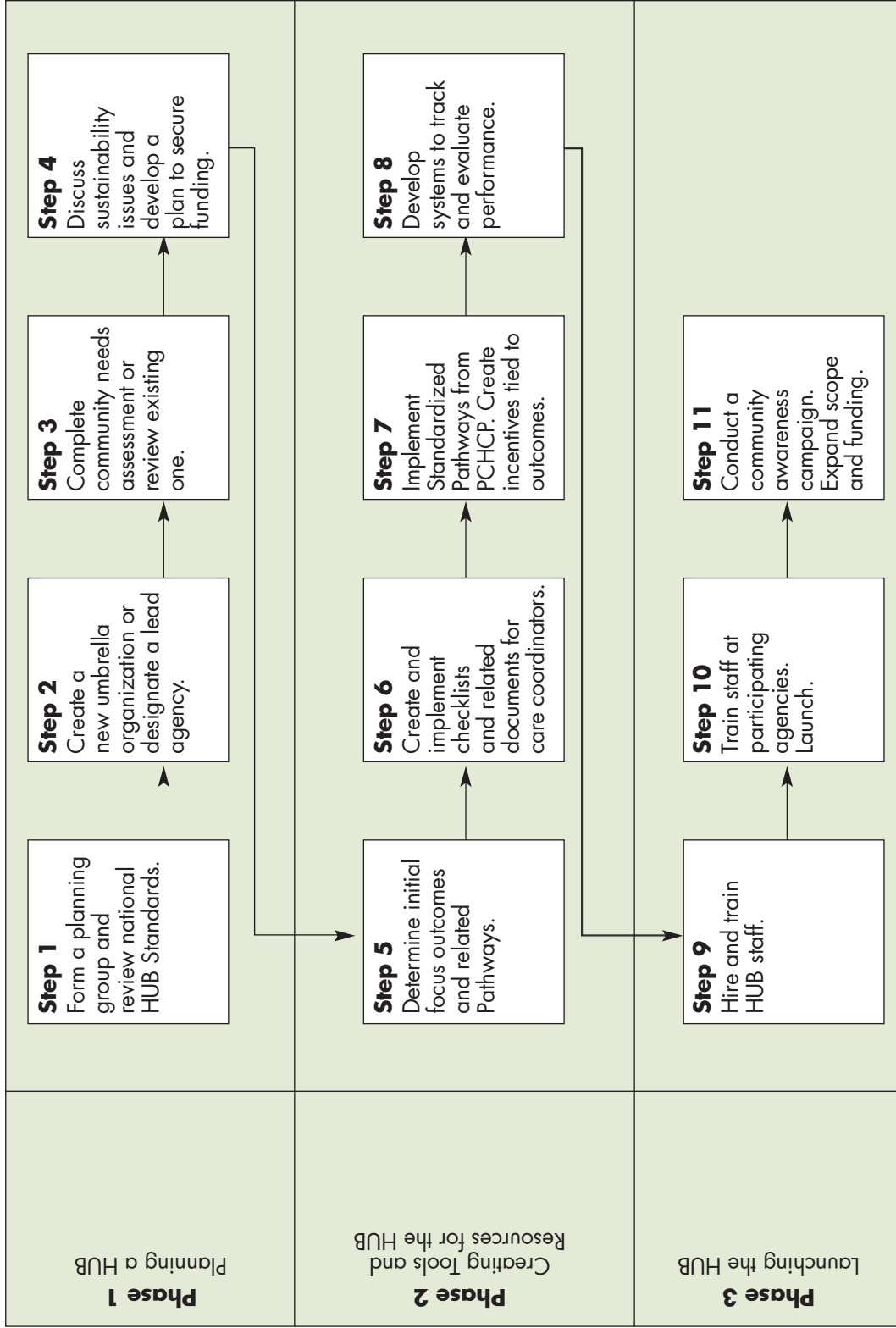
The HUB needs to have a description of how QI projects are selected, managed and monitored. The schedule of QI reviews needs to be defined along with a plan that clearly addresses QI opportunities through additional training or changes in policy. Key areas that should be addressed in the QI plan include:

- Referrals.
- Engagement.
- Duplication of services.
- Home visiting.
- Supervision.

Sustainability

The HUB aligns payments with measured Pathway outcomes in its contracts with payers and CCA members. The 20 standardized Pathways link billing codes to Pathway completion (see examples on PCHCP Web site at <https://pchcp.rockvilleinstitute.org/certification-tools/>). Payment for outcomes is a critical component of the Pathways Community HUB model and promotes accountability, quality, equity, health improvement, and value. To help ensure comprehensive and sustainable care coordination services, the HUB must have diverse and multiple revenue sources. It is a prerequisite for certification that the HUB have contracts with more than one payer. The Pathways Community HUB must conduct a cost-benefit analysis to determine the financial impact of HUB services and if service efficiencies, cost savings, and health improvements are achieved.

Figure 1: The Phases and Steps of Building a Pathways Community HUB



A Step-by-Step Guide to Building a Pathways Community HUB

The remainder of this guide provides a three-phase, step-by-step process for building a Pathways Community HUB. This process is intended to be a general guide rather than an exact roadmap, as local circumstances should dictate the actual steps undertaken and the correct sequencing of those steps. Reviewing the national standards and obtaining technical support from the Pathways Community HUB Certification Program (PCHCP) and other public and private support agencies is critical.

Phase 1: Planning a HUB

Phase 1 involves the steps necessary to plan a Pathways Community HUB. These include identifying and bringing key stakeholders from the community together. This team works together to focus on priority needs and target populations. The issue of sustainability needs to be addressed in this beginning phase as well.

Step 1: Form a Planning Group

Step 1 involves bringing together key community stakeholders who show an interest in improving the delivery of health and social services to at-risk populations. It is imperative to include representatives from the targeted populations and the care coordinators who work with them. Once the planning group decides to commit to the Pathways Community HUB concept of collaboration, they will begin to determine what individual will be considered the “Community Change Agent” or leader of the local HUB initiative.



The planning group should also specifically examine the Pathways Community HUB Standards for Certification. These standards will help them focus on key infrastructure, training, policies, and procedures needed to reach certification. Following the evidence-based components of the model defined in the certification standards is critical to achieving quality, outcomes, and cost savings.

Key questions to consider in Phase 1, Step 1:

- Which organizations should be involved in the effort, and how can we get those not involved to come to the table? Candidates should include organizations already involved in community care coordination (e.g., health and social service agencies, payers [health, social, and behavioral health], policymakers and politicians, local charities, and other community-based organizations), along with private businesses. The net should be cast wide when considering potential partners, particularly with respect to private companies that may have an interest in helping. It is desirable to have organizations involved with this process as early as possible (see HUB template in Appendix).
- What organizations within the group are willing and able to contribute to the effort?

Step 2: Create a New Umbrella Organization or Designate a Lead Agency

Depending on the outcome of the initial discussions, a decision should be made as to whether there is a need to designate an existing agency as the lead for the effort or to create a new, formal umbrella organization. In many cases, an existing organization with experience in building networks and tracking data can be designated to serve as the lead agency or convener. If such an organization does not exist or an agreement cannot be reached on a lead agency, the creation of a new entity likely makes sense.

In either case, appropriate governance structures should be set up, typically through an advisory group made up of diverse community stakeholders. This organization will be responsible for providing the common infrastructure and other resources needed by community stakeholders to more effectively serve at-risk populations.

According to the standards, the HUB agency must serve as a neutral point of registration and QI monitoring. The HUB cannot hire or deploy its own care coordinators. The HUB's role in tracking activities and results, producing quality outcomes, distributing referrals, and supporting the network's training and technology needs cannot show favoritism or be conflicted by referring clients to itself.

Key Points in Developing a HUB

- The HUB must be a neutral entity in the community and cannot employ its own care coordinators.
- There is only one Pathways Community HUB in a community or region.
- The HUB must be an independent legal entity or an affiliated component of a legal entity.
- The HUB must be based in the community or region it serves.
- There must be a Community Advisory Board made up of members reflecting the community or region the HUB serves.

Learning Network Examples

- In Toledo, Ohio, an existing nonprofit hospital network (CareNet) took on the role of the designated lead agency developing the Northwest Ohio Pathways HUB.
- In Saginaw, Michigan, the Saginaw County Community Health Improvement Plan (CHIP) Steering Team assumed responsibility for determining which organizations would fill the prescribed roles in the Pathways model.
 - Saginaw represented one of three HUBs launched by the Michigan Public Health Institute within a CMS innovation grant.
 - The Saginaw CHIP Steering Committee has broad local leadership representing health and public health initiatives, payers, and policymakers.
 - The Saginaw Community Mental Health Authority was chosen as the lead agency, resulting in the launch of Saginaw Pathways to Better Health. They had grant management and Medicaid funding experience. Extensive experience with behavioral health and multiagency network management were also identified as key strengths.

- The HUB for Pathways to a Healthy Bernalillo County is housed at the University of New Mexico Health Sciences Center, but the program itself is community designed and community driven.
 - More than 80 percent of the county funds transferred to the HUB by the University of New Mexico Hospital are redirected back to the community through a competitive application process and professional services agreements with 14 partner organizations.
 - The HUB monitors the performance of the partner organizations and receives monthly invoices from each, which are paid largely based on deliverables (completed Pathways).
 - The HUB also oversees the Web-based database, prepares quarterly reports, provides ongoing training for the Community Health Navigators, coordinates standing monthly meetings, and provides feedback on performance by each partner through periodic site visits.
 - The HUB consults on a quarterly basis with its Pathways Community Advisory Group composed exclusively of community members.

Step 3: Complete Community Needs Assessment

Determine Priority Health and Social Service Needs

In this step, HUB members examine local and regional data to determine the most critical health and social service issues the HUB will address. Representatives of community-based programs, providers, and agencies should meet with at-risk individuals who are members of the target population to better understand the issues and barriers they face.

Learning Network Examples

- The Pathways to Better Health of the Lakeshore is a Community HUB outgrowth of the Muskegon Community Health Project (MCHP) that has used the Pathways model for many years. The Pathways model was initially used by the Michigan Prisoner Re-entry Initiative, a statewide program designed to help newly released prisoners access services needed to facilitate successful reentry into the community. MCHP convened a small group of individuals—including former prisoners and representatives from hospitals, the county health department, and other agencies that address medical issues for low-income populations—to clarify the barriers to serving newly released prisoners. The key outcomes that they determined to be critical included establishing a medical home and establishing basic social supports, including housing and food. MCHP was able to reduce the number of prisoners who quickly reentered prison by helping them achieve success in gaining health, social, and employment-based stability.
- In Saginaw, Michigan, the Saginaw Pathways to Better Health initiative used a national model called Mobilizing for Action through Planning and Partnerships (MAPP). MAPP is a communitywide strategic planning tool for improving community health. This tool was selected because of its comprehensive approach to assessment, its national credibility, and its commitment to collaboration with a community-driven approach. In 2011, MAPP incorporated and replaced the formerly separate activity of two local hospitals, both of which had their own community needs assessment process. This represents a very collaborative endeavor and the single process for the assessment of the health of Saginaw County residents. MAPP includes the County Department of Public Health in addition to the hospital systems.

- The Michigan Ingham Pathways to Better Health Initiative evaluated community data and received funding through a Michigan Policy Health Institute CMS Innovation grant to serve Medicare- and Medicaid-eligible adults with multiple chronic conditions. Further target population focus is occurring through the CMS State Innovation Model (SIM) initiative that will guide the target populations for services. Obesity, infant mortality, and chronic conditions are current focus areas of the SIM initiative.
- The Northeast Oregon Network (NEON) staff and Community Leadership Team reviewed community health assessments to determine the areas of greatest health disparities. They identified high prevalence rates of diabetes and cardiac disease in excess of State and national averages, indicating a health disparity. In addition, community assessment data indicated that more than half of the population was living at 200 percent of the Federal Poverty Level or less. A further growth trajectory for these conditions was anticipated due to an aging population.

Choose Target Areas or Populations for Intervention

A community needs assessment, which includes local data specific to medical, behavioral health, social, environmental, and educational factors, should guide the HUB in its efforts to improve health and reduce inequities. Hospitals, health departments, and other community partners should work together to assess community health needs and resources, and create a shared plan for addressing those needs. One or two community “champions” need to be identified to drive this process forward to move from a review of the needs assessment to a strategy building session. Once a community needs assessment has been completed or reviewed (if conducted no more than 3 years prior), the planning group needs to review the findings and determine which at-risk populations will be targeted for community care coordination services.

Most Pathways Community HUBs start out serving a targeted portion of the at-risk population. The development of the HUB infrastructure allows additional at-risk populations to be added at a later time when the HUB has more experience with the model.

Key Points in Identifying the Target Population

- Baseline data exist for the targeted population.
- Payers have expressed interest in this population and would consider paying for Pathway outcomes.
- Existing CCAs in the community or region have the capacity to serve this population.
- The HUB and CCAs have staff who can provide culturally and linguistically proficient services to the targeted population.

HUBs need to carefully choose specific target areas or populations for intervention.

Learning Network Examples

- The CHAP initiative partnered with more than 70 local agencies, including Jobs and Family Services, Help Me Grow, MedCentral Hospital, Richland County Foundation, New Hope, Richland County Children Services, local outreach agencies, Richland Public Health, and many others.

- These agencies prioritized all the issues identified through review of community needs assessment data and agreed to focus initially on reducing the incidence of LBW. They all worked together in early 2004 to form the first Pathways Community HUB. CHAP used a process known as “geocoding” to identify the highest risk areas for LBW infants. Some census tracts were found to have LBW rates as high as 24 percent.¹⁴
- The Health Care Access Now (HCAN) initiative in Cincinnati brought together a group of stakeholders, including health and social service providers. This team assessed the current level and capacity of care coordination and outreach services offered to high-risk populations. They then designed a more strategic approach to assisting specific subpopulations in receiving appropriate care. They jointly decided to target their first project to at-risk pregnant women.

Step 4: Discuss Sustainability Issues and Develop a Plan To Secure Funding

Funding and sustainability considerations should begin with Step 1 by inviting potential payers to be part of the key stakeholders planning group. Once the needs of the target area or population are understood, the planning group needs to carefully consider how to secure funding to start and maintain the Pathways Community HUB. Often, multiple sources of funding may be available, including:

- Local foundations.
- Local, State, and Federal agencies.
- Third-party payers, such as Medicaid managed care organizations (through contracts with the HUB for services provided).
- Grant funding to finance the initial planning or startup of the venture.

Learning Network Examples

- HCAN in Cincinnati secured multiple funding streams to initiate the Pathway Programs currently offered, including the Cincinnati Health Department, UC Health, Robert Wood Johnson Foundation in partnership with the Health Collaborative, United Way of Greater Cincinnati, Interact for Health, and Deaconess Association Foundation. The Health Foundation of Greater Cincinnati provided initial grant support for the formation of HCAN.
- NEON in Oregon identified startup funding in Federal and foundation grants.
 - A Centers for Disease Control Small Community Transformation grant was used to create and implement a CHW training program, create a Community Leadership Team, develop detailed HUB policies and procedures, and educate about the model to build momentum.
 - Implementation funding has been provided by the Health Resources and Services Administration (HRSA) Office of Federal Rural Health Policy through a Network Development Grant.
 - The Meyer Memorial Trust has also provided additional funding for outcome payments for completed Pathways.
- United Way of Franklin County is exploring the startup of a new HUB initiative in Columbus, Ohio. United Way programs have been supportive in many communities to provide both startup

and sustainable funding. For the CHAP program in Ohio, United Way funding has been a critical source of support for at-risk clients who do not qualify for any other available funding source. With a proven track record of supporting multiple agencies across a community network, United Way organizations should be considered as a potential partner and leader of HUB development.

- Rural and Urban Access to Health (RUAH) in Indianapolis, Indiana, applied for funding from HRSA's Healthy Communities Access Program, receiving a 4-year grant in 2001. St. Vincent also formed a partnership with Indiana Health Centers, ADVANTAGE Health Solutions, Inc., Health and Hospital Corporation of Marion County, and the Butler University College of Pharmacy and Health Sciences. This partnership provided additional funding and in-kind assistance to RUAH.
- Michigan, with leadership, research, and support from the Michigan Public Health Institute has been working to support sustainability and growth strategies for their three HUBs in Ingham, Muskegon, and Saginaw. They have received substantial support through the Center for Medicaid Innovation. Their initial very positive results in cost savings for enrolled members have supported continuation funding for all three initiatives. They are working on contracting strategies with Medicaid Managed Care.
- CHAP began with the support of several organizations, including the Richland County Foundation, the Osteopathic Heritage Foundation, Richland County Jobs and Family Services (Temporary Assistance to Needy Families dollars), and an American Academy of Pediatrics Community Access to Child Health grant. These funds helped support the development of services to at-risk individuals in rural and urban areas, along with the development of the Pathways approach (see Step 5 for more details on this program).

Long-term success requires finding an ongoing, stable source of funding, as initial grants usually cover only the startup phase to build infrastructure. In some cases, these funds may come from service contracts between the Pathways Community HUB and payers (e.g., Medicaid managed care programs) or other organizations that fund services for at-risk individuals. Securing contract provisions that provide such funding requires the ability to demonstrate reduced cost of care and improved outcomes.

Community HUBs in Hamilton, Lucas, and Richland Counties in Ohio have successfully secured sustainable funding through Medicaid managed care organizations. Ohio's Department of Medicaid, Department of Health, Commission on Minority Health, and Voices for Ohio's Children have all worked together and individually to help develop, sustain, and support the work of HUBs. This work in Ohio continues to receive bipartisan support and has seen significant progress over the years.

Not-for-profit hospitals can be good sources of ongoing funding. They are required to allocate money to community health improvement initiatives and must report such activity to the Internal Revenue Service each year. To meet their "community benefit" obligations, hospitals can provide both cash donations and in-kind support to such activities.

Another interesting option worthy of consideration is the use of a local property tax levy to support HUB operations. In Albuquerque, New Mexico, the county has approved a tax to fund the Pathways to a Healthy Bernalillo County through the University of New Mexico Hospital. This levy, similar to taxes that fund the local health department and children's services, provides a long-term source of funding that needs to be renewed only every 8 years. Local governments in many communities have the authority to initiate such taxes.

A final option to be considered is to urge governors, State legislatures, and other government officials to allocate funds to support HUB infrastructure development and ongoing operations. Oregon, for example, passed legislation providing \$250,000 over 2 years to an organization known as HealthMatters of Central Oregon to support the development of a Pathways program.

While many promising options for securing sustainable funding exist, long-term success requires confirmed results. Following the national HUB certification standards has been found to be critical in obtaining results. Multiple initiatives have used a portion of the model and have not fully embraced the requirements for risk focus, cultural competence, pay for performance, and accountability to demonstrate return on investment. Without following the certification requirements, many of these initiatives have not been able to demonstrate results and have not been sustainable.

Fidelity to the Model in Attracting Funds

Certification and demonstration of the correct deployment of the model can help convince policymakers and funders of the critical nature and effectiveness of the community care coordination work. Stakeholders should educate potential investors about the ability of a Pathways Community HUB to eliminate duplication of services, reduce risk, improve quality, and decrease the cost of care.

To achieve sustainability, policymakers and funders must receive education about the HUB model and tools, and be empowered to demand that dollars begin to equate with the strategic identification and reduction of risk factors. HUB certification must at the same time continue to use QI approaches to respond to the realities of communities in serving those at greatest risk and the funders supporting them. The process must be both supportive and accountable. Technical support, participation in research, and use of certification to open doors to greater recognition and resources for developing Community HUBs are critical. This represents a great opportunity in health care system reform to achieve better outcomes with less cost.

Phase 2: Creating Tools and Resources for the HUB

Once the HUB has established a planning group, identified targeted areas or populations for the intervention, and secured initial funding, the next phase is to select and design the required infrastructure (e.g., tools, resources) to support community-based stakeholders serving the targeted at-risk populations. The overall goal is to remove duplication of services and to identify and address risks.

Step 5: Determine Initial Focus Outcomes and Related Pathways

In 2001, the Institute of Medicine charged health care organizations, clinicians, purchasers, and other stakeholders with “aligning the incentives inherent in payment and accountability processes with the goal of quality improvement.”¹⁵ In response to this report, a movement developed to change the system of accountability within the care coordination component of health care and social services. Approaches included identifying key work products that represent a positive benefit for clients, tying financial incentives to completion of those work products, and developing “action steps” that help facilitate success.

The Pathways Community HUB model, if used properly, can shift the focus of health and social service systems away from activities to outcomes. The model represents a beginning effort to demonstrate that effective care coordination can serve a critical role by comprehensively identifying and reducing risk.

“Pathways” serve as a tracking tool specific to each identified risk factor. The Pathway then tracks and documents each critical step, ending with ensuring the risk factor has been addressed. The Pathway is complete when a final outcome is achieved.

Some of the outcomes completed within a Pathway are intermediate (e.g., confirmed appointment with first medical home visit, successful delivery of evidence-based education packages to prevent obesity) and some outcomes are final (e.g., a homeless person is confirmed to have established safe housing, an at-risk pregnancy results in confirmed delivery of a normal birth weight baby).



In addition, Pathways provide the individual billable work product to tie financial incentives to outcomes. These incentives are built to encourage and support CCCs in serving those at greatest risk, helping them to overcome barriers and receive the interventions needed to improve outcomes and reduce costs. In other words, Pathways serve as the documentation and reporting system that captures each of the guiding principles outlined earlier—i.e., finding those at risk, treating them with evidence-based interventions, and measuring the results of these efforts.

Pathways are part of ensuring a comprehensive approach to identifying and addressing risk factors:

- A Pregnancy Pathway seeks to ensure adequate prenatal care in order to improve birth outcomes, such as reducing the incidence of LBW infants and infant mortality.
- A Family Planning Pathway seeks to reduce the number of women with unintended pregnancies.
- The Housing Pathway ensures the establishment of suitable housing.
- Some of the Pathways break out specific subcategories that allow programs to document and report greater detail as they address specific risk factors. The Social Service Referral Pathway has a coding approach that supports definition and tracking of referrals for specific needs. The Education Pathway supports the delivery and documentation of any number of evidence-informed “packages” of education. Programs delivering packages of health, social, and behavioral health education can demonstrate the confirmed delivery of each education package with a pre- and post-test to evaluate the client’s understanding. Culturally connected CCCs with positive client relationships can be trained and supported to serve in a highly effective educational role promoting changes in behavior for their clients and families.
 - The Internet is now a common source of information, including for at-risk individuals and families. Much of the information is not evidence informed and can even represent a danger. Using the Education Pathway, HUB networks can define the specific evidence-informed package of information addressing nutrition, diabetes management, employment readiness, and a host of other issues. This can provide a higher quality standard for the delivery of education by CCCs.

- An example with particular potential and impact is parenting focused on expectant mothers and families with children. The delivery of evidence-based parenting information and education works as an upstream preventive intervention impacting future educational, economic, and health-related outcomes.
 - Evidence-based parenting education has been shown through research to result in parents having more positive interactions and reinforcements with their children, combined with a less emotional approach to discipline. Increased positive interactions by parents has been connected to future school performance, decreased behavior problems, reduced use of children’s services, and reduced youth services involvement.^{21, 22, 23}
 - Success in education is the single greatest factor tied to employment and future economic success. Economic success is the single most powerful indicator of future health and health care.^{10,24}
 - Positive parenting is tied to future educational and economic success. Parenting is an upstream risk factor with the ability to convert to a protective factor and is an important example when looking for ways to improve future economic and disease-burdened outcomes.
- In the CHAP neighborhoods served in Richland County, Ohio, it has been demonstrated that up to 50 percent of the boys in identified census tracts will serve time in prison.
 - Local leaders at the Mental Health Center (Catalyst) funded by the Richland County Foundation and in partnership with the HUB have recently launched a new initiative focused on this outcome.
 - Positive Parenting Program (Triple P) education with a strong evidence base is being launched by training local CCCs and providing them with Internet-based educational tools and videos that they will provide to families within the targeted census tracts.
 - The parenting-focused Educational Pathway is being provided as part of a comprehensive risk evaluation and reduction approach to address housing, food, health care access, and other issues.
- A Medication Assessment Pathway is a way for a CCC to take a snapshot of how individuals are really using their medication in their homes. The CCC completes a comprehensive Medication Assessment Chart for all prescription, over-the-counter, herbal, and alternative medicine used by the client. The CCC is trained to record all the information in the client’s own words. This Pathway is complete when the identified primary care health professional receives this in-home review of medications. If this review indicates clients are not taking their medications as recommended, the Medication Management Pathway can be used to educate them and ensure that they begin taking the medication as directed by their physician.
- A Medical Home Pathway monitors individuals who do not have ongoing primary care and confirms that they have connected to a patient-centered medical home. It is one thing to establish a medical home, but it takes ongoing education and support to work with individuals who have never had a regular place of care. Multiple Pathways can be used to support the proper use of the medical home once it is established.

The simplicity and targeted focus of each Pathway is a critical element in working with individuals and in the full system of care. Based on the recommendations of the CCCLN, standardized Pathways were developed; each one focused on a specific risk factor or risk area to be addressed. Each Pathway is documented and recorded separately. Risk factors that cannot be addressed despite significant effort by the CCC and their supervisor are labeled as “Finished Incomplete.” These Pathways receive additional focus and evaluation across the HUB network.

In the development of research and billing approaches for Pathways, it is also critical to have a consistent unit of recognized service. The national HUB certification standards require that the Pathways programs use be standardized and drawn from the nationally approved set. This standardization is critical for the overall evaluation and billing methodology within the HUB model. Pathways represent both the billable unit and the measurable outcome.

Alternative Models to Pathways

Pathways are not the only model that can be used to track and create accountability for performance. For example, the Bridges to Excellence program (online at http://www.hci3.org/programs-efforts/bridges-to-excellence/recognition_programs) pays incentives to physicians caring for patients with diabetes and other chronic diseases based on performance with respect to the provision of specific, evidence-based processes, as compared to benchmarks. Ongoing tracking, incentive payments, and feedback help to promote continuous improvement.

When funders, such as Medicaid managed care organizations or health departments, are trying to develop contracts and payment approaches with communities, it becomes very difficult to develop and implement pay-for-performance contracting strategies when every community in the State is using a completely different set of Pathways. Research becomes more meaningful if all programs across the State are using the same basic Pathways, because now it is possible to demonstrate the significance of obtaining stable housing, food, clothing, a medical home, and employment for at-risk individuals and families. This information can be documented and demonstrates how many individuals are having difficulty and significant time delays in achieving the risk reduction outcomes demonstrated in each Pathway.

According to the national standards, it is acceptable for programs to add information that is collected and some additional components to the common national Pathway structure. Whenever possible (as discussed under checklists), if additional questions and data are needed, the checklists are usually the best and most flexible location to place these requirements when building a HUB system. The nationally standardized set of Pathways is available at <https://pchcp.rockvilleinstitute.org/certification-tools/>.

The First Pathway Step - “Initiation Step”

The “initiation step” identifies the specific risk factor that the Pathway seeks to address. Individual HUBs may add information to this step to help ensure that the focus remains on a narrowly defined at-risk group or targeted region. The initiation step not only defines the risk factor identified but also ties back to financial contracts that will state exactly which Pathways/risk factors can be paid for through the contract. The contract will define exactly which age groups or specific risk-related groups meet eligibility for payment.

Examples of Pathway initiation steps:

- Medical Home - Client needs a medical home (ongoing source of medical care).
- Housing - Client and/or family is in need of affordable and suitable housing.
- Medical Referral - Client needs a health care appointment.
- Pregnancy - A woman is confirmed to be pregnant.
- Smoking Cessation - Client states that he/she is a cigarette or tobacco user.

Examples of additional HUB information that has been included for the Pregnancy Pathway:

- “Any woman living within the targeted census tracts and confirmed to be pregnant with a pregnancy test”
- “Any woman confirmed to be pregnant with a pregnancy test that meets the criteria of high risk as outlined in the contract”

There are many strategies used across HUBs to define high risk based on geocoding and risk factor scoring approaches.

Action Steps - Actions Documenting Evidence-Based and Best Practice Interventions That Address the Risk Factor

Action steps represent the middle steps of the Pathway. They document the specific evidence-based and best practice interventions for addressing the identified risk factor. Action steps must meet any and all requirements documented in the completion step.

The action steps have been developed in a way that tries to encompass the needed variation of specific interventions found within community HUB service regions, such as those based in urban or rural areas. Some Pathways have one or two action steps required to reach the completion step, while others have multiple action steps, as noted above. Tracking the steps within a Pathway is a critical part of the process to understand how to be more successful in reaching the outcome. Analysis of CCCs who are higher producers of completed Pathways will help to outline the process to train other CCCs to be more successful. It is similar to the careful, methodical QI processes in a number of other fields.

In some cases, the outcome is reached even though not all of the action steps are completed. For example, an expectant mother may be found and enrolled at 36 weeks gestation, and then delivers her infant after receiving only one prenatal visit. If the birth of a viable normal birth weight infant is the only requirement for completion within the completion step, then the Pathway can be documented as completed even though the action steps were not completed. In Pregnancy Pathway measurements, billable events occur within the action steps, making this type of situation less rewarding financially and encouraging earlier intervention and completion of all action steps when possible.



Action steps are documented within the Pathway in logical order. They need not be completed in consecutive steps (i.e., one after the other), as the order can be changed to best fit the needs of an individual client. Sometimes the first action step is a necessary prerequisite to other steps being completed, thus representing a “rate-limiting” step that could delay completion. For example, a Pathway focused on childhood immunizations might list educating the family about the importance of immunizations as the first action step. This step is critical since getting parents on board is a necessary prerequisite to moving forward with the other steps. Addressing the issues that cause these steps to be rate limiting can often improve the production process.

Significant evidence is available to support the critical nature of behavior change as part of improving health and social outcomes. Pathways that document provision of specific education work to promote behavior change. CCCs also use motivational interviewing strategies to promote readiness for change. The strength of positive and trusting relationships between the CCC and client has been identified as a necessary ingredient to informing and supporting clients as they work through behavior changes (e.g., stopping smoking during pregnancy, completing adult education classes, finding employment).

Private business production methodologies not only look at production steps but also look at micro-steps in the specific and sometimes highly detailed barriers that may slow down or significantly inhibit the production process. In the same way, during Pathway completion, it is very valuable for CCCs to be able to document specific challenges they encounter in trying to work through the action steps of the Pathway. Simple issues, such as an impolite receptionist at the front desk of a health care provider’s office, may be a much greater obstruction to care than is realized or documented. Failure to reach the completion step can be analyzed on the individual client level, but also on the population level to monitor for systemic issues.

The “Completion Step”

In the completion step, the outcome is clearly defined, easy to understand, based on accepted criteria, and measurable. The Pathway is not documented as “Complete” unless this step has been achieved, and thus the risk factor successfully addressed. Examples of completion steps include the following:

- Medical Home - Confirmation that the first appointment for the medical home was kept.
- Housing - Confirmation that the individual has moved into an affordable and suitable housing unit for a minimum of 2 months.
- Immunization Referral - Confirmation that the client’s immunization record has been reviewed and is up to date.

The completion step must provide objective measurement of a positive outcome in order to be marked complete. The outcome must be an occurrence that has a substantial basis for positive impact to the individual served and includes the following subtypes:

- **Intermediate Outcome** - Confirmation that the individual has received an evidence-based or best practice intervention that is known to improve or to have a positive impact on the client served. A diabetic client, for example, is not confirmed to immediately be in better diabetic control when she is confirmed to have received her first medical home visit. The likelihood of having a better outcome, however, has a basis for improving. The same is true if it is confirmed

that at-risk individuals receive evidence-based nutritional or parenting education, immunizations, behavioral health services, and other services. These events are substantially different than current processes and activities that are the focus of care coordination contracts now. Process-based events, such as confirmation that a client is on a caseload, assessment or paperwork was completed, or a phone call was made, do not have an evidence basis for improving outcomes.

- **Final Outcome** - This category of Pathway completion occurs when the identified risk factor has been addressed and a final outcome is confirmed. Examples of strong positive outcomes are stable housing has been established, a normal birth weight infant has been born, a secure source of food has been established, and employment has been verified. It is possible that the individual may develop the same risk factors again, for example, with the second pregnancy or becoming homeless, and Pathways would need to be reinitiated.

Most payments that are tied to HUB-related care coordination services focus on the completion step of Pathways. Most research, evaluation, and demonstration of positive outcomes will come from the appropriate documentation of the completion steps. Research evaluating Pathways completion looked at a pay-for-performance approach compared with tracking Pathways without payments attached. It has been demonstrated that pay for performance improves both the documentation and speed of Pathways completion and risk reduction.⁶

It is also critical to document and separately designate Pathways that cannot be completed.

1. **Complete** - This category represents a Pathway that the CCC, and if needed, his or her supervisor, has confirmed to be completed. The requirements of the national standards and any additional requirements of the HUB or their funder must be confirmed. Specifically, it represents that the risk factor that was identified within the initial or ongoing assessment has been addressed with evidence-based or best practice intervention.
2. **Finished Incomplete** - A risk factor was identified and a Pathway was attempted to be completed with due diligence. Action steps and related activities occurred working toward addressing this risk factor. Yet, for reasons that must be documented, the risk factor could not be addressed. Pathways may be finished incomplete when a client suddenly moves away and cannot be located. It sometimes occurs when the risk factor identified has no available services for intervention. Examples include:
 - An individual may need behavioral health services and no services are available within the next 12 to 18 months.
 - An individual may need stable housing and may be ineligible or unable to secure housing within 1 to 2 years despite significant attempts by the CCC.

It is important to consider all possible options before documenting a Pathway as finished incomplete. Finished incomplete Pathways for an individual can serve as a very important data point for population-level evaluations across caseloads, agencies, HUBs, and States. The inability of a CCC, agency, or HUB to address specific risk factors documented in aggregate reports can show funders and policymakers where gaps exist and needs are greatest that may require changes in policies or distribution of resources.

Specific policies and procedures are required to provide guidance to CCCs and their agencies to qualify a Pathway as “complete” or “finished incomplete.” Some Pathways do require extended time. When reports are generated related to specific CCCs or CCAs, they may unintentionally encourage them to close Pathways not completed in order to remove them from the report.

The procedures established should discourage premature closure of Pathways. They can represent an important risk factor for the client still needing them to be addressed. Similar reporting based on how long a Pathway has been open or the time it takes to complete can also provide critical information.

The Pathway completion step remains one of the most critical risk reduction indicators and should be emphasized in an initial and ongoing manner within HUB initiatives.

The Role of the Pathways Community HUB Certification Program

PCHCP serves as the national center for assessing community HUB compliance with established standards for implementing the HUB model. As part of the CCCLN established by AHRQ, PCHCP is founded on QI principles and focused on learning from communities and individuals using the model.

The establishment of a national approach for the certification of Community HUBs was funded by the Kresge Foundation in 2012. The Community Health Access Project, Communities Joined in Action, The Rockville Institute, and The Georgia Health Policy Center have served as the coalition of national organizations to lead this development.

Through support from Kresge, initial pilot sites in Toledo, Ohio; Albuquerque, New Mexico; and Saginaw, Michigan, were taken through a first approach to HUB certification. Based on lessons learned and guidance from a diverse group of national stakeholders, the approach has been further developed and improved.

Certification is now an established approach and work is in progress with regional HUB initiatives in more than 15 communities across the United States. Research, which has been fostered and published within the network, serves as a steadily improving source for refining the national HUB standards at PCHCP.

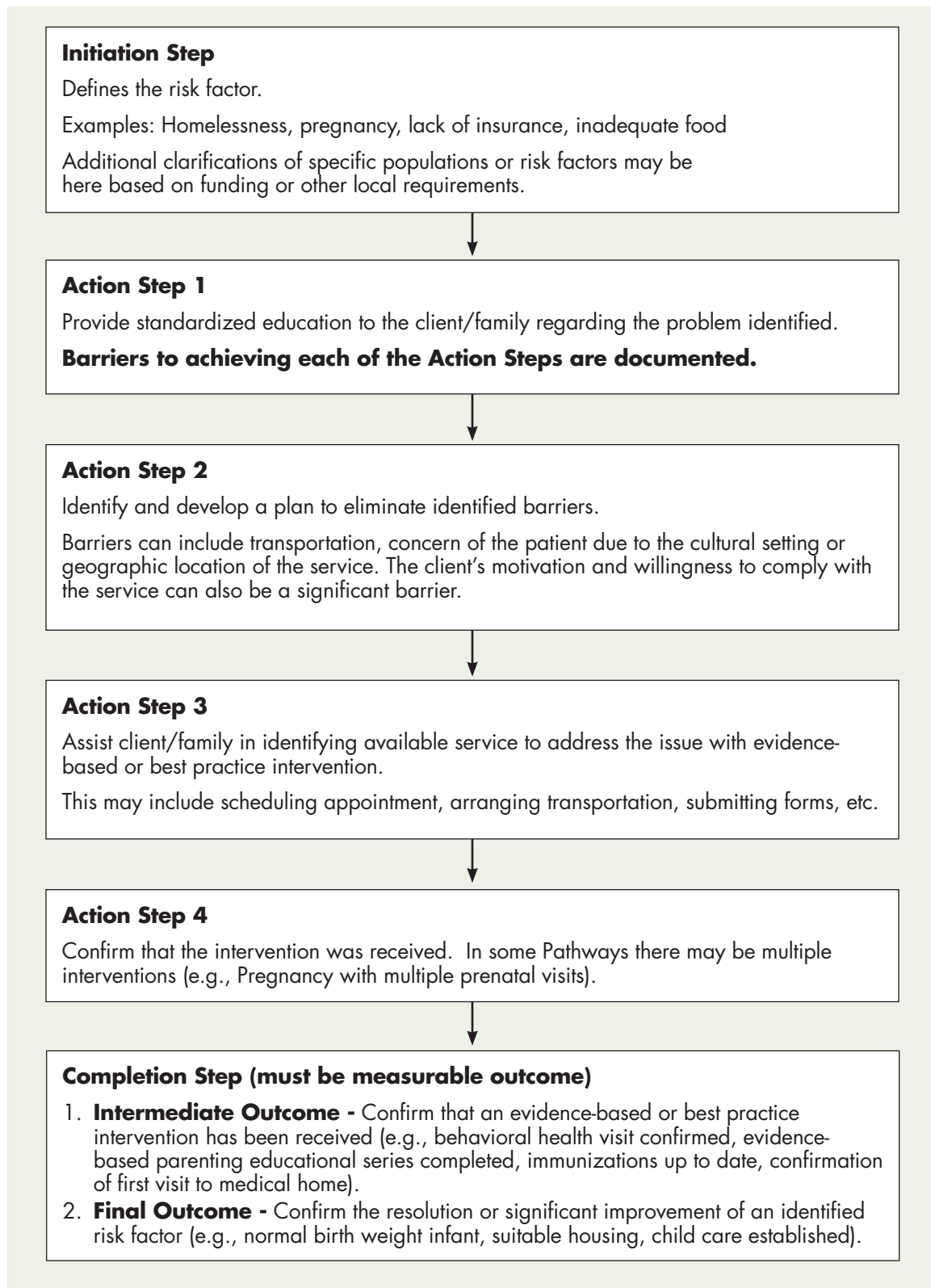
Development of improvements to existing Pathways are occurring now and are expected to continue to occur. The changes and improvements are not as frequent as they were early in the model’s first development more than 12 years ago. Continued research and national sharing of best practices is encouraged and has been a great benefit to the growth and development of the model.

The HUBs currently following the national standards and accountably participating in certification are demonstrating positive outcomes, reduced costs, and growth of their HUB initiatives (See Primary Resources for Current Evidence in the Appendix).

Putting It All Together: Pathway Examples

The chart on the next page provides a common structure on an entire Pathway—including the initiation step, action steps, and completion step. Examples of specific Pathways can be found on the PCHCP Web site at <https://pchcp.rockvilleinstitute.org/certification-tools/>.

Figure 2. Pathways Common Structure



Step 6: Create Supporting Tools and Documents for Care Coordinators

This section discusses additional required documentation tools to implement the Pathways Community HUB model. Tools are presented in the order that they might be used for a newly enrolled client. Unlike the nationally standardized Pathways, the forms in this section have flexibility to adapt to local data collection needs.

Consent Form/Notice of Privacy Practices/Release-of-Information Forms

These forms confirm that the client is comfortable having his or her information turned in to the central Pathways Community HUB. In addition, they lay out the program's privacy policies (which need to conform to the Health Insurance Portability and Accountability Act, or HIPAA, requirements), give permission for the collection of additional information, and explain the client's rights and responsibilities, including complaint and grievance procedures.

These forms can be used by anyone who is working with at-risk individuals in need of comprehensive care coordination services available through the Community HUB. Optimal HUB enrollment is achieved when there are many avenues for identification and referral of at-risk clients. The local librarian, schoolteacher, minister, or nurse at the specialty clinic could be taught how to assist an at-risk individual or family to become connected and enrolled. Several of the current HUB communities have partnered with their local 211 programs, who can also help identify and refer individuals to the HUB.

The process to accomplish privacy protection within a HUB is essential. It works to confirm that HIPAA requirements are followed, while also ensuring that there are no significant barriers between at-risk individuals and the interventions they need to address risk. The CCC, who is known and trusted in the community, is a key partner in this first step and can achieve this needed balance.

When communities are considering building a HUB, HIPAA issues are often one of the first questions brought up as a barrier. How can you have a communitywide network and maintain HIPAA? HIPAA requirements need to support the concept of team-based care and not be used as an impediment. Technology solutions, as well as paperwork approaches, can ensure information is shared in a need-to-know manner. Security approaches based on passwords and firewalls can allow CCAs within the HUB to access information for their clients while not being permitted to access information for other clients. Based on the individual's permission, the HUB can have access to all the CCA client information related to serving the client's needs.

CCCs must have training and expertise to provide the necessary education to clients and to assist them in completing the HIPAA-related forms. CCCs cannot gather any personal health information for the HUB without obtaining permission from clients to serve them within a HUB network of agencies. It is important to always ensure that privacy is protected and that HIPAA is not used as a barrier to serving at-risk clients.

Intake/Enrollment Form

Unlike the nationally standardized Pathways, intake and enrollment forms can vary between different HUBs. Within a HUB, there needs to be standardization across all data collection tools. This includes information captured at enrollment, including basic demographic data, referral information, agency enrolling the client, and date the information is submitted to the Pathways Community HUB.

The HUB uses demographic information for multiple tracking, mapping, and outcome reporting purposes. Some of the enrollment information, including the address, may be part of the risk factor analysis (risk scoring) approach of the HUB. One important function of the HUB is to use basic demographic information to identify potential duplication of service. (See sample initial enrollment form in the Appendix.)

Assessment Via Checklist

This step focuses on the identification of health, social, and behavioral health risk factors. The CCC works with the client to fill out a checklist that includes “trigger questions”—i.e., questions for which a “yes” answer indicates a specific risk factor and a Pathway should be assigned. For example, “Do you need a medical home?” “Do you need help paying for utilities?” “Do you need to find safe housing?”

The checklist is critical for gathering information, since many clients will not always volunteer to share concerns about domestic violence, mental health issues, or loss of health insurance coverage unless specifically asked. Like the enrollment form, the national HUB standards promote flexibility in the development and implementation of checklists to meet the needs of the targeted population and community.

Checklists have the following common subcategories:

- **Initial** - This checklist is completed when the client is enrolled. The initial checklist most often collects more data to establish a client’s baseline risk assessment. Because of all the data collection involved, the completion of this checklist may involve more than one visit.
- **Followup** - This checklist is completed every time a CCC has a face-to-face visit with a client. It is designed to track progress on the previously identified risk factors and to discover any new risk factors that may have developed since the last visit. For example, the client has established a medical home and achieved stable housing, representing completion of both the Medical Home and Housing Pathways. However, on a followup visit, the CCC discovers through the checklist questions that the client has recently experienced domestic violence, and additional Pathways need to be initiated.
- **Client** - Checklists might be broken out in different categories based on the clients served by the HUB. These client types might include adult male, adult female, pediatric, and pregnant.

In addition, based on the national HUB Standards, the checklists should be linguistically and culturally appropriate and tie effectively to the nationally standardized Pathways through assessment of all relevant health, social, and behavioral health risk factors.

The checklists or enrollment forms should be a first consideration if new data items need to be captured. Adding data requirements into Pathways should be the last resort. Pathways are best when they have the greatest simplicity. All HUBs must meet the required data collection elements of the standardized Pathways.

Keeping the Pathways intact and the checklists short should be a central goal in developing the HUB. Complicated data requirements will decrease data collection accuracy, increase time spent by the CCC, and create barriers to Pathway completion. The HUB’s strength of simplicity is directly tied to its efficiency and effectiveness.

Plan of Care Using Pathways

The primary purpose of the plan of care is to ensure that all the risk factors a client has are identified and addressed. Specific risk factors identified within the checklist should, in the large majority of cases, tie directly to nationally standardized Pathways.

The CCC shares the plan of care with his or her supervisor either electronically or on paper. If the CCC is a registered nurse or a licensed social worker, then he or she is not required to have supervision. If the CCC is a CHW, then a supervisor is required under the HUB model standards. The supervisor may also add Pathways based on the checklist responses or change the priority of Pathways in the care plan.



The national certification standards require specific policies and procedures to document the expected timelines and accountable communication process between the CCC and the supervisor as they develop and implement the plan of care. For CHWs, all of their initial and followup checklists, along with their updated plan of care, must be reviewed and signed off by the supervisor in a timely manner.

CCCs are visiting the homes of the individuals at greatest health and social risk to collect health, social, and behavioral health information. When CCCs are CHWs, they have significant training to work in clients' homes. Their training prepares them to work as part of an interdisciplinary team.

The team could include the advanced training and experience of a clinical provider, registered nurse, or licensed social worker who can help support, prioritize, and appropriately manage the host of risk factors presented. The importance of careful supervision is represented in research and within some of the most advanced and effective CHW models in the world, including the Alaska Community Health Aide Program.²⁰

When the supervisor and CCC have signed off on a specific Pathway completion, an invoice can be submitted electronically (or on paper) to the appropriate funder. Community-based care coordination programs using traditional care coordination approaches often report extensive and challenging invoicing procedures that take significant time and expense. Setting up the HUB's Pathway completion and related invoicing reports to be as automated and time efficient as possible is an important component in achieving a sustainable and efficient HUB.

As Pathways are completed and risk factors are addressed, the number of risk factors for the client goes down across the areas of health, behavioral health, and social services. Risk scoring and other methodologies to demonstrate the reduction of risk related to HUB-focused care coordination are now being piloted. The reduction of risk over time can track along with the reduction of stress. As risk factors represent the primary source for adverse health, social, and economic outcomes as well as their related costs, tracking the reduction of risk factors is the central data collection and reporting function of the HUB model.

The HIPAA-compliant communication of risk factors identified and Pathways action plan should be communicated with the medical and behavioral health home clinical providers whenever possible. Partnership and collaboration in the development and prioritization of the community care

coordination plan of care can be very beneficial. Alaska represents one of the most advanced CHW care coordination models and has built within it a strong partnership and communication between CHWs and clinical providers.

HUBs should work effectively to support the development and completion of a risk reduction plan of care for individuals and for the community they serve. HUBs can join together across States and at the national level through PCHCP to accomplish similar analysis and risk reduction improvements for individuals and populations.

Bringing in Outside Experts To Facilitate HUB Development

Most current Community HUBs received significant technical support from expert public and private agencies to help them achieve community engagement, design the specific features and requirements of the HUB, develop and implement training, select technology solutions, and develop contracting and invoicing strategies for sustainability.

The Pathways Community HUB Certification Program has information and resources available now and currently under development at <https://pchcp.rockvilleinstitute.org/>.

Step 7: Develop Sustainable Funding Strategies for HUBs

The pay-for-performance component of the HUB model is critical to achieving the best outcomes at less cost. The HUB certification standards require that a minimum of 50 percent of the overall payment to the HUB initiative be tied to outcomes. Most of the health, social service, and behavioral health funding streams currently do not have pay-for-performance requirements.

HUBs can use pay for performance as a leading marketing component of the HUB to engage funders and policymakers in their support. It is also designed to be effective in sustaining the HUB through appropriate pricing strategies and incentive structures that have demonstrated success.

A critical difference in the incentive structure for HUBs is the focus on at-risk populations and their risk factors. In typical direct service and care coordination contracts, the provider of the direct service or the CCA will earn more income and achieve greater financial stability by serving clients at least risk. High-risk clients have many risk factors that also affect their ability to comply with appointments. No shows and difficulties keeping scheduled visits is a key source of financial loss for direct service and care coordination agencies.

High-risk clients will take significantly more time as they will usually have more issues to address. For example, a client with two small children who has met the poverty guidelines (<200% of Federal Poverty Level) and is eligible for care coordination could fit one of two profiles:

1. She has a safe home, a car, a job, and health insurance. The children's father is involved and providing some income and support. She is not depressed.
2. She lives in unsafe housing with large holes in the bathroom floor. She does not have medical care or insurance. She has no transportation and no supportive family members. She scores high on the depression screen.

Direct service providers and care coordinators report informally and through related research that the second client can take 200 to 300 percent more time, especially for CCCs who must address social as well as health risk factors. Since 5 percent of the population represents 50 percent of the cost, the greatest concentration of our health disparity incentives must focus rewards and effectively support care coordinators in serving those at greatest risk.

In the HUB model, client 1 might not even reach a risk factor score high enough to qualify for comprehensive care coordination. On the first visit, the CCC may provide information on available resources. When the risk identification information is presented to the HUB, many of the current funders of HUBs would have threshold levels of risk that would place this client in a “call if you need us status.” The client might also appreciate this as frequent home visits take time and may not be beneficial in this situation.

In the HUB model, client 2 is at significant risk and represents an appropriate referral to the HUB, both for programmatic and financial reasons. Because of her health and social risk factors, the CCA deploying the CCC will make significantly more money than they would for client 1. The additional dollars are needed for the additional time the CCC will spend with this client.

As client 2 is eventually connected to safe housing, insurance, medical care, food, education, and employment, her risk factors are addressed and her total risk score goes down. The plan of care also goes from 10 to 15 Pathways initially to no more than 2 or 3. At this point in the client’s service, which may take 9 to 36 months, the dollars that the CCA earns serving this client have gone way down and the client is no longer in need of intensive connections to services to stabilize her situation.

Following careful quality guidelines established by the local HUB, the CCC (with approval from her supervisor) can discharge the client from active service. She will remain on a “call if you need us” status. The CCC may check in periodically to make sure things are going well.

Developing contracts for HUB services should take advantage of national examples and lessons learned so far. The Pathways themselves are the primary billing unit for service. Coding strategies have been developed and implemented within Medicaid managed care contracts and other funding streams. (See Pathways list at <https://pchcp.rockvilleinstitute.org/certification-tools/>.) In addition, multiple “relative value unit” (RVU) approaches are being piloted, with a national approach to RVUs in development. United Healthcare, Buckeye Community Health Plan, CareSource, and Paramount have all substantially contributed to this development.

A few Pathways support payments for steps within the Pathway. The Pregnancy Pathway, for example, places the birth of a viable normal birth weight baby as the highest paying step. There are also smaller payments for each confirmed prenatal visit as part of working toward completion. Even with substantial intervention, some birth outcomes will not achieve the goal of normal birth weight. If the infant is born with LBW, the program still receives a significant portion of the payment based on achieving the intermediate steps of prenatal visits.

Extending incentives to CCCs for completing Pathways and serving those at greatest risk has been piloted. Individual CHWs, social workers, nurses, and clinical providers serving at-risk populations within CCAs can have a portion of their compensation tied to the achievement of outcomes and intermediate action steps. This approach has demonstrated positive results and would benefit from further testing.

How Do CCAs Serving in the HUB Network Receive Funding?

In most current examples, the HUB contracts directly with care coordination funders, including government agencies, Medicaid managed care organizations, grant makers, United Way, and other entities. The HUB then subcontracts with collaborating CCAs who hire and deploy CCCs to serve the at-risk population.

The following are examples of some of the current general strategies that have been used successfully within the HUB model:

- When building a new HUB and beginning new contracts with existing CCAs, a kick start financial strategy is encouraged. This was first piloted in Toledo, Ohio (Northwest Ohio Pathways HUB) to provide a startup payment allocation to CCAs willing to participate.
 - Building an accountable network with existing CCAs and changing programs from process to outcomes is not an easy philosophical or programmatic switch. CCAs need time and resources to implement additional training, hire new staff, and use new data collection tools and invoicing strategies.
 - A startup funding allocation to CCAs can help significantly in gaining more buy-in, participation, and good will among agencies. This has been in the range of \$20,000 to \$25,000 in some initiatives and can have a broad range based on the location and scale of the HUB.
 - Startup grant dollars or some similar allocation is needed to fund and support the HUB. Most of the funding streams currently sustaining HUBs use a pay for outcomes approach. This type of startup funding allocation is not readily available. Additional flexible funding should be identified for this function. Grant resources, State funding allocations, and private business donations have been used for this purpose. The Ohio Commission on Minority Health is an exciting new example of this approach to help Certified Community HUBs get started in Ohio through funding approved by the Ohio Legislature.
- Payment can be assigned to each of the nationally certified Pathways or to all the Pathways that are relevant to the population served by the HUB. A completed Pregnancy Pathway, for example, may reach a value of up to \$800 to \$1,600 or more, including all steps. A Social Service Pathway for establishing a secure source of food or child care may have a value of \$40 or less.
 - The payment and scale of sustainable payment varies significantly based on the level of risk of the population served. The sustainable payment level also depends on other parallel payments for the other Pathways and related components of the contract.
 - The number of Pathways and related payments can be estimated for the average at-risk client. This can be used to calculate sustainable pricing models. Some Pathways take a significant amount of time and related expense and others are less time intensive. Technical assistance is recommended in developing final payment schedules.
 - Unpublished research has been completed to evaluate the number of hours taken for a CCC to complete a specific Pathway. The cost to complete each Pathway was calculated using a total unit rate cost of the CCC per hour. The unit rate takes into account the payment for the

CCC as well as time spent by the administrative staff, supervisor, and information technology staff, as well as all other related overhead costs of the program. Payment per individual served with community care coordination using Pathways was not found to be higher in cost than traditional and less accountable care coordination strategies.

- Additional research and collaboration among HUBs and their payers nationally is needed to develop more consistent and effective Pathway-based payment structures. Payment for Pathways has been in place for more than 15 years within Ohio programs, and almost 10 years in New Mexico. This has provided experience and strategy for more current HUB implementations.
- The HUB model supports some portion of the overall payment being tied to process-based measures such as the completion of the initial checklist and enrollment information.
 - Clients at greatest risk can be very challenging to track and locate following their initial enrollment into the program.
 - After enrollment paperwork is completed and a plan of care is developed, if the client moves and cannot be found, the CCA can still receive some payment for the work completed.
 - Especially for new implementation, some of the payment must be tied to process-based measures to support the cash flow needed to sustain CCA operations.
 - CCAs with experience finding those at risk and being paid for the reduction of their risk factors using Pathways can support themselves and grow with this type of approach. It does take time, and some traditional payment approaches are important as part of the mix, especially in getting the system started.

Learning Network Examples

- Pathways make the strategy of “braided funding” possible. One at-risk individual may be eligible and receiving care coordination through several health and social service agencies. In the current system, without a HUB, the duplication of service is not easy to identify. The HUB allows collaboration among funders to eliminate service duplication and work toward an efficient approach to comprehensive risk factor identification, Pathway initiation, and completion.
 - In a braided funding approach, the funding is tied to the completion of Pathways and can be allocated based on the specific type of Pathway completed.
 - The Housing Pathway can be assigned to the social service funding stream.
 - The Medical Home, Medical Referral, and Medication Assessment Pathways can be assigned to the Medicaid managed care funding stream and the Behavioral Health Pathway to a behavioral health funding stream.
 - One CCC works with the client and systematically works through the risk factors, recording progress with the HUB. The HUB, using the billing codes associated with each Pathway, assigns the reimbursement to the appropriate funding stream.
 - Pathways completion is the driver in this system. As this approach eliminates the need for multiple care coordinators, the pricing and overall cost of care can be reduced. Braided funding has not been fully implemented in any of the current HUBs. The infrastructure, tools, and principles to benefit from this strategy are in place and there is work toward further testing and evaluation.⁷

- There are many current examples of excellent accounting management of a broad array of care coordination funding streams within HUBs, including:
 - Medicaid managed care plans,
 - United Way,
 - Housing providers,
 - Health departments,
 - Behavioral health organizations, and
 - Private business.

In these examples, each client and all his or her associated Pathways are assigned to a specific funder. One CCC may have a variety of clients with different funding streams but are each served with the structure and model of the Pathways Community HUB. The HUB ensures that clients enrolled do not have multiple CCCs and that each funder receives reports on risk factors being identified and addressed with Pathways. Infrastructure to support this level of accounting expertise is required by the national HUB standards.

How Does the HUB Get Paid?

The HUB is recommended to serve as a thin (relatively inexpensive) component to the overall cost of care coordination for the network of agencies providing the service. In most current funding strategies, the HUB receives a percentage of the overall payment going to CCAs. As noted above, the HUB administration is usually no more than two or three positions, depending on the size and scope of operations.

Some HUBs provide additional supportive services to the CCAs, such as supervision of CCCs, billing, and payroll functions. All these additional supportive functions can add to the administrative expense of the HUB. It is critical to keep the percentage of funding going to the HUB as efficient as possible.

Policymakers and payers may see the HUB as an additional expensive administrative layer in a system of care that already has many administrative layers and related expenses. The function of the HUB is to identify and eliminate duplication of services, confirm payments for outcomes, and achieve documented cost savings across the network of CCAs. It is critical to convince potential supporters of these benefits.

In evaluating a new HUB, the percentage cost of the HUB will directly relate to the overall size of the network and total annual budget of the care coordination funding coming through the HUB. If two highly skilled HUB directors are hired, and their benefits, office space, technology, and additional consulting and support structures are put in place, this could easily reach a cost of \$250,000 or more. If they will be operating a HUB network that has an annual starting budget of \$500,000, their percentage of the initiative's costs will be high. If they are operating a \$4 million to \$5 million dollar HUB network, their percentage of the cost will be lower.

A goal percentage rate for the HUB administration may be estimated at 10 percent. This may require a stepwise approach and would almost always involve a higher percentage when the HUB gets started.

The national standards require a HUB to demonstrate that 50 percent of dollars connect to outcome-focused payments. The standards also require that each HUB have a credible strategy for demonstrating both positive outcomes and cost savings (return on investment). When these requirements are met, it becomes much easier for a HUB to justify its expense in a Nation with a system of care that is the most expensive and least effective in the developed world in producing positive outcomes.

Impact to Date

Linking payment to outcomes within the payment strategy for CHWs continues to be controversial. This was piloted in early 2001 to 2007 at CHAP and demonstrated an almost 300 percent increase in the number of pregnant women effectively identified and served within several months of initiating the program. As the local Community HUB, CHAP is now working with the agencies that deploy CHWs to develop similar incentive approaches. CHAP's incentive system produced a number of other benefits for both individual CHWs and the organization as a whole, as outlined below:

- The most productive CHWs have realized substantial yearly income increases (\$3,000 to \$4,000 a year).
- CHAP was able to use data routinely collected from the incentive system as an objective tool to measure employee performance during times of financial difficulty when layoffs became unavoidable.
- Research has demonstrated Pathways that are provided when incentive structures are in place are completed faster (more efficiently) and that the documentation (data collection) is more accurate.⁶

Incentives should be considered part of developing a positive, supportive, and helpful work environment for CHWs. They are in the homes of those at greatest risk. They need supervisory, emotional, and financial support to be effective. CHWs can find themselves employed and compensated in a manner that places them near poverty as they then try to serve clients in poverty. If there is any consideration of an incentive program, especially for CHWs, these other factors should be addressed first.

The Importance of Partial Payments

As with American corporations, the Pathways model recognizes that not all outcomes will be positive. When developing contracts and employee incentives, HUBs should build in adequate payments for those Pathways that do not reach completion. Creating staged payments with some level of compensation for the achievement of partial success—for example, getting a pregnant woman into prenatal care, even if she ultimately delivers an LBW baby—makes sense. Failure to do this will make it almost impossible for community-based care coordination programs to take on at-risk patients.

At the same time, it is critical that contracts and grants secured by the HUB—and corresponding incentive systems for individuals—not focus the financial reward to agencies or individuals solely based on the percentage of clients served. As noted earlier, setting such a threshold—such as screening 80 percent of the population for lead exposure—creates strong incentives for organizations and individuals not to serve those at greatest risk—such as the 5 to 15 percent of the at-risk population that does not have a phone, lives in unsafe or difficult-to-access housing, or faces other barriers that make reaching them difficult.

Quality Improvement Resources

Quality assurance materials and resources will be available on the Rockville Institute PCHCP site: <https://pchcp.rockvilleinstitute.org/resources/>.

Step 8: Develop Systems To Track and Evaluate Performance

As stated in the introduction, the most important functions of the HUB are to:

- Centrally track the progress of individual clients (to avoid duplication of services and identify and address barriers and problems on a real-time basis);
- Monitor the performance of individual workers (to support appropriate incentive payments);
- Improve the health of underserved and vulnerable populations; and
- Evaluate overall organizational performance (to support appropriate payments, promote ongoing quality improvement, and help in securing additional funding).

Rather than serving as a central repository for the full client chart, Pathways Community HUBs typically set up an electronic system that captures a relatively limited set of client numbers and identifiers; the typical HUB uses this system to perform the following functions:

- **Register “new” clients** through a centralized database to minimize duplications: As described above.
- **Monitor progress of individual clients; identify and address barriers:** The database should also provide up-to-date information to the various individuals and agencies involved, information on how clients are progressing with respect to the initial identification of risk factors, and progress using Pathways to reduce them. Some communities have used paper-based processes that allow individuals to enter information on a form, while others are moving toward electronic (Web-based) systems that allow real-time tracking.

The availability and practicality of electronic systems in some areas may be limited. Problems include:

- Lack of access to high-speed Internet services,
- Outdated electrical wiring in older buildings, and
- Other problems inherent in underserved communities where care coordination for at-risk individuals takes place.

Tablet technology implemented by several programs (and several separate vendors) has been an additional solution for documentation. Tablets also support CCCs in delivering specific training and educational interventions to at-risk clients.

- **Evaluate performance of individual workers:** The system should allow tracking of the performance of individual CHWs, social workers, nurses, clinical providers, and others involved in caring for at-risk clients. This information can feed into the incentive payment system described earlier.

- **Evaluate and report on organizational performance to stimulate quality improvement:** The HUB system should measure and report on the performance of collaborating organizations producing positive outcomes (e.g., completed Pathways) with a given level of resources. Reports should be accessible to the local HUB, related regional directors, and CCAs.
 - The system should be designed to allow quality analysis of all delayed and unfinished Pathways to identify any common barriers to boosting “production” of desired outcomes—i.e., interventions, agencies, or action steps that require additional attention.
 - The system should allow evaluation of each step of the process to determine where production is being slowed or is below standards. The focus should be on finding needed process improvements, not on punishing individuals or agencies. To that end, the Pathways Community HUB works with partner agencies to develop standard production reports that compare outcome production across all involved agencies. Reports show how many Pathways are pending or completed by each staff member of each agency, thus allowing the identification of the most productive or successful individuals and organizations. This information assists not only in determining appropriate incentive payments, but also in facilitating the spread of best practices and in identifying any delays or barriers that need to be addressed by an individual, an agency, or the community at large.
- **Monitor community health status:** The information gathered by the Pathways Community HUB can be very useful in helping to identify and track risk factors and related needs at the individual level and aggregated at the community level. Working together with the health department, health care providers, hospitals, and others in the community, the HUB can provide valuable information on what is and is not working in the community. As a network with many sources of wisdom, the HUB can serve to convene and help develop the best community response to addressing necessary improvements.

Phase 3: Launching the HUB

The third and final phase of the process is to roll out the operations of the Pathways Community HUB. This step includes hiring dedicated staff for the HUB and ensuring appropriate training of staff and CCCs at participating agencies.

It is recommended that throughout the process of developing the local HUB, there be an understanding and focus on the national Pathways Community HUB certification standards. The standards, in addition to other materials and certification-focused technical support, are available through PCHCP.

CCCs must meet the national standards for basic training and supervision. The staff and CCCs must know how to apply the Pathways and tools. There must be effective agreements and contracts between the HUB and participating CCAs. All parties must work together to achieve community awareness and engagement of community service providers and related collaborators.

Step 9: Hire HUB Staff

The appropriate timing for hiring HUB staff will vary by community. In some situations, staff will be hired earlier to help facilitate and support many of the activities described in previous steps. In other situations, the staff of collaborating agencies will handle these activities, allowing staffing of the HUB to be delayed until later in the process. Partnerships with universities have enabled some HUBs to hire graduate students in social work or public health to serve as interns.

Learning Network Examples

- Toledo, Northwest Ohio Pathways HUB - Largest in the learning network with multiple grants, Medicaid managed care, and related programs supporting 10 positions within the HUB.
- Muskegon Community Health Project - One HUB director, one HUB manager, and two clinical supervisors.
- Oregon, NEON - One full-time equivalent (FTE) Hub Coordinator, .5 FTE operations staff, and .5 FTE executive director.

Step 10: Train and Organize CCCs and Staff at Participating Agencies

Significant training of relevant agencies and individuals to use the model is required to ensure proper implementation and data collection. The training process for the Pathways model is outlined below:

- **Develop a HUB implementation team:** Most HUBs use technical support to form a team of trainers and support personnel to provide the appropriate education and technical assistance to get started. This can occur in a train-the-trainer approach with the outside technical support team empowering the HUB leadership or other local resources to serve in this role moving forward.
- **Identify a team leader at each CCA:** The implementation team should meet with the team leader at each CCA to review current work processes. The work and documentation required for the HUB model should be brought into the work structure in the most efficient and effective manner possible.
- **Support CCAs in identifying their CCCs:** Using CCCs who are currently providing care coordination services within the community can help implementation. It also helps HUB implementation by supporting and strengthening current care coordination structures instead of representing a duplicative and competitive new community structure.
 - CCCs can be nurses, social workers, CHWs, or others as long as they can provide community care coordination within the community setting.
 - CHWs supervised by clinical providers, registered nurses, or licensed social workers can provide one of the most efficient and effective ongoing deployment strategies.



It may take time and the development of local expertise to apply and grow this approach. CCCs working at the CCA will most often have existing paperwork and database requirements as part of their current work at their agency. The new work they are beginning with the HUB will require new paperwork or database data collection requirements. These requirements are in addition to current responsibilities and must be effectively integrated into the workflow.

The national standards recommend that CCAs use CCCs for their HUB initiative who devote a large portion of their work time to the HUB service. If their position is only proposed to have a small percentage of time devoted to the HUB, they can be pulled in other directions with other responsibilities, reducing their effectiveness. HUBs that have ensured that their CCAs have “HUB dedicated” CCCs realized more effective Pathway production and better outcomes.

Learning Network Examples

- Rio Arriba Pathways in Española, New Mexico, advertised in the community for the positions. They looked for individuals with a background of serving others in positions that require trust. They have a number of cosmetologists on staff, as people frequently trust and confide in their hairdressers. They also looked for people who speak Spanish and are from the population to be served.
- Pathways to a Healthy Bernalillo County in Albuquerque uses CHWs (Navigators) hired and employed by the partner community-based organizations. The HUB provides each organization with a job description template from which to recruit their Navigators. In many cases, the organizations had internal candidates who met most or all of the desired characteristics. The HUB provides program orientation and ongoing coaching of the Navigators, if needed. Most of the CHWs who have left the program took better paying positions elsewhere, often qualifying for these positions through their experience with the Pathways Program. Many of the Navigators continually strengthen their leadership qualities and are always willing to mentor the newer Navigators as they develop their own leadership abilities.
- Muskegon Community Health Project in Michigan uses CHWs recruited through traditional recruitment methods. They also seek CHWs through faith-based and local nonprofit agencies, law enforcement, neighborhood associations, and local government. Recruitment is often through word of mouth, with an emphasis on hiring CHWs from the community so that neighbors are serving neighbors.

Training Requirements

- The CCA agency leadership, including the financial representatives, need to be trained on the Pathways model and its basic requirements. The potential benefit to the individuals served as well as the potential improvement in quality and sustainability of the CCA can be additional areas of focus.
- The CCCs need to receive more extensive training consistent with the national Pathways Community HUB standards. Previous training and experience is taken into consideration with these requirements.
 - If the CCC is a registered nurse or social worker, the training requirements can be significantly less.

- New employees, without previous training and experience in the role of being a CCC, will need more extensive training.
- National standards promote a training experience that can include approximately 100 contact hours of classroom training and additional hours in on-the-job practicum experience.
 - CHW curriculum requirements include understanding of the basic health, social, and behavioral health issues that CCCs will be engaged in helping to address with their clients.
 - Chart documentation, HIPAA compliance, motivational interviewing, and many other curriculum requirements are also required through the national standards.
 - For existing CHWs, previous training or certification within their State can be recognized as an important component of their required training experience.
 - The national standards for HUBs do not count as certification for CHWs. They do outline the minimum documented curriculum requirements required for a CCC (including CHWs) to serve in a certified HUB.
- Examples of existing State CHW training requirements that may substantially address most of the CHW curriculum requirements include the following:
 - The Ohio Board of Nursing has a curriculum for CHWs. Legislation in Ohio designated CHW as a profession. The approved curriculum is available at <http://codes.ohio.gov/oac/4723-26-13>.
 - The Minnesota Department of Human Services discusses CHW requirements at http://www.dhs.state.mn.us/main/idcplg?IdcService=GET_DYNAMIC_CONVERSION&RevisionSelectionMethod=LatestReleased&dDocName=dhs16_140357.

HUB Operations

HUBs need to organize, deploy a communication and regular meeting plan, and implement a quality assurance strategy to operate the network.

- The HUB must have an initial and ongoing approach for communicating with the CCAs and their staff. Setting up a regular meeting schedule for communication with the HUB team leaders at each agency is an important part of this approach.
- Quality assurance by the HUB and within each CCA is part of PCHCP's national certification requirements. Quality assurance should be a central focus of every aspect of the HUB operation, which includes not only the services provided but also the fiscal, human resources, and other operational components.
- The networking of the CCCs themselves between and among the CCAs involved in the HUB is a critical aspect of improving the overall operation. In Albuquerque, New Mexico, all the CCCs from each of the 14 agencies involved get together on a monthly basis to discuss local challenges, best practices, training needs, and any other important topics that can improve their overall

operation. It is within these sessions that strategies are shared across agencies to engage at-risk clients, identify their risk factors, and ensure their connection to interventions. These meetings of the CCCs have also been very informative to local, State, and national leaders who have been invited to attend them. Other HUBs in other communities have begun to adopt this practice.

Learning more about how existing HUBs communicate within their network, reward and affirm progress, provide specific reports and quality assurance focused information, is an important objective for any new HUB that is developing.

Step 11: Conduct a Community Awareness Campaign

Community HUBs are required by the national standards to have a Guidance Council representative of the community and community service structure. The individuals and their represented agencies on the Guidance Council play a substantial role in providing community awareness of the HUB and its development. The participation of the HUB leadership in other health, social service, and behavioral health meetings and activities within the community is also critical in achieving community awareness.

Community members play a critical role in identifying and referring at-risk individuals to the program. Teachers, school nurses, ministers, coaches, and others may be in the best position to know when an individual needs help. (Within the HUB model, these individuals are known as “finders.”) Successful programs, therefore, will conduct a formal community awareness campaign to make sure that all important referral sources know about the program, identify who might benefit from it, and understand how to refer at-risk individuals.

The HUB leadership is responsible for developing effective relationships and communication structure with local service providers so that frequently identified barriers to receiving services can be addressed at the individual and population level. The HUB leadership should work closely with other local service providers and their CCAs to provide periodic summary reports and communications to community policymakers and funders as part of the process. This communication can help achieve growth and expand the positive impact. Events highlighting the success of local CCAs, their CCCs, and the direct service providers who provide the interventions can be an important form of improving community engagement.

Accurate and effective communication, as well as the ability to develop strong personal relationships, is a critical skill CCCs need to work with their clients. It is also critical for supervisors and administrators across the HUB network. Individuals within the HUB network who are accountable for getting the work done, as well as developing positive relationships, are critical to the initiative’s ability to serve those at risk and to achieve better outcomes at less cost.

Conclusion

Our Nation, with the most resources and the worst outcomes in the developed world, has a great opportunity for improvement. The source of disparity and cost are risk factors, most of which can be addressed. A new focus on effectively and efficiently identifying and addressing risk factors that span health, behavioral health, and social services is demonstrating improvement in outcomes and cost.

It is a substantial challenge to change silo-based services to effective care networks. Moving from process-based payments that incentivize service to low-risk clients to outcome-focused payments that incentivize service to those in greatest need is essential. This national learning network developed by AHRQ is very early in development. Your participation and innovation are needed.

Those at greatest risk can be reached and have their risk factors addressed, and they, their children, and their families can achieve better health, social, and economic outcomes.

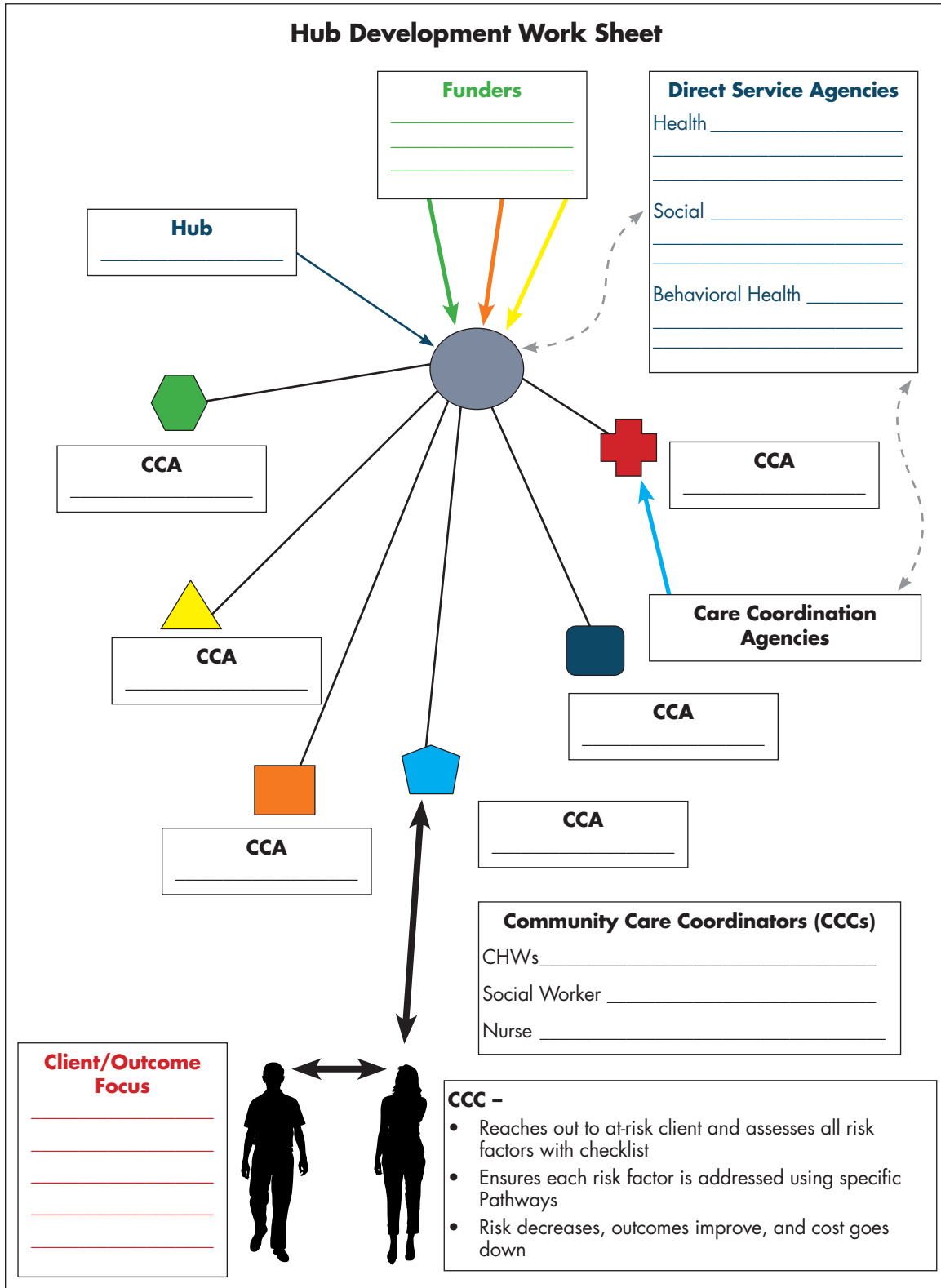
References

1. Redding S, Conrey E, Porter K, et al. Pathways community care coordination in low birth weight prevention. *Matern Child Health J* 2015;19:643-50. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4326650/>. Accessed November 4, 2015.
2. Kumar S, Ghildayal NS, Shah RN. Examining quality and efficiency of the U.S. healthcare system. *Int J Health Care Qual Assur* 2011;24:366-88. PMID:21916090.
3. Kochanek M, Martin JA. Supplemental analyses of recent trends in infant mortality. Hyattsville, MD: National Center for Health Statistics; 2004. <http://www.cdc.gov/nchs/data/hestat/infantmort/infantmort.htm>. Accessed November 4, 2015.
4. Shortell SM. Bridging the divide between health and health care. *JAMA* 2013;309:1121-2. PMID:23512058.
5. McDowell I. From risk factors to explanation in public health. *J Public Health* 2008;30:219-23. <http://jpubhealth.oxfordjournals.org/content/30/3/219.long>. Accessed November 4, 2015.
6. Zeigler BP, Carter EL, Redding SA, et al.. Care coordination: formalization of pathways for standardization and certification. National Science Foundation Grant Award No. CMMI-1235364. Rockville, MD: Rockville Institute; 2014. https://www.rockvilleinstitute.org/files/Care_Coordination_Formalization_of_Pathways_for_Standardization_and_Certification.pdf. Accessed November 4, 2015.
7. Panovksa A, Scales B, Oxley S, et al. Medicaid braided funding policy brief. Columbus: Voices for Ohio's Children; 2013. http://www.raiseyourvoiceforkids.org/Media/Documents/Policy%20Briefs/MedicaidBraided_Brief%20FINAL.pdf. Accessed November 4, 2015.
8. Pathways: building a community outcome production model. Mansfield, OH: Community Health Access Project; 2001.
9. Conwell LJ, Cohen JW. Characteristics of persons with high medical expenses in the U.S. civilian noninstitutionalized population, 2002. MEPS Statistical Brief #73. Rockville, MD: Agency for Healthcare Research and Quality; March 2005. http://meps.ahrq.gov/mepsweb/data_files/publications/st73/stat73.pdf. Accessed November 4, 2015.
10. Feinstein JS. The relationship between socioeconomic status and health: a review of the literature. *Milbank Q* 1993;71:279-322. PMID:8510603.
11. Priority setting for healthcare performance measurement: addressing performance measure gaps in person-centered care and outcomes. Washington, DC: National Quality Forum; August 2014. http://www.qualityforum.org/Publications/2014/08/Priority_Setting_for_Healthcare_Performance_Measurement__Addressing_Performance_Measure_Gaps_in_Person-Centered_Care_and_Outcomes.aspx. Accessed November 4, 2015.
12. Cantor JC, Monheit AC, DeLia D, et al. Early impact of the Affordable Care Act on health insurance coverage of young adults. *Health Serv Res* 2012;47:1773-90. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3513605/>. Accessed November 4, 2015.
13. Klerman LV. Nonfinancial barriers to the receipt of medical care. *The Future of Children* 1992;2(2):171-85. http://www.princeton.edu/futureofchildren/publications/docs/02_02_09.pdf. Accessed November 4, 2015.
14. Low birthweight in minority and high-risk women. Final Report of the Low-Birthweight Patient Outcomes Research Team. (Agency for Health Care Policy and Research, 1998). <http://archive.ahrq.gov/clinic/lobrabs.htm>. Accessed November 4, 2015.

15. American Diabetes Association. Statistics About Diabetes. <http://www.diabetes.org/diabetes-basics/statistics/?loc=db-slabnav>. Accessed November 4, 2015.
16. Margolis KL, Piller LB, Ford CE, et al. Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial Collaborative Research Group. Blood pressure control in Hispanics in the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial. *Hypertension*. 2007 Nov;50(5):854-61. Epub 2007 Sep 10. <http://hyper.ahajournals.org/content/50/5/854.long>. Accessed November 4, 2015.
17. Van Dis J. Where we live: health care in rural vs. urban America. *JAMA* 2002;287(1):108. PMID:11754718.
18. National Center for Health Statistics. Health, United States, 2007: with chartbook on trends in the health of Americans. Hyattsville, MD: Centers for Disease Control and Prevention; 2007. <http://www.cdc.gov/nchs/data/hus/hus07.pdf>. Accessed November 4, 2015.
19. Accounting for the Lean enterprise: major changes to the accounting paradigm. Montvale, NJ: Institute of Management Accountants; 2006. <http://www.imanet.org/docs/default-source/research/sma/accounting-for-the-lean-enterprise.pdf?sfvrsn=2>. Accessed November 4, 2015.
20. Golnick C, Asay E, Provost E, et al. Innovative primary care delivery in rural Alaska: a review of patient encounters seen by community health aides. *Int J Circumpolar Health* 2012;71:18543. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3417638/>. Accessed November 4, 2015.
21. Karahmadi M, Shakibayee F, Amirian H, et al. Efficacy of parenting education compared to the standard method in improvement of reading and writing disabilities in children. *Iran J Psychiatry Behav Sci* 2014;8(1):51-8. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4078693/>. Accessed November 4, 2015.
22. Li HC, Chan SS, Mak YW, et al. Effectiveness of a parental training programme in enhancing the parent-child relationship and reducing harsh parenting practices and parental stress in preparing children for their transition to primary school: a randomised controlled trial. *BMC Public Health* 2013;13:1079. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3870999/>. Accessed November 4, 2015.
23. Morawska A, Tometzki H, Sanders MR. An evaluation of the efficacy of a triple P-positive parenting program podcast series. *J Dev Behav Pediatr* 2014;35(2):128-37.
24. Race/ethnicity, gender, socioeconomic status—research exploring their effects on child health: a subject review. *Pediatrics* 2000;105:1349-51. <http://pediatrics.aappublications.org/content/105/6/1349.long>. Accessed November 4, 2015.

Appendix

Community HUB Template



Community Care Coordination Learning Network

HUB Initiative	Location	Contact	IT Strategy	Outcome Focus	Certification Status
Community Health Access Project - CHAP	Mansfield, Ohio	Michelle Moritz, Sarah Redding, Bob Harnach Richland County Early Childhood Center Mansfield, OH 44902 419-525-2555 sredding@atf.net	Web-based tablet platform	Maternal and child health; now expanding to serve all ages	In progress
Northwest Ohio Pathways HUB	Toledo, Ohio	Jan Ruma, Carly Miller Hospital Council of Northwest Ohio 3231 Central Park West Drive, Suite 200 Toledo, OH 43617 419-842-0800 jruma@hcno.org cmiller@hcno.org	Web-based tablet technology	Original focus on maternal and child health; now focusing on all age groups	Provisional certification awarded October 2014; final certification pending
Health Care Access Now (HCAN)	Cincinnati, Ohio	Judith Warren 7162 Reading Road, Suite 1120 Cincinnati, OH 45237 513-107-5696 jwarren@healthcareaccessnow.org	Web-based tablet technology	Serving all age groups	In progress
Muskegon Community Health Project	Muskegon, Michigan	Judy Kell, Peter Sartorius Muskegon Community Health Project/ Mercy Health Partners 565 W. Western Avenue Muskegon, MI 49440 231-672-3201 satorip@mchp.org	Web-based tablet technology	All age groups	In progress
Rio Arriba Pathways	Española, New Mexico	Lauren Reichelt 1122 Industrial Park Road Española, NM 87532 505-753-3143 lmreichelt@rio-arriba.org	Combination of paper and electronic system	Pregnancy	In progress

HUB Initiative	Location	Contact	IT Strategy	Outcome Focus	Certification Status
Pathways to a Healthy Bernalillo County	Albuquerque, New Mexico	Daryl T. Smith Office of Community Health Worker Initiatives University of New Mexico Health Science Center, MSC 07 4350 Albuquerque, NM 87131 505-272-0823 dsmith@salud.unm.edu	Web-based custom-designed system	Low- to very low-income adults with multiple complex needs	Provisional certification awarded October 2014; final certification pending
St. Vincent Health	Indianapolis, Indiana	Sherry Gray St. Vincent Health North Office Building 10330 N. Meridian Street, Suite 415 Indianapolis, IN 46290 317-583-3213 SEGray@stvincent.org			
Northeast Oregon Network (NEON)		Lisa Landendorff, Executive Director Eric Griffith, Hub Coordinator North East Oregon Network 913 Main Avenue La Grand, OR 97850 llandendorff@neonoregon.org egriffith@neonoregon.org		Adults with chronic disease	In progress
Saginaw Pathways to Better Health	Saginaw, Michigan, and adjacent counties	Sandra Lindsey, Project Director slindsey@sccmha.org Barb Glassheim, Project Manager barbglassheim@comcast.net Yurlia Wheeler, HUB Manager vwheeler@sccmha.org Saginaw County Community Mental Health Authority 500 Hancock Saginaw, MI 48602	Web-based tablet technology	Adults with chronic disease Maternal and child health	Provisional certification awarded October 2014; final certification pending

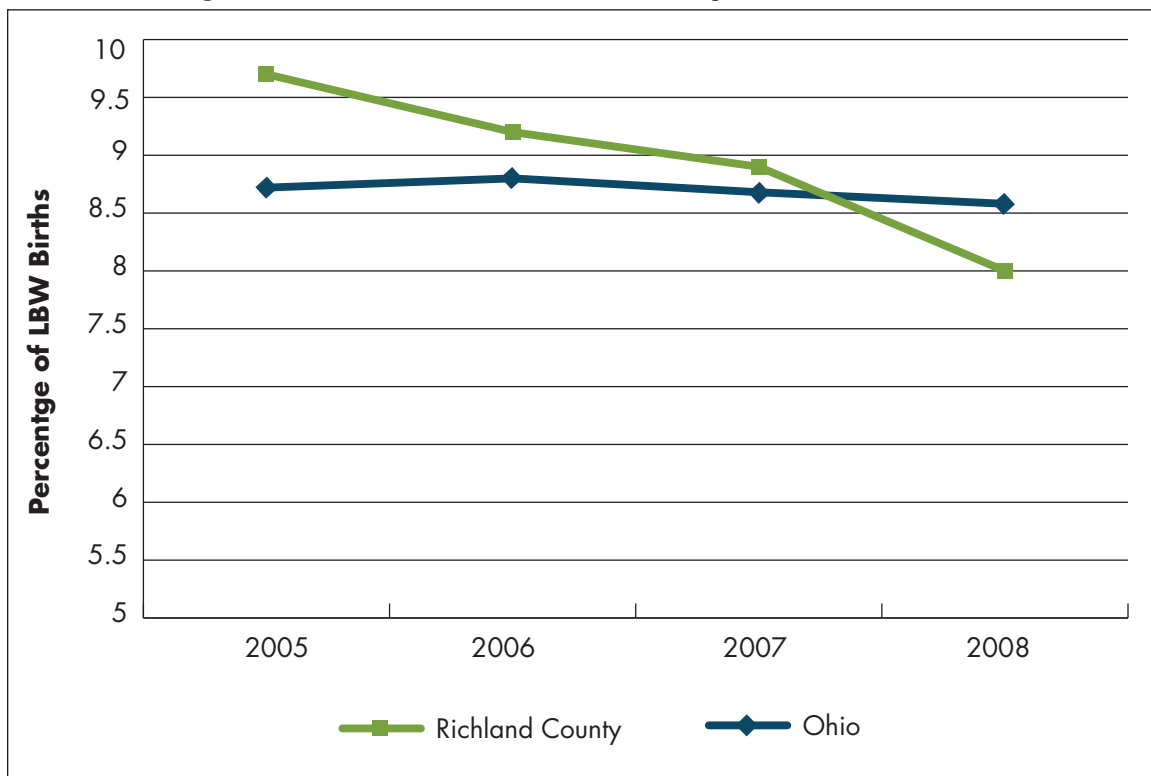
HUB Initiative	Location	Contact	IT Strategy	Outcome Focus	Certification Status
Ingham Pathways to Better Health	Ingham, Eaton, Clinton, Gratiot, and Montcalm Counties in Michigan	3425 Belle Chase Way Suite 1 Lansing MI 48911 Inoyer@ihpmi.org	Web-based technology	Adults with chronic disease	In progress
Franklin County Pathways Community HUB	Franklin County, Ohio	Todd Dieffenderfer, Chief Alignment Officer Todd.Dieffenderfer@uwcentralohio.org David Ciccone AVP, Community Impact Senior. Impact Director, Health david.ciccone@uwcentralohio.org United Way of Central Ohio 360 S Third Street Columbus, Ohio 43215	Tablet technology	School readiness among early childhood population, healthy birth outcomes among high-risk pregnant women, workforce outcomes among young adults	Expect to begin certification process in 2016 after full HUB implementation

Primary Resources for Current Evidence

Note: Includes peer-reviewed publications and data analysis

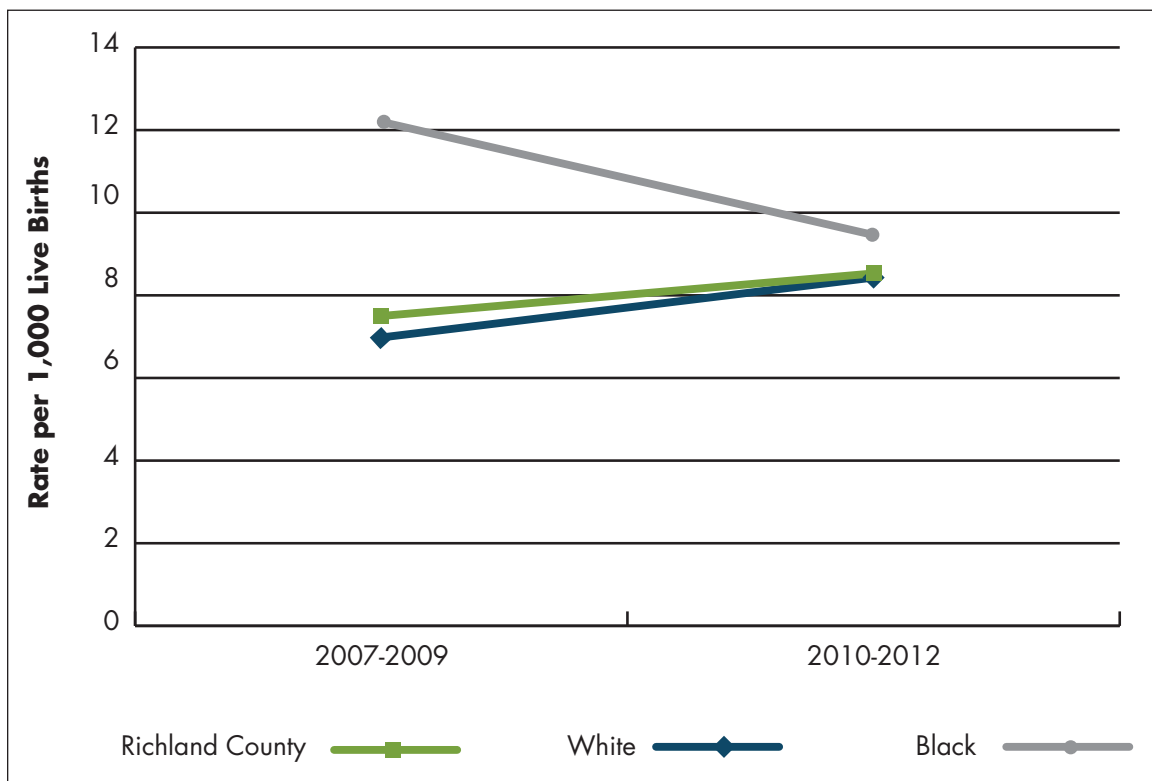
1. Redding S, Conrey E, Porter K, et al. Pathways Community Care Coordination in Low Birth Weight Prevention. *J Matern Child Health* 2015;19(3):643-50. First online: 20 August 2014. <http://link.springer.com/article/10.1007/s10995-014-1554-4>. Demonstrated a 60 percent reduction in low birth weight and a more than 500 percent return on investment. This publication was accomplished with the Community Health Access Project and was conducted in collaboration with the Ohio Department of Health, the Centers for Disease Control and Prevention, and The Ohio State University.
2. Zeigler BP, Carter E, Redding S, et al. Care Coordination: Formalization of Pathways for Standardization and Certification. National Science Foundation Grant Award No. CMMI-1235364. https://www.rockvilleinstitute.org/files/Care_Coordination_Formalization_of_Pathways_for_Standardization_and_Certification.pdf. Demonstrated the critical effectiveness of pay-for-performance accountability within the model.
3. Alley DE, Asomugha CN, Conway PH, et al. Accountable health communities: addressing social needs through Medicare and Medicaid. *N Engl J Med* 2016 Jan 7;374(1):8-11. PMID:26731305.
4. Zeigler B, Redding S, Leath B, et al. Guiding principles for data architecture to support the Pathways Community HUB Model. *eGEMs (Generating Evidence & Methods to improve patient outcomes)* 2016;4(1):Art. 1.

Low Birth Weight Rates in Ohio and Richland County, 2005-2008



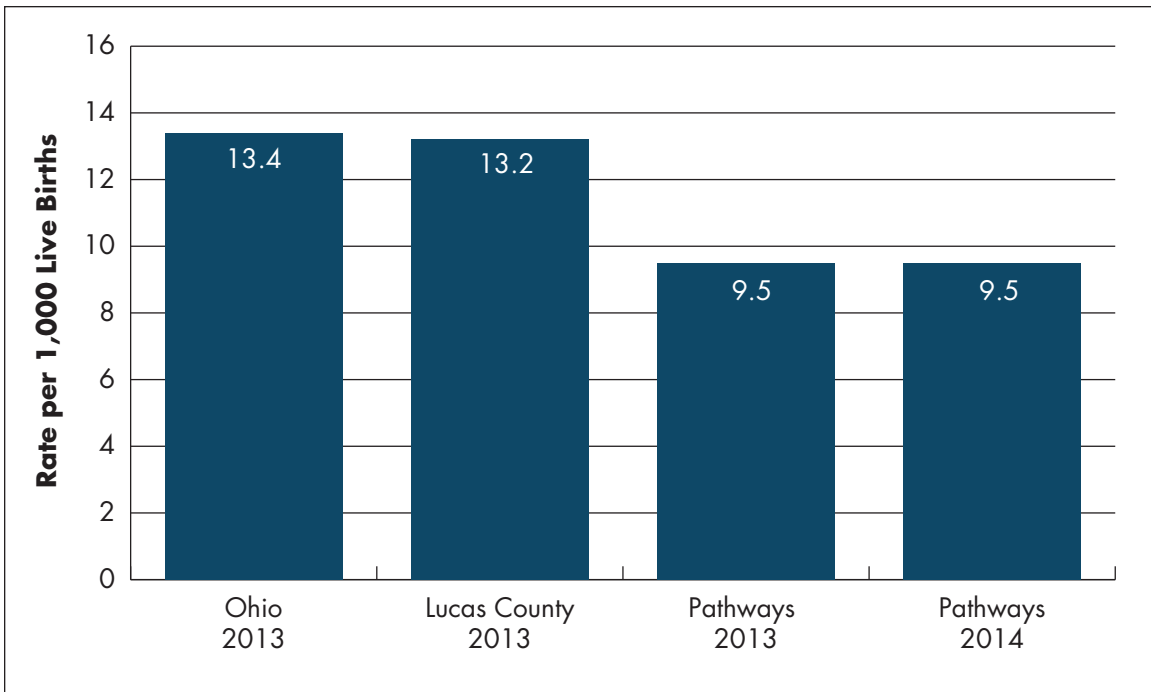
5. Countywide statistics during first Community HUB implementation from the Ohio Public Health Data Warehouse. <http://publicapps.odh.ohio.gov/EDW/DataCatalog>. See data below.
6. Countywide statistics during period of specific focus on African American expectant mothers in Richland County. During the same period of analysis, overall State infant mortality was demonstrated to be increasing. Data represented are from the Ohio Public Health Data Warehouse. <http://publicapps.odh.ohio.gov/EDW/DataCatalog>. See data below.
7. Toledo, Ohio, Northwest Pathways HUB data following implementation of the Pathways Community HUB model. See data below.

Richland County Infant Mortality Rate, 2007-2009 and 2010-2012, 3-Year Trend Data



	2007	2008	2009	2010	2011	2012
Infant Deaths, Total	15	6	14	15	14	6
White Deaths	11	6	12	13	13	5
Black Deaths	4	0	2	2	1	1
Births, Total	1,606	1,523	1,517	1,339	1,353	1,410
White Births	1,436	1,365	1,353	1,199	1,220	1,260
Black Births	170	158	164	140	133	150

Lucas County African American Low Birth Weight Rates



Percentage of NW Ohio Pathways Clients Attending Postpartum Appointment, 2012-2014



In 2013, 63% of women on Medicaid attended postpartum appointment within 90 days.

8. The Muskegon Community Health Project established a Pregnancy Pathways program for high-risk mothers in Muskegon and Oceana Counties, with grants from the March of Dimes Michigan Chapter and the CHE-Trinity Call-to-Care Fund. A return-on-investment analysis was prepared by Greg Cline, Ph.D., for the initial 21-month period ending May 2014. For the 62 participants for whom he had complete claims data, Dr. Cline reported that the program cost per participant was \$1,567.52 for the Pathways to Healthy Pregnancy Program. Dr. Cline calculated that avoided costs for prevented low birth weight newborn babies was \$6,127.57 per participant. There was only one low birth weight baby in the cohort. The Pregnancy Pathways Program enrolled mothers from the highest risk group in Muskegon County and made their outcomes better than the Medicaid population and equal with that of the general population. This program is being continued with the use of Community Benefit funds.
9. Financing Community Health Workers: Why and How: The Future Is Now in Many Communities. Lansing, MI: Public Sector Consultants; January 2007. Produced with funding from the National Community Voices Initiative, Center for Primary Care, Morehouse School of Medicine, through the Columbia University Center for Community Health Partnerships. <http://pscinc.com/Publications/tabid/65/articleType/ArticleView/articleId/20/Financing-Community-Health-Workers-Why-How-Policy-Brief.aspx>
10. Panovska A, Scales B, Oxley S, et al. Medicaid Braided Funding Policy Brief. Columbus: Voices for Ohio's Children; November 2013. http://www.raiseyourvoiceforkids.org/Media/Documents/Policy%20Briefs/MedicaidBraided_Brief%20FINAL.pdf
11. Priority Setting for Healthcare Performance Measurement: Addressing Performance Measure Gaps in Care Coordination. Washington, DC: National Quality Forum; August 2014. https://www.qualityforum.org/Publications/2014/08/Priority_Setting_for_Healthcare_Performance_Measurement__Addressing_Performance_Measure_Gaps_in_Care_Coordination.aspx
12. "Case Studies" of Organizations Implementing Pathways

The Agency for Healthcare Research and Quality Innovations Exchange includes 10 "profiles" (similar to case studies) of organizations that have successfully implemented Pathways. Each write-up includes a capsule summary of the program, a description of the problem addressed, a descriptive summary of key program elements and the results achieved to date, background on the context and impetus for the program, a review of key planning and development steps, and a discussion of considerations for would-be adopters, including lessons related to getting started and sustaining the program. Web addresses for these profiles are provided below:

- Community Health Navigators Use Pathways Model to Enhance Access to Health and Social Services for Low-Income, At-Risk Residents: <https://innovations.ahrq.gov/profiles/community-health-navigators-use-pathways-model-enhance-access-health-and-social-services>
- Field-Based Outreach Workers Facilitate Access to Health Care and Social Services for Underserved Individuals in Rural Areas: <https://innovations.ahrq.gov/profiles/field-based-outreach-workers-facilitate-access-health-care-and-social-services-underserved>
- Program Uses "Pathways" to Confirm Those At-Risk Connect to Community Based Health and Social Services, Leading to Improved Outcomes: <https://innovations.ahrq.gov/profiles/program-uses-pathways-confirm-those-risk-connect-community-based-health-and-social-services>

- Michigan Pathways Project Links Ex-Prisoners to Medical Services, Contributing to a Decline in Recidivism: <https://innovations.ahrq.gov/profiles/michigan-pathways-project-links-ex-prisoners-medical-services-contributing-decline>
- County-Wide Collaborative Uses Pathways Model to Enhance Access to Insurance, Primary Care, and Mental Health Services for Low-Income Children: <https://innovations.ahrq.gov/profiles/county-wide-collaborative-uses-pathways-model-enhance-access-insurance-primary-care-and>
- Pathway Helps Massachusetts Residents Develop and Implement Debt-Reduction Strategies, Leading to 60-Percent Reduction in Medical Debt: <https://innovations.ahrq.gov/profiles/pathway-helps-massachusetts-residents-develop-and-implement-debt-reduction-strategies>
- Community Health Collaborative Reduces Inappropriate Emergency Department Use by Providing Access to Health Care, Social Support for Low-Income Clients: <https://innovations.ahrq.gov/profiles/community-health-collaborative-reduces-inappropriate-emergency-department-use-providing>
- Volunteer Provider Network Cares for Uninsured Working Poor, Leading to Lower Utilization and Costs, Better Outcomes, and Positive Return on Investment: <https://innovations.ahrq.gov/profiles/volunteer-provider-network-cares-uninsured-working-poor-leading-lower-utilization-and-costs>
- Hospital Partnership Offers Pathways-Based Case Management Program, Leading to Enhanced Access to Appropriate Care for Uninsured: <https://innovations.ahrq.gov/profiles/hospital-partnership-offers-pathways-based-case-management-program-leading-enhanced-access>
- Community Health Worker Agencies Partner With Emergency Medical Service Providers To Identify Frequent Callers and Connect Them to Community-Based Services, Leading to Fewer 911 Calls: <https://innovations.ahrq.gov/profiles/community-health-worker-agencies-partner-emergency-medical-service-providers-identify>

Sample Pathways Forms*

Pathways Initial Client Enrollment Form *(Please print clearly)*

Agency Name: _____

Community Health Worker: _____

Date of Enrollment: _____

Where Client Was Found: _____

Client Information

Full Name: _____

Address: _____

(include street, city, and ZIP code)

Date of Birth: _____ / _____ / _____
(Month) (Day) (Year)

Race (Check all that apply):

- American Indian/Alaska Native Asian African American/Black
 Pacific Islander Caucasian/White Other _____

Ethnicity: Hispanic Non-Hispanic

Risk Factors (see next page for codes):

- A B C D E F G H I J K L
 M N O P Q R S T U

Due Date: _____ / _____ / _____
(Month) (Day) (Year)

- Buckeye Paramount United Healthcare Grant Funded

Please fax enrollment form to Pathways Administrator at 419-842-0999.

*Up-to-date and more extensive resources and contact information for technical support are available at the PCHCP Web page at <https://pchcp.rockvilleinstitute.org/>.

Risk Factor Codes for Pathways Client Enrollment

- A. African American
- B. Drug use
- C. Tobacco use
- D. No insurance
- E. Women with previous birth in last 18 months
- F. Late entry into prenatal care (after 13 weeks)
- G. No transportation
- H. Unaware of the pregnancy
- I. Domestic violence
- J. Poor living environment
- K. Poor health of the mother
- L. Noncompliance with medical appointment
- M. Personal problems
- N. Unwanted pregnancy
- O. Mental illness
- P. Homeless
- Q. Less than 18 years old
- R. Unmarried
- S. Low income
- T. Prior poor birth outcomes
- U. Residing in a ZIP Code with a history of a high percentage of low birth weight (43604, 43605, 43606, 43607, 43608, 43610, 43615, 43620)

Sample Checklists

The following are examples of initial checklists that include “trigger questions”—i.e., questions where a “yes” answer indicates that a Pathway should be assigned to the client. The checklist, which is completed with the enrollment form, is critical, since many clients will not volunteer important information (e.g., about spousal abuse, losing health insurance coverage) unless specifically asked.

CHW Pregnancy Checklist

Yes	No	General Health	Q#
		I would like to start off by asking if you have any questions or concerns that you would like to tell me about.	
		Do you need health insurance for yourself? If yes, determine Healthy Start/HF eligibility. 1-Client eligible (Initiate Healthy Start/HF Pathway), 2-Client not eligible.	
		Do you need prenatal care? Consider Referral Pathway.	
		Do you need a primary care doctor? If yes, which services do you usually use? 1-ER, 2-Urgent care, 3-Walk-in clinic. Consider Medical Referral Pathway.	
Yes	No	Home and Transportation	Q#
		Do you need help with transportation to health and social service appointments? If yes, how do you get to appointments now? 1-Bus, 2-Own car, 3-Relative’s car, 4-Other.	
		Do you have problems with providing: 1-Housing (1A - About to be evicted, 1B - Homeless), 2-Food, 3-Clothing, 4-Utilities. Consider Referral Pathway(s).	
Yes	No	Nutrition, Safety, and Habits	Q#
		Do you plan to breastfeed?	
		Are you currently taking prenatal vitamins?	
		Do you smoke cigarettes? 1-Less than half pack per day, 2-Half to whole pack per day, 3-One-two packs per day, 4-More than two packs per day, 5-Interested in decreasing or quitting. Consider Smoking Cessation Pathway. Please indicate any level of reduction in smoking during pregnancy.	
Yes	No	Employment, Training, Financial Support	Q#
		Are you looking for a job? 1-Need help finding a job, 2-Need help with resume, 3-Need training before getting job, 4-Felony record.	
		Are you currently sanctioned? 1-By DJFS, 2-The courts.	
		Do you have enough money each month to pay all of your bills? Consider Money Management Pathway.	

Q# = Qualifier number for question.

Yes	No	Emotional Health and Support	Q#
		Do you feel like you are under stress?	
Yes	No	Current Medical Issues	Q#
		Are you currently being treated for any of the following conditions? 1-Infections, 2-Asthma, 3-Chronic Medical Conditions, 4-Mental Health Problems. Write in type of illness and details.	
		Are you taking any medicines? 1-Prescribed by a doctor, 2-Over-the-counter medications, 3-Herbal or alternative medicines? List all medications currently taking.	
Yes	No	Current Pregnancy	Q#
		Have you been told by a health care provider that you were in preterm labor during this pregnancy? 1-On medication, 2-On bed rest, 3-Hospitalized.	
		Have you had any infections during this pregnancy? 1-Bladder, 2-Kidney, 3-Sexually transmitted disease, 4-Vaginal, 5-Respiratory, 6-Other (document in chart).	
		Did your health care provider tell you that you have any medical problems with this pregnancy? 1-Diabetes/gestational diabetes, 2-More than one baby, 3-High blood pressure/preeclampsia, 4-Anemia, 5-Inadequate weight gain, 6-Problems with the placenta, 7-Leaking amniotic fluid, 8-Rh negative blood type, 9-Other.	
Yes	No	Signs of Illness	Q#
		Have you had any: 1-Contractions, tightening, or pain in the abdomen, 2-Back/flank pain, 3-Spotting/bleeding, 4-Swelling of hand or face (NOT ankles), 5-Severe headaches, 6-blurred vision. Immediate notification of supervisor for any Yes answers.	
		Have you had any: 1-Breathing problems, 2-Pain with urination, 3-Fever or chills, 4-Vaginal discharge, 5-Vomiting, 6-Diarrhea, 7-Excessive tiredness, 8-Other. Immediate notification of supervisor for any Yes answers.	

Q# = Qualifier number for question.

CHW Postpartum Checklist

Yes	No	General Health	Q#
		I would like to start off by asking if you have any questions or concerns that you would like to tell me about.	
		Do you need health insurance for yourself? If yes, determine Healthy Start/HF eligibility. 1-Client eligible (Initiate Healthy Start/HF Pathway), 2-Client not eligible.	
		Do you need a primary care doctor? If yes, which services do you usually use? 1-ER, 2-Urgent care, 3-Walk-in clinic. Consider Medical Referral Pathway.	
Yes	No	Home and Transportation	Q#
		Do you need help with transportation to health and social service appointments? If yes, how do you get to appointments now? 1-Bus, 2-Own car, 3-Relative's car, 4-Other.	
		Do you have problems with providing: 1-Housing (1A - About to be evicted, 1B - Homeless), 2-Food, 3-Clothing, 4-Utilities. Consider Referral Pathway(s).	
Yes	No	Nutrition, Safety, and Habits	Q#
		Are you breastfeeding? 1-Breastfeeding only, 2-Supplementing with formula, 3-Having difficulty with breastfeeding, 4-Breastfeeding going well.	
		Do you need help childproofing your home?	
		Are you taking vitamins?	
		Do you smoke cigarettes? 1-Less than half pack per day, 2-Half to whole pack per day, 3-One-two packs per day, 4-More than two packs per day, 5-Interested in decreasing or quitting. Consider Smoking Cessation Pathway.	
Yes	No	Employment, Training, Financial Support	Q#
		Are you looking for a job? 1-Need help finding a job, 2-Need help with resume, 3-Need training before getting job, 4-Felony record.	
		Are you currently sanctioned? 1-By DJFS, 2-The courts.	
		Do you have enough money each month to pay all of your bills? Consider Money Management Pathway.	

Q# = Qualifier number for question.

Yes	No	Emotional Health and Support	Q#
		Do you feel like you are under stress?	
Yes	No	Current Medical Issues	Q#
		Are you currently being treated for any of the following conditions? 1-Infections, 2-Asthma, 3-Chronic Medical Conditions, 4-Mental Health Problems. Write in type of illness and details.	
		Are you taking any medicines? 1-Prescribed by a doctor, 2-Over-the-counter medications, 3-Herbal or alternative medicines? List all medications currently taking.	
Yes	No	Reproductive Health	Q#
		Are you sexually active now? 1-One partner, 2-Multiple sex partners.	
		Are you currently using a family planning method? 1-Abstinence, 2-Natural FP, 3-Condoms, 4-Diaphragm, 5-Shot, 6-Pill, 7-IUD, 8-Sterilization, 9-Other.	
		Are you having problems making it to your 6-week checkup? 1-If yes, initiate Referral Pathway.	
Yes	No	Signs of Illness	Q#
		Have you had any: 1-Breathing problems, 2-Pain with urination, 3-Fever or chills, 4-Vaginal discharge, 5-Vomiting, 6-Diarrhea, 7-Excessive tiredness, 8-Abdominal pain, 9-Depression, 10-Bleeding longer than 4 weeks? Immediate notification of supervisor for any Yes answers.	

Q# = Qualifier number for question.

CHW Pediatric, Birth-1 Year

Yes	No	General Health	Q#
		I would like to start off by asking if you have any questions or concerns that you would like to tell me about your baby.	
		Do you need a primary care doctor for your baby? If yes, which services do you most commonly use? 1-ER, 2-Urgent care, 3-Walk-in clinic. Consider Medical Referral Pathway.	
		Do you need health insurance for your child? If yes, determine Healthy Start/HF eligibility. 1-Client eligible (Initiate Healthy Start/HF Pathway), 2-Client not eligible.	
Yes	No	Home and Transportation	Q#
		Do you need help with transportation for child to health and social service appointments? If yes, how do you get to appointments now? 1-Bus, 2-Own car, 3-Relative's car, 4-Other.	
		Do you have problems with providing any of the following for your child: 1-Housing (1A - About to be evicted, 1B - Homeless), 2-Food, 3-Clothing, 4-Utilities, 5-Furniture, 6-Car Seat, 7-Crib. Consider Referral Pathway(s).	
Yes	No	Nutrition, Safety, and Habits	Q#
		Is your baby having any problems with feeding? If yes, document in chart.	
		Is your baby breastfeeding?	
		Do you need a working smoke detector? If yes, 1-smoke detector provided and education given.	
		Does baby sleep on his/her stomach? If yes, give detailed information about importance of putting baby on his/her back to sleep.	
		Do you need child care?	
		Did you go over age-appropriate safety information?	
Yes	No	Development	Q#
		Did you discuss brain development and the importance of talking to, reading to, holding, and interacting with the baby?	
		Did you discuss the importance of strengths-based parenting (encouraging your child)?	
		Has your baby been diagnosed with any developmental delays or problems? If yes, 1-screen completed and normal, 2-screen completed and abnormal. Consider Developmental Referral Pathway.	

Yes	No	Disease Prevention	Q#
		Does anyone in your home smoke? 1-Client, 2-Partner/Spouse, 3-Other. Initiate Smoking Cessation Pathway and discuss effects of secondhand smoke.	
		Is your baby missing any immunizations? Consider Immunization Pathway.	
Yes	No	Current Medical Issues	Q#
		Are you giving your baby any medicines? 1-Prescribed by a doctor, 2-Over-the-counter medications, 3-Herbal or alternative medicines, 4-Prescribed by a doctor but cannot afford.	
		Is your baby currently being treated for: 1-Infections, 2-Asthma, 3-Chronic Medical Conditions. Write in type of illness and details.	
Yes	No	Signs of Illness	Q#
		Is your baby having: 1-Difficulty breathing, 2-Vomiting, 3-Diarrhea, 4-Feeding problems, 5-Fever or chills, 6-Jerking of arms or legs, 7-Change in skin color (blue lips, yellow skin), 8-Other. Consider Sick Child Pathway. Immediate notification of supervisor for any Yes answers.	

Q# = Qualifier number for question.

CHW Adult Male

Yes	No	General Health	Q#
		I would like to start off by asking if you have any questions or concerns that you would like to tell me about.	
		Do you need a primary care doctor? If yes, which services do you most commonly use? 1-ER, 2-Urgent care, 3-Walk-in clinic. Consider Medical Referral Pathway.	
		Do you need health insurance? If yes, determine Healthy Start/Healthy Family eligibility. 1-Client eligible (Initiate Healthy Start/HF Pathway), 2-Client not eligible.	
Yes	No	Home and Transportation	Q#
		Do you need help with transportation to health and social service appointments? If yes, how do you get to appointments now? 1-Bus, 2-Own car, 3-Relative's car, 4-Other.	
		Do you have problems with providing: 1-Housing (1A - About to be evicted, 1B - Homeless), 2-Food, 3-Clothing, 4-Utilities. Consider Referral Pathway(s).	
Yes	No	Nutrition, Safety, and Habits	Q#
		Do you smoke cigarettes? 1-Less than half pack per day, 2-Half to whole pack per day, 3-One-two packs per day, 4-More than two packs per day, 5-Interested in decreasing or quitting. Consider Smoking Cessation Pathway.	
Yes	No	Employment, Training, Financial Support	Q#
		Are you looking for a job? 1-Need help finding a job, 2-Need help with resume, 3-Need training before getting job, 4-Felony record.	
		Are you currently sanctioned? 1-By DJFS, 2-The courts.	
		Do you have enough money each month to pay all of your bills? Consider Money Management Pathway.	
Yes	No	Emotional Health and Support	Q#
		Do you feel like you are under stress?	
Yes	No	Current Medical History	Q#
		Are you currently being treated for any of the following conditions? 1-Infections, 2-Asthma, 3-High Blood Pressure, 4-Other Chronic Medical Conditions, 5-Mental Health Problems. Write in type of illness and details.	
		Are you taking any medicines? 1-Prescribed by a doctor, 2-Over-the-counter medications, 3-Herbal or alternative medicines? List all medications currently taking.	
Yes	No	Reproductive Health	Q#
		Are you sexually active now? 1-One partner, 2-Multiple sex partners.	
		Are you currently using a family planning method? 1-Abstinence, 2-Natural FP, 3-Condoms, 4-Diaphragm, 5-Shot, 6-Pill, 7-IUD, 8-Sterilization, 9-Other.	

Q# = Qualifier number for question.

Glossary of Abbreviations Used in This Report

CCA - Care coordination agency

CCC - Community care coordinator

CCCLN - Community Care Coordination Learning Network

CHAP - Community Health Access Project (Mansfield, OH)

CHIP - Community Health Improvement Plan (Saginaw, MI)

CHW - Community health worker

CMS - Centers for Medicare & Medicaid Services

ED - Emergency department

FTE - Full-time equivalent

HCAN - Health Care Access Now (Cincinnati, OH)

HIPAA - Health Insurance Portability and Accountability Act

HRSA - Health Resources and Services Administration

LBW - Low birth weight

MAPP - Mobilizing for Action through Planning and Partnerships (Saginaw, MI)

MCHP - Muskegon Community Health Project (Muskegon, MI)

NEON - Northeast Oregon Network

PCHCP- Pathways Community HUB Certification Program

QI - Quality improvement

RUAH - Rural and Urban Access to Health (Indianapolis, IN)

RVU - Relative value unit

SIM - State innovation model

Other Resources

- Pathways: Building a Community Outcome Production Model. Mansfield, OH: Community Health Access Project; 2010.
- 20 Predictors of a Successful Project. In Virginia Health Care Foundation Grant Guidelines, pp. 14-15. http://www.vhcf.org/wp-content/uploads/2010/09/Grant-Guidelines-12_2_12.pdf
- Torres GW, Margolin FS. The Collaboration Primer: Proven Strategies, Considerations, and Tools to Get You Started. Health Research and Educational Trust, Chicago, Illinois. This guide provides practical advice on how to get started on a collaborative project; it includes a checklist of key areas required for effective collaboration, along with a detailed list of questions within each area to gauge a community's readiness to work together. <http://www.hret.org/upload/resources/collaboration-primer.pdf>
- Oregon Health Policy Commission. Community-Created Health Care Solutions in Oregon. Prepared by the Local Delivery Systems Model Workgroup and Marian Blankenship. This report reviews the efforts of various communities within Oregon to develop programs to serve at-risk populations and includes a discussion of common lessons learned across sites. <http://www.oregon.gov/oha/OHPR/HPC/docs/2006/surveyofcommunitycreatedhealthcaresolutionsinoregon06.pdf>
- Dees JG. The Meaning of "Social Entrepreneurship." Funded by the Kauffman Foundation. Available at: <https://entrepreneurship.duke.edu/news-item/the-meaning-of-social-entrepreneurship/>





AHRQ Publication No. 15(16)-0070-EF
January 2016