

Charles D. Baker
Governor

Karyn Polito
Lieutenant Governor



Marylou Sudders
Secretary

Monica Bharel, MD, MPH
Commissioner

Achieving the Triple Aim: Success with Community Health Workers

May, 2015





ACHIEVING THE TRIPLE AIM

Success with Community Health Workers

March 2015

For decades, community health workers (CHWs) have played a critical role in public health efforts in Massachusetts to improve population health and to ensure that all residents of the state receive quality services. The Massachusetts Department of Public Health (DPH) has long been a national leader in supporting the CHW workforce through programmatic and policy initiatives. Massachusetts' comprehensive health care reform, as well as national health reform (the Patient Protection and Affordable Care Act), explicitly created opportunities to employ CHWs as part of achieving what has become known as the Triple Aim. DPH is committed to assuring that CHWs are integrated into primary care and related health care teams.

To that end, DPH is working to ensure a quality CHW workforce through imminent state certification of CHWs and approval of CHW training programs, as well as promoting sustainable financing of CHWs as part of healthcare teams. This White Paper will help to inform healthcare provider and payer decision-makers about the growing evidence of CHWs' multiple contributions to achieving the cost, quality and health outcome goals of health reform, while reducing disparities in health care and outcomes throughout the Commonwealth and the nation.

Community Health Workers' Critical Role In Practice Transformation

Health reform offers new opportunities for primary care practices to transform their staffing and delivery models to provide higher quality and more efficient services. CHWs, as part of integrated care teams, contribute to cost-effective services that advance the Triple Aim for which providers are accountable: improved health, improved care, and reduced costs. CHWs also help reduce health disparities, a goal of health reform that is closely linked to achieving the more commonly highlighted dimensions of the Triple Aim.



The Triple Aim+

Evidence from research and the experience of numerous provider organizations in Massachusetts and other states demonstrate that CHWs add value to multidisciplinary care teams in the following ways:

1. Reduce costs

- Save costs through fewer emergency department (ED) visits and lower hospitalization and readmission rates for complex patients

2. Improve health

- **Help patients engage** more fully in their care and **adhere to care plans**
- Help patients **control chronic conditions**: increase asthma-free days, lower blood sugar and blood pressure levels

3. Improve quality of care

- Improve health and care utilization, reflected in performance measures and standards promoted by the National Committee on Quality Assurance (NCQA), such as Healthcare Effectiveness Data and Information Set (HEDIS), and other **quality measures**¹
- Improve **retention in care** through outreach to reduce no-shows and assistance with insurance enrollment and retention

- Improve **patient satisfaction** through better understanding of and help with addressing their social needs

4. Reduce health disparities

- Reduce health disparities and related costs by strengthening communication with underserved patient populations and by diversifying the healthcare workforce

The value of CHWs in transforming health care was acknowledged in Massachusetts' healthcare reform laws in 2006 and in 2012, as well as in the national Patient Protection and Affordable Care Act (ACA) of 2010. The Institute of Medicine's (IOM) report on health disparities recommends integrating CHWs into multidisciplinary care teams as "a strategy for improving care delivery, implementing secondary prevention strategies, and enhancing risk reduction."²

Who Are Community Health Workers and What Do They Do?

Community health workers are trained frontline staff who bridge the communication and cultural gaps common between low-income, underserved, often high-cost patients and clinical staff. They also help to address the social, non-clinical challenges affecting patients' health and care.

- CHWs are hired primarily for their special understanding of and ability to relate to the populations and communities they serve, through shared socio-economic and cultural backgrounds and experiences.³
- CHWs establish peer relationships with patients that encourage trust and openness.
- CHWs are trained to help patients deal with social, economic, and other barriers to accessing and benefiting from services.
- CHWs provide services through outreach, education, advocacy, and social support. Their services increase access to preventive care by connecting people to medical homes and teaching them how to prevent, reduce risks for, and manage chronic diseases. CHWs support patients to make healthier lifestyle choices, help patients access needed community services, keep medical appointments, and increase adherence to treatment plans.

How Are Community Health Workers Trained and Credentialed?

Massachusetts is a leader in advancing the skills and recognition of the CHW workforce.

- Well-established CHW training centers exist in four regions of the state and there is an emerging center in a fifth region.
- A Board of Certification of Community Health Workers at the Massachusetts Department of Public Health (DPH) will begin **approving training centers and certifying CHWs in 2015**.
- The Board, appointed by the Governor, developed ten detailed core competencies which define the field. The core competencies and other information related to certification can be found at:
<http://www.mass.gov/eohhs/gov/departments/dph/programs/hcq/dhpl/community-health-workers/>

How can CHWs help reduce health disparities and related costs?

Health disparities in the United States represent significant human and social costs for the communities that suffer from poor access to health care and from a lack of services delivered by those who literally and figuratively "speak their language." **There is also a high financial cost to healthcare systems as a result of such disparities in access and care.**

- A disproportionate number of people with poorly controlled chronic conditions, such as diabetes, hypertension, and asthma, are low-income ethnic or racial minorities.⁴
- A high proportion of those who do not receive timely preventive screenings and treatment for cancer are also from these communities.⁵
- CHWs play a key role in reaching the vulnerable and underserved. In Massachusetts over half of CHWs are themselves ethnic or racial minorities (23.7% African American, 20.6% Hispanic, 4.9% Asian or Pacific Islander, 0.2% Native American 1.4% one or more races). Fifty-eight percent are bi-lingual or multi-lingual.⁶

The Evidence

I. CHWs REDUCE COSTS

Evidence demonstrates that CHW interventions targeting patients with high resource utilization result in savings to the medical system. In 2013, the Institute for Clinical and Economic Review (ICER) prepared a report for the New England Comparative Effectiveness Advisory Council (CEPAC) summarizing results of the best quality studies, primarily randomized controlled trials, of interventions that include CHWs.⁷ The majority of the fourteen cost studies reviewed showed a **net cost savings** (i.e., “cost offsets from reduced healthcare utilization were greater than the marginal costs of the intervention”) over six months to two years follow-up. Most economic analyses took the perspective of a Patient Centered Medical Home (PCMH) provider who would be responsible for expenditures for services and for financial risks incurred.⁸

- Cost reductions were generally due to a reduction in urgent care use, including hospitalization.
- Leaders at most of the 32 Massachusetts community health centers employing CHWs that responded to a 2014 survey indicated that **CHWs’ greatest value is in supporting high-risk, high-cost patients.**⁹

EXAMPLE 1: Molina Healthcare, Inc.

Multi-state managed care organization (MCO) providing CHW outreach, education, advocacy, and referral services for high-risk patients. Study services were offered in New Mexico.

- **Results:** ED use, hospitalization, use of narcotic and other prescriptions showed a statistically significant decline among 448 “high-risk” (those with three or more ED visits in three months, with chronic conditions and/or substance abuse) Medicaid managed care members receiving CHW services compared to a matched comparison group of members.¹⁰
- **Healthcare setting:** Six CHWs were located in three healthcare sites, including one Federally Qualified Health Center (FQHC), and overseen by a nurse and a care coordinator at the MCO.

- **CHW roles:** Home visits to assess needs, appointment support and reminders, health literacy education, advocacy, and assistance to find medical homes, as well as to use primary care and other services.
- **Cost analysis:** Authors calculated a net cost savings for the MCO of \$1,522,722 as a result of the CHW program: 1) The cost of the program for 25 months for 448 patients was \$521,343 (salaries, benefits for management employees plus a per-member per-month payment to providers for services of six CHWs); 2) Total cost reduction for all patients receiving CHW services (comparing Medicaid claims pre- to post-intervention) was \$2,044,065. The utilization rates and costs for the comparison group of an equal number of high-risk, high-cost patients also dropped but to a significantly lesser degree.
- **Source of program funding:** Private foundations supported the research and startup phase until contract revenues with Molina Healthcare began to pay for the program. **As a result of cost savings, improved health outcomes, and positive member feedback, Molina Healthcare expanded the program statewide and to all of the 11 states in which they operate.** Other MCOs in New Mexico also adopted the model.

The Community Preventive Services Task Force, an independent panel of public health and prevention experts appointed by the head of the Centers for Disease Control and Prevention (CDC), recommends “the use of home-based multi-trigger, multi-component interventions with an environmental focus for children and adolescents with asthma, based on strong evidence of effectiveness in improving overall quality of life and productivity.” The Task Force economic review of studies of such interventions also found they represent good value for the money invested, in part based on savings from averted costs of asthma care.¹¹

A number of strong studies have demonstrated improved health and cost outcomes as a result of home-based pediatric asthma programs employing trained CHWs as home visitors, including one by the Asthma Program at the Massachusetts DPH.¹²

One systematic review of seven such programs studied in randomized controlled trials found consistent decreases in asthma symptoms, daytime activity limitations, and emergency and urgent care use.¹³

EXAMPLE 2: Boston Children's Hospital Pediatric Asthma Community-Based Case Management Program

Private urban hospital enhanced asthma case management with nurse-supervised CHW home visits for low-income patients, primarily African American and Latino children on Medicaid. Children were selected for the enhanced care program based on recent hospitalization, one or more ED visits, or courses of oral steroids. The program was initially piloted and evaluated in four Boston ZIP codes (intervention group). Cost analyses compared asthma hospitalization and ED visit costs for children from the intervention with children from four demographically similar Boston ZIP codes (comparison group).

- **Results:** Two hundred and eighty-three children were served in the initial study. After twelve months there was a significant decrease in asthma ED visits (68%) and hospitalizations (84.8%), and significant decreases in activity limitations, missed school days, and parental missed work time.¹⁴
- **Healthcare setting:** Private urban hospital, with nurse case manager supervising CHW home visitors who were contracted through a community-based organization in one of the targeted ZIP codes. The program has since been institutionalized, with CHWs located at the hospital as employees, for closer supervision, coordination, and communication.
- **CHW roles:** CHW home visits provided asthma education, assessment and coaching around medication adherence and environmental triggers, trigger mitigation resources (e.g., mattress encasements, low-emission vacuums), and referrals to community resources. Supervising nurses coordinated care with primary care, specialty, and community services.
- **Cost analysis:** A subsequent cost-benefit analysis was used to determine an adjusted return on investment (adj. ROI) for a subset

of 102 patients enrolled in the program in the calendar year 2006, after controlling for changes in a comparable population without the intervention.¹⁵ The comparison group was selected using similar criteria to those used in the intervention sample and consisted of children with asthma from a neighboring community. There was a significant reduction in hospital costs compared to those in the comparison hospital. The program cost of \$254,871 was offset by an estimated \$349,790 in savings from decreased ED visits and admissions. The adj. ROI, calculated by subtracting comparison from intervention group costs, was 1.33.

- **Source of program funding:** Currently the program is funded by government grants, the hospital's Office of Community Health (community benefits) and private donations. **Results were so impressive that they led Massachusetts legislature to establish a MassHealth bundled payment pilot for high-risk pediatric asthma patients.** This pilot is set to begin in 2015 at several Massachusetts pediatric medical homes, including Boston Children's Hospital, which will receive a per-member-per-month rate to implement an enhanced pediatric asthma intervention that includes CHW home visits.

II. CHWs IMPROVE HEALTH

The CDC has highlighted the effectiveness of CHWs in improving chronic disease health outcomes, and has therefore promoted their integration into care teams.¹⁶ The IOM¹⁷ and the American Association of Diabetes Educators¹⁸ have also recommended engagement of CHWs as part of multidisciplinary teams. By helping patients remove barriers to screening, treatment, care, and self-management CHWs have been found to cost-effectively prevent and manage chronic conditions such as diabetes, asthma, hypertension, and cardiovascular disease.

Leadership at 32 community health centers in Massachusetts responding to a recent survey noted that promotion of chronic disease self-management is among the most common and important roles that CHWs play in their organizations.¹⁹

“Why is a nurse/CHW team so effective? One of our physicians told me there is a gap in care many providers may not be aware of. They develop a great plan that the patient is often not able to follow through on. The CHW builds trust, helps the patient understand that plan, and links them to the resources they need—but they also help patients feel more confident in their ability so they can take care of themselves and do the self-management they need to do.”

Mark Lubberts, M.S.N, R.N.
Director of Community Health Education,
Spectrum Health, Grand Rapids, MI

CHWs Chronic Disease Care and Self-Management

Six of the eight rigorous quality studies reviewed by CEPAC that looked at CHWs’ impact on diabetes management revealed significant positive changes in such measures as HbA1c and improved self-reported dietary changes. Glycemic control, as measured by HbA1c testing, is a performance measure commonly used by healthcare providers and health plans. CHWs’ roles included education and support through home visits and/or group sessions.²⁰ Other research cited by the CDC demonstrated the value of CHWs’ ability to improve risk behaviors and health status measures related to cardiovascular disease.

EXAMPLE: Nurse Practitioner (NP) and CHW Teams Working with High-Risk Patients

Two health centers in Baltimore Medical Systems had NP/CHW teams manage high risk patients with cardiovascular disease, type 2 diabetes, hypercholesterolemia, or hypertension and levels of low-density lipoprotein cholesterol, blood pressure, or HbA1c that exceeded goals established by national guidelines.²¹

- **Results:** After one year, compared with enhanced usual care control patients, patients in the NP/CHW group had statistically significant greater 12-month improvement in total cholesterol, LDL cholesterol, triglycerides, systolic blood pressure, diastolic blood pressure, HbA1c, and perceptions of the quality of their chronic illness care. All of these constitute **NCQA/HEDIS measures** of improved quality of care.

- **CHW roles:** CHWs reinforced NP instructions on lifestyle changes and medications and helped patients design strategies for adherence and behavior change.
- **Cost analysis:** The study calculated incremental **cost effectiveness ratios:** \$157 for every one percent drop in systolic BP, and \$190 for every one percent drop in diastolic BP; \$149 per one percent drop in HbA1c, and \$40 per one percent drop in LDL-C.
- **Source of program funding:** Intervention research was funded by the National Heart, Lung, and Blood Institute.

III. CHWs IMPROVE QUALITY OF CARE

The Massachusetts Health Policy Commission’s standards for PCMH certification emphasize the centrality of care coordination and integrated care management. **Quality measures include proactive management of preventive and chronic disease care and support for self-care.** High quality patient-centered care includes:

1. Open communication between patients and providers
2. Culturally competent services
3. Support for chronic disease self-management
4. High levels of patient satisfaction with care and services

CHWs are selected for their strength in these areas and are trained in core competencies and roles which enhance these abilities. As a result they have been shown to improve numerous measures which are required of PCMHs, and in MassHealth programs such as the Primary Care Payment Reform Initiative (PCPRI). Such measures are similar to or the same as NCQA-promoted measures, including HEDIS and other performance improvement measures used by most health plans and many providers. Under global and other alternative payment systems such performance measures will affect financial payments from health payers to provider systems.

In each of the examples from healthcare provider organizations below, the improvements in health status and/or utilization represent measures by which the quality of healthcare providers and health plans are increasingly judged.

CHWs Increase the Capacity of Primary Care Teams to Provide Quality Care

CHWs help to expand the number of patients that clinical staff can care for effectively, through their role in education, care coordination, and engaging patients in their care. Their contribution to care teams allows clinicians to work “at the top of their license” by providing educational and supportive services that otherwise fall to physicians or nurses, or go unattended.

Selected Models for Integrating CHWs into Healthcare Teams

There are multiple ways to include CHWs in healthcare teams. Here are three common models. Two are described in examples provided in this document.

1. CHW services, independent or paired with those of a nurse, are contracted by the primary care entity from a separate organization. Supervision is provided by the contracting care entity and usually additionally at the organization where they are based;
2. CHWs are supervised at and conduct some activities in healthcare settings but spend much of their time with patients in community settings; or
3. CHWs are staff at the healthcare facility, where they are supervised, and their services are provided primarily at that facility.

EXAMPLE: CHWs in Care Teams and Community Settings Working with Diabetes Patients

Holyoke Health Center in Massachusetts integrated CHWs into primary care teams through nurse supervision and team meetings.²²

- CHWs reduced the percentage of diabetes patients not seen for a year from almost thirty percent to six percent.
- After 20.6 months' participation, patients saw clinically significant drops in HbA1C levels.

“The physician’s patient volume will be enhanced and can grow. The population we deal with has lifestyle issues, challenges, socio-economic challenges, family pressures—someone has to be able to keep them focused on the piece their provider is focused on. The work the community health workers do can’t be left until the next time the doctor sees the patient. CHWs are extending, enhancing the reach that providers have—and as a result we are taking care of more people more effectively.”



Jay Breines, CEO, Holyoke Health Center
Holyoke, Massachusetts

CHWs Contribute to NCQA/HEDIS Quality Improvement Measures for Screenings and Chronic Disease Care

- Multiple prospective controlled studies involving CHWs resulted in statistically significant increases in breast cancer screenings.²³
- One study, led by an urban teaching hospital collaborating with six primary care practices owned by the hospital, showed:
 - CHWs assigned to practices reached out to patients by phone, mail, or home visits; provided support and education; met women at practices or imaging centers; and assessed needs and helped with barriers including Medicaid coverage, financial assistance, and transportation.
 - Those receiving CHW services were **nearly three times as likely to receive mammograms.**²⁴
- Six quality studies showed significant positive effects of CHW interventions on rates of **cervical cancer screening.**²⁵
- The Edward M. Kennedy (EMK) Community Health Center in Worcester, MA, engaged CHWs, resulting in a significant increase in the percentage of women who are **up-to-date in their Pap smears.**²⁶
- CHWs significantly **improved immunization status** among Dominican children in New York City (75% up-to-date) compared to the usual care controls (50%). The CHWs provided education, support, and home visits.²⁷

- In the EMK Community Health Center in Worcester, CHWs targeted children from families who arrived in the U.S. as refugees (primarily from Iraq, Bhutan, and Burma), who had significantly lower rates of up-to-date well-child visits compared to other children. This resulted in an **increase in well-child visits** of 22 percent for children from Bhutan and Burma, and 20 percent for Iraqi children, eliminating the marked disparities in comparison to other children.²⁸

“Our program was focused on diabetic care—we saw CHWs really help us with patient engagement—reduction in glucose levels, lowered HbA1c... I did not expect to see any impact in the three months of the pilot, and we saw tremendous impact with this care model. Unbelievable! Because these were patients who physicians have never been able to help to control their diabetes. Now we have the tools. The community health worker.”

Dr. Robert McGowen
Regional Director of Primary Care
Southcoast Healthcare System, MA

Community Health Workers Can Help to Reduce Hospital Readmissions

Avoiding hospital readmissions is one reflection of successful care coordination within a healthcare system. Many see readmission rates as evidence of gaps in discharge planning and in linkages to follow-up care. Medicare has begun to reduce payments for some types of readmissions, which can expose hospitals and Accountable Care Organizations to financial penalties if their readmission rates are judged to be too high.²⁹ MassHealth also applies a reduction to inpatient payment rates for hospitals with Potentially Preventable Readmissions that are higher than expected.

EXAMPLE: CHWs and Posthospital Transitions

At two academically-affiliated hospitals in Philadelphia, a randomized controlled trial employed two CHWs to **work closely with the hospital-based care team to improve the care transition on release** of high-risk Medicaid patients with multiple conditions.³⁰

- **Results:** The CHW patients were significantly more likely to obtain timely post-hospital primary care; report high quality discharge communication; and to show greater improvements in mental health and patient activation. Similar proportions of patients in both study arms received at least one 30-day readmission, but CHW patients were less likely to receive multiple 30-day readmissions. Among the 63 readmitted patients, recurrent readmissions were reduced from 40 percent to 15.2 percent among the patients served by CHWs.
- **CHW Roles:** Worked with patients in hospital to prepare action plans for patients’ stated goals for recovery. CHWs provided support for patients via telephone, text messages, or visits for a minimum of two weeks. CHWs served as liaison with patients, hospital clinical providers, and in some cases with primary care providers. They were supervised by a masters-level social worker in the hospital.
- **Source of program funding:** The study was funded by a variety of University of Pennsylvania health improvement, Department of Medicine and other private grants.

Conclusion

This document highlights numerous ways healthcare providers and payer organizations can benefit from integrating CHWs into their teams to improve quality and outcomes while reducing costs. Guidance exists to effectively make this transition. If you are interested in integrating CHWs into your practice(s), the Resources section of this document provides information for three types of resources to guide you in taking the next step. These resources are:

1. Published CHW program best practice reports;
2. Examples and contact information of healthcare organizations that have undertaken successful pilot programs, with cost savings or ROI calculations; and
3. List of experts who can offer information and assistance.

In addition, the Massachusetts DPH will provide a “how to” toolkit and technical assistance to primary care practices interested in integrating CHWs into teams.

Healthcare provider organizations not yet ready to hire or contract with CHWs due to the challenges of covering them in a fee-for-service payment environment can prepare for opportunities in global and other alternative payment systems. **A recent Center for Medicare and Medicaid (CMS) ruling (Jan. 2014) states that non-licensed health providers (such as CHWs) can be reimbursed for preventive services which are recommended by a licensed clinician.**

Decisions about implementing changes made possible by this ruling depend on state Medicaid offices through their state plan amendment process. This ruling is another indicator of how opportunities for transforming practices are increasingly facilitated by changes in payment rules and systems.

Healthcare organizations are taking a range of approaches to assess the financial viability of integrating CHWs into innovative team practices. The following include strategies utilized by providers whose successes have been cited as examples in this document. These offer additional ideas for next steps.

1. Review the health data for your membership or patient populations to **look for patterns of poor health or common conditions that can lead to costly ER use and/or hospitalization.**
2. Review your data on preventable hospitalizations, including readmissions, to **assess where care utilization can be improved;**
3. Target a patient population for whom extra support for improving chronic conditions and/or care utilization seems warranted and **plan a program or a pilot to track effects of a CHW addition to the care team** on costs and quality indicators;
4. **Funding** can be acquired through public or private grants, in combination with your health system’s practice transformation funds, or, when appropriate and in collaboration with community partners, using your system’s Community Benefits resources.

The experience of a large managed care company such as Molina Healthcare, Inc., cited above, is illustrative. Molina Healthcare implemented this program with some initial grant funding, but largely with their own funds, in response to underuse of primary care by members who instead repeatedly sought care for non-urgent, non-emergency conditions in hospital EDs. The program led to significant net cost savings and increased patient satisfaction. As a result, the plan institutionalized and expanded the CHW service model.

The Massachusetts DPH believes that integrating CHWs into primary care and other multidisciplinary teams will improve health outcomes and reduce unnecessary and costly health care use. Community health workers also play an important role in reducing disparities in health care and in health status, a goal which is an additional aim of health reform, closely related to the Triple Aim. To that end, DPH is committed to supporting the widespread incorporation of this workforce into health care.

Acknowledgments: *This document was funded by the Massachusetts Department of Public Health produced by consultants and staff at John Snow, Inc. (JSI), in collaboration through a contract from the DPH Office of Integrated Policy, Planning and Management and Office of Community Health Workers, in the Division of Prevention and Wellness. Terry Mason, PhD, consultant led the research and writing of the paper, with assistance from Terry Greene and Kiely Houston of JSI in design and editing. The Community and Healthcare Linkages Community of Practice and the Clinical Community of Practice provided suggestions and feedback on this document. These Communities of Practice are part of the Massachusetts Partnership for Health Promotion and Chronic Disease Prevention.*

This document was supported by Grant Award #5U58DP004813, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

Resources

1. Published reports

- The Institute for Clinical and Economic Review (ICER) offers Action Guides prepared by leading policy experts to help provider organizations, payers, and policy makers interpret existing evidence and apply recommendations for integrating CHWs into healthcare systems:
 - New England Comparative Effectiveness Action Guide for Community Health Workers (CHWs): Guidance for Organizations Working with CHWs. September, 2013. http://cepac.icer-review.org/wp-content/uploads/2011/04/Action-Guide-for-Employers_09_05_13.pdf
 - New England Comparative Effectiveness Action Guide for Community Health Workers (CHWs): Guidance for Health Insurers. September, 2013. http://cepac.icer-review.org/wp-content/uploads/2011/04/Action-Guide-for-Health-Insurers_09-05-131.pdf
- Sinai Urban Health Institute. Best Practice Guidelines for Implementing and Evaluating Community Health Worker Programs in Health Care Settings. January 2014. Sinai Health System: Chicago Illinois. http://www.suhichicago.org/files/chw%20bpg_full_final.pdf
- Penn Center for Community Health Workers <http://chw.upenn.edu/tools>
 - Intervention Toolkit, guidelines for hiring, training course and manuals for CHWs, managers, and directors
 - Online platform, CHW training videos, applicant screening tools and a cloud-based workflow management system
- National Center for Chronic Disease and Health Promotion, Addressing Chronic Disease through Community Health Workers: A Policy and Systems Level Approach. A Policy Brief on Community Health Workers. Centers for Disease Control and Prevention: Atlanta, Georgia. http://www.cdc.gov/dhdsp/docs/chw_brief.pdf

2. Health systems with cost study experience

Molina Healthcare, Inc. Dodie Grovet, LISW, Clinical Programs Training Manager
Dodie.Grovet@MolinaHealthCare.com

Spectrum Health, Mark Lubberts MSN, BSN, RN, Director of Community Health Education
Mark.Lubberts@spectrumhealth.org

3. Expert consultants

- Dr. Heidi Behforouz, Associate Professor at Harvard Medical School; Attending Physician at Brigham and Women's Hospital Division of Global Health Equity
hbehforouz@pchi.partners.org

- Project on CHW Policy & Practice, University of Texas Institute for Health Policy, Héctor Balcázar, PhD
Hector.G.Balcazar@uth.tmc.edu

- The Penn Center for Community Health Workers is also a source of consultation. Consultation link:
<http://chw.upenn.edu/consultation>

- Massachusetts Department of Public Health, Office of Community Health Workers.
<http://www.mass.gov/dph/communityhealthworkers>

For technical assistance on CHW integration:
Jessica Aguilera-Steinert
jessica.aguilera-steinert@state.ma.us

All other inquiries: Gail Hirsch, Director, Office of Community Health Workers,
gail.hirsch@state.ma.us

Notes

- 1 HEDIS refers to the Healthcare Effectiveness Data and Information Set. HEDIS data are used by the vast majority of health plans to measure performance on important dimensions of care and service. They are also used by many healthcare providers. <http://www.ncqa.org/HEDISQualityMeasurement/WhatIsHEDIS.aspx>
The National Committee for Quality Assurance (NCQA) is a non-profit organization widely influential in measuring and improving health care quality. NCQA promotes HEDIS and other standards for use in accrediting, ranking and monitoring quality of services in health care. NCQA standards are used to accredit patient-centered medical homes (PCMH). Other common measures include those devised by Centers for Medicare and Medicaid Services (CMS), and the Agency for Healthcare Research and Quality (AHRQ).
- 2 Institute of Medicine. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC: The National Academies Press, 2003.
- 3 Anthony S, Gowler R, Hirsch G, Wilkinson G, eds. *Community Health Workers in Massachusetts: Improving Health Care and Public Health*. Boston: Massachusetts Department of Public Health; 2009. p. 15. Available at: <http://www.mass.gov/eohhs/docs/dph/com-health/com-health-workers/legislature-report.pdf>
- 4 Massachusetts Department of Public Health; Bureau of Health Statistics, Research, and Evaluation; Division of Research and Epidemiology. *Racial and Ethnic Health Disparities by EOHHS Regions in Massachusetts, 2007*. Available at: <http://www.mass.gov/eohhs/docs/dph/research-epi/disparity-report.pdf>
- 5 MDPH, *Racial and Ethnic Health Disparities by EOHHS Regions in Massachusetts, 2007*.
- 6 Ballester, G. *Community Health Workers: Essential to Improving Health in Massachusetts, Findings from the Massachusetts Community Health Worker Survey*. Boston (MA): Massachusetts Department of Public Health. March, 2005.
- 7 Institute for Clinical and Economic Review. *Community Health Workers: A Review of Program Evolution, Evidence of Effectiveness and Value, and Status of Workforce Development in New England*. The New England Comparative Effectiveness Advisory Council. Boston, Massachusetts: July, 2013.
- 8 ICER CEPAC Report, p.24.
- 9 Auerbach, J and L Desrochers, *Community Health Workers in a Post-Health Care Reform Era: The Current Practice in MA Community Health Centers*. Presentation at Unity Conference 2014. May, 2014. Baltimore, Maryland.
- 10 Johnson D et al. Community health workers and Medicaid Managed Care in New Mexico. *J Community Health*. 2011;37:563-575.
- 11 The Guide to Community Preventive Services: The Community Guide. *Asthma Control: Home-Based Multi-Trigger, Multicomponent Environmental Interventions Task Force Finding and Rationale Statement Interventions for Children and Adolescents with Asthma*. Available at <http://www.thecommunityguide.org/asthma/multicomponent.html>
- 12 Smith LA, Sandel MT, Sadof M, Zotter JM. National Institutes of Health. *Reducing Ethnic/Racial Asthma Disparities in Youth (READY) Study – Final Report*. Unpublished final grant report, Massachusetts Department of Public Health, 2012.
- 13 Postma J, Karr C, Kieckhefer, G. Community health workers and environmental interventions for children with asthma: a systematic review. *Journal of Asthma*. September, 2009; 26 (6): 564-576.
- 14 Woods et al. Community asthma initiative: evaluation of a quality improvement program for comprehensive asthma care. *Pediatrics*. 2012 March. 129(3): 465-472.
- 15 Bhaumik U et al. A cost analysis for a community-based case management intervention program for pediatric asthma. *Journal of Asthma*. 2013. 50 (3):310-317.

- 16 National Center for Chronic Disease Prevention and Health Promotion. *Addressing Chronic Disease through Community Health Workers: A Policy and Systems-Level Approach*. A Policy Brief on Community Health Workers. Centers for Disease Control and Prevention. Atlanta, GA.
- 17 Institute of Medicine, *Unequal Treatment*, 2003, pp 17-18.
- 18 American Association of Diabetes Educators. Position statement: diabetes community health workers. *Diabetes Educ* 2003; 29: 818–824.
- 19 Auerbach and Desrochers. Community Health Workers in a Post-Health Care Reform Era. May, 2014.
- 20 ICER CEPAC report p.15.
- 21 Allen J et al. Cost-effectiveness of nurse practitioner/ community health worker care to reduce cardiovascular health disparities. *Journal of Cardiovascular Nursing*. 2013;00(0):00.

Allen JK, Dennison-Himmelfarb CR, Szanton SL, et al. Community Outreach and Cardiovascular Health (COACH) Trial: a randomized, controlled trial of nurse practitioner/community health worker cardiovascular disease risk reduction in urban community health centers. *Circ Cardiovasc Qual Outcomes*. 2011; 4 (6):595-602.
- 22 Liebman J, Heffernan D, Sarvela P. Establishing diabetes self-management in a community health center serving low-income Latinos. *The Diabetes Educator*. June, 2007;33 (Supplement 6): 132s-138s
- 23 ICER CEPAC Report, p. 18.
- 24 Weber BE, Reilly BM. Enhancing mammography use in the inner city: randomized trial of intensive case management. *Arch Intern Med*, 1997;157(20):2345-2349.
- 25 ICER CEPAC Report, p18.
- 26 Personal communication July 28, 2014, Leah Gallivan, Chief Operating Officer Edward M. Kennedy Community Health Center and internal Edward M. Kennedy Community Health Center quality improvement data.
- 27 Barnes K et al. Impact of community volunteers on immunization rates of children younger than 2 years. *Arc Pediatr Adolesc Med*.1999;153 (5):518-524.
- 28 Personal communication Leah Gallivan, COO EMK Community Health Center.
- 29 CMS.gov.Centers for Medicare and Medicaid Services. Readmissions Reduction Program. Available at: <http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program.html>
- 30 Kangovi S et al. Patient-centered community health worker intervention to improve posthospital outcomes: a randomized clinical trial. *JAMA Intern Med* 2014;174(4):535-543.