

Interprofessional Teamwork and Collaboration Between Community Health Workers and Healthcare Teams: An Integrative Review

Catherine M. Franklin¹, Jean M. Bernhardt², Ruth Palan Lopez²,
Ellen R. Long-Middleton³, and Sheila Davis⁴

Abstract

Objectives: Community Health Workers (CHWs) serve as a means of improving outcomes for underserved populations. However, their relationship within health care teams is not well studied. The purpose of this integrative review was to examine published research reports that demonstrated positive health outcomes as a result of CHW intervention to identify interprofessional teamwork and collaboration between CHWs and health care teams.

Methods: A total of 47 studies spanning 33 years were reviewed using an integrative literature review methodology for evidence to support the following assumptions of effective interprofessional teamwork between CHWs and health care teams: (1) shared understanding of roles, norms, values, and goals of the team; (2) egalitarianism; (3) cooperation; (4) interdependence; and (5) synergy.

Results: Of the 47 studies, 12 reported at least one assumption of effective interprofessional teamwork. Four studies demonstrated all 5 assumptions of interprofessional teamwork.

Conclusions: Four studies identified in this integrative review serve as exemplars for effective interprofessional teamwork between CHWs and health care teams. Further study is needed to describe the nature of interprofessional teamwork and collaboration in relation to patient health outcomes.

Keywords

community health, access to care, community health worker, interprofessional teamwork, collaboration

Background

Community health workers (CHWs) can improve outcomes for underserved people.^{1,2} Evidence exists that CHW interventions in underserved populations improve health care management, disease prevention, and health promotion. Community health workers improve management of chronic illnesses such as asthma, diabetes, maternal-child health issues, increase health promotion activities such as vaccinations and cancer screening, and demonstrate net costsavings.¹⁻³ Based on this evidence, interest in new CHW models has grown. Delivery systems strive to improve health care access, improve cultural congruence, and address quality and cost among the growing immigrant population and other underserved, isolated, and vulnerable people. The CHW model presents an opportunity to achieve these goals.⁴⁻⁶

Presently, there is a national call for greater use of CHWs to improve the nation's health. In 2011, the Center for Disease Control and Prevention (CDC) and the Division for Heart

¹ Department of Family Medicine, East Boston Neighborhood Health Center, East Boston, MA, USA

² School of Nursing, MGH Institute of Health Professions, Boston, MA, USA

³ College of Nursing and Health Sciences, University of Vermont, Burlington, VT, USA

⁴ Partners in Health, Boston, MA, USA

Corresponding Author:

Catherine M. Franklin, Department of Family Medicine, East Boston Neighborhood Health Center, 20 Maverick Square, East Boston, MA 02128, USA.

Email: franklic@ebnhc.org



Disease and Stroke Prevention published *Addressing Chronic Disease through CHWs: A Policy and Systems-Level Approach*⁷ which recommended that states integrate CHWs in high-risk communities to prevent chronic disease. Likewise, the Institute of Medicine (IOM)⁸ recommended CHWs as part of their strategic plan to prevent, control, and reduce the impact of hypertension. In addition, the *Patient Protection and Affordable Care Act* more commonly referred to as the Affordable Care Act (ACA)⁹ identified the need to encourage CHW engagement in health promotion and improving health outcomes for the medically underserved. Moreover, the CDC¹⁰ has called for stronger support for CHW programs to help eliminate health disparities for the prevention and management of diabetes.

At the same time, several national and international organizations began calling for interprofessional teamwork and team training as part of the redesign of the health care system. In 2001, the IOM issued “Crossing the Quality Chasm . . . ,”¹¹ initiated this early call. Nearly a decade later, the World Health Organization¹² identified the urgent, global need to integrate interprofessional education and collaborative practice into service, education, and health policy globally in order to strengthen primary care health systems. Finally, in 2011, an expert panel of the Interprofessional Education Collaborative introduced core competencies for interprofessional collaborative practice.¹³ Moreover, many national health care organizations¹⁴⁻¹⁸ have endorsed the establishment of community-based interprofessional teams as part of patient centered medical homes (PCMH), a model for primary care redesign.

Despite the strong evidence to support the use of CHWs and the nationally recognized need for collaborative practice in care provision, the nature and degree of teamwork and collaboration with CHWs within health care teams is not well understood. Therefore, the purpose of this integrative literature review was to examine interprofessional teamwork and collaboration with CHWs in research demonstrating positive health outcomes as a result of CHW intervention

Interprofessionalism and Teamwork

Research suggests that interprofessional teamwork and collaboration improve patient outcomes and access to health care.^{12,19-30} In addition, those health care workers who serve as part of a team are more effective and have higher job satisfaction than those who do not.^{28,31,32}

The concept of “interprofessionalism,” coined by D’Amour and Oandasan³³ as a response to fragmented health care practices, is defined as “the development of a cohesive practice between professionals from different disciplines. It is the process by which professionals reflect on and develop ways of practicing that provides an integrated and cohesive answer to the needs of the client/family/population.”^{33(p9)} Interprofessionalism is distinguished from multidisciplinary, which refers to a process whereby multiple disciplines work on the same project in an independent and parallel fashion,³³ reflecting a lower degree of collaboration on the spectrum.

The concept of “collaboration,” identified as critical to ensure quality health care,³³ is important to understand within the context of interprofessional teams. Collaboration is described as conveying “the idea of sharing and implies collective action oriented toward a common goal, in a spirit of harmony and trust, particularly in the context of health professionals.”^{57(p116)} Interprofessional collaboration is a “negotiated agreement between professionals which values the expertise and contributions that various healthcare professionals bring to patient care”^{34(p2)} and is most effective when there is good communication and a value for diverse opinions among team members.³⁵ In a review of the literature on collaborative practice, D’Amour et al³³ identified the following four concepts related to collaboration: sharing, partnership, interdependency, and power.

A team is defined as “a group of people working together to achieve common purpose for which they hold themselves mutually accountable.”^{36(p3)} The establishment of teams assumes that teams can outperform individuals when the task is complex, members have a stake in the outcome, and where efficient use of resources is necessary. Key elements of teamwork include members having a shared work product, interdependent tasks, shared responsibility for producing results, commitment to a common approach, and collective management of relationships across organizational boundaries.³⁶

Successful teamwork is necessary for collaboration to occur. Teamwork creates the environment to support the work that has the potential to result in collaboration. Collaboration is most closely related to the synergy created by those on the team. Collaboration requires two constant and key elements, namely, (1) construction of collective action that addresses the complexity of client needs and (2) the construction of a team life that integrates the perspectives of each professional where each member experiences respect and trust.³³

Model for Integrative Review

Rice³⁷ links teamwork and collaboration by identifying teamwork as “a mechanism for putting collaboration into effect.”^{37(p62)} Rice identified five assumptions of teamwork that served as the conceptual framework for this integrative review. These assumptions are (1) a shared understanding of roles, norms, values, and goals of the team; (2) team functions in an egalitarian manner; (3) team functions in a cooperative manner; (4) team functions in an interdependent manner; and (5) combined efforts of the team and shared decision making are of greater benefit to patients than the effects of the individual disciplines alone.

The assumptions for effective teamwork that will result in successful collaboration described by Rice³⁷ were operationalized for this review as follows:

1. Shared understanding. Shared understanding of roles, norms, values, and goals of the team: Evidence of clearly defined goals for project interventions, team member roles, or congruence of values or mission of team members. For this review, the word “shared understanding” will be used to refer to this assumption.

2. Egalitarianism. Team functioning in an egalitarian manner: Patients and families are part of the health care team as evidenced by respect for their input into preferences, decision making, or goal setting.
3. Cooperation. Team functioning in a cooperative manner: A working together that recognizes and respects involvement and contributions of all members³⁸ as evidenced by team meetings or joint training.
4. Interdependence. Team functioning in an interdependent manner: Absence of independence or lack of autonomy³⁹ as evidenced by team discussions and consultation between role groups.
5. Synergy. The combined efforts of the team and the shared decision making result in a greater benefit to the patient than the effects of the individual disciplines alone. For this review, the word “synergy,” defined as a way of working that creates an outcome that is better than the outcome any one participant could create alone,³⁹ will be used to refer to this assumption as evidenced when outcomes of interventions are attributed to the collective team effort.

Aim

The aim of this integrative review was to examine interprofessional teamwork and collaboration with CHWs in research demonstrating positive health outcomes as a result of CHW intervention. Key questions that guided the review process were (1) did the CHW function as a member of the healthcare team? and (2) were assumptions of teamwork between CHWs and health care teams present as defined by Rice?³⁷

Methods

An integrative review methodology⁴⁰ was used to identify evidence of Rice’s five assumptions of effective teamwork between CHWs and providers from two major systematic reviews of the literature.^{1,2} A review of the literature was conducted to identify peer-reviewed research reporting health outcomes of CHW interventions. These studies were published in English from 1996 to 2013 using the following electronic databases: MEDLINE, PsychINFO, Cochrane Reviews, CINAHL, and the World Wide Web. Key search terms included primary care, health outcomes, community health worker(s) and synonyms for CHW including lay health worker, outreach worker, health advocate, and promotora de salud. Using these terms, we found two comprehensive systematic reviews of research assessing the effect of CHW interventions.

The first systematic review, conducted by the Agency for Healthcare Research and Quality, (AHRQ),¹ identified research conducted between 1980 through November 2008 that examined cost, outcomes, and characteristics of CHW interventions. Its review included all studies conducted in the United States and published in English. It excluded studies that had fewer than 40 participants, were not original research, and did not report on topics relative to the key questions of the

study. It rated the quality of the studies as good, fair, or poor based on the AHRQ Comparative Effectiveness Guide.⁴¹ In total, these authors identified 53 original research studies.

The second systematic review reported by The New England Comparative Effectiveness Public Advisory Council² conducted an update to the AHRQ study¹ systematic review from January 2008 through April 2013 focusing on the impact of CHW interventions on health outcomes using the same rigorous search criteria and quality ratings based on the AHRQ Comparative Effectiveness Guide.⁴¹ This search yielded 18 studies. From these, a new database of 47 studies of good and fair quality spanning the time frame of 1980 through 2013 was created. The new database was comprised of 29 of the 53 AHRQ studies that focused solely on CHW interventions with the newly added 18 studies that met criteria in their update. Excluded from their review were studies that focused on improved patient knowledge or satisfaction. These 47 studies, representing the best evidence in the literature reporting positive health outcomes as a result of CHW interventions over a period of 33 years, form the database for this integrative review.

Data Abstraction

The following data were abstracted from each of the 47 research reports: study aim, presence of a team that included the CHW, and assumptions of teamwork (shared understanding, egalitarianism, cooperation, and interdependence, and synergy). Studies that reported the same intervention in more than one publication were examined separately and counted as one study.

Data Reduction

Each study was examined to identify whether or not the CHW was a member of the health care team. A study was coded as having evidence of team if the CHW was reported to be a member of a multidisciplinary or interprofessional team or work with at least one member from any other health profession. Thirty-five studies did not report the inclusion of a CHW working as a member of a health care team and thus these studies were excluded. The remaining 12 studies, which created the database for the review, were examined for evidence of effective teamwork-shared understanding, team functioning in an egalitarian, cooperative, and interdependent manner, and synergy. The previously described assumptions for effective teamwork were used as the coding schema, namely, (1) shared understanding, (2) egalitarianism, (3) cooperation, (4) interdependence, and (5) synergy.

Results

Analysis of the 47 best evidence studies revealed 12 studies that reported the CHW functioning as part of a health care team.⁴²⁻⁵⁶ See Table 1 for data display. The composition of the teams was most often CHWs with nurses, physicians, and dietitians. Less frequently, teams consisted of CHWs with social workers, project coordinators, research assistants, psychologists, community

Table 1. Assumptions of Teamwork Identified in Studies Where CHWs Functioned as Part of a HealthCare Team.

Studies	Shared Understanding	Egalitarianism	Cooperation	Interdependence	Synergy	No. of Coded Assumptions/Study
1 Beckham et al, 2008 ⁴²	X	X	X	X	X	5
2 Lujan et al, 2007 ⁴³	X	X	—	—	—	2
3 Jandorf et al, 2005 ⁴⁴	—	X	X	—	—	2
4 Levine et al, 2003 ⁴⁵	—	X	—	—	X	2
5 Williams et al, 2001; ⁴⁶ Auslander et al, 2002 ⁴⁷	X	X	X	—	—	3
6 Gary et al, 2003; ⁴⁸ Gary et al, 2005 ⁴⁹	X	X	X	X	X	5
7 Schuler et al, 2000 ⁵⁰	—	—	X	—	—	1
8 Korfmacher et al, 1999 ⁵¹	X	—	—	—	—	1
9 Wang et al, 2010; ⁵² Wang et al, 2012 ⁵³	—	X	—	—	—	1
10 Spencer et al, 2011 ⁵⁴	—	X	—	—	—	1
11 Sixta and Ostwald, 2008 ⁵⁵	X	X	X	X	X	5
12 Krieger et al, 2009 ⁵⁶	X	X	X	X	X	5
Total no. of concepts/category	7	10	7	4	5	

organization representatives, and a nursing director. One study included a Hawaiian healing specialist.

Of these 12 studies, 7 were coded for evidence of the first assumption of effective teamwork, shared understanding.^{42-43,46-49,51,55-56} Examples of shared understanding within the team included clearly delineated team member roles for the intervention and recruitment of CHW based on shared value for leadership and communication skills.

The second assumption of teamwork, egalitarianism, was coded in 10 studies.^{42-49,52-56} Examples of egalitarianism included active participation by patients and/or families as part of the team in activities such as choice of setting for the visit with the CHW; goal setting related to the health plan such as physical activity regimen, target blood pressure, and participation in focus groups; assistance with problem solving; and awareness and respect for patients' readiness for the intervention. A specific example of egalitarianism included the following: "Since the patient is ultimately the most significant provider of medical care, enabling patients with diabetes to learn how to manage their own disease is a vitally important mission for healthcare institutions."^{42(p425)}

Seven studies were coded for the third assumption of effective teamwork, cooperation. Examples included evidence of shared communication through documentation and team members' engagement in collaborative discussions and consultations.^{42,44,46-50,55-56} Examples of cooperation included participation in regularly scheduled team meetings, debriefings, and conferences where discussion and problem solving around patient issues occurred between CHWs and healthcare team members.

Interdependence, the fourth assumption of effective teamwork, was found in four studies.^{42,48-49,55-56} Examples of interdependence included evidence of regularly scheduled team meetings with purposeful intention of having diverse input from all team members, a combination of separate and joint patient visits by team members and joint decision making.

Synergy, the fifth and final assumption necessary for effective teamwork, was found in five studies.^{42,45,48-49,55-56} Examples of synergy included attribution of positive patient outcomes in part to the effect of teamwork. One study indicated that the purpose of biweekly conferences for the team was not only to coordinate interventions but also to "promote synergy."^{48(p25)} Other specific examples of synergy include the following:

This [team] model appears to be of value in the continued investigation of methods for reducing the continuing gap in health status between various minority communities, and the majority of the US population.^{45(p360)}

These results suggest that combined NCM[nurse case manager]/CHW interventions in primary care may produce significant improvements in HbA1c lipids, and blood pressure.^{48(p29)}

Of the 12 studies, 4 demonstrated evidence of all five basic assumptions necessary for effective teamwork.^{42,48-49,55-56} The commonalities of these 4 studies included the following characteristics: CHWs were part of the primary care team and had relationships with primary care team members; study participants were members of a community health center, public health clinics, or academic center primary care clinic; the study design included the management of a chronic disease—3 of which were related to the management of type II diabetes and one related to the management of asthma; and finally, these four studies were the only ones to demonstrate interdependent manner of team functioning.

Discussion

This integrative review was conducted to determine whether Rice's³⁷ five basic assumptions of teamwork—shared understanding, egalitarianism, cooperation, interdependence, and synergy—were identified in studies that demonstrated a

positive effect on patient outcomes when CHWs functioned as part of healthcare teams. Two systematic reviews of CHW interventions with positive health outcomes that spanned 33 years (1980-2013) were used as the basis for this integrative review. Findings reveal that in 12 of the 47 studies that comprised the database, CHWs functioned as part of a health care team. Of these 12 studies, all reported at least one aspect of interprofessional teamwork. This finding supports the IOM¹¹ and World Health Organization¹² call for the integration of interprofessional teamwork as part of health care education and practice redesign to build stronger health care systems. Assuming that effective teamwork facilitates collaboration, organizations that create interprofessional teams will be positioned to better attain positive patient health outcomes.

In over half of the 12 studies in the database in this integrative review, there was evidence of a shared understanding of roles, norms, values, or goals among team members^{42-43,46-49,51,55-56} and cooperative manner of functioning.^{42,44,46-50,55-56} These findings support the idea that mutual understanding, respect for individual roles and a sharing of goals and values, and cooperation are important for effective teamwork between CHWs and health care team members. These findings support the importance of partnership and the need for regular communication among team members.

In the majority of the studies,^{42-49,52-56} health care teams functioned incorporating egalitarianism. Engaging patients and families as active participants in the healthcare team is consistent with the 2001 IOM¹¹ report and is a fundamental concept underpinning the Patient Centered Medical Home.¹⁴ This team characteristic represents a paradigm shift from a traditionally paternalistic system where health care providers make decisions independent of the patient's input to one that is inclusive and empowering for both patients and families.

A third of the 12 studies^{42,48-49,55-56} demonstrated evidence of interdependence suggesting that these teams functioned as a whole referring to and consulting with one another regardless of position and designated leadership role. These findings exemplify interprofessional work, distinguishing it from the parallel process of multidisciplinary work.⁵⁷ Interdependence between health care team members supports a shift away from traditional barriers which include medical dominance, issues of professional turf, the sense of exclusive authority that may be developed in professional training, and lack of awareness of other team members' skills and roles.³⁷ These same 4 studies^{42, 48-49, 55-56} demonstrated evidence of all of the assumptions of effective teamwork and may serve as exemplars for effective teamwork between CHWs and healthcare team members.

Less than half of the studies^{42,45,48-49,55-56} demonstrated evidence that teamwork led to a synergistic effect for patients. This is the desired and ultimate goal of interprofessional collaboration. The team recognizes and strives to work together to ensure that the outcome is better than any one individual member could achieve alone. These findings support the investment in the development of interprofessional teams that include CHWs for primary care practices as called for by the ACA⁹ and IOM⁵⁸ and undergirds the PCMH model.¹⁴

Implications

This integrative review demonstrates a beginning understanding of what effective teamwork and successful collaboration looks like when a CHW is integrated into interprofessional health care teams where the associated positive health outcomes are credited to CHW interventions. Each of the assumptions exhibited alone represents a key aspect in laying a foundation for interprofessional teamwork. These elements of teamwork need to be present and supported in order to foster successful collaboration.

Four studies in this integrative review exhibited all of the five assumptions for effective teamwork according to Rice.³⁷ The characteristics described in these studies suggest that the best opportunity for successful teamwork and collaboration is when CHWs are integrated into a primary care health team, reflect the population they serve, are trained in cultural sensitivity, and participate in the management of chronic illnesses. Additional characteristics cited in these four studies suggest that effective teamwork and collaboration exist when patients are members of a community health, public health, or academic primary care clinic.

These findings have implications for all members of the healthcare team as redesign of the workforce in practices is implemented. Members must identify and engage with their team. Incorporating these assumptions will not necessarily come naturally to healthcare teams as many health professionals are educated to practice in parallel fashion to other disciplines. Accepting CHWs as equitable members of the healthcare team may be a challenge for teams that are accustomed to the medical provider assuming the role as the leader and directing unlicensed staff. All team members will need training in how individuals can function at maximal capacity within a team. Experiential team-based pilots with continuous evaluation and identification for improvement should also be considered. Support from senior leadership in terms of mission and values, stated expectations, and financial and human resources will also be necessary.

The addition of unlicensed health care workers such as CHWs onto interprofessional teams improves access and patient outcomes with respect to chronic illnesses and reduces health disparities. The CHWs bring knowledge of culture and communities, relationships with members of the communities, and experience in health screening, prevention, and health promotion. Community health centers and public health clinics, predominantly located in low income and medically underserved neighborhoods, are committed to hiring from their local communities.^{59,60}

Patient care can no longer be delivered within the silos of individual health professions. Workforce redesign is essential to accommodate the growing number of individuals entering the health care system. With the emphasis on the development of primary care teams within the PCMH movement,¹⁴ primary care practices will become the hub of access to care. Therefore, it is critical for health care policy makers, researchers, and clinicians to examine the feasibility and value of integrating

CHWs into primary care while still preserving their role as advocates in community-related activities and initiatives.

Several recently published reports address the integration of CHWs into PCMH health care teams and highlight the need for clearly defined team roles, education of both providers and CHWs about their respective roles, teambuilding, clinical and management training of CHWs, clear systems for communication, an evaluation plan, and institutional protocols to support the integration of CHWs into healthcare teams.⁶¹⁻⁶³ Additional work is needed to examine the best methods to provide team training, program evaluation, role clarity, and team communication.

The integration of interprofessional teamwork and collaboration with primary care workforce redesign that includes CHWs sits on the brink of bridging the primary care and public health gap as described by the IOM.⁵⁸ This integration presents an opportunity to reduce cost and health disparities as well as improve access, chronic illness management, and patient and team satisfaction. It holds promise as a model that could promote overall health of individuals, families and communities thereby strengthening the healthcare system overall.

Limitations

The findings of this integrative review must be examined in light of its limitations. Primarily, it examined studies of health outcomes for individuals as a result of CHW intervention that were not designed specifically to examine the effect of teamwork and collaboration. As a result, it is possible that elements of teamwork and collaborative relationships were present but were not reported. In addition, it is important to note that the 35 studies that did not report teamwork between CHW and care teams also achieved positive patient outcomes. The fact that neither teamwork nor collaboration within the healthcare team was discussed does not diminish the importance of these outcomes.

Conclusion

This integrative review identified evidence of interprofessional teamwork and collaboration between CHWs within the healthcare team from research, which demonstrated positive health outcomes as a result of CHW intervention. These findings are important as we begin to understand the role of CHWs in interprofessional teams. Further study of the outcomes of teamwork and collaboration involving CHWs is needed to understand the potential of this interprofessional model.

Acknowledgements

Jessica Bell, MS Director of the Library and Instructional Design MGH Institute of Health Professions, Boston, MA Provided assistance with literature review and methods in library science. Marisa Capogreco, BS Doctoral Student, Occupational Therapy MGH Institute of Health Professions, Boston, MA Provided technical writing support funded by the School of Nursing, MGH Institute of Health Professions.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

1. Viswanathan M, Kraschnewski J, Nishikawa B, et al. Outcomes of community health worker interventions. *Evid Rep Technol Assess.* Assessment No. 181. AHRQ Publication No. 09-E014. Rockville, MD: Agency for Healthcare Research and Quality. June 2009.
2. The New England Comparative Effectiveness Public Advisory Council. Community health workers: a review of program evolution, evidence on effectiveness and value, and status of workforce development in New England: The Institute for Clinical and Economic Review. Web site. <http://cepac.icer-review.org/wp-content/uploads/2011/04/CHW-Final-Report-07-26-MASTER1.pdf>. Published May 24, 2013. Updated, July, 2013. Accessed April 2, 2014.
3. Massachusetts Department of Public Health. Community health workers in Massachusetts: improving health care and public health. 2009. Web site. <http://www.mass.gov/eohhs/docs/dph/com-health/com-health-workers/legislature-report.pdf>. Published December, 2009. Accessed April 6, 2014.
4. American Public Health Association. Support for community health workers to increase health access and to reduce health inequities. Policy number 20091. Web site. <http://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/09/14/19/support-for-community-health-workers-to-increase-health-access-and-to-reduce-health-inequities>. Updated 2009. Published November 10, 2009. Accessed April 2, 2014.
5. U.S. Department of Health and Human Services Health Resources and Services Administration Bureau of Health Profession. Community health workers evidence-based models toolbox: HRSA office of rural health policy. 2011. Web site. <http://www.hrsa.gov/ruralhealth/pdf/chwtoolkit.pdf>. Published August, 2011. Accessed July 10, 2014.
6. U.S. Department of Health and Human Services Bureau of Health Professions. Community health worker national workforce study. 2007. Web site. <http://bhpr.hrsa.gov/healthworkforce/reports/chwstudy2007.pdf>. Published March, 2007. Accessed March 10, 2014.
7. Center for Disease Control and Prevention. Addressing chronic disease through community health workers: a policy and systems-level approach. 2011. Web site. http://www.cdc.gov/dhds/docs/chw_brief.pdf. Published 2011. Accessed July 7, 2014.
8. Institute of Medicine. A population-based policy and systems change approach to prevent and control hypertension. *The National Academies Press.* Web site. <http://www.iom.edu/Reports/2010/A-Population-Based-Policy-and-Systems-Change-Approach-to-Prevent-and-Control-Hypertension.aspx>. Published February 22, 2010. Accessed April 12, 2014.

9. One hundred eleventh Congress of the United States of America. Patient protection and affordable care act, 42 (USC). 2010. Pub L No. 111-148, 124 Stat 855. Amended May 1, 2010.
10. Centers for Disease Control and Prevention. Community health workers/promotores de salud: critical connections in communities. Web site. <http://www.cdc.gov/diabetes/projects/pdfs/comm.pdf>. Accessed July 7, 2014.
11. Institute of Medicine. Committee on Quality of Health Care in America. Crossing the quality chasm: a new health system for the 21st century. *National Academies Press*; 2001. Web site. http://www.nap.edu/catalog.php?record_id=10027. Published March, 2001. Accessed April 12, 2014.
12. World Health Organization (WHO). Framework for action on interprofessional education and collaborative practice. Geneva: World Health Organization, Department of Human Resources for Health. 2010. Web site. http://www.who.int/hrh/resources/framework_action/en/. Published 2010. Accessed August 16, 2014.
13. Interprofessional Education Collaborative Expert Panel. Core competencies for interprofessional collaborative practice: report of an expert panel. Washington, DC: Interprofessional Education Collaborative. 2011. Web site. <http://www.aacn.nche.edu/education-resources/ipcreport.pdf>. Accessed on August 16, 2014.
14. Agency for Healthcare Research and Quality. Patient centered medical home: resource center. Web site. <http://pcmh.ahrq.gov/>. Updated 2014. Accessed August 16, 2014.
15. American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, American Osteopathic Association. Joint principles of the patient-centered medical home. *Del Medical J*. 2008;80(1):21-22.
16. National Partnership for Women and Families. Patient-centered medical home. Web site. <http://www.nationalpartnership.org/issues/health/patient-centered-medical-home.html>. Published 2014. Updated 2015. Accessed August 16, 2014.
17. Institute of Medicine. Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing. The future of nursing: leading change, advancing health. *National Academies Press*; 2010. Web site. <http://www.iom.edu/Reports/2010/The-Future-of-Nursing-Leading-Change-Advancing-Health.aspx>. Published 2011. Accessed April 12, 2014.
18. Blue Cross Blue Shield. Blue Cross and Blue Shield patient-centered medical home programs are improving the practice and delivery of primary care in communities nationwide. Available June 4, 2012. Web site. <http://www.bcbs.com/healthcare-news/bcbsa/blue-cross-and-blue-shield-4.html>. Published June 4, 2012. Accessed August 16, 2014.
19. Archer J, Bower P, Gilbody S, et al. Collaborative care for depression and anxiety problems. *Cochrane Database Syst Rev*. 2012; 10:1-277.
20. Bower P, Campbell S, Bojke C, Sibbald B. Team structure, team climate and the quality of care in primary care: an observational study. *Qual Saf Health Care*. 2003;12(4):273-279.
21. Davenport DL, Henderson WG, Mosca CL, Khuri SF, Mentzer RM Jr. Risk-adjusted morbidity in teaching hospitals correlates with reported levels of communication and collaboration on surgical teams but not with scale measures of teamwork climate, safety climate, or working conditions. *J Am Coll Surg*. 2007;205(6):778-784.
22. Schmid AA, Kapoor JR, Miech EJ, et al. A multidisciplinary stroke clinic for outpatient care of veterans with cerebrovascular disease. *J Multidiscip Healthc*. 2011;4:111-118. doi:10.2147/JMDH.S17154.
23. Richardson LP, Ludman E, Lindenbaum J, et al. Collaborative care for adolescents with depression in primary care: a randomized clinical trial. *JAMA*. 2014;312(8):809-816.
24. Thota AB, Sipe TA, Byard GJ, et al. Collaborative care to improve the management of depressive disorders: a community guide systematic review and meta-analysis. *Am J Prev Med*. 2012;42(5):525-538.
25. Pape GA, Hunt JS, Butler KL, et al. Team-based care approach to cholesterol management in diabetes mellitus: two-year cluster randomized controlled trial. *Arch Intern Med*. 2011;171(16):1480-1486.
26. Howard-Thompson A, Farland MZ, Byrd DC, et al. Pharmacist-physician collaboration for diabetes care: cardiovascular outcomes. *Ann Pharmacother*. 2013;47(11):1471-1477.
27. Sorbero ME, Farley DO, Mattke S, Lovejoy SL. Outcome measures for effective teamwork in inpatient care: final report. Rand Corporation; 2008. Web site. http://www.rand.org/content/dam/rand/pubs/technical_reports/2008/RAND_TR462.pdf. Accessed August 16, 2014.
28. Raab CA, Will SEB, Richards SL, O'Mara E. The effect of collaboration on obstetric patient safety in three academic facilities. *J Obstet Gynecol Neonatal Nurs*. 2013;42(5):606-616.
29. Neily J, Mills PD, Young-Xu Y, et al. Association between implementation of a medical team training program and surgical mortality. *JAMA*. 2010;304(15):1693-1700.
30. Zatzick D, Russo J, Lord SP, et al. Collaborative care intervention targeting violence risk behaviors, substance use, and posttraumatic stress and depressive symptoms in injured adolescents: a randomized clinical trial. *JAMA Pediatrics*. 2014;168(8):532-539.
31. Abramson JS, Mizrahi T. When social workers and physicians collaborate: positive and negative interdisciplinary experiences. *Soc Work*. 1996;41(3):270-281.
32. Baggs JG, Ryan A. Intensive care unit nurse-physician collaboration and nurse satisfaction. *Nurs Econ*. 1990;8(6):386-392.
33. D'amour D, Oandasan I. Interprofessionalism as the field of interprofessional practice and interprofessional education: an emerging concept. *J Interprof Care*. 2005;19(S1):8-20.
34. Zwarenstein M, Goldman J, Reeves S. Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. *Cochrane Database Syst Rev*. 2009;3(CD000072):1-30.
35. Buscemi J, Steglitz J, Spring B. The impact of team science collaborations in health care: a synopsis and comment on Interprofessional collaboration: effects of practice-based interventions on professional practice and healthcare outcomes. *Transl Behav Med*. 2012;2(4):378-379.
36. Scholtes PR, Joiner BL, Streibel BJ. *The Team Handbook*. 3rd ed. Madison, WI: Oriel; 2003.
37. Rice AH. Interdisciplinary collaboration in health care: education, practice, and research. *Natl Acad Pract Forum*. 2000;2(1):59-73.

38. Barr O. Interdisciplinary teamwork: consideration of the challenges. *Br J Nurs*. 1997;6(17):1005-1010.
39. Gage M. From independence to interdependence: creating synergistic healthcare teams. *J Nurs Adm*. 1998;28(4):17-26.
40. Whittemore R, Knafl K. The integrative review: updated methodology. *J Adv Nurs*. 2005;52(5):546-553.
41. Agency for Healthcare Research and Quality. Methods guide for effectiveness and comparative effectiveness reviews. Web site. <http://effectivehealthcare.ahrq.gov/ehc/products/60/318/CER-Methods-Guide-140109.pdf>. Published October, 2007. Updated January, 2014. Accessed July 7, 2014.
42. Beckham S, Bradley S, Washburn A, Taumua T. Diabetes management: utilizing community health workers in a Hawaiian/Samoan population. *J Health Care Poor Underserved*. 2008;19(2):416-427.
43. Lujan J, Ostwald SK, Ortiz M. Promotora diabetes intervention for Mexican Americans. *Diabetes Educ*. 2007;33(4):660-670.
44. Jandorf L, Gutierrez Y, Lopez J, Christie J, Itzkowitz SH. Use of a patient navigator to increase colorectal cancer screening in an urban neighborhood health clinic. *J Urban Health*. 2005;82(2):216-224.
45. Levine DM, Bone LR, Hill MN, et al. The effectiveness of a community/academic health center partnership in decreasing the level of blood pressure in an urban African-American population. *Ethn Dis*. 2003;13(3):354-361.
46. Williams JH, Belle GA, Houston C, Haire-Joshu D, Auslander WF. Process evaluation methods of a peer-delivered health promotion program for African American women. *Health Promot Pract*. 2001;2(2):135-142.
47. Auslander W, Haire-Joshu D, Houston C, Rhee CW. A controlled evaluation of staging dietary patterns to reduce the risk of diabetes in African-American women. *Diabetes Care*. 2002;25(5):809-814.
48. Gary TL, Bone LR, Hill MN, et al. Randomized controlled trial of the effects of nurse case manager and community health worker interventions on risk factors for diabetes-related complications in urban African Americans. *Prev Med*. 2003;37(1):23-32.
49. Gary TL, Hill-Briggs F, Batts-Turner M, Brancati FL. Translational research principles of an effectiveness trial for diabetes care in an urban African American population. *Diabetes Educ*. 2005;31(6):880-889.
50. Schuler ME, Nair P, Black MM, Kettinger L. Mother-infant interaction: effects of a home intervention and ongoing maternal drug use. *J Clin Child Psychol*. 2000;29(3):424-431.
51. Korfmacher J, O'Brien R, Hiatt S, Olds D. Differences in program impact nurses and paraprofessionals providing home visits during pregnancy and infancy: a randomized trial. *Am J Public Health*. 1999;89(12):1847-1851.
52. Wang EA, Hong CS, Samuels L, Shavit S, Sanders R, Kushel M. Transitions clinic: creating a community-based model of health care for recently released California prisoners. *Public Health Rep*. 2010;125(2):171-177.
53. Wang EA, Hong CS, Shavit S, Sanders R, Kessell E, Kushel MB. Engaging individuals recently released from prison into primary care: a randomized trial. *Am J Public Health*. 2012;102(9):e22-e29.
54. Spencer MS, Rosland AM, Kieffer EC, et al. Effectiveness of a community health worker intervention among African American and Latino adults with type 2 diabetes: a randomized controlled trial. *Am J Public Health*. 2011;101(12):2253-2260.
55. Sixta CS, Ostwald S. Texas-Mexico border intervention by promotores for patients with type 2 diabetes. *Diabetes Educ*. 2008;34(2):299-309.
56. Krieger J, Takaro TK, Song L, Beaudet N, Edwards K. A randomized controlled trial of asthma self-management support comparing clinic-based nurses and in-home community health workers: the Seattle-King county healthy homes II project. *Arch Pediatr Adolesc Med*. 2009;163(2):141-149.
57. D'Amour D, Ferrada-Videla M, San Martin Rodriguez L, Beaulieu M. The conceptual basis for interprofessional collaboration: core concepts and theoretical frameworks. *J Interprof Care*. 2005;19(S1):116-131.
58. Institute of Medicine. Primary care and public health: exploring integration to improve population health. *The National Academies Press*. 2012. Web site. <http://www.iom.edu/Reports/2012/Primary-Care-and-Public-Health.aspx>. Published 2012. Accessed June 16, 2014.
59. Bond MA, Haynes MC, Toof RA, Holmberg MD, Quinteros JR. Healthdiversity: practices that support diverse staffing in community health centers. *University of Massachusetts, Lowell: Center for Women and Work*. 2011. Web site. http://www.uml.edu/docs/Healthy%20Diversity%20Report_tcm18-49658.pdf. Accessed August 16, 2014.
60. Whelan EM. The importance of community health centers: engines of economic activity and job creation. *Center for American Progress*. Web site. <https://www.americanprogress.org/issues/healthcare/report/2010/08/09/8195/the-importance-of-community-health-centers/>. Published August 9, 2010. Accessed June 16, 2014.
61. Islam N, Nadkatni SK, Zahn D, Skillman M, Kwon SC, Trinh-Shevrin C. Integrating community health workers within Patient Protection and Affordable Care Act implementation. *J Public Health Management Practice*. 2015;21(1):42-50. doi:10.1097/PHH.0000000000000084.
62. Matiz LA, Pereyz PJ, Jacotin PG, Cruz C, Ramirez-Diaz E, Nieto AR. The impact of integrating community health workers into patient-centered medical home. *J Prim Care Community Health*. 2014;5(4):271-274. doi:10.1177/2150131914540694.
63. Wennerstrom A, Bui T, Harden-Barrios J, Price-Haywood EG. Integrating community health workers into a patient-centered medical home to support disease self management among Vietnamese American: lessons learned. *Health Promot Pract*. 2015;6(1):72-83. doi:10.1177/1524839914547760.

Author Biographies

Catherine M. Franklin DNP, FNP-C received a doctor of Nursing Practice from the MGH Institute of Health Professions where she also served as Clinical Assistant Professor and Assistant Dean for the Accelerated Baccalaureate Nursing Program. She received a BS in Nursing at Fitchburg State College, Fitchburg, MA, a MS in Nursing Administration and Community Health from Salem State College,

Salem, MA, and a CAGS in Primary Care at Simmons College, Boston, MA. Dr. Franklin is currently the Administrative Director for the Department of Family Medicine at East Boston Neighborhood Health Center in East Boston, MA where she also maintains a clinical primary care practice.

Jean M. Bernhardt, PhD, NEA-BC, FNP-BC, CNP received her doctorate in Nursing and Health Policy from the University of Massachusetts, Boston, MA. She attended the University of Virginia and Fitchburg State College. Dr. Bernhardt is an Associate Professor in the School of Nursing at the MGH Institute of Health Professions and currently the Administrative Director and a Family Nurse Practitioner at MGH Charlestown Healthcare Center in Boston, MA.

Ruth Palan Lopez, PhD, GNP-BC received a BS in Nursing at Boston College in Chestnut Hill, MA, USA. She subsequently received a MS in Gerontological Nursing at Boston University, and a PhD at Boston College. Dr. Lopez was a Hartford Foundation, Claire M. Fagin Post-Doctoral Fellow at the University of Pennsylvania. She is currently an

associate professor of Nursing at the MGH Institute of Health Professions, in Boston, MA where she is also the Coordinator of the Doctorate in Nursing Practice Program.

Ellen R. Long-Middleton, PhD, RN, FNP-BC earned a BS in Nursing from the University of Vermont, MS in Nursing from the University of Washington, and PhD from Boston College. Dr. Long-Middleton was a Post-Doctoral Fellow in the HIV/AIDS Prevention and Care Fellowship at the University of California San Francisco. She currently serves as an Associate Professor in the College of Nursing and Health Sciences at the University of Vermont and is a Family Nurse Practitioner.

Sheila Davis, DNP, ANP-BC, FAAN received a BS in Nursing at Northeastern University, Boston, MA, a MS in Nursing and Doctor of Nursing Practice from the MGH Institute of Health Professions where she also served as Clinical Assistant Professor. Currently, Dr. Davis is the Chief Nursing Officer at Partners In Health and is leading the non-governmental organization's Ebola response efforts in West Africa.