

The Utility of Community Health Workers in Disaster Preparedness, Recovery, and Resiliency

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Abstract

Lay Health Workers can play a pivotal role in improving disaster response and recovery because of their potential effectiveness in enhancing the overall health of their communities, increasing disaster preparedness, supplementing the efforts of disaster responders, and building relationships of trust among all interested parties. Such activities build social capital and significantly enhance community resiliency in anticipation of future disasters. Although there are a number of different types of lay health workers, the version with the greatest potential in this area is the Community Health Worker (CHW). Recent research findings confirm that CHWs serving in the communities where they live have been beneficial in emergency management planning and disaster recovery, following both natural and technological disasters. When properly trained, they constitute a proven strategy for timely interventions aimed at reducing long-term collective trauma and building social capital. In this paper, we elaborate the characteristics and roles of CHWs as a specific type of lay health worker; review research on the utility of CHWs in health care generally, as well as in the area of emergency management; describe their potential for building social capital and enhancing community resilience; and provide an overview of essential training needed to prepare them to participate in disaster preparedness, response, and recovery efforts. We conclude with some suggestions for future research.

Keywords

community health workers, disaster preparedness, emergency management, social capital, community resilience

Introduction

An innovative approach to health care reform in the United States is an increased reliance on lay health workers as a cost-effective means of improving both health care access and health outcomes. Established roles for lay health workers focus primarily on helping patients understand health-related issues, improving patient access to needed health services, and increasing patient compliance with medical directives. These activities can take place in a clinical setting or as part of a broader community education and outreach effort.

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Our thesis is that expanding the activities of lay health workers to play a greater part in emergency management efforts can provide significant benefits to the communities served. The most direct role is in education and outreach to promote disaster preparedness, which helps to ensure the safety and survival of the public during emergencies. Lay health workers can also contribute to post-disaster recovery efforts both as “boots on the ground” and in serving as a link between the community and emergency response and recovery officials. In fulfilling these roles, lay health workers help to establish relationships of trust and an understanding of shared interest among community members, thus providing a mechanism to improve the effectiveness of emergency management by increasing social capital and enhancing community resiliency.

To elaborate this applied approach, we focus on a specific type of general purpose lay health worker called Community Health Workers (CHW). We describe the characteristics of successful CHWs and their typical roles and functions, and review research on the effectiveness of CHWs as they currently operate in the health care system. We then explore the relationship between social capital, community resiliency, and effective emergency management, elaborating the potential utility of CHWs in this area. To maximize this utility, we propose curricula for supplemental lay health worker training in three critical areas: (1) conducting education and outreach activities to encourage disaster preparedness, (2) managing chronic diseases and conditions associated with or aggravated by disasters, and (3) mitigating the psychosocial impacts of disasters through peer listening and counselor referrals. We conclude with a succinct review of the potential to improve emergency management through building social capital and thereby enhancing community resiliency.

Lay Health Worker Variations

“Lay health worker” is a generic term that encompasses a wide variety of different positions including CHWs, community health advocates, *promotores de salud* (health promoters), patient navigators, peer health educators, peer health advocates, and so on. Despite these variations, lay health workers can be classified into three broad groups. The first includes those with advanced training related to a specific disease, such as cancer or diabetes, who typically work in a clinical setting, “navigating” patients through their treatments, and educating and encouraging patients to self-manage their diseases. These are most commonly called patient navigators, and they usually work in salaried clinical positions. At the other end of the spectrum is a grassroots level of lay health workers who undergo limited training with emphasis on community outreach to encourage health literacy, healthy lifestyles, and the sharing of information about health care access and resources. These are often referred to as community health advisors or peer health advocates and typically serve as volunteers, often working on an individual basis within their communities or working with community-based organizations (CBOs). Somewhere in between are CHWs, who usually hold salaried positions in either health clinics or CBOs. CHWs typically undergo a broad training in areas such as health literacy, cultural sensitivity, social determinants of health, the fundamentals of public health, patient case management, and peer listening skills.

For the purposes of this paper, we focus on CHWs as the category of lay health worker with the greatest potential utility for emergency management and disaster response. However, it is also important to note that despite our focus on CHWs, we suggest that all lay health workers, if appropriately trained, could contribute to enhancing disaster preparedness, facilitating disaster recovery, and improving social capital to enhance community resiliency.

Current Role and Utility of CHWs

In an important policy statement supporting the expanded use of CHWs, the *American Public Health Association* offers the following definition:

Community health workers are frontline public health workers who have a close understanding of the community they serve. This trusting relationship enables them to serve as a liaison/link/intermediary between health/social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery. Community health workers also build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support and advocacy. (American Public Health Association 2009)

This definition appropriately emphasizes the importance of the community social connection in the functioning of CHWs. With this in mind, we can describe the successful and effective CHW as a person who:

- is a respected member of the community and enjoys a deserved reputation as being trustworthy, discreet, and dependable;
- has established relationships with community groups and leaders and is active in community affairs;
- has a steadfast commitment to working with underserved and disadvantaged populations;
- is dedicated to helping community members maintain healthy lifestyles and overcome obstacles to getting needed health care services;
- has an in-depth understanding of, and appreciation for, the culture prevailing in the community; and
- has a demonstrated ability to communicate with and relate to racial and ethnic groups present in the community and to “speak the language” of the people served.

Although there is a general consensus regarding the appropriate characteristics of successful CHWs, there is no standard job description. This is due, at least in part, to the fact that there are two different primary tracks for CHWs. Some work in health care delivery sites such as hospitals, hospices, and health clinics, while others operate outside the health care system in community-based or faith-based organizations. Even in the absence of a standardized job description, it is possible to identify a set of tasks and duties commonly associated with CHWs:

- Disseminating health-related information to enhance health literacy;
- Building social capital in their communities through outreach and networking;
- Identifying and publicizing health care assets and resources;
- Advocating generally for social justice for their communities;
- Serving as peer listeners, offering informal referral services and general social support;
- Encouraging healthy lifestyles and preventive care;
- Advocating for specific health-related needs of individuals or communities;
- Assisting community members in gaining access to needed services;
- Serving as mediators to promote effective communication between community members and health care professionals;
- Helping to ensure that patients follow appropriate treatment regimens and drug protocols;
- Facilitating the completion of medical questionnaires and insurance forms; and
- Delivering basic services directly, such as providing first aid and administering basic health screening tests.

Of course, not all CHWs will be involved in all of these activities. Note that the list is ordered to reflect the two different tracks of CHWs, such that activities at the top are associated with

community outreach, while those at the bottom are more directly related to clinical practice. Accordingly, the first four items would commonly be undertaken by CHWs working in community-based or faith-based organizations, while the last four constitute typical tasks for those based in hospitals or clinics, and the middle four activities overlap these two basic tracks.

Demonstrated Utility and Effectiveness of CHWs

Health care costs in the United States have been characterized by “undeniable unsustainability based upon impossible economics” (Smith and Topol 2013). Consequences of this reality are nowhere more evident than in the communities with large proportions of underserved and disadvantaged minorities, many of whom are either uninsured or under-insured. The prevalence of unhealthy lifestyles and the lack of preventive care result in both heavy demand on the health care system and in significant socioeconomic disparities in health outcomes. These difficulties are compounded in southern states by vulnerability to disasters in the form of hurricanes and oil spills, and a political environment hostile to increased government involvement in health care funding and delivery (Bevc, Nicholls, and Picou 2010). As a result, our current health care delivery system falls far short in its ability to meet current needs.

Although numerous reforms designed to increase the capacity and efficiency of health care delivery have been suggested by policymakers and health care providers, among the most promising are two trends that relate directly to the utility of CHWs. The first involves increasing emphasis on preventive care. CHWs can be key players in this effort through community outreach and education aimed at enhancing health literacy and encouraging healthy lifestyles (Balcazar et al. 2011; Martinez et al. 2011; Smith and Topol 2013). The second interrelated trend involves the increased use of multidisciplinary teams that include a variety of professional and paraprofessional participants (Bodenheimer, Chen, and Bennett 2009; Goodwin and Tobler 2008). These teams are often associated with “patient-centered medical homes” and are designed to foster early intervention and more effective management of patients with chronic diseases (Sweeney et al. 2012). Lay health workers, primarily in the form of CHWs, have consistently been identified as critical components of such teams (Balcazar et al. 2011; Bodenheimer et al. 2009; Martinez et al. 2011).

Thus, academic research has confirmed the utility of CHWs as a means of increasing primary and behavioral health care capacity, improving outcomes for individuals suffering from both acute and chronic health problems, lowering the overall cost of care for those served through lifestyle changes and preventive medicine, and reducing socioeconomic disparities within the health care delivery system.

Although effectiveness may vary by disease or condition, evaluations of CHW programs have shown positive impacts on individuals’ health outcomes in a wide variety of areas, including cancer (Nguyen et al. 2009; Russell et al. 2010), diabetes (Otero-Sabogal et al. 2010; Valen, Narayan, and Wedeking 2012), cardiovascular disease (Krantz et al. 2013), and hypertension (Brownstein et al. 2007; Ravenell et al. 2013). Studies have also revealed that the involvement of CHWs in both health promotion and screening, early intervention, and the management of chronic disease can significantly lower health care costs for those already affected by health problems (Esperat et al. 2012; Jaskiewicz and Tulenko 2012; Viswanathan et al. 2009). In addition, research has demonstrated that CHWs’ interventions targeting underserved and marginalized populations in a culturally sensitive and community-based approach can make a positive contribution to reducing socioeconomic disparities in the morbidity and mortality associated with chronic diseases and other health conditions (Esperat et al. 2012; Henderson, Kendall, and See 2011; Peretz et al. 2012).

In recognition of the demonstrated utility of CHWs, the Patient Protection and Affordable Care Act directs the Centers for Disease Control and Prevention (CDC) to facilitate their use “to

promote positive health behaviors and outcomes for populations in medically underserved communities” (PP&ACA 2010). A recent article in the *New England Journal of Medicine* sums up the general consensus that “scaling up the community health workforce in the United States could improve health outcomes, reduce health care costs, and create jobs” (Prabhjot 2013: 894).

Social Capital, Community Resiliency, and Emergency Management

In his seminal work on social capital, Robert Putnam (1995) defines the concept as “the features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit” (p. 5). Accordingly, community social capital consists of networks and relationship among community members that are built on trust, understanding, and acceptance of cultural norms, particularly the norm of reciprocity and a recognition of shared interests. These characteristics allow community members to effectively pursue mutual benefits. Putnam identifies examples of the benefits of social capital as including “better school performance, lower crime rates, better public health, reduced political corruption, improved market performance, and so on” (Clark 2004). The mutual benefit of interest in this paper is a community’s enhanced ability to deal with disasters (Adeola and Picou 2014).

It is important to recognize that the link between social capital and effective emergency management reflects community resiliency. Chandra et al. (2011) offer the following comprehensive definition of resiliency:

The ongoing and developing capacity of the community to account for its vulnerabilities and develop capabilities that aid in: preventing, withstanding, and mitigating the stress of an incident; recovering in a way that restores the community to self-sufficiency and at least the same level of health and social functioning as before the incident; and using knowledge from the response to strengthen the community’s ability to withstand the next incident. (P. 9)

This definition is applicable whether the disaster involves a storm, disease epidemic, hazardous materials spill, economic stress, and so on. It is also most relevant in relation to our expectation that communities with higher levels of social capital are more resilient, and more resilient communities will be better at preparing for, withstanding, and recovering from disasters.

CHWs can help to build social capital and thereby enhance community resiliency simply by fulfilling their essential roles and functions. In their basic outreach function, CHWs are directly connecting with community members and establishing trusting relationships and a recognition of shared interests (i.e., building social capital). This might include educational efforts aimed at improving health literacy, participation in health fairs to promote preventive care, recruiting participants in health screening programs, and distributing information on accessing needed health services. In their clinical roles, CHWs serve as liaison between community members and health care providers, translating confusing health concepts and terminology, helping patients with intake questionnaires and consent forms, and promoting compliance with treatment guidelines and drug therapies. These activities not only build trusting relationships; they also contribute to the creation of networks that can insure effective communications among relevant parties during emergencies.

It is also important to note that much of the work of CHWs contributes to the overall health of their communities. Thus, a community with a lower incidence of chronic diseases will have, on average, residents who are more mobile for evacuation and recovery activities, who will make fewer demands on scarce health-related resources during emergencies, and who are less vulnerable to disaster-related disruptions in medical and pharmaceutical services. All these characteristics contribute positively to disaster preparedness and recovery capabilities, and thereby reflect a more resilient community.

These theoretical expectations are supported by a growing body of research establishing the importance of social capital in enhancing community resiliency (Cox and Perry 2011; Morton and Lurie 2013; Plough et al. 2013; Ritchie and Gill 2010). It has also been demonstrated on an individual level that social capital in the form of greater community engagement, networking, and trust is positively associated with higher levels of concern regarding future emergencies and personal emergency preparedness (Hausman, Hanlon and Seals 2007). As a result, programs designed to enhance community resiliency have been encouraged as a means of improving emergency management efforts (Dynes 2002; Eisenman et al. 2009; Norris et al. 2008).

Our contention is that CHWs can contribute significantly to building social capital through outreach and networking, which, in turn, will improve community resiliency, lessen the impact of natural and technological disasters, and facilitate post-disaster recovery. We expect that CHWs will be particularly effective in this capacity due to their positions of trust and sensitivity to cultural norms within their communities. In support of this expectation, there have been repeated calls in the literature for a greater role for community members and local organizations in disaster preparedness and recovery efforts (Cox and Perry 2011; Gamboa-Maldonado et al. 2012; Morton and Lurie 2013; Norris et al. 2008).

Although there is limited research making a direct link between CHWs and the building of social capital, it has been demonstrated that lay health workers, trained as peer listeners, can mitigate the negative mental and behavioral health impacts of the disaster experience, build social capital, and speed disaster recovery in the communities they serve (Picou 2009, 2011). CHWs can also play a significant role in overcoming racial and ethnic disparities in post-disaster mental health care (Springgate, Wennerstrom, and Carriere 2011). Furthermore, preliminary results of a pilot project utilizing *promotoras de salud* (health promoters) to increase awareness and knowledge about emergency preparedness within the Latin/Hispanic community resulted in a 100 percent increase in emergency preparedness practices (Montgomery County Department of Health and Human Services 2008).

Expanded CHW Training in Emergency Management

CHWs can contribute significantly to effective emergency management efforts through increasing social capital and enhancing community resiliency, but only if they are appropriately trained to do so. Although the initial training of CHWs provides basic competencies in the areas of advocacy, outreach, peer listening, mediation, and communication, supplemental training in disaster-related competencies can ensure the effective application of basic skills and capabilities to tasks associated with helping communities prepare for, withstand, and recover from disasters. This supplemental training can be organized into three core modules:

- planning and implementing educational outreach to build knowledge of emergency management issues, promote disaster preparedness, and enhance community resiliency;
- identification, prevention, and management of chronic diseases and conditions associated with or aggravated by natural and technological disasters;
- understanding essential elements in the recognition, intervention, and referral of psychosocial problems associated with the disaster experience.

Educational Outreach

The educational outreach function of CHWs is particularly relevant in efforts to promote disaster preparedness and community resiliency. One focus of outreach is for CHWs to convey to community residents an understanding and appreciation of the dangers posed by various disasters. CHWs can also provide practical information on appropriate steps needed to ensure the safety

and survival of community members during and after an emergency. They also have an important role to play in identifying and disseminating information on needed resources and the most effective means of accessing such resources.

In addition to topics directly related to disasters, other outreach activities can contribute indirectly to resiliency and recovery. These include activities designed to enhance general health literacy and promote healthy lifestyles. Regarding the latter, there is helpful overlap with the chronic disease module (presented below) in that changing health risk behaviors in just four areas could drastically reduce the incidence and impact of many diseases; these include lack of physical activity, poor nutrition, tobacco use, and excessive alcohol consumption (CDC, Chronic Disease Prevention and Health Promotion).

In fulfilling these roles, CHWs have a distinct advantage over other emergency workers. Because CHWs are, by definition, trusted members of their communities, those targeted for outreach should be more open and receptive to their educational efforts. With appropriate training, CHWs have great potential to boost preparedness, build social capital, and enhance resiliency through culturally sensitive and community-based outreach. To fulfill this potential, core components of the training module for disaster-related educational outreach should include (1) understanding and appreciating the dangers of disasters, (2) guiding practical preparedness and survival, (3) identifying and sharing disaster-related resources, and (4) improving general health literacy and promoting healthy lifestyles.

Chronic Disease Management

Although there is no universally accepted definition of “chronic disease” in the medical literature, common characteristics include the following: a departure from well-being of long duration (a year or more), the necessity for medical intervention, some limitation in activity and function, a non-contagious nature, and non-amenability to cure (Goodman et al. 2013). Based upon these characteristics, the eight most common chronic diseases can be identified as arthritis, asthma, cancer, chronic obstructive pulmonary disease, diabetes, heart disease, HIV-AIDS, and hypertension. The incidence of chronic disease in the United States is very high and steadily increasing. Approximately 50 percent of American adults have at least one chronic disease and 25 percent have two or more (Ward and Schiller 2013). The number of Americans suffering with at least one chronic disease is predicted to top 150 million by the year 2020 (Bodenheimer et al. 2009).

The presence of large numbers of people suffering from chronic diseases creates serious complications when it comes to preparing for, withstanding, and recovering from disasters, especially natural or technological disasters that involve spills of hazardous substances. The typical problems associated with disasters tend to fall more heavily on those with chronic diseases. It is apparent that evacuation is more difficult for those with limited mobility. Family separation has a greater impact where family members are primary caregivers. Disasters often disrupt treatment routines and severely limit the availability of needed medications. Those with chronic diseases are more susceptible to toxic agents and hazardous materials associated with disasters, and they are more likely to be affected by extremes of heat and cold resulting from utility disruptions.

To help minimize these negative effects, CHW training should be organized around core competencies for each of the major categories of chronic diseases: arthritis, asthma, cancer, COPD, diabetes, heart disease, HIV-AIDS, and hypertension. Each of these diseases will be addressed according to the following rubric: (1) general definition, (2) variations, (3) etiology and risk factors, (4) prognosis and complications, (5) potential for prevention, (6) typical symptoms, (7) treatment procedures and medications, and (8) special needs. In addition, specific implications of chronic disease management as it relates to disaster preparedness, resiliency, and recovery should be discussed and elaborated from a disease-specific perspective.

Psychosocial Dimensions

One of the most detrimental consequences of all disasters involves the psychosocial impact on survivors. The term *psychosocial* refers to the interrelationship of social context and psychological health and well-being. Post-disaster social context is commonly characterized by economic loss related to disruption in fishing and tourism, financial hardships due to unemployment and limited access to funds, the ongoing disturbance of normal routines, and even injury and death of community members. These experiences can lead to self-medication and stress reduction with increased intake of alcohol and other drugs, heightening the potential for substance abuse. This can exacerbate other mental and behavioral health problems and result in self-isolation, domestic violence, and even suicide.

In addition, “secondary disasters” often emerge in the post-disaster period, including anxiety associated with ecological contamination and exposure, perceived inequities in claims payments, and potential involvement in formal litigation. These secondary disasters contribute to the development of “corrosive communities,” characterized by social conflict, hopelessness, and despair (Gill, Picou, and Ritchie 2011; Picou, Marshall, and Gill 2004). Despite these harmful effects, psychosocial health typically does not receive the attention it deserves in post-disaster recovery efforts.

There are three primary factors that limit the extent to which people seek and receive mental health services in post-disaster periods. First, many people fail to address their own mental and behavioral health needs because there are simply too many other problems and issues demanding their attention. Understandably, the need for money, food, water, shelter, and physical health issues take precedence over feelings of stress or depression. Second, there is likely to be limited availability of mental health care providers after large-scale disasters due to the increased numbers of people needing care and the diminished capacity of the health care system to deliver such services. Finally, disaster survivors are often reluctant to seek mental health care due to the stigma associated with poor mental health; they do not want fellow community members to think they are “crazy.” The situation is particularly problematic because a combination of two or three of these obstacles is likely to apply to many disaster survivors (Picou et al. 2009). Fortunately, appropriately trained CHWs can have a positive impact in all three areas.

In emergency management, the role of CHWs in identifying needed resources and assisting community members in accessing such resources is critical. This would include linking people in need with emergency services, such as distribution locations for food and water, and helping people apply for post-disaster recovery assistance. CHWs can also serve as peer listeners, supplementing professional mental health care providers as front-line interveners, providing informal counseling where appropriate, and referrals to professional services when needed. In addition, informal counseling in a peer listening encounter with a fellow community member would not carry the stigma associated with seeking professional care at a mental health facility. Of course, the ability of CHWs to fulfill these roles is dependent on proper training.

To maximize the utility and effectiveness of CHWs in mitigating the psychosocial impacts of disasters, the competency-based training curriculum will help CHWs to understand and appreciate these critical components: (1) the post-disaster social context, (2) variations in consequences and needs according to the type of disaster, (3) common psychosocial symptoms (e.g., depression, PTSD, substance abuse), (4) the logistics of good listening, (5) identifying and sharing resources and referrals, and (6) coping strategies for both peer listeners and disaster survivors (Picou 2011)

Summary and Conclusion

Many of the basic capabilities and skills of CHWs are well suited to activities associated with disaster preparedness, survival, and recovery. Educational outreach can be used, not only to

promote and encourage preparedness but also to provide practical guidance in disaster planning and recovery. Identifying resources and connecting the community with needed services is vital during and after disasters, as is facilitating effective communication between community members and emergency management authorities. Understanding the basics of chronic diseases is especially critical in times of limited access to medical care. Serving as peer listeners can be particularly helpful to those traumatized by a disaster experience.

It is important also to recognize that these activities can contribute significantly to improving social capital in communities at risk for disaster impacts. The outreach functions of CHWs provide opportunities for community members to come together to pursue mutual benefits. The act of identifying and sharing resources or making referrals to those in need helps to establish trusting relationships. Interactions between peer listeners, disaster survivors, and professional counselors can establish close and meaningful relationships. In serving as liaison between emergency managers, recovery workers, and the community, CHWs foster trusted, culturally appropriate networks to facilitate communications. Thus, as CHWs pursue emergency management activities, they are building social capital. Although the activities themselves serve to enhance practical community resiliency, the increase in social capital can have an important secondary effect in establishing networks of trusting relationships and a recognition of shared interests among community members. To maximize the utility of CHWs in emergency management, they should undergo specialized training in educational outreach, chronic diseases management, and the psychosocial dimensions of the disasters.

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References

- Adeola, F. O. and J. S. Picou. 2014. "Social Capital and the Mental Health Impacts of Hurricane Katrina: Assessing Long-term Patterns of Psychosocial Distress." *International Journal of Mass Emergencies and Disasters* 32(1):121–56.
- American Public Health Association. 2009. "Support for Community Health Workers to Increase Health Access and to Reduce Health Inequities." Policy Statement 2009-1, adopted November 2009. Washington, DC: American Public Health Association. Retrieved November 7, 2013 (<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>).
- Balcazar, H., L. E. Rosenthal, N. J. Brownstein, C. H. Rush, S. Matos, and L. Hernandez. 2011. "Community Health Workers Can Be a Public Health Force for Change in the United States: Three Actions for a New Paradigm." *American Journal of Public Health* 101(12):2199–203.
- Bevc, C., K. Nicholls, and J. S. Picou. 2010. "Community Recovery from Hurricane Katrina: Storm Experiences, Property Damage and the Human Condition." Pp. 135–56 in *The Sociology of Katrina: Perspectives on a Modern Catastrophe*. 2nd ed., edited by D. L. Brunsma, D. Overfelt, and J. S. Picou. Lanham, MD: Rowman & Littlefield.
- Bodenheimer, T., E. Chen, and H. D. Bennett. 2009. "Confronting the Growing Burden of Chronic Disease: Can the U.S. Health Care Workforce Do the Job?" *Health Affairs* 28(1):64–74.
- Brownstein, J. N., F. M. Chowdhury, S. L. Norris, T. Horsley, L. Jack, X. Zhang, and D. Satterfield. 2007. "Effectiveness of Community Health Workers in the Care of People with Hypertension." *American Journal of Preventive Medicine* 32(5):435–47. doi:10.1016/j.amepre.2007.01.011.
- Centers for Disease Control and Prevention. "Chronic Disease Prevention and Health Promotion." Retrieved November 15, 2013 (<http://www.cdc.gov/chronicdisease/overview/index.htm>).

- Chandra, A., J. Acosta, S. Stern, L. Uscher-Pines, M. V. Williams, D. Yeung, J. Garnett, and L. S. Meredith. 2011. *Building Community Resiliency to Disasters: A Way Forward to Enhance National Health Security*. RAND Corporation, February. Retrieved October 15, 2014 (<http://www.jstor.org/stable/10.7249/tr915dhhs>).
- Clark, R. J. 2004. "Bowling Together." Interview with Robert Putnam, *OECD Observer*, No. 242, March. Retrieved October 28, 2014 (http://www.oecdobserver.org/news/archivestory.php/aid/1215/Bowling_together.html).
- Cox, R. and K.-M. Perry. 2011. "Like a Fish Out of Water: Reconsidering Disaster Recovery and the Role of Place and Social Capital in Community Disaster Resiliency." *American Journal of Community Psychology* 48(3-4):395-411.
- Dynes, R. R. 2002. "The Importance of Social Capital in Disaster Response." Preliminary Paper #327. University of Delaware, Disaster Research Center. Retrieved October 15, 2014 (<http://udspace.udel.edu/bitstream/handle/19716/292/PP+327.pdf?sequence=1>).
- Eisenman, D., P. D. Glik, L. Gonzalez, R. Maranon, Q. Zhou, C. Tseng, and S. M. Asch. 2009. "Improving Latino Disaster Preparedness Using Social Networks." *American Journal of Preventive Medicine* 37(6):512-17.
- Esperat, M. C., D. Flores, L. McMurry, D. Feng, H. Song, L. Billings, and Y. Masten. 2012. "Transformacion Para Salud: A Patient Navigation Model for Chronic Disease Self-management." *Journal of Issues in Nursing* 17(2):2. DOI: 10.3912/OJIN.Vol17No02Man02.
- Gamboa-Maldonado, T., H. H. Marshak, R. Sinclair, S. Montgomery, and D. T. Dyjack. 2012. "Building Capacity for Community Disaster Preparedness: A Call for Collaboration between Public Environmental Health and Emergency Preparedness and Response Programs." *Journal of Environmental Health* 75(2):24-29.
- Gill, D. A., J. S. Picou, and L. Ritchie. 2011. "The Exxon Valdez and BP Oil Spills: A Comparison of Initial Social and Psychological Impacts." *American Behavioral Scientist* 56(1):3-23. DOI: 10.1177/0002764211408585.
- Goodman, R. A., S. F. Posner, E. S. Huang, A. K. Parekh, and H. K. Koh. 2013. "Defining and Measuring Chronic Conditions: Imperatives for Research, Policy, Program, and Practice." *Preventing Chronic Disease* 10:120239. Retrieved September 12, 2013 (<http://dx.doi.org/10.5888/pcd10.120239>).
- Goodwin, K. and L. Tobler. 2008. "Community Health Workers: Expanding the Scope of the Healthcare System." National Conference of State Legislatures. Retrieved May 2, 2015 (<http://www.ncsl.org/print/health/CHWBrief.pdf>).
- Hausman, A. J., A. Hanlon, and B. Seals. 2007. "Social Capital as a Mediating Factor in Emergency Preparedness and Concerns about Terrorism." *Journal of Community Psychology* 35(8):1073-83.
- Henderson, S., E. Kendall, and L. See. 2011. "The Effectiveness of Culturally Appropriate Interventions to Manage or Prevent Chronic Disease in Culturally and Linguistically Diverse Communities: A Systematic Literature Review." *Health and Social Care in the Community* 19(3):225-49.
- Jaskiewicz, W. and K. Tulenko. 2012. "Increasing Community Health Worker Productivity and Effectiveness." *Human Resources for Health* 10(1):38-46.
- Krantz, M. J., S. M. Coronel, E. M. Whitley, R. Dale, J. Yost, and R. O. Estacio. 2013. "Effectiveness of a Community Health Worker Cardiovascular Risk Reduction Program in Public Health and Health Care Settings." *American Journal of Public Health* 103(1):e19-27.
- Martinez, J., M. Ro, N. Villa, W. Powell, and J. R. Knickman. 2011. "Transforming the Delivery of Care in the Post-health Reform Era: What Role Will Community Health Workers Play?" *American Journal of Public Health* 101(12):e1-5.
- Montgomery County Department of Health and Human Services. 2008. *Emergency Preparedness Education for the Latino Community Conducted by Health Promoters: A Mini Pilot Project*. Final Report, April. Retrieved October 29, 2014 (<http://www.cidrap.umn.edu/practice/emergency-preparedness-training-curriculum-latino-promoters-md>).
- Morton, M. and N. Lurie. 2013. "Community Resiliency and Public Health Practice." *American Journal of Public Health* 103(7):1158-59.
- Nguyen, T. T., G. Le, T. Nguyen, K. Le, K. Lai, G. Gildengorin, and S. J. McPhee. 2009. "Breast Cancer Screening among Vietnamese Americans: A Randomized Controlled Trial of Lay Health Worker Outreach." *American Journal of Preventive Medicine* 37:306-13.

- Norris, F. H., S. P. Stevens, B. Pfefferbaum, K. F. Wyche, and R. L. Pfefferbaum. 2008. "Community Resiliency as a Metaphor, Theory, Set of Capacities, and Strategy for Disaster Readiness." *American Journal Community Psychology* 41:127–50.
- Otero-Sabogal, R., D. Arretz, S. Siebold, E. Hallen, R. Lee, A. Ketchel, and J. Newman. 2010. "Physician–Community Health Worker Partnering to Support Diabetes Self-management in Primary Care." *Quality in Primary Care* 18(6):363–72.
- Patient Protection and Affordable Care Act of 2010. Pub. L. No. 111-148, 24 Stat. 119. Retrieved September 7, 2013 (<http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/html/PLAW-111publ148.htm>).
- Peretz, P. J., A. Matiz, S. Findley, M. Lizardo, D. Evans, and M. McCord. 2012. "Community Health Workers as Drivers of a Successful Community-based Disease Management Initiative." *American Journal of Public Health* 102(8):1443–46.
- Picou, J. S. 2009. "Disaster Recovery as Translational Applied Sociology: Transforming Chronic Community Distress." *Humboldt Journal of Social Relations* 32(2):123–57.
- Picou, J. S. 2011. "The BP Catastrophe and Sociological Practice: Mitigating Community Impacts through Peer-listener Training." *Journal of Applied Social Science* 5(2):1–12.
- Picou, J. S., C. Formichella, B. Marshall, and C. Arata. 2009. "Community Impacts of the Exxon Valdez Oil Spill: A Synthesis and Elaboration of Social Science Research." Pp. 279–310 in *Synthesis: Three Decades of Research on Socioeconomic Effects Related to Offshore Petroleum Development in Coastal Alaska*, edited by S. R. Braund and J. Kruse. Anchorage, AK: United States Department of the Interior.
- Picou, J. S., B. K. Marshall, and D. A. Gill. 2004. "Disaster, Litigation and the Corrosive Community." *Social Forces* 82(4):1493–1522.
- Plough, A., J. Fielding, A. Chandra, M. Williams, D. Eisenman, K. B. Wells, G. Y. Law, S. Fogleman, and A. Magaña. 2013. "Building Community Disaster Resiliency: Perspectives from a Large Urban County Department of Public Health." *American Journal of Public Health* 103(7):1190–97.
- Prabhjot, S. 2013. "Community Health Workers—A Local Solution to a Global Problem." *New England Journal of Medicine* 369:894–96.
- Putnam, R. 1995. "Bowling Alone: America's Declining Social Capital." *Journal of Democracy* 7:3.
- Ravenell, J., H. Thompson, H. Cole, J. Plumhoff, G. Cobb, L. Afolabi, and G. Ogedegbe. 2013. "A Novel Community-based Study to Address Disparities in Hypertension and Colorectal Cancer: A Study Protocol for a Randomized Control Trial." *Trials* 14(1):1–13.
- Ritchie, L. A. and D. A. Gill. 2010. "Fostering Resiliency in Renewable Resource Communities: Subsistence Lifescapes and Social Capital." Pp. 55–81 in *How Ethnically Marginalized Americans Cope with Catastrophic Disasters: Studies in Suffering and Resiliency*, edited by J. D. Rivera and D. S. Miller. Lewiston, NY: Edwin Mellen Press.
- Russell, K. M., L. V. Champion, P. O. Monahan, S. Millon-Underwood, Q. Zhao, N. Spacey, and E. D. Paskett. 2010. "Randomized Trial of a Lay Health Advisor and Computer Intervention to Increase Mammography Screening in African American Women." *Cancer Epidemiology, Biomarkers & Prevention* 19:201–10.
- Smith, J. M. and E. Topol. 2013. "A Call to Action, Lowering the Cost of Health Care." *American Journal of Preventive Medicine* 44, no. 1(S1):S54–57.
- Springgate, B., A. Wennerstrom, and C. Carriere. 2011. "Capacity Building for Post-disaster Mental Health since Katrina: The Role of Community Health Workers." Retrieved October 27, 2014 (<http://link.springer.com/article/10.1007%2Fs12114-010-9083-x#page-1>).
- Sweeney, S. A., A. Bazemore, R. L. Phillips, R. S. Etz, and K. C. Stange. 2012. "A Re-emerging Political Space for Linking Person and Community through Primary Health Care." *American Journal of Preventive Medicine* 42(6):S184–90.
- Valen, M. S., S. Narayan, and L. Wedeking. 2012. "An Innovative Approach to Diabetes Education for a Hispanic Population Utilizing Community Health Workers." *Journal of Cultural Diversity* 19(1): 10–17.
- Viswanathan, M., J. Kraschewski, B. Nishikawa, L. C. Morgan, P. Thieda, and A. Honeycutt. 2009. "Outcomes of Community Health Worker Interventions, Evidence Report/Technology Assessment." No. 181, AHRQ Publication 09-E014. Rockville, MD: Agency for Healthcare Research and Quality. Retrieved September 7, 2013 (<http://www.ahrq.gov/research/findings/evidence-based-reports/comh-work-evidence-report.pdf>).

Ward, B. W. and J. S. Schiller. 2013. "Prevalence of Multiple Chronic Conditions among US Adults: Estimates from the National Health Interview Survey, 2010." *Preventing Chronic Disease* 10:120203.

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