

# Community Health Workers: Bringing a New Era of Systems Change to Stimulate Investments in Health Care for Vulnerable US Populations

*Follow-up to Campbell JD, Brooks M, Hosokawa P, Robinson J, Song L, Krieger J. Community health worker home visits for Medicaid-enrolled children with asthma: effects on asthma outcomes and costs. Am J Public Health. 2015;105(11):2366–2372.*

We have a new era of increasing acceptance of the role of community health workers (CHWs) as part of the solution to reducing health disparities, bringing attention to health equity conversations with the triple aim approach.<sup>1</sup> CHWs as a workforce can be an integral component of solutions that seek to improve the health of the population, enhance the patient experience of care, and reduce or at least control the per capita cost of care. Campbell et al.<sup>2</sup> provide compelling empirical data that support the notion, as described by Rush,<sup>3</sup> that a new normal of acceptance of CHWs in systems of care should be the current “state of affairs” and that data on return on investment (ROI) should be viewed as one of several key elements prompting increased employment of CHWs within health systems. In this editorial, we use the study by Campbell et al.<sup>2</sup> as part of an ongoing discussion of how best to bring CHWs into systems of care under complex financial structures to meet the vital health needs of the most vulnerable US populations.

## EVALUATING RESULTS WITH ECONOMIC ESTIMATES

The study by Campbell et al.<sup>2</sup> used a randomized parallel-group design to determine that a simplified version of their Healthy Homes program generated a positive ROI relative to usual care and was cost-effective when CHWs visited Medicaid-enrolled children with asthma. The economic analysis was able to estimate costs that included both fixed and variable costs attributed to program implementation. The authors of the study were able to document a total of eight cost categories to generate estimates of savings of the intervention group as compared with the control group. Net intervention savings calculated as the difference between intervention costs and control costs yielded a total of \$1340.92 of savings. The authors calculated an ROI of 1.9.

The economic findings by Campbell et al.<sup>2</sup> in this study were externally valid compared with other types of asthma education interventions. Yields of ROI reported were between 1.3 and 6.7, even though some of these returns are considered outside the health care payer perspective.

In considering other CHW-based interventions beyond childhood asthma, we turn to a systematic review conducted by the Centers for Disease Control and Prevention’s Community Guide branch on 29

studies of interventions engaging CHWs—9 cardiovascular disease prevention, 7 diabetes prevention, and 13 diabetes management—with a focus on the comparative economics of health care.<sup>4</sup> Data vary in terms of studies that provided effects on health care cost (15 studies) and cost-effectiveness (12 studies), with 28 providing the costs of interventions. A summary of the intervention costs for cardiovascular disease, diabetes prevention, and diabetes management yielded a median CHW intervention cost of \$329 (\$98 to \$422), \$600 (\$369 to \$731), and \$585 (\$389 to \$1578) for the three outcomes, respectively. The review was able to describe positive results for the cardiovascular disease prevention based on a cost-benefit ratio of 1:1.8 for one study.

## COMPLEX ECONOMIC INDICATORS OF INTERVENTIONS

Adding to the complexity of the discussion on using ROI CHW data for health care systems is that hospitals are paid for days of inpatient stay and

procedures performed. One possibility is that under such payment systems, cost reductions resulting from prevention or readmission rates-based incentives are not taken into account in the overall calculation of average costs. This may be one of the reasons that cost savings are not deemed sufficient.

## NEED FOR COMMUNITY HEALTH WORKERS

To provide an additional perspective on comparative costs of health care, Brown et al.’s study<sup>5</sup> showed that the state of California’s costs in 2010 for chronic conditions such as cardiovascular disease (\$37 billion) and diabetes (\$12 billion) were 16.1% and 5.5% of the state’s total health care costs, respectively. Given that health care costs of \$49 billion for these two chronic conditions took up more than 20% of the state’s health care budget,<sup>5</sup> we may want to reconsider the relative cost of a few hundred dollars for the average CHW intervention identified by the Centers for Disease Control and Prevention’s systematic review mentioned earlier.

CHWs are especially important for the most vulnerable among us, and socioeconomically challenged immigrant populations are one such group. Because CHWs often share language and cultural values with their patients and thus better understand the communities

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## CHARGE TO PUBLIC HEALTH TO CONSIDER BUILDING SYSTEMS THINKING FOR COMMUNITY HEALTH WORKERS (CHWs) WORKFORCE SUSTAINABILITY: IMPLEMENTATION LOOP OF SYSTEMS DOMAINS

### Implement Loop of Systems

#### Systems Knowledge

How to manage the knowledge generated from multiple patterns of use of CHWs in the health care workforce, creating the “evidence” needed (beyond economic estimates alone)?

#### Systems Methods

How to model complex, dynamic interactions in health systems that are working toward securing health equity with CHWs as actors within systems?

#### Systems Networks

How to model what are considered effective collaborative relationships to create a health systems practice with CHWs as key stakeholders involved in decision-making activities?

#### Systems Organizing

How to organize dynamic, complex, adaptive, collaborative systems to reach key vulnerable populations (i.e., reach impoverished immigrant communities) within health systems?

#### Achieving Systemic Change

Source. Adapted from Figure 1 in Leischow et al.<sup>6</sup>: Priority Areas. Study and Implementation of Systems Strategic-Planning Activities and Key Priorities.

involved, greater trust is seen between these providers and patients, which can lead to greater patient involvement in decision-making, adherence to treatment, and follow-through on treatment plans. We must identify what is needed to bring viability and sustainability to CHWs within systems of health and health care, given these extraordinary costs and increasing need for culturally sensitive care to meet the vital health needs of marginalized populations.

## MOVING TO A SYSTEMS APPROACH

Campbell et al.<sup>2</sup> provided a clear picture in support of

interventions that can enhance the experience of care for families of children with asthma. Home visits, as a community extension of care and well-being, are consistent with a continuity of health care that goes beyond the clinic, hospital, or emergency department. Their economic analysis argument is solid, but the key question still under scrutiny is whether it will be sufficient to change health care practice and systems to enhance the triple aim of health care reform.

Crossing a threshold for the triple aim will require new paradigms of systems change that include CHWs without relying solely on ROI data (even though these data may help build the

evidence base for reducing health inequities) to justify their existence as a vibrant workforce. From a scientific perspective (and guided by a social justice framework), moving to a systems science approach may necessitate continuous efforts to provide answers beyond measures of benefits and costs.<sup>6</sup> The box on this page provides a charge to health and health care systems to consider building a systems approach that includes multiple domains in the integration of CHWs into the health care system. This charge for achieving systematic change suggests new ways to build sustainability models in the integration of CHWs by establishing

relationships within health care systems to achieve health equity. This is fertile ground that requires in-depth examination beyond economic indicators alone. *AJPH*

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Both authors contributed equally to this editorial.

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