Penn Center for Community Health Workers: Step-by-Step Approach to Sustain an Evidence-Based Community Health Worker Intervention at an Academic Medical Center

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Community-engaged researchers who work with low-income communities can be reliant on grant funding. We use the illustrative case of the Penn Center for Community Health Workers (PCCHW) to describe a step-by-step framework for achieving financial sustainability for community-engaged research interventions. PCCHW began as a small grant-funded research project but followed an 8-step framework to engage both low-income patients and funders, determine outcomes, and calculate return on investment. PCCHW is now fully funded by Penn Medicine and delivers the Individualized Management for Patient-Centered Targets (IMPaCT) community health worker intervention to 2000 patients annually. (*Am J Public Health.* 2016;106:1958–1960. doi: 10.2105/AJPH.2016.303366)

Community-engaged researchers work with low-income communities to develop interventions that may reduce health disparities but often lack sustainability.[1] We use the illustrative case of the Penn Center for Community Health Workers (PCCHW) to describe a stepwise approach to financial sustainability. Founded in 2010 as a grant-funded community-engaged research project, PCCHW is now funded by Penn Medicine's operational budget to deliver an evidence-based community health worker intervention to 2000 patients annually and has provided tools, training, and technical assistance to more than 500 organizations across the United States.

STEP 1: IDENTIFY STAKEHOLDERS WITH COMMON PROBLEMS

At the outset of any project, researchers working with low-income communities should identify potential funders by asking which high-resource organization loses money when the target community has poor outcomes. In 2010, many health outcomes—access to primary care, preventable hospitalizations, patient-reported quality, and chronic disease control—were becoming linked to financial incentives or penalties for the Penn Medicine health care system.[2–5] Researchers at Penn Medicine suspected that low-income communities fared poorly across each of these outcomes, resulting in lost revenue for Penn Medicine.

STEP 2: FIND CHAMPIONS WITHIN STAKEHOLDER GROUPS

Researchers should identify not only stakeholder groups but also individuals embedded within each group to inform program design. The Penn Medicine research team hired a Philadelphia, Pennsylvania, community member to be a co-investigator in qualitative studies with low-income patients. The then chair of medicine also was invited to join the working group and provide insight into the strategic and financial interests of Penn Medicine. The final composition of the working group included the chair of medicine, a community-based co-investigator, and 3 researchers from Penn Medicine.

STEP 3: DEFINE SHARED PROBLEMS AND METRICS

The working group created a list of shared problems—and metrics—that mattered to patients and had financial implications for the health care system (Table 1). The highest-priority problems were access to primary care and preventable hospitalizations.

Primary care access was measured by completion of posthospital primary care visits within 14 days of discharge. This aligned with the newly created Transitional Care Management Common Procedure Code, which gave outpatient providers up to an

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TABLE 1—Problems Identified in Qualitative Interviews, Relevant Metrics, and Funding Sources: Penn Center for Community Health Workers IMPaCT Community Health Worker Intervention, Philadelphia, PA

Problem	Metric	Funding	Potential Funder
Lack of access to primary care	Completion of primary care appointment within 14 d after hospital discharge	Transitional Care Management Common Procedure Code pays providers up to $91 more for coordinated, timely posthospital visits	Penn Medicine outpatient practices
Preventable hospitalizations	30-d readmissions	Medicaid organizations denying payment for 30-d readmissions; uninsured and Medicaid admissions were unreimbursed or low margin for hospital	Penn Medicine hospital
Patient dissatisfaction	Hospital Consumer Assessment of Healthcare Providers and Systems scores	Hospital Consumer Assessment of Healthcare Providers and Systems scores used as pay-for-performance measure by Medicaid organizations	Penn Medicine hospital
Uncontrolled chronic disease	Chronic disease metrics: smoking cessation, glycosylated hemoglobin, systolic blood pressure, and body mass index	Healthcare Effectiveness Data and Information Set measures used as pay-for-performance measure by Medicaid organizations	Penn Medicine outpatient practices

additional $91 payment for coordinating timely access to posthospital primary care.[2]

Preventable hospitalizations were measured by 30-day hospital readmissions. The Centers for Medicare and Medicaid Services recently created the hospital readmissions penalty for Medicare,[5] and many local Medicaid managed care organizations were following suit by denying payment for readmissions. Penn Medicine also lost revenue on unreimbursed or low-margin admissions for uninsured or publicly insured patients.

Hospital Consumer Assessment of Healthcare Providers and Systems scores measuring patient-reported quality and Healthcare Effectiveness Data and Information Set measures related to chronic disease management were also important to low-income patients and linked to financial incentives from Medicaid managed care organizations.[3]

STEP 4: IDENTIFY AT-RISK POPULATION

The group mapped access to primary care and 30-day hospital readmission rates to identify specific areas at highest risk for these key outcomes.[6] A 5–zip code region in west and southwest Philadelphia characterized by high rates of poverty had the highest rates of 30-day readmission, accounting for more than 35% of Penn Medicine readmissions. The region also had some of the lowest access to primary care.[7] This region was therefore targeted in the development of the intervention.

STEP 5: UNDERSTAND END-USER PERSPECTIVE

To understand drivers of the problems of lack of primary care access and preventable readmission, the team conducted interviews (n = 65) with low-income hospitalized patients living in the target region.[8,9] The interviewer asked patients what made it hard for them to stay healthy and for ideas to improve the posthospital transition. Patients stated that they felt disconnected from health care providers, explained that discharge plans were often unrealistic, and identified barriers to obtaining discharge follow-up.[9] The interview results also indicated that patients were more concerned with access to high-quality primary care than with avoiding hospital readmission.

STEP 6: USE QUALITATIVE DATA

The group used a process of design mapping to translate the results of the interviews into intervention manuals.[10] In the resulting intervention, Individualized Management for Patient-Centered Targets (IMPaCT), community health workers meet patients on the day of hospital discharge and assist them in setting their own goals and plans for a successful recovery. They work with patients for 2 weeks, ensuring that patients are connected to primary care. To facilitate future growth, the group also created program infrastructure, including hiring guidelines, training, and manuals that describe program elements such as caseload, supervision, and documentation (http://chw.upenn.edu/tools).

STEP 7: EVALUATE THE INTERVENTION

The chair of medicine helped to secure $65 000 in funding to hire 2 part-time community health workers for 1 year to pilot the intervention. The research team obtained an additional $60 000 in intramural grants to conduct a real-world, randomized controlled trial (RCT) of the intervention. Outcomes for the RCT were the same as the metrics defined in Table 1 and had therefore already been identified as a priority for community members and Penn Medicine.

After discussion within the working group, access to primary care was selected as the primary outcome of the RCT, even though

avoiding hospital readmission was of greater financial interest to Penn Medicine. This decision was driven by the qualitative interviews that identified access to primary care as the area of highest priority to patients.[8] The RCT (n = 446) found that the 2-week intervention improved posthospital primary care, Hospital Consumer Assessment of Healthcare Providers and Systems scores, and self-reported mental health and patient engagement and reduced recurrent 30-day hospital readmission.[6] Two ongoing RCTs are evaluating the effect of IMPaCT on chronic disease outcomes in the outpatient setting (http://www.clinicaltrials.gov identifier: NCT01900470 and NCT02347787).

STEP 8: CALCULATE RETURN ON INVESTMENT

The group, with assistance from senior executives at Penn Medicine, used outcomes data from these RCTs to calculate a return on investment. Cost and return-on-investment calculations were based on Penn Medicine's perspective rather than a universal cost-effectiveness analysis, which are less relevant to real-world funders.[11] This return-on-investment calculation indicated a return of $1.80 to Penn Medicine for every dollar invested in the program. In 2013, Penn Medicine approved the creation of PCCHW to support translation of IMPaCT from research into routine care for high-risk patients. The return on investment is recalculated annually as part of Penn Medicine's budget planning process.

Between 2013 and 2014, PCCHW grew from 6 to 40 full-time employees, including community health workers who are embedded in every general medicine hospital service in Penn Medicine's 2 largest hospitals and in every academic Penn Medicine primary care practice in Philadelphia. As of 2016, efficiencies of scale (i.e., managers supervising a full team of community health workers)[12] have driven an increase in the return on investment to $2.00 for every dollar invested.

CONCLUSIONS

When funding for community-based interventions ends, many programs close their doors. A systematic approach to building financial sustainability may help to ensure that effective programs survive beyond the grant cycle. AJPH

CONTRIBUTORS

A. U. Morgan and S. Kangovi conceptualized the framework. A. U. Morgan wrote the first draft of this article. All authors made substantial contributions to the conceptualization and design of the framework and critical review of the article and approved the final draft.

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HUMAN PARTICIPANT PROTECTION

This article does not report any human participant research, and therefore approval was not sought from any institutional review board.

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