

SkillWorks Initiative

**Return on Investment
Study: Community
Health Worker
Initiative of Boston**

From Insight to Impact

– Worldwide

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1. Initiative Background and Report Overview

The Community Health Worker Initiative of Boston (the CHW Initiative) is a workforce training, public policy and advocacy effort in operation from March 2007 through December 2010.¹ The primary goal of the Initiative, funded by SkillWorks: Partners for a Productive Workforce through grants from the Robert Wood Johnson Foundation, the Jessie B. Cox Charitable Trust and the Boston Foundation, was to improve career advancement opportunities for community health workers (CHWs) by addressing both individual-level needs and system-level policies and practices. Individual CHWs who enrolled in the program were provided career coaching for help with setting and achieving education and career goals. Participants were also given access to CHW-related training.

The CHW Initiative initially focused its efforts on incumbent CHWs – those already working in the field. In 2010, the Initiative added a New Careers component funded by a grant from the American Recovery and Reinvestment Act, intended to help participants hoping to work in the CHW field to advance their education and find internships. The major difference between the services provided to New Careers participants and Incumbent participants was the focus on internships rather than long-term employment. This program has continued into 2011; this ROI reflects only achievements through December 2010.

In addition to working with incumbent and new CHWs, the Initiative worked to make systemic changes by professionalizing and increasing recognition of the CHW field. Efforts to achieve this goal included working with employers to adopt career ladders, with community colleges to establish an education track for CHWs, and with a variety of health industry participants to increase the number of funding streams available to support CHW positions.

This return on investment (ROI) analysis calculates and compares the benefits and costs related to both types of the CHW Initiative's efforts to improve career advancement opportunities for CHWs and is a companion report to an overall evaluation of the CHW Initiative. The evaluation report contains more detailed information about participants and their achievements. This document assesses the ROI achieved by the CHW Initiative over its nearly four years of operation. Some accomplishments of the CHW Initiative are documented (such as trainings completed, job and educational advancements), but not all of the impacts of the Initiative are known. Some of the Initiative's policy accomplishments – in particular the establishment of a CHW Certification Board – may impact the field in future years.

Previous analysis conducted at the end of Year 1 and Year 2 included preliminary results of the Initiative; this ROI, presented in Section 2, captures results achieved during the Initiative's entire period of implementation. Section 2 also discusses the primary drivers of the ROI as well as provides projections of the ROI for future years under two different scenarios. The "benefits to date" scenario, which captures the documented benefits of the CHW Initiative to date, is chiefly a calculation of the benefits relating to CHW Initiative participants, who have been the primary beneficiaries of the

¹ Year 1 was March 2007 through March 2008; Year 2 was April 2008 through March 2009; Year 3 was April 2009 through March 2010 plus an extension period. The entire period from April 2009 through December 2010 is referred to as Year 3.

Initiative to date. At the outset of the CHW Initiative, benefits were expected to accrue to other groups as well (employer-partners, non-participating CHWs, and community members). Some of these benefits did not materialize; others are included in an alternative scenario. Section 3 discusses some important issues and caveats to keep in mind when reviewing these ROI findings. The appendix presents detailed documentation about each component of the ROI model and identifies key assumptions.

2. ROI Findings

The ROI incorporates net returns from the CHW Initiative to five groups: participants, non-participating CHWs, employers, the community, and the CHW Initiative investors. The net present value (NPV) of benefits and costs are calculated for participants, employers, and the community; a ROI is calculated only for CHW Initiative investors. Note that the results do not include benefits to New Careers participants, whose involvement in the CHW Initiative was funded by a grant made under the American Recovery and Reinvestment Act, and not the original investors in the ROI.²

As a measure of financial returns to an investment, benefits and costs are measured in dollar amounts. The ROI itself, however, is expressed in percentage terms, as is typical of reporting of financial results. The results can be understood similar to the way financial returns to an investment are understood (i.e., the stock market returned 9 percent during the year). The primary difference between a financial return and the ROI presented here is that this calculation includes *social* returns as well as financial returns. Therefore, “returns” that do not accrue to the investors themselves are included, such as achievement of higher wages by CHW participants.

An ROI also is generally not annualized (such as the annual return on an investment in the stock market), but rather presents the total return of an investment with cash inflows and outflows over a number of years. The calculation for the ROI is:

$$ROI = \frac{NPV_{participants} + NPV_{non-participating\ CHWs} + NPV_{employers} + NPV_{community} - NPV_{CHW\ Initiative\ costs}}{NPV_{CHW\ Initiative\ costs}}$$

In the CHW Initiative, investments were made over several years (during the planning phase and the nearly four years of the Initiative). The investments included both financial (by investors) and non-financial (by employers and participants). Returns are projected over the length of time they are expected to be experienced (10 years³). We have calculated the ROI for the CHW Initiative using two different scenarios, one conservative and one optimistic. Because enrollment and participants’ career goal accomplishments have been more limited than expected, the system changes accomplished by the Initiative are critical to the success of the Initiative as measured by the ROI. If these changes ultimately improve funding for CHW positions, the ROI will be positive.

² The benefits to these participants are calculated, however, and reported in the Appendix in the section, “Methodology for Counting Costs and Returns of the CHW Initiative.”

³ See the appendix for an explanation of the time horizon used to calculate the ROI.

Exhibit 1 shows the ROI under each scenario, as well as the “net present value,” or NPV, of benefits to each group. The NPV is the value of benefits and costs that occur over a 10-year period, expressed in present dollar values, to facilitate comparison of net benefits that occur at varying times.

As shown in the table, neither of the scenarios shows a benefit to employers, because direct benefits to employer-partners have for the most part not materialized. The scenarios also do not show a benefit to the community, because the Initiative’s impact on CHW’s performance as reported by employers has been too small to impact community health.

Exhibit 1. Summary of ROI

	Benefits to Date Scenario	Wage Impacts from System Changes Scenario
ROI	-20%	140%
NPV of Net Benefits to:		
Participants	\$1,220,637	\$1,220,637
Non-Participants	\$0	\$1,920,056
Employers	-\$99,102	-\$99,102
Community	\$0	\$0

Benefits to Date Scenario

The first scenario is the most conservative, in that we include only the benefits observed to date. We assume that participants will not achieve any further gains than those accomplished by the end of Year 3. Further, system changes will have no effect on CHW wages, and no groups other than participants will experience benefits. As detailed in the appendix, employers have not yet realized benefits from the Initiative, so in this scenario we assume they will not receive benefits in the future. Similarly, this scenario assumes that because they have not yet realized benefits, and non-participants will not experience higher wages as a result of systemic changes.

Under this scenario, the return to the CHW Initiative’s investors is -20% indicating that the costs of the Initiative outweigh the benefits to participants. The primary drivers of this result are:

- ❖ Achievements of participants in the Initiative were modest, but included gains in wages (or expected wages, based on educational attainments) and fringe benefits
- ❖ The systemic changes accomplished are assumed to have no effect on the hundreds of CHWs in the Boston area
- ❖ Employers, members of the community, and non-participant CHWs did not experience quantifiable benefits from the Initiative

Wage Impacts from System Changes Scenario

This scenario uses the baseline assumptions of the “benefits to date” scenario, but in addition assumes that the Initiative’s achievements in implementing system changes will result in certified CHWs earning higher wages of an average of \$.50 per hour by 2013, one year after the Certification Board is convened. There are roughly 3,000 CHWs in Massachusetts,⁴ and although the Initiative is focused on CHWs in Boston, we assume all CHWs will be affected by the system changes. We assume that about 40 percent of CHWs are certified by 2013 and receive higher wages.⁵

Under this scenario, the return to the CHW Initiative’s investors is 140%, indicating significant social returns from the investment. The primary driver of this result is the increase in wages experienced broadly by CHWs. Participating CHWs are also assumed to be affected by the general increase in wages that may result from system changes.

3. ROI Limitations

The ROI is best suited for capturing tangible benefits and costs that can be expressed in monetary terms. For example, the Initiative’s efforts to increase the amount of supervision for CHWs are intended to improve CHWs’ job satisfaction. Although this effort could have a positive impact on CHWs, the ROI only counts this as a benefit if the improved job satisfaction results in a tangible outcome, such as reduced employee turnover. Tangible benefits of reduced turnover include savings to employers as well as fewer spells of unemployment (and therefore higher total earnings) for participants. Similarly, educational advances are included only if they are expected to increase CHWs’ wages in the future.

Other benefits to CHWs that may not be adequately captured in the ROI include increased social networks, increased stability, and increased self-confidence. Benefits to employers that may not be adequately measured include expanded business networks,⁶ access to policy makers and a better understanding of upcoming trends in CHW-related funding mechanisms.

By excluding these benefits or measuring them conservatively, we do not intend to suggest that they do not have value. Indeed, many people value social networks, business networks, self confidence, and other benefits very highly, as evidenced by their willingness to spend time and money to achieve them. However, from an ROI perspective, these benefits are very difficult to measure in monetary terms.

⁴ Massachusetts Department of Public Health, “Community Health Workers in Massachusetts: Improving Health Care and Public Health,” Community Health Worker Advisory Council, December 2009.

⁵ If these assumptions are optimistic and only 20 percent of CHWs are certified and receiving higher wages by 2013 as a result of system change, then the ROI is 71 percent.

⁶ The employer partners we interviewed were asked if they had collaborated with other employers as a result of the Initiative, and if they had experienced any cost savings as a result of this collaboration.

Because these important – but intangible – benefits are either excluded or measured conservatively, the “benefits to date” ROI estimate should be interpreted as being a conservative measure of the returns from the Initiative. The alternative scenario, which is less conservative, includes some impacts that may materialize but have not done so yet.

Appendix: Approach to ROI Analysis

ROI analysis considers benefits and costs that accrue to the multiple stakeholders of a project. It is not intended to be a rigorous, exhaustive analysis of all benefits and costs. Rather, it captures the expected monetary costs and benefits of a program. Intangible benefits are generally excluded (such as increased job satisfaction among CHWs), making the ROI a lower-bound measure of the return to a project. In addition to evaluation, the goal of calculating an ROI is to communicate the performance of the CHW Initiative in a way that is easily understood by investors and easily compared with other projects.

This appendix provides an overview of the ROI model and the algorithms and data used to generate key assumptions. The first section contains the overview; the next section describes the sources of data used; and the last section describes the methodology used in analyzing the costs and returns to the CHW Initiative.

Overview of Approach to Calculating ROI

The ROI incorporates net returns from the CHW Initiative to five groups: participants, non-participating CHWs, employers, the community, and the CHW Initiative investors. The net present value (NPV) of benefits and costs are calculated for participants, non-participating CHWs, employers, and the community; an ROI is calculated only for CHW Initiative investors. As the ROI is a measure of financial returns to an investment, all results are measured in dollar amounts.

In the ROI calculation, benefits and costs are measured relative to the counterfactual. That is, the ROI counts only benefits and costs that are directly attributable to the Initiative. For example, both CHWs who participate in the Initiative and those who don't are likely to receive pay raises. The ROI measures the benefit of a wage increase to CHW participants only to the extent that they are higher than wage increases of non-participants.

The benefits and costs evaluated are shown in Exhibit A-1.

CHW Initiative investors do not directly receive benefits, but the social returns to the Initiative are the sum of returns to participants, non-participating CHWs, community, and employers. Costs include the investment in the CHW Initiative by the Robert Wood Johnson Foundation, Jessie B. Cox Charitable Trust, the Boston Foundation, and SkillWorks capacity building funds.

To calculate the CHW Initiative investors' ROI, the NPV of net benefits for each group are summed and then divided by the NPV of the investment (the costs of running the Initiative):

$$\text{ROI} = \frac{\text{NPV}_{\text{participants}} + \text{NPV}_{\text{non-participating CHWs}} + \text{NPV}_{\text{employers}} + \text{NPV}_{\text{community}} - \text{NPV}_{\text{CHW Initiative costs}}}{\text{NPV}_{\text{CHW Initiative costs}}}$$

Exhibit A-1. Summary of Potential Benefits and Costs of CHW Initiative

	Potential Benefits	Potential Costs
Participants	<p>Increased earnings and fringe benefits from</p> <ul style="list-style-type: none"> • progression along career ladders; • increases in educational attainment; • training provided by the Initiative; • assistance in attaining other education; • new educational opportunities created by the CHW Initiative (new degree offerings at local colleges) • Improved funding for CHWs by public and private payers, resulting from increased professionalization and recognition of the CHW field <p>Greater employment stability from system changes in funding sources</p> <p>Greater financial stability from financial literacy training</p>	<p>Foregone earnings from attending training</p> <p>Monetary costs of training</p>
Non-participating CHWs	<p>Increased earnings and fringe benefits from</p> <ul style="list-style-type: none"> • progression along career ladders; • new educational opportunities created by the CHW Initiative (new degree offerings at local colleges) • Improved funding for CHWs by public and private payers, resulting from increased professionalization and recognition of the CHW field <p>Greater employment stability from system changes in funding sources</p>	
Employers	<p>Decreased hiring costs and savings due to reduced turnover</p> <p>Improved CHW productivity from better training</p> <p>Additional revenue from:</p> <ul style="list-style-type: none"> • Hard-to-reach populations who currently underutilize health care • Reduction in uncompensated pool of patients and unfunded CHW work currently performed • Savings from improvements in appropriate health care utilization <p>Management efficiencies from collaboration with other employers</p>	
Community	Value of improved quality of care	

Sources of Data

Data for measuring the components of the ROI are from several sources:

CHW Initiative: The CHW Initiative provided cost (budget) information about the program. The Initiative tracks its grants and spending as well as in-kind contributions such as office space, release time for partner representatives to attend meetings, and phone and IT services. Some in-kind contributions, such as release time for partner representatives to attend meetings, are considered a cost to employers rather than investors.

Employer-partner survey: The CHW Initiative has administered annual surveys of its employer-partners, all of which were used in developing assumptions for this final ROI. Employers provided a listing of CHW job titles, information on the number of FTs/PTs in each job title, and data on compensation scales. Employers were also asked to provide data on worker educational levels and other characteristics, CHW turnover rates, turnover-related costs, training costs, and tuition reimbursement costs. The survey also asked employers for baseline data and evaluation plans for updating quantitative information from customer satisfaction surveys, cultural competency evaluations, third-party reviews for accreditation or funding, internal self-assessments, and service plans for improvements in customer outcomes. Seven of 11 employer-partners responded to the survey in Year 3, down from eight in Year 2 and 11 in Year 1.

Interviews with a sample of employers: Interviews with two to three employers have also been conducted annually. These interviews were used to collect data on changes in quality of care, CHW performance and cultural competency, career pathway development and integration, and other changes in HR practices and working conditions for CHWs.

Other interviews: We interviewed staff at ABCD about their recruitment efforts, services provided to Initiative participants, participants' education and career goals, and efforts to work with partners on systems change. We also interviewed people from the Initiative's education partners, Mass Bay Community College and Bunker Hill Community College, about their involvement in establishing an education track for CHWs.

Participant database: In Years 1 and 2, the CHW Initiative collected information from participants on current income, employment and salary history, education and training, and recorded information about activities undertaken as part of the Initiative, career goals set, and participant achievements. Instruments for collecting data included an intake form, a standard needs assessment, a career development planning tool, pre- and post-assessments for specific training, referral forms, academic transcripts, and self-assessments. In Year 3 and later, a reduced set of information was collected in a spreadsheet.

Participant, employer, and community data not available in data collected by the CHW Initiative were estimated with data from other sources to the extent possible. For example, the value of fringe benefits was estimated with data from the U.S. Bureau of Labor Statistics.

Methodology for Counting Costs and Returns of CHW Initiative

The motivation behind each of the benefits and costs for participants, non-participating CHWs, employers, and the community included in the ROI analysis is described in this section. This section also describes the inputs for evaluating each return or cost.

Returns of the CHW Initiative

This section provides the returns to each group considered in the ROI analysis: participants, non-participating CHWs, employers, and the community. Benefits to participating incumbent CHWs are considered separately from those to new career CHWs, who participated in a slightly different program. Benefits to incumbent CHW participants are described first, followed by benefits to other groups. Costs are described in the next section.

Incumbent CHW Participants

The primary benefits to participants from the CHW Initiative were expected to be: increases in wages from a variety of sources; improved performance as a result of training and/or coaching; achievement of higher-level education; improved funding for CHWs resulting from systemic changes; and improved advancement opportunities created by new career ladders implemented as a result of the Initiative. In addition, participants were expected to benefit from increases in fringe benefits, increased annual earnings from improved employment stability, and improved financial stability as a result of financial literacy training and other assistance provided by Initiative coaches. As discussed below, not all of these benefits materialized, but to the extent they did, they are measured and included in the model.

Observed increases in wages and hours

During Year 3, 15 participants received raises in their existing or new jobs, an average of \$.83 per hour. In order to judge whether participants' wages increased beyond what they would have in the absence of the program, we examined whether participants were actively engaged in coaching, as illustrated by the participant accomplishing a career goal. Nine of these 15 participants who received a wage increase also were considered to be active during Year 3 and/or achieved one or more career goals in Year 1 or 2. A sample of the goals that were established include: completing an ESOL class, completing Advanced COEC training, and repairing credit. While it is not a definitive judge of causation, it is reasonable to assume that the CHW Initiative played a role in helping these nine participants advance at some level.

The average wage increase for these nine people was \$1.75 per hour. This increase is attributed to the Initiative and included in the ROI calculation.

Four people participating in the Initiative increased the number of hours worked per week during Year 3. These participants were also active in the Initiative during the year, either completing a training (such as Advanced COEC) or receiving coaching, indicating that the CHW Initiative may have played a role in helping this participant advance in his or her career. The participants work an average of an additional 14.8 hours per week, at \$10.60 per hour. The increase in annual earnings is attributed to the CHW Initiative and included in the ROI.

Expected increases in wages

No employer-partners who responded to the survey developed or adopted a career ladder as a result of their participation in the Initiative, so we have assumed there were no benefits to participants from improved advancement opportunities. Other achievements of the CHW Initiative that are likely to result in increases in wages are described below.

A total of 50 participants completed some type of **training or education** program during Year 3 of the Initiative. There were additional participants who enrolled in training but did not complete it. With the exception of participants who enrolled in a bachelor's or associate's degree program, we did not include benefits for participants who did not complete training. For the people enrolled in a bachelor's or associate's degree program, we assume they will eventually achieve an increase in future wages.⁷

Programs completed ranges from an industry-specific credential (Advanced COEC) to graduating from an Adult Basic Education or English for Speakers of Other Languages (ESOL) course to completing a Master's degree (see Exhibit A-2).

Exhibit A-2. Participants' Education and Training Attainment During Year 3

Course of Study	Number of Participants Completing Training
Graduated from ESOL course	5
Completed COEC training	17
Received industry-recognized credential (Advanced COEC)	21
Completed college prep	3
Completed an Associate's degree	1
Completed a Bachelor's degree	2
Completed a Master's degree	1

We assume that the industry-specific credential, Advanced COEC training, is equivalent to six college credits, because it qualifies for credit through Mass Bay Community College and Bunker Hill Community College. Of the 21 people who completed this training, eight already had a college degree. We include the value of the college credits for all 21 participants, but include an increase in future wages only for the 13 participants without a college degree.⁸

Seventeen people completed COEC training, which is considered job-specific training. Although the skills taught are necessary to perform the functions of a CHW, they are not considered to have a lasting impact on participants' earning ability.

⁷ The assumption for the amount of wage increase related to additional education is based on Barrow, Lisa, and Cecilia Elena Rouse, "The Changing Value of Education," *Chicago Fed Letter*, Number 237, The Federal Reserve Bank of Chicago, April 2007. See also Card, David. 1999. "The Causal Effect of Education on Earnings" in *Handbook of Labor Economics*, Vol. 3A (Orley C. Ashenfelter and David Card, editors). (Amsterdam: Elsevier), pp. 1801-1863.

⁸ Ibid.

Five participants graduated from an ESOL course, which studies show has a measurable impact on participants' earning potential. Specifically, workers who are fluent in English earn about 14 percent more than workers who lack fluency.⁹ The improvement in earnings for these participants is included as a benefit in the ROI calculation.

The Initiative's major public policy accomplishment during Year 3 was to pass legislation establishing a **CHW Certification Board**. This legislation was signed into law in September 2010, and the Board is expected to convene in 2012, when they will create and administer a certification process for CHWs. Certification will be optional for CHWs. Tangible monetary benefits from this accomplishment have not yet been documented, so no impacts are included in the "benefits to date" scenario. However, potential wage impacts are included in the alternative scenario.

The CHW Initiative's system change efforts have not yet had an impact on employment stability for CHWs. One possible source of improved employment stability include negotiations with insurers to make CHW services reimbursable should result in funding for CHWs being related to the services they provide rather than their employers' ability to obtain grant funding for their work. A second source is efforts to increase grant funding from the Department of Public Health and to increase the duration of individual grants awarded. The latter possibility became increasingly unlikely as the Initiative's implementation period coincided with a deep recession, and other priorities eclipsed (CHW recognition and certification) the former. Therefore, no impacts on employment stability are included in the ROI.

Increases in fringe benefits

Two participating CHWs received fringe benefits during Year 3. These participants went from receiving no employer benefits to having access to health, dental, and life insurance and paid vacation. Using achievement of career goals as a barometer of whether participants would have earned the advancement in the absence of the CHW Initiative, both of these people were active in the Initiative in Year 3, so we attribute their increases in fringe benefits to the Initiative and have included it in the ROI.

Availability of formalized post-secondary CHW training

The Initiative has partnered with educational institutions to make formalized post-secondary CHW training available. This training is now available through Bunker Hill Community College and MassBay Community College.

At Bunker Hill Community College, about five students have officially declared as a major the newly created CHW certificate, leading to an associate's degree in human services. They have not yet had enough interest to conduct the course created specifically for the certificate, Current Issues in Community Health, but will offer it again in the spring. At MassBay Community College, the first newly available course, Introduction to Community Health, ran in the past year with 10 students enrolled, one of whom was from Boston. Because interest and enrollment in the formalized post-

⁹ See, for example, Chiswick, B.R., & Miller, P.W. (2002). "Immigrant earnings: Language skills, linguistic concentrations and the business cycle." *Journal of Population Economics*, 15, 31-57.

secondary CHW training is currently low, we have not attributed any benefits from these developments to the CHW Initiative.

Improved financial stability

During Year 3, no incumbent CHWs had enrolled in financial literacy training, so no benefits related to the training are reflected in the ROI calculation. However, participants received help in improving their financial stability in other ways. For example, two participants received assistance completing college financial aid applications during Year 3. The value of the service provided to participants in completing the Free Application for Federal Student Aid (FAFSA), however, has been included as \$100 per participant, which is the amount a private preparer might charge.¹⁰ Both of these participants completed their post-secondary education during Year 3.

A second source of financial assistance to participants, introduced in year 3, is a book scholarship for participants enrolled in post-secondary education who agreed to remain actively engaged in coaching for the semester. Thirteen participants received book scholarships in year 3, which averaged \$300, and this benefit to participants is included in the ROI.

New Career CHW Participants

Fifty-five people participated in the new career program offered by the Initiative, which offered basic and Advanced COEC training, placed participants in 16-week paid internships in the community health field, assisted participants with securing permanent employment, and offered the same academic and career coaching services offered to incumbent participants.

Twenty-seven new career participants completed Advanced COEC training during Year 3. Of those, we estimate that ten already had a college degree.¹¹ As with incumbent participants, we include the value of the college credits for all 27 new career participants, but include an increase in future wages only for the seventeen participants without a college degree.

The Initiative also assisted 20 new careers participants in securing permanent employment as CHWs as of December 2010. The average starting wage for newly employed CHWs was \$14.09, and although we have no information about participants' previous wages, we assume that they were unemployed before joining the Initiative. We also assume that if they did not achieve employment through the Initiative they would eventually find alternative employment earning at least the minimum wage of \$8 per hour. Benefits to new careers participants from new employment are measured as the difference between these two, or \$6.09 per hour. This benefit of the Initiative has not been included in the overall ROI, but is counted as a benefit to new careers participants.

Three participants have enrolled in post-secondary education following their participation in the New Careers Program. As for incumbent participants, we assume these people will eventually experience a wage increase as a result of obtaining additional education.

¹⁰ Rate from www.fafsa.com, accessed July 28, 2009.

¹¹ Educational level is known only for about half of new careers participants completing Advanced COEC; we assume the same distribution of educational levels for the remaining half.

In addition, five New Career CHW participants completed financial literacy training. This training is designed to assist participants with reducing their consumer debt, increasing savings, and acquiring assets that can support financial security. Although changes in participants' debt, assets, or savings are not documented, studies of the impacts of financial literacy training have shown positive results on savings rates and debt reduction.¹² Therefore, we assume that participants will reduce debt by \$2,600 over the next year and include reduced interest payments as a benefit of completing financial literacy training in the ROI calculation.

Assuming that benefits from the Initiative last for 10 years, **the NPV of benefits to new careers participants is \$1,493,316**, compared with costs of \$428,996.

Non-participating CHWs

The three primary possible benefits for non-participant CHWs from the Initiative are:

- ❖ Development of a career ladder, leading to higher potential for wage growth with their employer
- ❖ Availability of formalized post-secondary CHW training (through Bunker Hill Community College, and MassBay Community College)
- ❖ Improved funding for CHWs by insurers/others, resulting in improved employment stability and higher wages

The first two of these benefits have largely not materialized. The formalized post-secondary CHW training currently has low enrollment and its impacts are unclear; and no employer-partners surveyed reported having developed or adopted a career ladder as a result of their participation in the Initiative. Therefore, we have assumed there were no benefits to non-participating CHWs from the Initiative during Year 3 from either of these potential benefits.

The CHW Initiative was successful in making a significant system change, by establishing a CHW Certification board. This is a step toward increased professionalization of the field, although evidence about whether it will lead to higher wages for CHWs is weak. Only two states have statewide comprehensive CHW training/certification programs, Ohio and Texas, and Ohio only had about 100 CHWs certified as of 2010.

A small study of CHWs in Houston, in which 32 interviews were conducted with CHWs or program managers, found that most CHWs “did not see a financial benefit to certification.”¹³ Some observers suspect that certification would have had an impact on pay in Texas if the legislature had succeeded in passing requirements for Medicaid reimbursement after setting up the certification program.¹⁴ Anecdotally, a number of Texan CHWs are disappointed with the benefits of certification, as it has not usually resulted in increases in pay, promotion, or increased job portability. Rates of certification

¹² O'Neill, Barbara. 2001. Money 2000™ program impact report, cited by Fox, Jonathan, Suzanne Bartholomae, and Jinkook Lee, 2005, “Building the Case for Financial Education,” *The Journal of Consumer Affairs*, Vol. 39, No. 1.

¹³ Harris, Amy, Kara McArthur, Cindy Huange, Morgan Harcrow, Clifford C. Dacso, *The Houston Community Health Worker Survey: Unanticipated Effects of Certification*, Proceedings CU Expo 2008.

¹⁴ Rush, Carl, *Basics of Community Health Worker Credentialing*, May 6, 2009.

renewal of certification are under 40 percent because of lack of access to classes/training, and perhaps because of a lack of perceived benefit as well.¹⁵

In general, there is a need for research that establishes a link between certification and CHWs' wages. Because it is not yet clear that the CHW Certification Board will ultimately lead to higher wages for CHWs, we assume that benefits from this will not accrue in the future in the conservative "benefits to date" scenario. In the alternative scenario, we assume that the CHW Certification board will eventually lead to higher wages for CHWs.

Employer-Partners

Employer-partners had several expected outcomes from participating in the Initiative. The most common of these included: providing educational opportunities for CHWs; improving quality of care provided by CHW employees; securing additional or more flexible funding for CHW work; and learning/sharing with peer organizations; reducing turnover in CHW positions. Other possible outcomes included reducing the uncompensated pool of patients; increasing revenue because of increased patient visits; and improving appropriate healthcare utilization.

Several of these expected outcomes do not have a direct monetary impact on employer partners, but we hypothesized that these outcomes could lead to several tangible results:

- ❖ Providing educational opportunities for CHWs could improve morale, and thus **reduce employee turnover**, resulting in savings in hiring and training costs for CHWs.
- ❖ Learning/sharing with peer organizations could result in **improved organizational practices** that resulted in savings.
- ❖ Reducing the uncompensated pool of patients; increasing revenue because of increased patient visits; and improving appropriate healthcare utilization could result in **increased revenues** (from additional patients, a reduced pool of uncompensated patients, and reduced unnecessary ER visits). Securing additional or more flexible funding for CHW work could also increase revenues as well as lead to savings from reduced employee turnover.
- ❖ **Improved quality of care** primarily affects the community; with sufficient improvements in the quality of service provided by CHWs, ostensibly community health could improve along some dimensions.

These returns were generally not realized. No employers we interviewed in any year said they had noticed **lower turnover** among participants than among non-participants, so this is not included in the ROI. In addition, none of the employers we interviewed said they had experienced **cost savings from collaborating with other employers**. One employer interviewed did report an improved relationship with another employer partner, which had helped smooth some management issues, but did not indicate that this had resulted in cost savings. Therefore, no savings due to collaboration with other employers are included in the ROI.

There is some evidence that the CHW Initiative improves job performance, which presumably improves the **quality of service** provided by CHWs. Several of the employer-partners surveyed in

¹⁵ Interview with Carl Rush, MRP, Community Resources, conducted August 9, 2010.

both year 2 and year 3 reported that their participating CHWs had either moderate or significant improvements in several areas: outreach skills; ability to support, advocate, and coordinate care for clients; understanding CHW role; communication with their supervisor; and interest in training or education opportunities. The employer partners we interviewed in years 2 and 3 did not report that job performance improvements were significant enough to result in savings, perhaps in part due to low participation rates. Therefore, no savings from increased CHW productivity are included in the ROI.

None of the employers we spoke with said the Initiative had reduced expenses or **increased revenues**. In general, the CHWs being served by the Initiative have limited opportunity to impact revenues. Only four of the Initiative's 11 employer-partners provide direct medical care to patients, and most of the Initiative's participants, particularly in year 3, were not employed by the Initiative's employer-partners. Therefore, no increased revenues from the Initiative are included in the ROI.

Community

The general community may benefit from the CHW Initiative through improved health outcomes, if the Initiative improves the quality of care provided by CHWs (through training and increased professionalization of the field and/or through reduced turnover and thus improved continuity of care), or increases the number of CHWs available to serve community members (through systemic changes that make some CHW services reimbursable by insurers or that expand other funding sources).

These benefits were largely not realized for several reasons. Importantly, the Initiative involved only a small share of all CHWs in the community; CHW turnover was not affected by the Initiative; and the systemic changes that might make it possible for the CHW workforce in Boston to expand have not been achieved yet. For all these reasons, it is unlikely that the Initiative has had an impact on health outcomes for community members, so no benefits to community members have been included in the ROI.

Investment in the CHW Initiative

This section describes the costs of the Initiative, including those incurred by participants and employers to participate in the Initiative. Non-participants did not incur any costs as a result of the Initiative. Monetary costs of the Initiative for staffing, office space, and training are also described.

Participants

The primary costs to participants in the Initiative are the direct and indirect costs of training. The Initiative covers the direct costs of several types of training, including Advanced COEC. In addition, release time is offered through the Initiative by employers to attend some trainings. However, some participants have enrolled in education or training programs that they pay for themselves.

As of the end of Year 3, eight participants were enrolled in college programs. Several of these enrolled during Year 1 and 2. We assume no lost wages for education, because employment data show that all but one of the students was working at least half time. Because of their workloads, we also assume that students attend school part time, so the direct costs of education are the per-credit fees for a student enrolled half-time.

Employer-Partners

The primary investments made by the Initiative's employer-partners were release time for employees attending coaching and training and to attend employer-collaboration meetings. In addition, we expected some employers to incur costs in providing additional supervision for their CHWs.

Employers participating commit to a **minimum of one hour of supervision** every two weeks for all CHWs; however, none of the employers we interviewed said they had increased the level of supervision provided to their CHWs. All the employees said they provided at least the minimum level of supervision prior to joining the Initiative. Therefore, we have not included any costs in the ROI to reflect additional supervision.

Costs for release time for coaching and training were included in the ROI. Specifically, employers participating commit to provide 12 hours per year of paid release time for coaching for participants, and up to 56 hours per year for participants for training. In practice, however, most (about three-fourths) participants, particularly in Year 3, were not employed by the Initiative's employer-partners. Costs are only included for employer partners; we assume that other employers do not offer release time for coaching.¹⁶

The cost to employers for **release time related to coaching** was calculated based on the following inputs:

- ❖ Average wage of CHWs at enrollment (\$16.43)
- ❖ Number of participants enrolled in coaching who were employed by one of the Initiative's employer partners (15)¹⁷
- ❖ A total of 50 coaching sessions with participants (an average of 3.3 per participant)¹⁸

The release time provided to participants for training was almost exclusively for the Advanced COEC program. Although participants attended a number of other trainings, these were held outside of work hours and did not involve release time. The cost to employers for release time to attend Advanced COEC was calculated based on:¹⁹

¹⁶ CHW Initiative coach Carlos Maynard reported that about 200 hours were spent in coaching sessions during Year 3 for incumbent participants, and about 200 hours for new careers participants. For the incumbent participants, Maynard indicated that many coaching sessions were provided during participants' lunch hours or after work hours, indicating that many participants did not have release time for coaching. We have assumed that about 75 percent of incumbent participants did not have release time, which is the share of incumbent participants whose employers were not CHW Initiative partners. We assume no new careers participants had release time.

¹⁷ We assume that employers who were not partners with the Initiative did not provide release time for coaching.

¹⁸ The estimate of number of coaching sessions was provided by Carlos Maynard, one of the Initiative's career and academic coaches.

¹⁹ Although we have included release time for participants as a cost to employers, the employers we spoke with said they had not incurred costs to cover this time (e.g., hired new staff or paid an existing staff member for extra hours to cover absences). Rather, CHWs generally make up work missed for coaching and training.

- ❖ Average wage of CHWs at enrollment (\$16.43)
- ❖ Number of participants enrolled in Advanced COEC who were employed by one of the Initiative's employer partners (5)²⁰
- ❖ Number of hours of class time in Advanced COEC (56)²¹

Expected costs to employers also include the **tuition reimbursement** paid to participants, to the extent that these exceed reimbursements that would be made in the absence of the Initiative. However, employer-partners surveyed reported that none of their CHW employees who took advantage of tuition assistance were participants in the Initiative.

Employer-partners invest a great deal of time in the Initiative to attend meetings to accomplish systemic changes and participate in the employer collaboration. The **cost of this collaboration** was calculated based on these inputs:

- ❖ Average wage of partner representatives attending meetings (\$45.50)
- ❖ Total number of meetings (9)
- ❖ Hours per meeting (2)
- ❖ Number of representatives per meeting (10)²²

As with release time for participants in the Initiative, we have included the costs of collaboration as an investment made by employers although none of the employers we interviewed said they had incurred direct costs to cover this time. Rather, partner representatives generally make up work missed for the meetings and/or their productivity may temporarily decline slightly. Including the full cost of missed work time in the ROI may overstate employers' contributions and make this a conservative estimate of the ROI.

Investors

Investment in the Initiative occurred through both direct cash contributions and via in-kind contributions of personnel time, office space, meeting space, and others. In-kind contributions are counted differently in the ROI than in the Initiative's reports to SkillWorks, in that some in-kind contributions are counted as a cost to specific parties (such as the costs to employers for release time) rather than in the total investment amount. Total amounts spent in the CHW Initiative are shown in Exhibit A-3.²³

²⁰ We assume that employers who were not partners with the Initiative did not provide release time for Advanced COEC training.

²¹ The cost of release time to employers is small relative to other costs, so excluding this cost does not change the ROI.

²² Cost of collaboration calculations were provided by Kenya Elisa-McLaren, CHW Initiative program director. Employer collaboration consists of meetings of the steering, education and training, and public policy committees. We assume that each met three times during Year 3, for a total of two hours, and had an average attendance of 10 people.

²³ Investment in the CHW Initiative and spending vary somewhat because some funding was unspent in Year 1 of implementation.

ROIs projected for future years include estimates of future planned investments/expenditures, treated the same way as past investments (e.g., in-kind contributions by employers of release time for participants are counted as a cost to employers, not as a cost to investors).

Key Assumptions

Several assumptions are key to the ROI calculation. These include the time horizon over which investments and returns are calculated, and the rate used to discount future expenditures and returns to the present time period.

Time Horizon

For each yearly cohort of participants, benefits and costs are calculated for a period of ten years. Although participants have an average of about 23 years remaining in their career (until turning 65), a shorter period is used because we assume many participants will change careers. Actual data from the Initiative are used for Years 1-3; the model estimates returns for the remaining seven years.

Discount rate

As noted in Lingane and Olsen (2004), there is no rule for determining the appropriate discount rate²⁴ for a social return on investment calculation. In general, a larger discount rate implies a higher degree of risk. Thus a very safe investment might use a discount rate equal to the current federal Treasury Bill rate; a riskier investment might use a higher rate. This analysis (and any calculation of a social return on investment) relies on many assumptions, each of which introduces uncertainty into the calculation. In addition, some of the returns included in the projected ROI are dependent on systemic changes that have not yet happened. Because of the uncertainty of realizing future returns, we have used a higher discount rate to most appropriately reflect this risk.

We use the rate on an A-rated corporate bond with a 10-year maturity (similar to the period over which returns to the Initiative are calculated). This rate averaged 5.5 percent over the Year 2 and Year 3 period of April 2008 through March 2010. In comparison, the rate on Treasury bills with a 10-year maturity was 3.4 percent.

²⁴ A discount rate is similar to an interest rate. It is a key assumption in calculating a net present value, which allows investors to consider the time value of money (i.e., a dollar earned 10 years from now is worth less than a dollar received today). Dollars spent or earned in the future are “discounted” to a value that allows them to be compared with present dollars. The concept is important in investing, which typically requires money to be spent up-front, and returns to be received sometime in the future. For example, a \$100 current investment requires a return of greater than \$100 sometime in the future to allow the investor to break even. Among other things, the \$100 invested has alternative uses that yield a positive return (such as buying a Treasury bond). The selection of the discount rate depends primarily on the risk of the investment and current interest rates.

Exhibit A-3. Cash and In-Kind Spending in the CHW Initiative

	Planning			Implementation							
	Requested	In-Kind	Total	Year 1		Year 2		Year 3		Years 1-3	
				Actual Expenses	Non-Cash Match	Grant Funded	Non-Cash Match	Grant Funded	Non-Cash Match	Grant Funded	Non-Cash Match
Salary and Fringe Benefits											
Program Management	\$ 14,364	\$ 81,263	\$ 95,627	\$ 70,488	\$ 45,752	\$ 68,495	\$ 47,125	\$ 76,349	\$ 48,538	\$ 215,332	\$ 141,415
Instructors	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Career Coaches/Case Mgmt Staff	\$ -	\$ -	\$ -	\$ 73,279	\$ 961	\$ 102,742	\$ 3,255	\$ 104,202	\$ 7,595	\$ 280,223	\$ 11,811
Data Entry	\$ -	\$ -	\$ -	\$ -	\$ 7,309	\$ -	\$ 7,528	\$ -	\$ 7,754	\$ -	\$ 22,591
Other Administrative Staff	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contracts											
Training: Advanced COEC	\$ -	\$ -	\$ -	\$ 39,201	\$ 13,888	\$ 55,970	\$ 15,651	\$ 40,000	\$ 4,600	\$ 135,171	\$ 34,139
Training: Referral Trainings	\$ -	\$ -	\$ -	\$ -	\$ 5,750	\$ -	\$ 10,800	\$ -	\$ 9,200	\$ -	\$ 25,750
Non-Training	\$ 27,200	\$ -	\$ 27,200	\$ 77,030	\$ -	\$ 179,135	\$ -	\$ 131,000	\$ -	\$ 387,165	\$ -
Non-Personnel											
Space(Staff Facilities)	\$ 1,950	\$ -	\$ 1,950	\$ 7,800	\$ -	\$ 7,800	\$ -	\$ 7,800	\$ -	\$ 23,400	\$ 7,800
Space(Classroom Space)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transportation for Staff	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Professional Development for Staff	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment and Supplies	\$ 516	\$ 2,000	\$ 2,516	\$ 8,864	\$ -	\$ 2,000	\$ -	\$ 2,000	\$ -	\$ 12,864	\$ -
Tuition	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Program Participant Support Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 10,000	\$ -	\$ 5,000	\$ -	\$ 15,000	\$ -
Event and Meeting Costs: meeting space & refreshments	\$ -	\$ -	\$ -	\$ 268	\$ 2,100	\$ 1,732	\$ 2,100	\$ 1,000	\$ 2,100	\$ 3,000	\$ 6,300
Event and Meeting Costs: release time	\$ -	\$ -	\$ -	\$ -	\$ 49,686	\$ -	\$ 8,190	\$ -	\$ 8,190	\$ -	\$ 66,066
Other Costs	\$ 1,800	\$ -	\$ 1,800	\$ 2,081	\$ 9,846	\$ 39,701	\$ -	\$ 9,624	\$ -	\$ 51,406	\$ 9,846
Indirect Costs	\$ 4,170	\$ -	\$ 4,170	\$ 25,390	\$ -	\$ 42,549	\$ -	\$ 27,525	\$ -	\$ 95,464	\$ -
Total	\$ 50,000	\$ 83,263	\$ 133,263	\$ 304,400	\$ 135,292	\$ 510,124	\$ 94,649	\$ 404,500	\$ 87,978	\$ 1,219,025	\$ 317,919

Abt Associates Inc.

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