Bread of Healing Clinic Return on Investment Analysis

Prepared for
Aurora Health Care
and
Bread of Healing Clinic

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INTRODUCTION

This report summarizes findings from an analysis of the return on investment ("ROI") in the Bread of Healing Clinic ("BOHC"). Aurora Health Care ("Aurora") and other entities and individuals provide financial (cash) and in-kind support to BOHC. These investments help to enable BOHC to provide numerous benefits to uninsured, chronically ill patients and to hospitals and health systems in the Milwaukee Wisconsin area. The ROI analysis estimates the dollar value of the investments in BOHC and of the benefits associated with the clinic's services and outcomes.

Measuring ROI is a valuable undertaking, because it helps:

- Build a business case for initiating, continuing, enhancing, or ending a hospital's investment in a community benefit program;
- Communicate more fully (and both internally and externally) the value and impacts provided by specific programs;
- Prioritize among alternative contributions/grants and program investments; and,
- Enhance and extend the results of program evaluations by expressing program impacts in financial and economic terms.

The Bread of Healing Clinic is a neighborhood-based free clinic for individuals with financial or other barriers to quality health care. Based at the Cross Lutheran Church and at two other, smaller sites, the clinic offers health education, screening and preventive services, and care for acute and chronic illnesses. BOHC also serves as a valuable teaching and training site for medical students and residents.

The clinic began as a ministry of Cross Lutheran Church in 2000. Beginning with one room, one resident physician volunteer, one nurse volunteer, and one half-day each week, the clinic opened and saw 150 patients in 2000. Since that time, BOHC incorporated as a 501(c)(3) corporation, expanded to six half-days each week at Cross Lutheran. Two other clinic sites also have opened, one at Eastbrook Church two half-days each week; the other at Florist Avenue Lutheran Church two half-days each week.

In 2013, BOHC provided almost 9,400 visits for about 2,000 patients. Its annual budget has increased to over $1.2 million (including the value of in-kind services provided by Aurora and other community partners).

Aurora and the BOHC are key partners in providing primary health care for uninsured adults, the majority of whom have one or more chronic illnesses. Since BOHC's inception, the two organizations have worked together to create a model that includes:

- a free clinic model that increases access to ongoing primary care for individuals with chronic illness rather than a more common episodic service model;

- medical education for interns, residents, and medical students that builds the commitment of a future workforce to serving medically underserved populations in urban settings;

- the involvement of multiple health systems that share responsibility for serving the uninsured;

- comprehensive services including vision, dental, medical specialty consultation, podiatry and health services for issues affecting people with diabetes and other chronic health conditions; and

- a Community MedShare program that provides free medications to uninsured persons of the BOHC and other free clinics through low cost purchasing, collection of sample medications and streamlined patient assistance programs.

Aurora funds the BOHC Clinic Director position, provides free laboratory and radiology services to BOHC's patients, and provides access to specialty care through the Specialty Access for the Uninsured Program ("SAUP"). The two organizations work together to arrange training opportunities for medical residents and medical students at BOHC.

METHODOLOGY

The methodology applied in the analysis involved estimating two types of financial/economic returns:

- The **ROI** to Aurora (cash flow impacts on Aurora entities due to the investments and outcomes associated with the clinic), and

- The additional ROI to the community served by the clinic, or "**CROI**" (additional net cash flow, economic effects, and value of health gains for other organizations/ collaborators associated with the clinic and for community members).

The following types of data were gathered and organized into a ROI model: the number and characteristics of BOHC patients, the cash and in-kind expenses borne by Aurora to support the BOHC, BOHC financial statements, contracts between Aurora and BOHC (including the contract in place for medical education), grant applications that discuss BOHC services, and financial information (including per-unit fixed and variable costs) about Aurora services affected by BOHC's operations (emergency department, inpatient, and Aurora Medical Group).

Utilization effects associated with BOHC's services (e.g., the number of emergency room visits and admissions that were avoided or prevented) were estimated based on findings from an extensive literature review[1] and data from Milwaukee's "ED to Primary Medical Care Home Referral and Retention Project." Findings from numerous research studies and program evaluations were analyzed to inform the model's assumptions about the changes in health resource utilization expected from improved chronic disease management. National benchmarks for utilization of health services by uninsured and chronically ill populations similar to those

[1] The Appendix lists studies reviewed for this purpose.

served by BOHC also were assessed. Relevant data and assumptions were incorporated into a ROI model.

Several discussions were held to discuss data needs and review drafts of the ROI model, including an in-person meeting with Aurora and BOHC representatives. During these interactions, initial findings, relevant literature, and key assumptions were reviewed and discussed. Feedback from this meeting helped to validate assumptions and enhance the accuracy of data inputs.

RESULTS

Table 1 summarizes the results of the return on investment analysis.

Table 1: Summary Return Investment Results, 2013

Return on Investment: 2013 Summary	Low	High
Aurora's Return on Investment		
Investment	$ 339,784	$ 339,784
Return	837,217	1,172,750
Return on Investment		
Amount	$ 497,434	$ 832,966
Percentage	146%	245%
Community (Excluding Aurora)		
Investment	$ 1,007,403	$ 1,007,403
Return	3,319,437	3,463,237
Return on Investment		
Amount	$ 2,312,035	$ 2,455,834
Percentage	230%	244%
Combined		
Investment	$ 1,347,186	$ 1,347,186
Return	4,156,655	4,635,987
Return on Investment		
Amount	$ 2,809,468	$ 3,288,801
Percentage	209%	244%

According to the analysis, in 2013 Aurora's costs to support BOHC were approximately $340,000 and Aurora's return on investment was $837,000 to $1.2 million (depending on the method used to estimate the number of inpatient admissions that were prevented due to BOHC services – see below). Aurora's ROI in percentage terms was 146 to 245 percent.

Other community resources supporting BOHC were approximately $1.0 million, and the return on investment was $2.3 to $2.5 million, or 230 to 244 percent.

Combined, the one-year ROI is estimated to have been 209 to 244 percent – based on the assumptions and calculations described in this report.

Table 2 presents in more detail the estimated 2013 return associated with Aurora's investment in the BOHC.

Table 2: Estimated Return on Aurora's Investment in BOHC, 2013

Return on Investment: Aurora	Low	High
Annual Investment		
In-kind staff and services	$ 120,000	$ 120,000
Laboratory tests	40,843	40,843
Radiology tests	12,068	12,068
Net Medical Education expenses	64,969	64,969
SAUP Costs	101,904	101,904
Total	339,784	339,784
Cost Savings and Impacts		
Aurora Emergency Room	638,933	638,933
Aurora Inpatient Admissions	198,284	533,817
Total	837,217	1,172,750
Return on Investment		
Annual Amount	$ 497,434	$ 832,966
Return Percentage (Benefits/Investment - 1)	146%	245%

In 2013, Aurora provided approximately $340,000 in cash and in-kind financial support to the clinic. Cost savings in Aurora's emergency room due to the impact BOHC's services are estimated to be about $639,000 in 2013 and savings due to fewer inpatient admissions ranged from $198,000 to $534,000 – depending on the estimation method applied. This results in a return on investment of 146 to 245 percent.

The costs of 2013 investments made by Aurora were estimated based on reviewing BOHC and Aurora financial records, and through research conducted by Aurora finance staff. The gross cost of medical education resources at BOHC was reduced to account for graduate medical education reimbursement received by Aurora[2]. Aurora finance staff quantified the gross charges incurred by BOHC patients for the SAUP program, and converted these charges to cost using a ratio of cost to charges for the Aurora Medical Group.

1. Reduced Emergency Department Costs

[2] A factor for this purpose was derived from Schedule H, which documents total health professions education expense and "direct offsetting revenue" received from Medicare and other public payers.

Regarding emergency room savings, the analysis estimates that in 2013, the BOHC prevented 3,560 emergency room visits. This occurred due to the combination of two effects:

- The BOHC is providing additional ambulatory primary care capacity, reducing the use of the emergency room at Aurora Sinai Medical Center and at other area hospitals for non-urgent needs; and,

- The BOHC also helping chronically ill patients (with Hypertension, Diabetes, Asthma, and Hyperlipidemia) manage their diseases (including providing access to free or low-cost medications), thereby reducing the need for emergency services.

Effect One. The first effect was estimated based on numerous studies, which have shown that uninsured patients are more likely to use emergency departments for non-urgent health problems than those with private insurance. Others have shown that communities where an FQHC (community health center) is available experience a much lower rate of per-capita emergency room visits (i.e., 25 to 30 percent lower), including "revisits" (defined as multiple emergency room visits in two years) – particularly for ambulatory care sensitive conditions and for "non-emergent" services. Various studies have found that "proportions of unnecessary ED visits [range] from 33% to 81% and that emergency department visits by free-clinic users are less likely to be "low-level-of-care.[3]"

Milwaukee is unique in that the Milwaukee Health Care Partnership operates the "Emergency Department Care Coordination Initiative." That project targets uninsured and Medicaid recipients with chronic conditions (asthma, COPD, Diabetes, Hypertension, HIV/AIDS), pregnant women, and who are frequent ED users (more than four ED visits in twelve months). The project has achieved "stick rates" exceeding 40 percent in recent months – indicating that patients referred by emergency departments have completed two or more appointments with FQHCs or free clinics that participate in the initiative.

Taking the literature and findings from the Emergency Department Care Coordination Initiative into account, the model assumes that 30 percent of the 9,400 visits provided by the BOHC would have occurred at a Milwaukee area emergency room – if the BOHC services were not available. Of these, 70 percent (or approximately 2,000) would have occurred at Aurora Sinai Medical Center.

Effect Two. The analysis further assumes that BOHC's chronic disease management efforts are reducing the need for another 750 emergency room visits in Milwaukee. The estimated magnitude of this effect also was based on literature that finds substantial decreases in the use of emergency rooms when uninsured patient chronic diseases are managed. For example, studies have found that people with uncontrolled diabetes or with diabetes complications incur costs two to eight times more than people with controlled or non-advanced diabetes. Patients who have access to primary care providers that follow asthma guidelines experience 27 percent fewer asthma-related emergency department visits.

[3] See article by Hwang, et. Al.

The combined effects suggest that BOHC may have prevented a total of 3,600 emergency room visits in 2013. Given the partnership between BOHC and Aurora and the proximity of the clinic to Aurora Sinai Medical Center, it is assumed that 70 percent of this effect benefits Aurora.

The 3,600 visits are arrayed by acuity level, based on data provided by Aurora's finance staff. Aurora finance staff also provided direct (variable, 2013) per-visit costs by level. The costs per visit averaged $183.49. Average costs per visit for Aurora Medical Group physicians who provide services in the emergency room were estimated to be another $73. Aurora's total cost savings for the emergency room visits – all of which are for uninsured patients – thus are estimated to be $639,000 (3,600 x 70% x ($183.49 + $73).

2. Reduced Inpatient Admissions and Costs

The impact of BOHC on inpatient admissions and costs was estimated in two ways.

- First, on a national level, approximately 7.2 percent of emergency room visits result in admission. Applying this 7.2 percent statistic to the 2,500 emergency room visits that are avoided due to BOHC's services indicates that about 180 uninsured admissions also were prevented. These admissions were arrayed by acuity level, and a weighted average variable cost savings of $2,976 per admission was applied to estimate inpatient cost reductions of about $534,000 at Aurora.

- Second, national statistics also indicate that adult, uninsured persons are admitted as inpatients at a rate of 140.1 per 1,000 persons. Because BOHC serves uninsured adults with multiple chronic diseases, this "use rate" was doubled, suggesting that BOHC's 1,987 patients would have yielded 557 admissions if BOHC services were not available.

  The literature review conducted for this analysis indicates that treatment and care management services provided by organizations like BOHC reduce admission rates. Data from BOHC suggest that about 60 percent of BOHC patients have hypertension, 30 percent have diabetes, 17 percent have asthma, and 10 percent have hyperlipidemia (values do not add to 100 percent due to multiple conditions). This distribution was coupled with assumptions from the literature regarding the impact of care management on each type of chronic disease (5 percent reduction for hypertension, 25 percent for diabetes, 50 percent for asthma, and 10 percent for hyperlipidemia) to estimate the number of inpatient admissions prevented in 2013 due to BOHC's services. This second methodology suggests that about 95 admissions were prevented community-wide; 67 at Aurora.

  The weighted average variable cost per admission also was applied to the 95 admissions to estimate inpatient cost reductions of approximately $198,000 at Aurora.

The analysis thus includes a range estimate for inpatient cost savings, based on a range of 95 to 180 admissions prevented by BOHC's services.

Table 3 presents in more detail the estimated 2013 return associated with investments by other (non-Aurora) community members in the BOHC.

Table 3: Estimated Return on Aurora's Investment in BOHC, 2013

Return on Investment: Community	Low	High
Annual Investment		
Individuals and corporations	$ 114,816	$ 114,816
Churches	34,902	34,902
Grants and Foundations	243,241	243,241
Contracts (excluding Aurora)	34,870	34,870
FC-3 Income	99,574	99,574
In-kind support (excluding Aurora)	480,000	480,000
Total	1,007,403	1,007,403
Cost Savings and Impacts		
Other Emergency Rooms	273,829	273,829
Inpatient admissions to other hospitals	84,979	228,779
Subtotal	358,807	502,607
Increased earnings for clients	476,880	476,880
Value of QALY improvement	2,483,750	2,483,750
Total	$ 3,319,437	$ 3,463,237
Return on Investment		
Annual Amount	$ 2,312,035	$ 2,455,834
Return Percentage (Benefits/Investment - 1)	230%	244%

In 2013, the community ROI (excluding Aurora) was an estimated 230 to 244 percent. As described below, the community ROI consists of cost savings from reductions in emergency room visits and inpatient admissions, as well as two economic effects: increased earnings for clients and the economic value of improved quality of life for BOHC patients.

The $1.0 million 2013 investment by other community members was derived from BOHC financial statements, which include a variety of grants and other revenue that supports operations. In-kind support was based on information presented in a grant application.

Seventy percent of total cost savings for emergency rooms and inpatient admissions were included in **Table 2** (Aurora's ROI). Accordingly, **Table 3** includes 30 percent of the total estimated impact of BOHC services on hospital utilization. The 30 percent is assumed to be realized by other hospitals in the Milwaukee area. Aurora's variable costs per-unit of service (per emergency room visit, and inpatient unit) were used as a proxy for these per-unit costs at other area hospitals.

Two other benefits are estimated, namely: increased earnings for BOHC clients due to reduced absenteeism resulting from improved health, and the economic value of improvements in "Quality Adjusted Life Years" or "QALY."

- Based in part on data from a Marquette University study4, the ROI model assumes that 50 percent of BOHC patients work. The model also assumes that BOHC's services reduces absenteeism for these working patients by 4 days per year – a conservative assumption informed by the literature review.

- The quality-adjusted life-year is a widely used measure of both quality and quantity of life that is applicable to all individuals and diseases. The QALY concept is important to outcomes researchers who are attempting to evaluate the efficacy and cost of various healthcare interventions based on their impact on QALYs5. As a population health indicator, QALY used to combine the quantity and quality of life of a population.

- Applying the QALY measure to the ROI model assumes that 50 percent of [all] BOHC patients experience a 5 percent improvement in health status resulting from services provided (including medication access). Economists generally value one QALY at amounts ranging from $30,000 to $100,000. For the purpose of this analysis, we will estimate $50,000 per QALY. QALY benefits to BOHC patients thus are estimated to be $2.5 million (994 patients x 5% x $50,000).

Table 4 presents the combined ROI (including values from Tables 2 and 3).

Table 4: Combined Aurora and Community ROI, 2013

Return on Investment: Combined	Low	High
Annual Investment	$ 1,347,186	$ 1,347,186
Cost Savings and Impacts		
Emergency Rooms and inpatient admissions	1,196,025	1,675,357
Increased earnings for clients	476,880	476,880
Value of QALY improvement	2,483,750	2,483,750
	$ 4,156,655	$ 4,635,987
Return on Investment		
Annual Amount	$ 2,809,468	$ 3,288,801
Return Percentage (Benefits/Investment - 1)	209%	244%

[4] The McBeath Report, 2011.
[5] See, for example: http://meds.queensu.ca/medicine/obgyn/pdf/what_is/ImplementQALYs.pdf and http://archive.ahrg.gov/news/research-activities/aug09/0809RA7.html.

Note that the community ROI most likely is understated, because in the absence of the BOHC, patients would have sought care not only at emergency rooms and hospitals but also at other clinic sites in the area.

In 2013, the community ROI (including Aurora) was an estimated 209 to 244 percent. If "economic effects" are excluded, ROI would be -11 to 24 percent.

SENSITIVITY ANALYSIS

Table 2 portrays Aurora's estimated 2013 return on investment in BOHC. As described in this report, the analysis is based on numerous data inputs, assumptions, and parameters derived from available literature. All analyses of this nature involve uncertainty, and different results would be presented under alternative assumptions regarding the impact of BOHC services on the Aurora Sinai Medical Center emergency room and on inpatient admissions.

Table 5 portrays a "break-even" result in which the dollar value of the impact on Aurora is equal to Aurora's 2013 investment.

Table 5: "Break-Even" ROI for Aurora, 2013

Return on Investment: Aurora "Break-Even" Levels	Low	High
ROI Model Results		
Aurora's Investment	$ 339,784	$ 339,784
Aurora's Return	837,217	1,172,750
Sensitivity Analysis		
Percentage Change in Return	-59%	-71%
Revised Return	$ 339,784	$ 339,784

The analysis shows that if assumed impacts on emergency room visits and admissions were reduced by 59 to 71 percent, Aurora's ROI would be zero. This analysis suggests that Aurora is receiving a positive ROI from its investment in BOHC.

APPENDIX

References Providing Assumptions for the ROI Model

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