SOCIAL CAPITAL VALUATIONS

# First Generation EV-ROI Model for Hartford Communities That Care's Hartford Crisis Response Team/ Hospital-Linked Violence Intervention Program

## Background

In 2004, Hartford Communities That Cares (HCTC) created the Hartford Crisis Response Team (HCRT) in partnership with Trinity-Saint Francis Hospital and Medical Center in Hartford to address the mental health and medical needs of victims assaulted or by gunshot, knife wounds, or blunt trauma. The HCRT connects with victims at a moment of significant crisis, offering trauma-informed, culturally responsive care and case management, clinical care, safety planning, peer support, information, referrals, and connections to community resources. HCTC interrupts the cycle of violence working within the healthcare system, reducing future morbidity and mortality, preventing retaliatory violence, and increasing community safety. HCRT services include immediate and post-crisis interventions, gang mediation, conflict resolution, mental health and substance abuse services and referrals, and access to personal injury and survivor benefits compensation and reimbursement. Based on its exemplary work over the past fourteen years and implementation of evidence-based standards, HCTC has received designation as the State of Connecticut's only Hospital-Linked Violence Intervention Program and is one of only 30+ such programs in the nation. HCTC is a member of the National Network of Hospital-Based Violence Intervention Programs (NNHVIP), implementing a public health, family-centered approach to addressing community violence and providing victims' assistance. Since 2004, HCTC has responded to and supported 722 fatal and non-fatal shooting victims and their families.

Shooting incidents / victims in Hartford, Connecticut have ranged between 105 and 143 from 2011 through 2017. Hartford has experienced a 33.8% increase in shootings in 2018 over 2017 and is on pace for a record-breaking 178 shootings in 2018 (95 shootings through July 21st, 2018, up from 71 shootings in 2017 through July 21st, 2017). Saint Francis Hospital and Medical Center, located in the heart of Hartford, with 617 beds and 65 bassinets, is the largest Catholic hospital in New England, and serves many of these shooting victims. The Saint Francis mission is "to serve together in the spirit of the Gospel as a compassionate and transforming healing presence within our communities." Their Core Values include: **"Reverence** - We honor the sacredness and dignity of every person; **Commitment to Those Who are Poor** - We stand with and serve those who are poor, especially those most vulnerable; and **Stewardship** - We honor our heritage and hold ourselves accountable for the human, financial and natural resources entrusted to our care."

In keeping with Saint Francis' mission and core values, Hartford Communities That Care (HCTC) applied for and received funding from Trinity Health / Saint. Francis Hospital Wellbeing 360 to support the HCTC-initiated Crisis Response Team/ Hospital-Linked Violence Intervention Program (HCRT) activities among residents living in the City of Harford who were victims of a violent crime, treated and discharged from Trinity Health / Saint Francis Hospital. HCRT's mission is to provide immediate and on-going medical, emotional, psychological, communal and spiritual support for victims of urban gun violence and ensure proper follow-up care that optimizes recovery and positive long-term outcomes for the victims.

HCTC has committed to supporting (20) twenty victims of gun violence with immediate emergency crisis intervention, connection to follow-up medical care, and the provision of long-term recovery services. This three-pronged approach seeks to create short-, intermediate- and long-term outcomes. HCTC has contracted with Social Capital Valuations, LLC (SCV) to monetize those outcomes for the purpose of calculating the return on investment for services rendered by HCTC's HCRT.

## SCV's Expected Value – Return On Investment (EV-ROI)

SCV developed Expected Value-Return on Investment (EV-ROI) as a predictive model that combines a commonly accepted probability theory (expected value) with a common approach that businesses use to make financial decisions (return on investment). Expected value is the probability of an occurrence multiplied times the absolute dollar value of that occurrence. For instance, if a person bought enough lottery tickets to acquire a 10% chance of winning $1,000,000, then we would say the expected value of winning = 10% x $1,000,000 or $100,000. If it cost that person $50,000 to buy those lottery tickets, then we can say that every $1 invested would be expected to return $2 in revenue.

## EV-ROI Applied to HCTC's HCRT

The first step in calculating the EV-ROI of any program is to create a logic model that depicts the linkages between a program's purpose, inputs, activities, outputs and outcomes so that readers may gain a comprehensive view of the program's pathways to intended outcomes. The logic model for the HCTC NCRCS program is offered on the following page. Note that the boxes that are bordered in red indicate aspirational positions and services to be offered contingent upon finding the requisite funding.

# Logic Model: Hartford Crisis Response Team (HCRT)

**Mission Statement:** Provide immediate and on-going medical, emotional, psychological, communal and spiritual support for victims of urban gun violence and ensure proper follow-up care that optimizes recovery and positive long-term outcomes for the victims, and reduces hospital emergency room utilization and costs for taxpayers and commercial insurers.

## Inputs

*What We Invest*

- Trinity Health/St. Francis Hospital and Medical Center
- Harriot Home Health Services
- The Ct. Department of Mental Health and Addiction Services
- The City of Hartford
- Ct. Department of a Social Services / Medicare-Medicaid
- Commercial insurance providers
- Patients and Their Families

## Activities

*What We Do*

**HCTC Project Director/Lead Facilitator:**
- First point of contact and lead crisis coordinator
- Assigns HCTC staff, Community Caregiver (CC) and LCSW
- Develops and facilitates trauma-informed trainings for forty (40) volunteer CCs and fifteen (15) paid staff.
- Co-leads monthly NCRCS planning meetings

**The Crisis Response Team (PD/Staff/CC):**
- Provides rapid on-site response to victims of violent crime within 0-24 hours of initial call
- Connects victim and/or family with Office of Victim Services
- Secures funding for burial, emergency medical bills, safe housing, food, other essential supports and follow-up

**15 HCTC Staff:**
- Receive training in pre-crisis (prevention), crisis (intervention) and post-crisis (advocacy, referral, treatment and support)
- Conduct intakes and do data entry
- Determine Medicaid eligibility, and help clients apply

**HCTC Licensed Clinical Social Worker (LCSW):**
For twenty (20) victims of violent crime discharged from St. Francis
- Accepts referrals from Trinity Health / St. Francis Hospital
- Conducts intakes and assessments
- Provides an Individualized Sustainability Plan (ISP)
- Provides trauma counseling to victims and their families
- Provides group and individual behavioral health therapy

**2 Case Managers:**
- Coordinates internal services offered by the LCSW and CC
- Coordinates external services including Harriet Home Health, OVS, Legal, Housing, Educational, and Job-related training.

**The 40 Community Caregivers (CC):**
- Receives training in pre-crisis (prevention), crisis (intervention) and post-crisis (advocacy, referral, treatment and support)
- Are matched with and establish therapeutic alliance w/ client
- Mentors and offers spiritual, emotional and communal support
- Advocates for and accompanies clients / provides transportation to other supports such as:
  - -Office of Victim Services (OVS),
  - -Legal (including court/criminal justice follow-up),
  - -Housing (including temporary housing and relocation),
  - -Educational (including tutoring, GED, and college), and
  - -Job readiness, skills, and placement training

**20 Clients:** Commit to LCSW, CC, and CIS to accomplish ISP

## Outputs

*What We Produce*

- Training curricula
- # and % of requests for help that are answered within 24 hours
- # and % of families that receive funding for: burial, medical care, housing, food and other essential supports during time of crisis
- # of Intakes and Assessments
- # and % of clients who utilize Harriot Home Health Services
- # of clients receiving trauma counseling and behavioral health support at HCTC
- # and % of crisis clients who establish long-term Individualized Sustainability Plans
- # of Mentor – Mentee Matches
- # and % of Mentor – Mentee Matches that last at least 1 year
- # and % of Clients who are eligible for Medicaid are covered
- # and % of CC's and staff with completion of training certifications
- # and % of clients who follow through with referrals made by LCSW and CC
- # and % of clients and families who utilize mental health and grief counseling services in non-traditional or non-clinical settings

## Outcomes

### Short - Learn

- HCTC paid & volunteer staff become aware of services potentially available to clients and log info into resource DB
- Paid & volunteer staff reach out to and get to know managers of government and community services
- Collaborators and partners (e.g., including criminal justice, educational and faith) know about and understand the mission of NCRCS
- CC/Staff KSA's are increased in the areas of Crisis Prevention Intervention, De-escalation Techniques, Crisis Debriefing, CPR / First Aid, Psychological First Aid, Post Trauma Stress Management, Peer Service Delivery, Group Facilitation, Referrals, and Suicide Risk Assessment.
- Clients' KSA's are increased in the areas of: - Trauma
  - Healthy Habits
  - Coping Skills
  - Self-Awareness
  - Conflict Resolution
  - Communication
  - Available Supports

### Intermediate – Action

- Collaborators provide outreach and welcome interactions with clients and their mentors
- # and % of clients who make use of a variety of services offered by collaborators and partners
- # and % of clients who practice less risky behaviors (including no drug usage, no gang involvement)
- # and % of clients who adopt pro-social behaviors such as involvement in community and school-sponsored events and activities
- # and % of clients who attend group and individualized counseling, school, tutoring, and job training
- # and % of clients who utilize less costlier methods of treatment such as outpatient and in-home physical & mental health care and other social/emotional supports to heal

### Long – Condition

- Less gang involvement
- Decreased retaliation and re-victimization rates
- Decreased utilization of hospital emergency room
- Decreased 30-day hospital readmission rate
- Overall improved health condition for client / victim of gun violence
- Decreased probability of 1st time gun violence at the community level
- Increased educational attainment and graduation rates
- Increased employment rates
- Decreased need for public assistance
- Decreased rates of involvement with criminal justice system

**# and % of clients who are on track for accomplishing the goals laid out in their ISP**

## Calculation Methodology

From the upper most box of the logic model we see that the mission of the HCTC HCRT is to, "Provide immediate and on-going medical, emotional, psychological, communal and spiritual support for victims of urban gun violence and ensure proper follow-up care that optimizes recovery and positive long-term outcomes for the victims and reduces hospital emergency room utilization and costs for taxpayers and commercial insurers." EV-ROI calculations are always conservative valuations in the sense that it is not always possible (or practical) to monetize all of the possible outcomes. In this case, measuring the emotional, psychological, communal and spiritual growth in economic terms may strain a reader's credulity, but we can examine and estimate: 1) the value of follow-up medical care provided in the home that prevents re-admission; 2) social-emotional learning that leads to less retaliation, fewer violent crimes and fewer visits to the emergency department for serious injury; and 3) embarking on a positive life trajectory that leads to high school graduation and/or vocational training and ultimately a full time job and a career.

**1 & 2) Harriott Home Health Services plus Primary Care Provided by Dr. Diez: The value of follow-up medical care that prevents emergency room use and hospital re-admission.**

Trinity-Saint Francis provided a spreadsheet with medical cost information for individuals who were treated for injuries inflicted by handgun (and other mechanisms) at Trinity-Saint Francis between January 1, 2015 and June 14, 2017. That information was sorted on age and on mechanism so that only individuals who were injured by handguns were included. The average hospital charges for that demographic was $79,454.

HCTC is teamed-up with Harriott Home Health Services (HHHS) and Dr. Diez at Trinity-Saint Francis to provide in-home and out-patient treatment of gun-shot victims and other victims of violent crimes after they are released from Trinity-Saint Francis. HCTC referred 15 of the 25 non-fatal gunshot victims to HHHS for in-home care, and HHHS cared for an additional 32 seriously injured victims that were referred directly from the hospital to HHHS. The savings from this care is two-fold. First, the 15 gun-shot victims directly referred to HCTC and 32 other victims referred by HHHS (for a total of 47 patients) that would have otherwise returned to the emergency room for routine follow-up care at high ER costs, are seen in their homes and at Dr. Diez's office at a much lower cost. Second, better care means fewer of these victims return to Trinity-Saint Francis for re-admission.

1) Emergency Room Savings

Because Trinity-Saint Francis does not bear the cost of in-home services provided by HHHS, the cost savings differential for lower ER usage for Trinity-Saint Francis is the difference in the cost of patients using Dr. Diez versus patients using the ER as their primary care physician. According to the U.S. Agency for Healthcare Research and Quality the cost of a doctor visit in a hospital emergency department averaged $922, while a physician office visit averaged $199 in

2008[1]. This $723 differential would be $944 in 2017 dollars[2]. If all 47 patients seen in their home by HHHS and as out-patients by Dr. Diez would have otherwise gone to the emergency room twice, then a total of $944 x (2 visits per patient x 47 patients) = $88,736 in Trinity-Saint Francis care is saved.

2) Hospital Readmission Savings

If the regime of HHHS in-home care coupled with visits to Dr. Diez eliminates hospital readmission, and since according to a previous study of gunshot victims[3] 12.4% are readmitted, then 12.4% of the 47 victims, or 5.8 victims could potentially avoid readmission. Since, according to the same past study[4], the readmitted victims come back 2.3 times, and that their additional costs are 9.6% higher than their initial costs, then the additional cost equals 1.096 x $79,454 or $87,082. If 5.8 victims are saved from returning to Trinity-Saint Francis, then a total of $505,076 would be saved (5.8 x $87,082).

Cost for HHHS and Dr. Diez

Based on trends and outcomes experienced by Harriott Home Health Services, client will utilize 3 months of homecare, including wound care, hygiene care, coping skills/community referrals, physical therapy and wound care supplies. According to Harriott Home Health Services, their annual fee for 18 skilled nursing visits, 2 social worker visits, 3 physical therapy visits, 36 hours of an aide, and $500 in wound supplies = $3,491 per person or $164,077 for all 47 victims of violence. According to Indeed, the average annual salary for a primary care physician in Connecticut is $185,458[4] or $89.16 per hour. The ratio of total expenses to wages in the Trinity Health system is 2.26:1[5] Therefore, the total expense per hour of Dr. Diez's time would be $201.50 per hour. If each of the 94 visits (2 each x 47 victims) lasted 30 minutes, then the cost for Dr. Diez's time would be = 47 hours x $201.50 per hour, or $9,471. The total cost of HHHS plus Dr. Diez to serve the 47 patients was $173,548.

**3) HCTC Interventions: The value of social-emotional learning that leads to less retaliation, fewer violent crimes and fewer visits to the emergency department**

Previously, when working with gunshot victims, HCTC would refer patients to Medicaid-paid trauma therapy practitioners located a bus ride away somewhere else in Hartford. Clients felt alienated from the bureaucracy and the cultural surrounding the services that were offered. The physical distance of the trauma therapy practitioners added another barrier to care and usually meant that clients who needed behavioral health services simply did not get those services. As a result of witnessing this negative experience, HCTC decided to enhance its offerings by hiring licensed clinical social workers to work in-house. The experience so far has shown that patients have a higher degree of trust, leading to greater patient/provider therapeutic alliance, meaning that victims of violent crimes are receiving the behavioral health piece that had been missing.

[1] https://archive.ahrq.gov/news/newsroom/news-and-numbers/042011.html

[2] http://www.halfhill.com/inflation_js.html

[3] J Trauma. 1992 Oct;33(4):556-60. Initial and subsequent hospital costs of firearm injuries. Wintemute GJ1, Wright MA.

[4] https://www.indeed.com/salaries/Primary-Care-Physician-Salaries,-Connecticut

[5] Trinity Health – New England, Inc. Hartford, CT, Consolidated Financial Statements, Year Ended Sept 30, 2016

As a first order estimate of the effect of this in-house therapy we turn our attention to a program called "Becoming A Man" (BAM) that had its origins in Chicago developed by a non-profit called Youth Guidance. According to authors of an NBER Working Paper[6] "participation in the program reduced total arrests during the intervention period by 28–35%, reduced violent-crime arrests by 45–50%, improved school engagement, and in the first study where we have follow-up data, increased graduation rates by 12–19%." Furthermore, they found that juveniles at a temporary detention center reduced readmission rates to the facility by 21%. These large behavioral responses combined with modest program costs imply benefit-cost ratios for these interventions from 5-to-1 up to 30-to-1 or more. The working hypothesis is that the programs work by helping youth slow down and reflect on whether their automatic thoughts and behaviors are well suited to the situation they are in, or whether the situation could be construed differently.

HCTC believes the behavioral health interventions they are engaged in work in an analogous way by offering CBT in both a group and in individual sessions. The following chart depicts the total cost of services delivered from July 1, 2017 – June 30, 2018.

| Service Delivered | # of Recipients | Cost per Recipient | Total Cost |
|---|---|---|---|
| 2-each: Crisis Intervention | 48 | $220 | $10,560 |
| 1-each: Diagnostic Assessment / Evaluation | 56 | $103 | $5,768 |
| 12-each: Individual / Family Therapy | 56 | $720 | $40,320 |
| 12-each: Case Management | 56 | $960 | $53,760 |
| 6-each: Group Therapy | 26 | $270 | $7,020 |
| **Total Cost of Services Delivered** | | | **$117,428** |

Employing the conservative low end of the benefit-cost ratios mentioned above, or a 5-to-1 benefit to cost ratio yields a benefit of $587,140 through the reduction in retaliations, fewer violent crimes and fewer visits to the emergency department. Another way of calculating the value of crisis care and therapy is to recognize that for every violent incident avoided there is an average of $79,454 in initial costs and $10,806 in follow-on costs avoided, or $90,260 in avoided costs per victim. Since it costs HCTC $117,428 to treat 82 people (56 from first four services delivered, plus unduplicated 26 receiving Group Therapy), if just two of the participants avoid a violent response to a future situation, then the program will have paid for itself and achieved a 54% return on investment (2 gun-related violent acts avoided x $90,260 = $180,520 saved, against $117,428 expended). If the program has a 10% success rate and saves 8 future incidents from happening (10% of the 82 participants), then 8 x $90,260 = $722,140 will be saved in medical costs alone, representing a return of $6.15 for every dollar expended. Given this alternative valuation method yields a value of $722,140, the $587,140 valuation is a conservative estimate.

[6] Thinking, Fast and Slow? Some Field Experiments to Reduce Crime and Dropout in Chicago; Sara B. Heller, A. K. Shah, J. Guryan, J. Ludwig, S. Mullainathan, H. A. Pollack; NBER Working Paper No. 21178 Issued in May 2015.

**Embarking on a positive life trajectory that leads to high school graduation and/or vocational training and ultimately a full-time job and a career resulting in: 4) increased tax revenue and 5) public assistance savings and 6) shifting of the Medicaid burden to another payor.**

Another NBER working paper[7] looks at the effect of BAM combined with tutoring. HCTC already has a precedent for offering this sort of intervention because of the work it does with the Violence Free Zone (youth mentoring). According to the study, graduation rates increased by 14 percentage points. Conservatively assuming a 10% improvement in the graduation rate for the 82 clients served through a combination of physical health and mental health services, then an additional 8 students will graduate high school or earn their GED.

4. Increased Tax Revenue. In 2017, a high school graduate's median weekly income was $712, while a high school dropout's median weekly income was $520. These weekly incomes must be reduced by the probability of being unemployed, which was 4.6% for a high school graduate and 6.5% for a high school drop-out in 2017. Multiplying by the obverse employment rates of 95.4% and 93.5%, the "expected value" weekly wages are calculated as $679.25 for the high school graduate and $486.20 for the drop-out.[8] This $193.05 differential in weekly income equals $10,038 per year. Assuming a 45-year career, the differential would be $451,710 in earnings, or $3,613,680 in undiscounted dollars for all 8 graduates. Assuming a 2% discount rate that would equal $296,022 in additional lifetime earnings per high school graduate, or an NPV of $2,368,178 for all 8 graduates. Assuming an annual federal income tax of 10% on the first $9,525, and 12% on incremental earnings between $9,526 and $38,700, Connecticut state income tax of 3% on the first $10,000 plus 5% on incremental income between $10,001 and $50,000, and total FICA of 7.65% and Social Security tax of 6.2%, then the taxpaying public would be denied a net present value of $91,331 in lifetime taxes discounted at 2%[9] for every high school dropout. 8 additional graduates times $91,331 in lifetime tax revenue = $730,648 in taxpayer return at no incremental cost to the taxpayer.

5. Public Assistance Savings. Since high school dropouts are three times more likely to receive public assistance than high school graduates[10], high school graduation is also a predictor of public assistance savings. 37.3% of people who did not graduate from high school received means-tested benefits in 2012[11] 37.3% is 3x 12.43%, so assume that there is a 24.87% difference in the probability of receiving means-tested benefits. Applying this 24.87% differential to 8 students means 1.99 more families would have been on public assistance. Connecticut had the

[7] The (surprising) efficacy of academic and behavioral intervention with disadvantaged youth: Results from a randomized experiment in Chicago (NBER Working Paper 19862). Cambridge, MA

[8] https://www.bls.gov/emp/chart-unemployment-earnings-education.htm

[9] https://taxfoundation.org/2018-tax-brackets/ was referenced for federal income tax rates, and https://taxfoundation.org/2018-tax-brackets/ was referenced for Connecticut State income taxes.

[10] Pennsylvania's Best Investment: The Social and Economic Benefits of Public Education; Mitra, D. and Zheng, A; The Education Law Center; Pennsylvania State University

[11] 21.3 Percent of U.S. Population Participates in Government Assistance Programs Each Month; May 28, 2015 ; https://www.census.gov/newsroom/press-releases/2015/cb15-97.html

fourth highest average welfare benefit package among the fifty states in 2013 at $38,761[12]. Backing out $9,175 for the Medicaid portion of that public assistance package (handled separately below), the public assistance package equals $29,586. Using the CPI Inflation Calculator[13] that package would be $31,121 in 2017 dollars. Assuming 4 years of usage[14], that would equal $124,484 per family times 1.99 families equals $247,723 in avoided public assistance costs.

6. Shifted Medicaid Burden. 100% of the young men that HCTC has provided service to have their medical expenses covered by Medicaid. Without the Crisis Intervention and subsequent clinical intervention (counseling and therapy) provided by HCTC, it is likely that these young men would continue to be covered by Medicaid. Instead, 8 of the 82 young men receiving counseling and therapy are presumed to graduate high school and successfully transition to a productive career where health care costs will be borne jointly by the employer and successful client. In an article entitled "The Lifetime Distribution of Health Care Costs"[15] the authors show in Table 3 that the Lifetime Per Capita Expenditure between the ages of 20 and 65 is $137,801 in Year 2000 dollars. Adjusting down (96.4%) for men and using a medical cost inflation calculator[16] to find that value in 2017, yields a cost of $242,086 per male for the 45-year productive work life. Multiplying $242,086 times the 8 young men equals a shift of $1,936,688 to other payors.

**Summary of Benefits**

The following tables summarize the economic benefits that are projected to accrue from the six outcome categories that were presented in this study. The first two lines of Table 1 depicting the benefit of home care and outpatient services, as opposed to repeat visits to the emergency room, tally $593,812 in costs savings.

Table 1 also shows HCTC Clinical Interventions with a net benefit of $469,712 and a benefit-cost ratio of 5.00 which is equivalent to a 400% return-on-investment. Embedded in that return, which is predicated on breaking the cycle of violence, are savings due to fewer victims needing care at Saint Francis' ER.

Lastly, there is a lifetime taxpayers' benefit of $2,368,178 from increased tax revenue, decreased public assistance, and a shifting of the Medicaid burden to the employer and client due to a positive change in the lifetime trajectory of clients served by HCTC. This substantial public good is a favorable by-product of the HCRT project whose costs are borne by Saint Francis Hospital &Medical Center and the Connecticut Department of Health and Human Services.

[12] The Work Versus Welfare Trade-Off: 2013; An Analysis of the Total Level of Welfare Benefits by State; Tanner, M. and Hughes, C. (2013).

[13] http://data.bls.gov/cgi-bin/cpicalc.pl?cost1=38761&year1=2013&year2=2016

[14] https://www.census.gov/newsroom/press-releases/2015/cb15-97.html; Census report

[15] The Lifetime Distribution of Health Care Costs; Berhanu Alemayehu and Kenneth E. Warner. HSR: Health Services Research 39:3 (June 2004)

[16] https://www.halfhill.com/inflation_js.html

Summing the short-term benefits and costs of the hospital program with the fortuitous long-term taxpayer benefits yields a combined hospital plus Medicaid and taxpayer benefit of $4,143,885 at a cost of $290,976. This means there is a net gain to the hospital, Medicaid and taxpayers of $3,852,909. The combined benefit-cost ratio to these three groups is 14.2 to 1.

Note that the predicted benefits are not independent from one another. In other words, the medical and behavioral health interventions, as well as the sense of connectedness clients feel through group therapy, mentoring, and engagement in extra-curricular and community activities, all lead to a sense of self-esteem and self-efficacy that allows an individual to better realize the goals laid out in his or her Individualized Sustainability Plan (ISP) including their academic, vocational, and career potential.

Table 1: Summary of Benefits, Costs, and Ratios for Serving 47 Wound Victims and 82 Behavioral Health Clients by Benefit Category

| Benefit Category | Benefits | Costs | Net | B/C Ratio |
|---|---|---|---|---|
| 1) HHHS + Dr. Diez Emergency Room Savings | $88,736 | $173,548 | $420,264 | 3.42 |
| 2) HHHS + Dr. Diez Readmissions Savings | $505,076 | | | |
| Subtotal for Home Care + Outpatient | $593,812 | $173,548 | $420,264 | 3.42 |
| 3) HCTC Clinical Interventions | $587,140 | $117,428 | $469,712 | 5.00 |
| Subsequent Taxpayer Benefits | Benefits | Costs | Net | B/C Ratio |
| 4) Increased Tax Revenue (Lifetime) | $730,648 | n/a | $978,371 | n/a |
| 5) Public Assistance Savings (Lifetime) | $247,723 | | | |
| 6) 45 Productive Years not on Medicaid (age 20 to age 65) @$242,086 x 8 | $1,936,688 | n/a | $1,936,688 | n/a |
| Subtotal Taxpayer Benefits | $2,915,059 | n/a | $2,915,059 | n/a |
| TOTALS | $4,096,011 | $290,976 | $3,805,035 | 14.08 |

Tables 2 and 3 below break out the returns for Saint Francis and governmental health agencies, respectively. Table 2 assumes that half of the benefit from medical cost savings, or $590,476, accrue to Saint Francis (and the other half to Medicaid). Saint Francis' total outlay for this benefit equals $39,471 ($30,000 Well Being 360 grant plus $9,471 in outpatient costs). This equates to a net return of $551,005, with benefit-cost ratio of 14.96.

Table 2: EV-ROI for Saint Francis Hospital & Medical Center

| Benefit Category | Benefits | Costs | Net | B/C Ratio |
|---|---|---|---|---|
| ½ of Home Care and Outpatient | $296,906 | $39,471 | $257,435 | 7.52 |
| ½ of Cycle of Violence Reduction due to HCTC Clinical Interventions | $293,570 | $0.00 | $587,140 | n/a |
| TOTAL SAINT FRANCIS RETURN | $590,476 | $39,471 | $551,005 | 14.96 |

The Connecticut Department of Social Services (DSS) bears all but the $39,471 of the costs for crisis intervention, in-home care, out-patient treatment and clinical interventions. The rest of the $251,505 in costs are born by the DSS. For that investment, DSS receives better than a 10-fold return comprised of the immediate return (Home Care and Outpatient), and intermediate outcome return when the cycle of violence is broken, and a return that happens over a 45-year career when 8 young men, who would have otherwise been on Medicaid, can lead productive lives where their healthcare costs will be covered by their employers and themselves. Table 3 lays out this logic that shows this significant return on investment.

Table 3: EV-ROI for Federal and State Health Agencies

| Benefit Category | Benefits | Costs | Net | B/C Ratio |
|---|---|---|---|---|
| ½ of Home Care and Outpatient | $296,906 | $134,077 | $162,829 | 2.21 |
| ½ of Cycle of Violence Reduction due to HCTC Clinical Interventions | $293,570 | $117,428 | $176,142 | 2.50 |
| 45 Productive Years not on Medicaid (20-65) @$242,086 x 8 Careers | $1,936,688 | $0 | $1,936,688 | N/A |
| TOTAL PUBLIC HEALTH RETURN | $2,527,164 | $251,505 | $2,275,659 | 10.05 |

Table 4 adds the lifetime incremental taxes that are collected on incremental income, plus the savings from reduced reliance on public assistance to the bottom line of Table 3, to calculate the total return to the tax-paying public.

Table 4: EV-ROI for all Governmental Agencies

| Benefit Category | Benefits | Costs | Net | B/C Ratio |
|---|---|---|---|---|
| Total Public Health Return | $2,527,164 | $251,505 | $2,275,659 | 10.05 |
| Increased Tax Revenue (Lifetime) | $778,522 | n/a | $978,371 | n/a |
| Public Assistance Savings (Lifetime) | $247,723 | | | |
| Total Public Sector Return | $3,505,535 | $251,505 | $3,254,030 | 13.94 |

## Caveats and Recommended Next Steps

First Generation EV-ROI analyses are based on models that rely upon past studies of similar programs. Therefore, the results are estimates that represent the right order of magnitude of the results that can be expected if the program is implemented with fidelity to the model it is based upon. The next steps for transforming this First Generation EV-ROI analysis into a Second Generation EV-ROI analysis are:

1) Set up performance measurement system to verify that targets for process measures (such as training objectives for staff, and attendance at behavioral health sessions by clients) are being met.
2) Track Harriott Home Health Services provision of services and costs.
3) Track hospital costs and readmission rates beyond initial emergency room care and hospitalization for the intervention group versus hospital costs and readmission rates for a comparison group.
4) Track social emotional learning improvement for those receiving behavioral health services versus a comparison group.
5) Track arrest record and disciplinary referrals for group receiving behavioral health services versus a comparison group.
6) Track accomplishment of goals in the Individualized Sustainability Plans.
7) Track high school graduation, GED, vocational training certifications for behavioral services recipients versus comparison group.
8) Track job placement and retention for behavioral services recipients versus comparison group.
9) Compare running total of costs against value of actual and projected outcomes.