BAYLOR INSTITUTE FOR STUDIES OF RELIGION CASE STUDY

INCORPORATING

Faith & Works

WITHIN A HEALTHCARE NETWORK

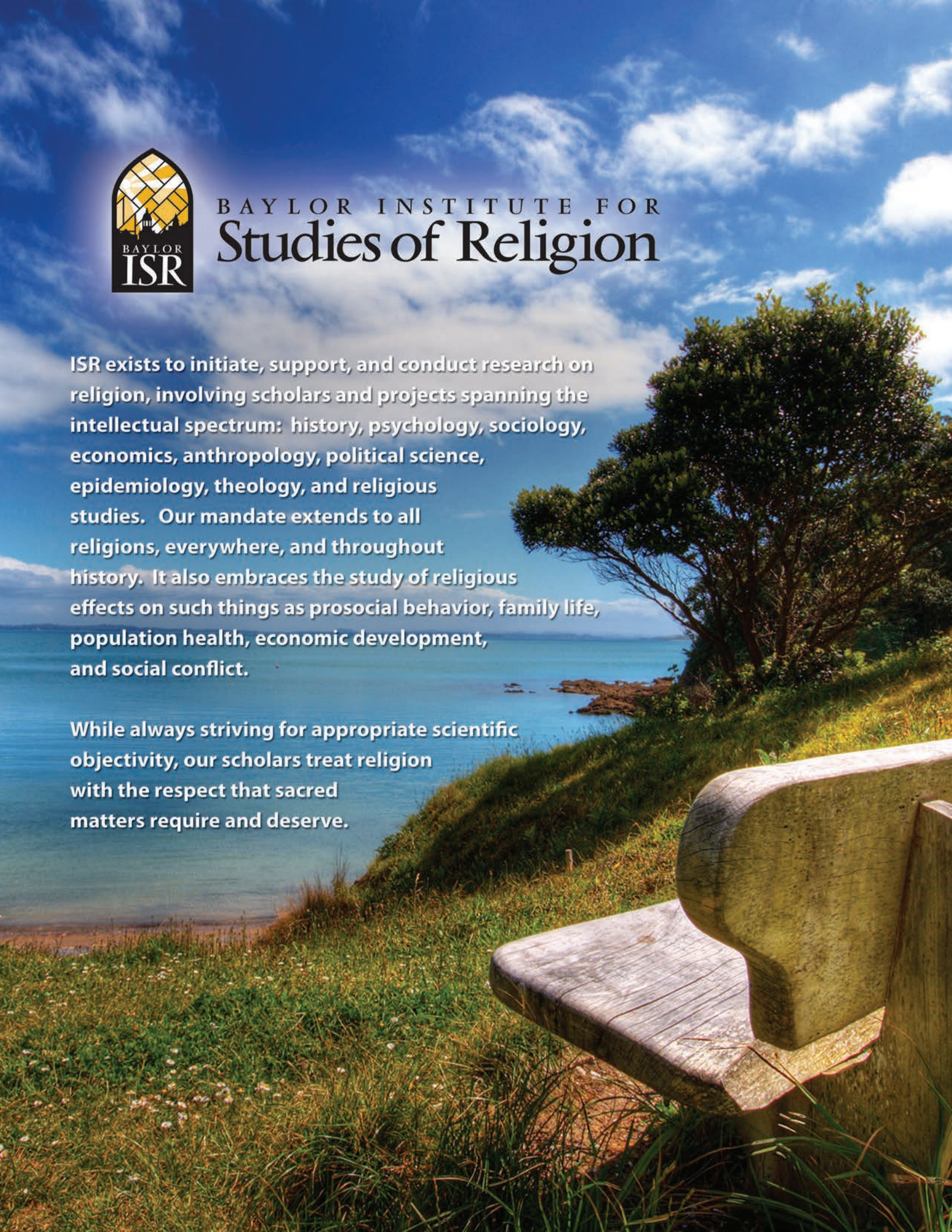
BAYLOR SCOTT & WHITE'S
OFFICE OF MISSION AND MINISTRY

PROGRAM ON PROSOCIAL BEHAVIOR
BAYLOR INSTITUTE FOR STUDIES OF RELIGION

BYRON JOHNSON
WILLIAM H WUBBENHORST

BAYLOR ISR

BAYLOR INSTITUTE FOR
Studies of Religion


BAYLOR
ISR
BAYLOR INSTITUTE FOR
Studies of Religion
ISR exists to initiate, support, and conduct research on religion, involving scholars and projects spanning the intellectual spectrum: history, psychology, sociology, economics, anthropology, political science, epidemiology, theology, and religious studies. Our mandate extends to all religions, everywhere, and throughout history. It also embraces the study of religious effects on such things as prosocial behavior, family life, population health, economic development, and social conflict.
While always striving for appropriate scientific objectivity, our scholars treat religion with the respect that sacred matters require and deserve.

INCORPORATING FAITH AND WORKS WITHIN A HEALTHCARE NETWORK:

BAYLOR SCOTT & WHITE'S OFFICE OF MISSION AND MINISTRY

BYRON JOHNSON

WILLIAM H. WUBBENHORST

PROGRAM ON PROSOCIAL BEHAVIOR
INSTITUTE FOR STUDIES OF RELIGION
BAYLOR UNIVERSITY

BAYLOR ISR

BAYLOR INSTITUTE FOR Studies of Religion

1845 BAYLOR UNIVERSITY

INCORPORATING FAITH AND WORKS WITHIN A HEALTHCARE NETWORK

BAYLOR SCOTT & WHITE'S OFFICE OF MISSION AND MINISTRY

Baylor Scott & White exists to serve all people by providing personalized health and wellness through exemplary care, education and research as a Christian ministry of healing.

I. BACKGROUND

The Baylor Scott & White Health System identifies itself as a faith-based organization, as reflected in the Christian identity and commitment of doctors Arthur Carroll Scott of Gainesville, Texas, and Raleigh R. White of Cameron, Texas, who became Scott's partner, in 1897. In 1904, they established the hospital that would eventually bear their names, Scott & White. From its beginnings, the Baylor Health Care System was founded as a Texas Baptist institution. Around the same time, initial efforts to establish the hospital in Dallas that would be named The Texas Baptist Sanitarium began in 1900 with Charles M. Rosser, M.D. A local medical leader, Rosser saw the need for "a hospital of great importance" for a growing city like Dallas, and one that would support the University of Dallas Medical Department that would later become the Baylor College of Medicine.

Rev. George W. Truett, pastor of the First Baptist Church of Dallas, was a key supporter in the faith community and convinced Dallas citizens of the need "to build a great humanitarian hospital to which men of all creeds and those of none might come with equal confidence." Finally, Colonel C.C. Slaughter, a devout Baptist and wealthy cattleman, provided significant funding for the hospital that would become Baylor University Medical Center.

The Baylor Health Care System established the Office of Mission & Ministry (OMM) in January 2010. Now functioning as an executive office within Baylor Scott & White, it embodies a unique constellation of services and functions reflecting the overall faith-based commitment of the healthcare system. In September 2013, the Dallas-based Baylor Health Care System and Temple-based Scott & White Healthcare completed their merger, forming the largest not-for-profit health system in Texas. Baylor Scott & White has over 5 million patient encounters per year, more than 1,000 patient access points across Texas, and 48 owned, operated, joint- ventured, and affiliated hospitals (see Appendix I for a more detailed description of Baylor Scott & White Health System - BSWH).

In October of 2013, Mark Grace was promoted into the role of Chief Mission and Ministry Officer (CMMO) overseeing OMM for BSWH. The role of OMM is unique as an executive office whose administrative duties include promoting the spiritual aspect of patient care within BSWH to reflect and exemplify the aforementioned faith character in conducting its business as a healthcare provider.

Organizationally, OMM coordinates programs and activities alongside other BSWH corporate functions. OMM offers a unique opportunity for innovative programs in health delivery by modeling and improving the understanding of the interface between faith and health. The value of OMM within BSWH has increased recently as the healthcare landscape itself has undergone significant change, particularly in the area of healthcare financing. The Federal Government, through initiatives such as Medicare's Shared Savings Program,[1] is moving to shift the healthcare payment system towards population-based health through entities it refers to as Accountable Care Organizations, or ACOs.

The intention behind developing ACOs is to move healthcare payments from the current fee-for-service approach to payment of a fixed amount per person per year for providing health services, thus providing a business incentive for health systems to promote preventative health. OMM is uniquely positioned to assist in this effort by exploring where and how faith and spirituality can be incorporated into the overall effort to support better health in the communities BSWH serves. To do so, OMM must first have a better understanding of the current value it produces for BSWH, as well as the future potential it holds for promoting health and wellness to improve community health. OMM must then effectively communicate their value to all concerned parties, particularly as BSWH considers the full ramifications of becoming an ACO.

The challenge for OMM is to communicate the value of its programs and mission in terms that are concrete and measurable while also recognizing the challenges in doing so with issues as intangible as faith and spirituality.

As Mark Grace, explains:

> *On the one hand, BSWH has demonstrated its commitment to providing spiritual care as an essential aspect of whole person care. We are committed to professional, credentialed and accountable spiritual care, not as an add-on or as window dressing, but as an essential dimension of care for patients of all faiths and those of none. On the other hand, we are passionate about documenting the very real health and healing outcomes that occur when evidence based spiritual care is taken seriously. We are also fiercely committed to learning how to improve the quality of spiritual care that we give. This type of research and evaluation effort is essential for keeping the faith component of Baylor Scott & White constantly improving and sustainable.*

1 For more information on the Shared Savings Program, see https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/index.html.

II. INTRODUCTION

The purpose of this case study evaluation is two-fold:

1. To provide a brief overview of the development of the OMM, with a focus on four major program areas within OMM: i) Second Life Resource Center (SLRC); ii) Sacred Vocations Program (SVP) iii); Faith-Community Health (FCH); and iv) Hospital Chaplaincy; and
2. To report the current or projected future value of each of these initiative areas, utilizing a unique Return-On-Investment (ROI) approach for valuing and estimating these initiatives' outcomes and impact in economic and financial terms.

The concluding section of the study will consider the current overall ROI results of these four major programs, particularly those that relate to BSWH and its transformation into an Accountable Care Organization, with examination of the implications for OMM and its role and responsibility within the overall BSWH operations.

III. OFFICE OF MISSION AND MINISTRY

In 2009, prior to the formation of BSWH, the Baylor Health Care System launched Faith in Action Initiatives (FIAI) to represent their commitment of bringing hope and healing into the communities they served. FIAI, which is located within OMM, also works to strengthen the spiritual lives of BSWH staff through employee development programs and opportunities.

Don Sewell, Director of FIAI, described an overview of the main components of the Initiative:

> *There are four main components to FIAI. First, through the Second Life Resource Center, we work alongside non-profit organizations both locally and internationally and supply them with gently-used medical supplies and equipment. Secondly, through initiatives like Sacred Vocations Program (SVP), DayLight electronic inspirational piece[2], and BSWH-10 weekly video Bible study[3], we also play an important role with Baylor employees to reconnect and rekindle them with the sacred meaning of their healing work. The third main area of FIAI essentially represents a combination of the first two, where we both support and supply nurses and therapists on medical missions to developing countries and martial our people and supplies for disaster*

2 BSWH DayLight is the electronic daily inspiration piece produced by Faith in Action Initiatives for the past six years. It provides spiritual encouragement for BSWH employees as well as anyone else who would like to see it. Over 2,000 people read it daily. The 45 contributors to DayLight are BSWH employees; the FIAI office plans themes, engages writers, and edits all contributions before forwarding the daily piece to the addressee list.

3 BSWH-10 Bible Study is also a means of communicating with BSWH staff through a weekly lesson format (both written and video) of a particular Bible theme. The key is its concise format, readable in 10 minutes or less, and the accompanying video is always 10 minutes in length. Over 1,500 BSWH employees request this weekly study, and more than 300 people in over 20 countries also access this study.

> *relief responses anywhere around the world. Last but not least, we also recently initiated a new effort, called Faith Community Health (FCH), to help launch, train, and equip community-based healthcare initiatives through houses of worship.*

The other significant component of OMM is the Department of Pastoral Care. In 1981, Rev. Vic Kilian became the first full time chaplain employed by Scott & White Hospital. His original proposal, which served as the basis for the establishment of the department, had three objectives, which still hold true today:

1. To help provide for the spiritual, emotional, and psychological needs of patients and their families as well as staff and other employees.
2. To help as a liaison between the administration and staff of the hospital and the religious community, assisting clergy of all faiths to give optimal pastoral care particularly to patients and families of their own membership and/or denomination.
3. To be available as a resource in matters of spiritual and ethical concerns as part of the healing team of the hospital.

A. Second Life Resource Center (SLRC)

First established in 2009, the SLRC is comprised of a warehousing and distribution center, in North Texas, of gently-used medical equipment and supplies, targeting over 80 free clinics in the Dallas-Fort Worth region, as well as medical missions and hospitals in over 35 countries worldwide. With the formation of the Baylor Scott & White Health System, SLRC added a warehouse for the Central Texas region and engages 13 hospitals and over 85 health clinics to provide any unused, outdated, and/or surplus equipment and supplies to be repurposed for those in need.

Items like surgical beds and hospital mattresses can have a significant impact on what medical missions are able to do, as Bruce Molian, who directs medical mission trips to Liberia and other West African countries, described:

> *Getting surgical tables through SLRC makes it possible to perform surgeries safely, thus allowing us to utilize visiting surgeons as medical mission volunteers. In addition, the 120 hospital mattresses we recently received prevent patients from having to sit on the floor, where they are vulnerable to more infections.*

Furthermore, there seems to be a correlation between medical missions receiving supplies from SLRC and lower hospital infection rates. As Dr. Joseph Nawrocki, founder of Rock's Medical Outreach (RMO), explains:

> *One of the hospitals we supply through SLRC in Ghana has the lowest neo-natal and mortality rate in the nation. The availability of equipment such as incubators and ventilators, along with sutures and other medical supplies are directly related to these outcomes.*

Domestically, the SLRC also provides assistance to free clinics in Texas and beyond. Will Goldman, Strategic Procurement Coordinator for Citysquare in Dallas, talks about the importance of SLRC to their ministry efforts:

> *The SLRC is our only source of infant formula, and we distribute about 100 cans a month. But SLRC is more than just a warehouse, serving as a coordination point for sharing and re-distributing furniture and equipment across the city. Sometimes we are actually able to 'give back' through donations to SLRC, with small medical equipment like crutches, which SLRC then utilizes to fulfill other needs of other community-based organizations.*

The SLRC also provides supplies and equipment in response to natural disasters, both at home and abroad. After the calamities in Joplin, Oklahoma, Haiti, and Tokyo, the Faith in Action Initiatives, with supplies furnished through the SLRC, coordinated employee efforts to provide homemade hygiene kits in 2-gallon plastic bags. In fact, to date BSWH employees have donated over 8,000 hygiene and first aid kits for disaster causes.

ROI for Second Life Resource Center (SLRC)

The first step in developing an estimated ROI for the SLRC was to develop a logic model to represent the expected impact and outcomes (see Appendix II for the SLRC logic model diagram).

Don Sewell commented on the value of the logic model in measuring the impact of the SLRC:

> *The logic model captures the significant bulk of what we know about the impact and contribution that the SLRC makes for BSWH. It was helpful as a first step to capture all of these various benefits on one page. The challenge for us now is to figure out how we can measure these impacts. The logic model is definitely a work in progress, but at least now we have a roadmap.*

Sewell plans to utilize the logic model in order to develop new methods of data capture and reporting to further reinforce the importance for BSWH overall.

As shown in Table 1 below, the SLRCs[4] generate an estimated $3.23 for every $1.00 invested in the program. The benefits associated with the SLRC are represented, conservatively, by a 20% valuation of their actual cost of the donated supplies and equipment.[5]

TABLE 1: ESTIMATED ROI FOR SECOND LIFE RESOURCE CENTER

SLRC BENEFITS	AMOUNT	DESCRIPTION OF SOURCE
Total Cost of donations from 3/2015 to 3/2016 (Dallas)	$3,150,000	Market value of furniture, medical equipment, and medical supplies received by SLRC Dallas.
Total Cost of donations from 3/2015 to 3/2016 (Waco)	$360,000	Market value of furniture, medical equipment, and medical supplies received by SLRC Waco.
Total Cost of Donations	$3,510,000	
20% valuation of Donations[A]	$702,000	$3,150,000 x 20%
Property taxes avoided through FIAI utilization of former Waxahachie hospital	$204,000	Provided by Don Sewell, FIAI Director
Avoided disposal costs for hospitals donating to SLRC	$35,000	Provided by Don Sewell, FIAI Director
Total estimated annual value produced by SLRC	**$941,000**	
SLRC COSTS	**AMOUNT**	**DESCRIPTION**
Salaries and benefits for staff	$230,000	Includes staff at both Dallas and Waco SLRC sites
Logistics, transfer and shipping costs	$51,000	For both Dallas and Waco sites
Lunches for volunteers	$10,000	Dallas site only
Total estimated annual costs for SLRC	**$291,000**	
ESTIMATED RETURN (ROI) FOR EVERY $1.00 INVESTED IN THE SLRC	**$3.23[B]**	**$941,000 divided by $291,000**

[A] The IRS 990 report, required for all tax-exempt hospitals, allows 20% of the market value of donations to be counted towards the hospital community benefits report.
[B] While the Matrix in Table 1 captures a truly measureable ROI in concrete, tangible terms, the philanthropic picture is really far larger than this. For example, the dollar value in the USA perspective is far less than the peso conversion value in El Salvador or the Rand conversion value in South Africa. Therefore, $100 (US) can have a five-fold or even ten-fold impact in an impoverished Third-World country. Secondly, many goods sent by SLRC are not even available in the countries, making them valuable beyond measure. Third, while the figures shown above are depreciated, as per IRS 990 valuations, still the shipped supplies and equipment are nevertheless worth full value in an international context.

4 The main SLRC is located in Dallas, but FIAI has established another SLRC in Waco as well.
5 This 20% valuation is based upon the community benefit value for goods distributed allowed by the IRS for tax-exempt charities.

SACRED VOCATIONS

Sewell reflected on the initial ROI value for SLRC in terms of what it does and does not include:

> *The ROI for SLRC is positive, primarily based on the 20% valuation of the goods we are able to distribute. What isn't captured in this valuation, which we hope to capture in the future, is how these medical equipment and supplies, especially those provided for overseas missions, directly impact things like infection rates and mortality rates. We also know from discussions with BSWH's Public Relations office, for example, that 99% of the stories associated [with] BSWH aid in times of a disaster is connected with SLRC. We hope to capture these values in our ongoing efforts to measure what we do.*

B. Sacred Vocations Program (SVP)

Rabbi Samuel E. Karff and Dr. Benjamin Amick developed the Sacred Vocations Program in 2003. The Sacred Vocations Program helps healthcare organizations create "meaning-centered work" by linking individual spiritual growth with organizational change. BSWH first implemented SVP at the Baylor University Medical Center in 2005. A total of 262 Patient Care Technicians and Unit Secretaries signed up as part of continuing education for the group sessions that make up the first part of the SVP experience.

An evaluation of this initial SVP implementation in 2005 at BSWH yielded the following outcomes:

- Improved staff retention by 63% (i.e., kept an additional 27 SVP participants);
- Improved staff safety by 42% (reductions of 23 injuries per 100 full-time employees); and
- Improved patient satisfaction by 7%.

Since 2005, SVP has expanded to all 13 BSWH hospitals in the North Texas region, and OMM is now focusing on implementing this program at BSWH hospitals and clinics in the Central region.

Sacred Vocations Program constitutes a faith-based approach to impacting employee engagement and improving the patient experience. The SVP is more focused on spirituality than on religion and is not specifically a Christianity-based curriculum. Drs. Karff and Amick, in developing SVP, observed that a person be- ing treated at a given hospital can have a dehumanizing experience and that some hospitals seem to foster better patient experiences based on how well employees were treated. Drs. Karff and Amick understood that most hospital employees seek meaning from their work and a spiritual connection with their work and workplace, thus the notion of a sacred vocation.

As Karff explained:

> *Our spirit drives our quest for meaning, and meaning sustains our will to live.*

Chick Deegan, director of SVP programming, explained both the similarities and distinctions between SVP and other employee engagement initiatives sponsored primarily through BSWH's Human Resources Department:

> *SVP is similar to other employee engagement initiatives in the sense that it involves employees in a participatory dialogue for improving their workplace. Most initiatives, however, focus on improving knowledge, skills and behaviors…tools for "doing" the work and participation is mandatory. The Sacred Vocations Program is unique in how it invites out the heart and soul of the employee in terms of the "why" and "how" of their work. They choose to participate in Sacred Vocations, and by participating, their perspective and behaviors likewise change by choice.*

ROI for Sacred Vocations Program

As with the SLRC initiative, the first step in the ROI process for SVP was to develop a program logic model (see Appendix III).

Deegan reflected on how the logic model helped her to see the potential for measuring value for the SVP:

> *Although there has been a lot of buy-in and support for the Sacred Vocations Program thus far, I think it has potential beyond the staff and locations where we have implemented it. The logic model shows me the multiple data points and measures we can use to enhance future ROI evaluations beyond just employee retention and safety. Our efforts in the coming year will be to identify specific impacts of SVP within the larger context of employee engagement, and also examine benefits associated with improvements in the patient experience.*

The ROI analysis shown in Table 2 (next page) is based on current, ongoing SVP initiatives at Baylor University Medical Center (BUMC) and at a smaller community hospital (Garland). The SVP shows an estimated return of $3.73 for every $1.00 invested in the program at Garland and $5.86 at BUMC.

TABLE 2: ESTIMATED ROI FOR SACRED VOCATIONS PROGRAM (SVP)

	SVP BENEFITS	GARLAND HOSPITAL	BUMC	COMMENTS
A	Average number of SVP graduates per year	15	57	Based on the average number of SVP graduates at both hospitals over the past 10 years.
B	Estimated annual turnover rate	17.5%[8]	19%[C]	The most recent year's annual turnover rate for all staff positions
C	Projected annual turnover rate for SVP graduates	6.5%	7%	Based on 63% higher employee retention
D	Estimated number of staff retained due to SVP training per year	1.65	6.8	A * (B-C)
E	Estimated annual savings in replacement costs due to higher employee retention	$77,750	$319,600	D * $47,000 (assuming half of SVP trainees were PCTs - @$29,000 per person replacement costs – and half were RNs - @ $65,000 per person replacement costs)
F	Estimated reduction in injuries for SVP graduates	3.45	13.11	Based on injury prevention of 23% times the annual number of SVP graduates.
G	Total estimated savings due to improved safety for SVP graduates	$8,000	$30,402	Based on the number of injuries prevented (F) times the mean cost of $2,319 per injury
	Total Estimated annual SVP Benefits	**$95,750**	**$350,002**	**G + E**
	SVP COSTS			
H	Allocation of OMM staff and benefit costs	$21,000	$42,000	Assumes 10% of the $210,000 in annual OMM program manager and coordinator costs dedicated to SVP at Garland ($21,000) and 20% allocation to BUMC ($42,000)
I	Estimated staff replacement costs for time away from work	$3,172	$12,055	Based on $23.50 per hour average earnings, times the estimated 9 hours of SVP training time, times the number of SVP trainees
J	Per person costs for training (graduation gift, facilitator fee, and refreshments)	$1,500	$5,700	Assumes an average group size of 10 people
	Total estimated annual SVP training costs	**$25,672**	**$59,755**	**H + I + J**
	TOTAL PROJECTED ANNUAL ROI FOR EVERY $1.00 INVESTED IN SVP TRAINING	**$3.73**	**$5.86**	**Total estimated annual SVP benefits divided by total estimated annual SVP costs**

[C] This represents the facility-wide turnover rate as of November 2015.

C. Faith Community Health (FCH)

OMM and the Shift to Population Health: The Faith Community Health Initiative (FCH)

Faith Community Health (FCH) represents the newest of the Faith in Action Initiatives in OMM. The purpose of FCH is to develop stronger ties with the patients and communities served by BSWH based on the

Congregational Health Network (CHN) model, first implemented in Memphis in partnership with Methodist Health Hospital. The centerpiece of this proposed FCH initiative is the recruitment and training of volunteer Faith Community Caregivers, who serve as liaisons with patients discharged back to the community. FCH also aims to better coordinate BSWH services with the local faith community in general.

Healthcare Reform and the Shift to Population Health:

One aspect of healthcare reform that does not receive much media attention is an effort by the federal government to shift the basis for healthcare reimbursements away from traditional fee-for-service (FFS) models towards a more population-based approach. Initiatives such as the Shared Savings Program (SSP) allow healthcare systems to enter voluntarily into an agreement with Medicare, whereby providers make more deliberate efforts to manage annual per patient health costs for a defined population (i.e., Medicare patients). If these SSP health partners are able to keep costs below a targeted amount, they are then able to share the savings with Medicare. To do so, many healthcare providers are forming what are known as Accountable Care Organizations (ACOs), which comprise a full array of health services from preventive and primary care to hospital care.

Under a population health reimbursement scenario, of which SSP represents a first step, the incentive shifts towards prevention and primary care. Hospitals and emergency departments are no longer revenue centers, as they are in an FFS system, but now become cost centers. Effective strategies for success under SSP tend to focus more on community-based approaches, especially those relating to health promotion and wellness, rather than institution-based care.

Please see Appendix IV for the logic model for the FCH program.

ROI for Faith Community Health

Appendix III shows the initial logic model for OMM's FCH initiative.

As shown in Table 3 (next page), the projected annual ROI for the first year of implementing FCH in Waco is $2.65 in healthcare and productivity savings for every $1.00 invested in the program. Included with projected patient care savings in the ROI model below are assumptions on the benefits for family caregivers for elderly patients, based on the premise that Faith Community Coordinators help bring needed support to family caregivers, who often have to take time off work to attend to an elderly parent.

TABLE 3: PROJECTED YEAR 1 ROI FOR FCH WACO

REF.	ITEM	SENIORS	NON-SENIOR ADULTS	COMMENTS
A	Number of Individuals Served	50	10	Estimated number of participants served in the first year of FCH Waco implementation
B	Estimated percentage of individuals with diabetes	50%	25%	Estimates provided by OMM staff.
C	Estimated percentage of individuals with high cholesterol	70%	50%	Estimates provided by OMM staff.
D	Estimated percentage of individuals with high blood pressure	50%	35%	Estimates provided by OMM staff.
E	Estimated percentage of individuals who improve their health condition	70%		Estimate provided by OMM staff.
F	Estimated health cost savings for diabetes	$17,185	$1,719	A * B * E * $982[D]
G	Estimated productivity cost savings for diabetes	N/A	$9,421	A * B * E * 75%[E] * $7,178[C]
H	Estimated health cost savings for high cholesterol	$26,460	$3,780	A * B * E * $1,080[C]
I	Estimated productivity cost savings for high cholesterol	N/A	$1,172	A * C * E * 75%[D] * $893[C]
J	Estimated health cost savings for hypertension	$47,373	$6,632	A * D * E * $2,707[C]
K	Estimated productivity cost savings for hypertension	N/A	$1,156	A * C * E * 75%[D] * $472[C]
L	Total Estimated First Year FCH Savings	$91,018	$23,880	F + G + H + I + J + K
N	Estimated health cost and productivity savings for caregivers from FCH support	$30,592		Assumes 50% of elderly FCH participants in the first year (25) receiving family caregiver support. Savings based on savings from reduced absenteeism from work ($10,923) and health savings from reduced stress-related health costs for caregivers ($19,668)
O	Total Estimated FCH First Year Savings	$145,490		L + N
N	Total Estimated First Year FCH Costs	$55,000		Estimate Provided by FCH Staff
H	ESTIMATED ROI FOR FCH IMPLEMENTATION	$2.65		O / N

[D] See Appendix V and VI for calculation of savings for each of these chronic conditions.
[E] This is the estimated percentage of employed, non-senior individuals participating in FCH.

DIRECT PASTORAL CARE

D. Direct Pastoral Care: Hospital Chaplaincy

The largest component of OMM is the management of hospital chaplains located within BSWH hospitals, clinics, hospice programs, and community placements across north and central Texas.

For Mark Grace, the work in the area of direct pastoral care overall and hospital chaplaincy specifically represented the most difficult aspect of OMM for outcomes measurement:

> *We know the work of the hospital chaplains contributes significantly to patient outcomes and their quality of life. The challenge for us is to find the right measures that capture this value, as an important dimension of how we positively impact the overall healthcare experience of our patients and families who look to us for care.*

Spiritual Distress – Religious Struggle

One area relating to hospital chaplaincy that has received increased attention from researchers recently is the matter of spiritual distress and religious struggle as it applies to hospitalized patients. Spiritual distress, according to the North American Nursing Diagnosis Association, is defined as:

> *A disruption in the life principle that provides a person's entire being and that integrates and transcends one's biological and psychological nature.*

Direct Pastoral Care of Spiritual Distress

Spiritual Distress experienced by patients represents an important and significant aspect of the direct pastoral care provided through OMM. Spiritual Distress is generally captured in a patient's medical record and results in a visit from a hospital chaplain. In other instances, chaplains make rounds in areas of the hospital where spiritual distress is common, such as Intensive Care Units. Research has shown that reduced spiritual distress is associated with better health outcomes and higher patient satisfaction, among other benefits.[6]

Crystal Park, in a study entitled *Religious Struggle as a Predictor of Subsequent Mental and Physical Wellbeing in Advanced Heart Failure Patients*, observed the following:

6 Lichtner, David A., D. Min.; Studies Show Spiritual Care Linked to Better Health Outcomes; Health Progress; March-April 2013; www.chausa.org.

Religious struggle predicted a higher number of nights subsequently hospitalized, higher depression, and marginally lower life satisfaction… Religious struggle appears to have a potentially negative impact on well-being in advanced [congestive heart failure]: therefore, helping patients address issues of struggle may meaningfully lessen the personal and societal costs of [congestive heart failure].[7]

Measuring Spiritual Distress and Other Hospital Chaplaincy Functions

Appendix IV shows the result of the initial logic model development effort relating to all of BSWH's direct pastoral care functions within OMM. The red text in the logic model represents the particular activities, short-term outcomes (learning), intermediate outcomes (action), and long-term outcomes (condition) specifically related to spiritual distress.

The amelioration of spiritual distress, however, is not the only way to measure the impact of hospital chaplaincy within a healthcare system. Other measures, which go beyond the amelioration of spiritual distress for patients, that are potentially measurable in financial terms (e.g., reducing patient costs, improved patient outcomes, etc.) include:

1. Diversion of terminally ill patients to hospice and home care: Hospital chaplains play a critical role in communicating this alternative to lengthy and expensive end-of-life hospitalization;
2. Reducing stress for the families of terminally ill patients: Even in instances when the patient does not recover, hospital chaplains can play a significant role in preparing and counseling family members, resulting in lower stress and lower incidence of mental health issues like depression. For example, a study in the Journal of Clinical Oncology (Wright, 2010) demonstrated that bereaved caregivers of patients who died in an ICU setting are at increased risk for post-traumatic stress disorder (PTSD). Among caregivers, 21% of those whose loved ones died in the ICU or hospital developed PTSD six months later, compared to 4.4% of those whose loved ones died at home with hospice;
3. Reducing stress for hospital staff (particularly in the ICU, CCU, etc.): Staff burnout and PTSD is another area of concern for healthcare providers, and especially for those involved in trauma units in the hospital who witness the loss of life. In addition to Sacred Vocations, hospital chaplains are actively involved in efforts to support and nurture the caregivers as well, which help improve staff retention and reduce the number of "call-outs."[8]

7 Crystal L. Park et al., "Religious Struggle as a Predic¬tor of Subsequent Mental and Physical Well-Being in Advanced Heart Failure Patients," The Journal of Behav¬ioral Medicine 34, no. 6 (2009): 426-436.

8 A call-out refers to instances where a staff person calls in sick.

4. Patient satisfaction: Hospital chaplains can have a major impact on overall patient satisfaction. In a study entitled Is Failure to Meet Spiritual Needs Associated with Cancer Patients' Perception of Quality of Care and Their Satisfaction with Care?[9] Astrow et al. found that the 18% of the cancer patients in their study that reported that their spiritual needs were not met also gave lower ratings of care and overall satisfaction with their care.

The ROI analysis presented below provides an initial estimate on measures #1 and #3 above, based on the immediate availability of cost measures needed for calculating savings. Items #2 and #4 are also important means by which Hospital Chaplains create value; however, more in-depth research is required in order to link rates of reduced family stress for terminally ill patients and patient satisfaction to reduced patient costs or enhanced revenues.

Mike Mullender, Director of Pastoral Care for the Dallas area hospitals within BSWH, discussed the challenges for OMM in development of a program measurement system for hospital chaplaincy:

> *I think the logic model development and the subsequent discussions of this topic are both challenging and important. As part of the overall health service delivery process, it is important for us to articulate exactly where and how we contribute to better care, better patient satisfaction, and ultimately better health outcomes over the long run. The key challenge is first to recognize that what we are trying to measure does not represent the full value of hospital chaplaincy within BSWH, but at least consists of those components of direct pastoral care that do have a measurable impact.*

ROI for Hospital Chaplaincy

As shown in Table 4 (next page), the three activities associated with hospital chaplaincy generated projected savings ranging from $2.22 to over $12.67 per $1.00 invested in hospital chaplaincy for those particular activities. The first two of these initiatives were recognized by the 2015 Bill Ashton Quality Improvement Summit.[10]

Note: The comparative ROI values for these initiatives are not intended for comparison of the relative efficacy of one program over another but simply to indicate that all these OMM programs and activities generate savings, which are greater than their costs based on very conservative assumptions.

9 12. Alan B. Astrow et al., "Is Failure to Meet Spiritual Needs Associated with Cancer Patients' Perception of Quality of Care and Their Satisfaction with Care?" Journal of Clinical Oncology 25, no. 36 (2007): 5,753-5,757.

10 Established in 2010, the Bill Ashton Quality Improvement award recognizes a hospital's measurable success in improving quality and patient outcomes through the sustained implementation of a national and/or state evidence-based patient care initiative.

TABLE 4 -- ESTIMATED ROI FOR HOSPITAL CHAPLAINCY INITIATIVES

INTERVENTION	FACILITY	DESCRIPTION OF SAVINGS	ANNUALIZED SAVINGS	DESCRIPTION OF RELATED HOSPITAL CHAPLAINCY COSTS	ESTIMATED ANNUALIZED HOSPITAL CHAPLAIN COSTS
Reducing Direct Cost and Length of Stay on Total Joint Patients by an Outcomes Manager led Interdisciplinary Team	Baylor University Medical Center	Reduced direct costs of total knee (TKA) and total hip (THA) replacement by 4.8% and 8.7%, respectively. Reduced ALOS for TKA and THA patients by 20.9% and 16.2% respectively.	**$481,762** (Annualized reduction of 356 patient days)	1. Attending to patient's needs 2. Responding to patient's concerns 3. Personal Needs (These first three correlates with the HCAPHS measures) 4. Provide Spiritual Care 5. Advance Care Planning 6. Intervene and Support 7. Collaborate with Clinical Staff	**$32,500** (25 hours/week * $25/hour * 52 weeks)
Estimated Share of Annualized Savings of $481, 762 Attributable to Hospital Chaplaincy		15%	Total annualized savings attributable to Hospital chaplaincy		**$72,264** ($481,762 * 15%)
TOTAL ESTIMATED ROI - $2.22 ($72,264÷$32,500) IN DIRECT COST SAVINGS FOR EVERY DOLLAR SPENT ON HOSPITAL CHAPLAINCY					
INTERVENTION	FACILITY	DESCRIPTION OF SAVINGS	ANNUALIZED SAVINGS	DESCRIPTION OF RELATED HOSPITAL CHAPLAINCY COSTS	ESTIMATED ANNUALIZED HOSPITAL CHAPLAIN COSTS
Enhancing Care at the End of Life Through Transition to Hospice	Baylor All Saints Medical Center	120 patients transferred from ICU to hospice over 24 months	**$259,085** (1.56 lower LOS at savings of $2,768 per day for 120 patients)	Served as a team member contributing in efforts to decrease anxiety/stress, allowing patient to participate in decision about their own care, etc. (pastoral care previously not involved with total joint patients).	**$17,135** 372.5 hours * $46/hour 115 hours of visit time + 57.5 hours staff discussion + 200 hours of Palliative Care chaplain admin. time
Estimated Share of Annualized Savings Attributable to Hospital Chaplaincy		25%	Total annualized savings attributable to Hospital chaplaincy (Hospital chaplain as member of 4-member Palliative Care Team)		**$64,771** ($259,085 * 25%)
TOTAL ESTIMATED ROI - $3.78 ($64,771÷$17, 135) IN DIRECT COST SAVINGS FOR EVERY DOLLAR SPENT ON HOSPITAL CHAPLAINCY					

INTERVENTION	FACILITY	DESCRIPTION OF SAVINGS	ANNUALIZED SAVINGS	DESCRIPTION OF RELATED HOSPITAL CHAPLAINCY COSTS	ESTIMATED ANNUALIZED HOSPITAL CHAPLAIN COSTS
Code Lavender	Baylor Scott & White (Plano)	A formalized rapid response program designed to promote a healing environment by dispatching a team to provide support for employees and physicians during times of high stress.	**$76,000** (1% reduction in turnover among estimated 380 staff receiving code lavender services times $40,000 in staff replacement costs averaged over half a year)	This initiative is led by the hospital chaplain. Preparation and implementation of a lavender code involves three staff members, generally of 1-2 chaplains and a nurse educator or nurse manager)	**$6,000** (45 codes/year at average per code cost of 120 for three staff for 1 hour per code, plus supplies)
TOTAL ESTIMATED ROI - $12.67 ($76,000/$6,000) IN SAVINGS FROM REDUCED TURNOVER FOR EVERY DOLLAR SPENT ON HOSPITAL CHAPLAINCY					

III. CONCLUSION

Mark Grace, Chief Mission and Ministry Officer, has initial logic models in place for each of these four programmatic areas within OMM. In particular, the short-term, intermediate, and long-term outcomes articu- lated through these logic models provide a road map for identifying the type of data elements needed for performance evaluation and ongoing ROI analysis. The challenge going forward is to determine where to develop the organizational capacity within OMM in order to identify, collect, evaluate, and report the appropri- ate measures in each of these four areas.

The Institute for Spiritual Care and Wellness (ISCW) was established in 2014 within OMM for the purpose of bridging the worlds of healthcare and faith/spirituality. The five primary operational tasks to build this bridge identified in its founding documents were:

1. Strengthen spiritual service to patients and communities through chaplaincy and ministry
2. Support lay and professional spiritual care givers through training and programming
3. Integrate spiritual training, communication, and support with healthcare providers
4. Conduct research and evaluation regarding the interrelationships and interventions of spiritual- ity, health, and well-being
5. Develop sustainable resources to be a reliable partner to both healthcare providers and spiritual care givers.

Grace saw an opportunity for ISCW to be the organizational entity responsible for the evaluation of the logic models in each of these four areas through research into appropriate data measures and instruments, actual data collection, evaluation, and reporting.

As Grace explained:

> *The Institute for Spiritual Care and Wellness, since its inception, seemed to be a bit adrift and not con- nected with the operational aspects of the Office of Mission & Ministry. Now that we have the frame- work for what we want to measure in each of these programs, I envision the Institute for Spiritual Care and Wellness as the vehicle for defining, capturing, tracking, and reporting these outcomes. Making the Office of Mission & Ministry more data-driven, in turn, will allow us the opportunity to contribute to the state of the art of spiritual care.*

As a result of this impact and valuation process, Grace and the OMM staff now see and know the important contribution their programs make to the overall healthcare experience of patients served

through BSWH. They also recognize the level of support and recognition that senior BSWH leadership staff have for their contributions. The lack of a rigorous data reporting infrastructure, however, mostly limits OMM's ability to communicate, grow and sustain these efforts, making them vulnerable to funding cuts in the event of a change in leadership and direction.

The initial steps by the Office of Mission & Ministry in the area of program measurement, performance, and valuation are essential for ensuring that faith and spirituality are represented within the Baylor Scott & White Health System. This is especially true for the new Faith Community Health initiative, which dovetails with the overall shift in emphasis of healthcare services, including healthcare financing, towards community-based wellness and prevention and less on institution-based care. Efforts such as FCH will become increasingly important as health systems such as BSWH grapple with how to realign resources and priorities to support population-based healthcare.

Grace reflected on BSWH's long-term commitment to research and quality improvement within the departments of spiritual care and pastoral education and its determination to carry forward that legacy:

> *A review of our year-in-and-year-out projects to improve the spiritual care of our patients, families, and staff reveals the fact that we didn't start doing evidence based spiritual care yesterday. Our commitment to quality spiritual care reaches back for decades.*
>
> *It has formed an essential foundation for the next chapter in continuing to nurture a culture within Mission & Ministry that takes seriously our role as a premier faith-based healthcare system.*
>
> *There will always be a dimension of spiritual care that cannot be measured. We take that fact as a theological and a practical given. However, that doesn't mean that there is nothing to be measured.*
>
> *Our chaplains and key members of the medical staff have produced an impressive body of well-researched work that demonstrates our desire to be faithful servants; that is, to be accountable for every bit that we can be accountable for, while also advocating that this great healthcare institution, committed as it is to a Christian ministry of healing, remains true to the intangibles in our values and vision. That commitment will make us trustworthy and trusted providers of whole person healing care.*

The healthcare industry is facing many unprecedented challenges that require thoughtful and effective solutions. These challenges include increasing drug prices and medical costs, cyber security concerns

over medical devices, community care collaboration, money management, mergers, and precipitous technological advancements. As a result of these issues, the healthcare industry is changing rapidly. Decades of national survey research confirms that a majority of Americans consider themselves to be reli- gious and that faith is important in their lives.[11] Moreover, thousands of scholarly publications now confirm a positive link between religiosity and physical as well as mental health.[12] Considering the relevance and prevalence of religion in American life, it simply makes sense that the role of faith and faith-based institutions will be central to how present and future healthcare challenges will be addressed. Therefore, we believe that Baylor Scott & White and the Office of Mission and Ministry has the opportunity to play a vital and leading role in helping to shape the future of healthcare in Texas and beyond.

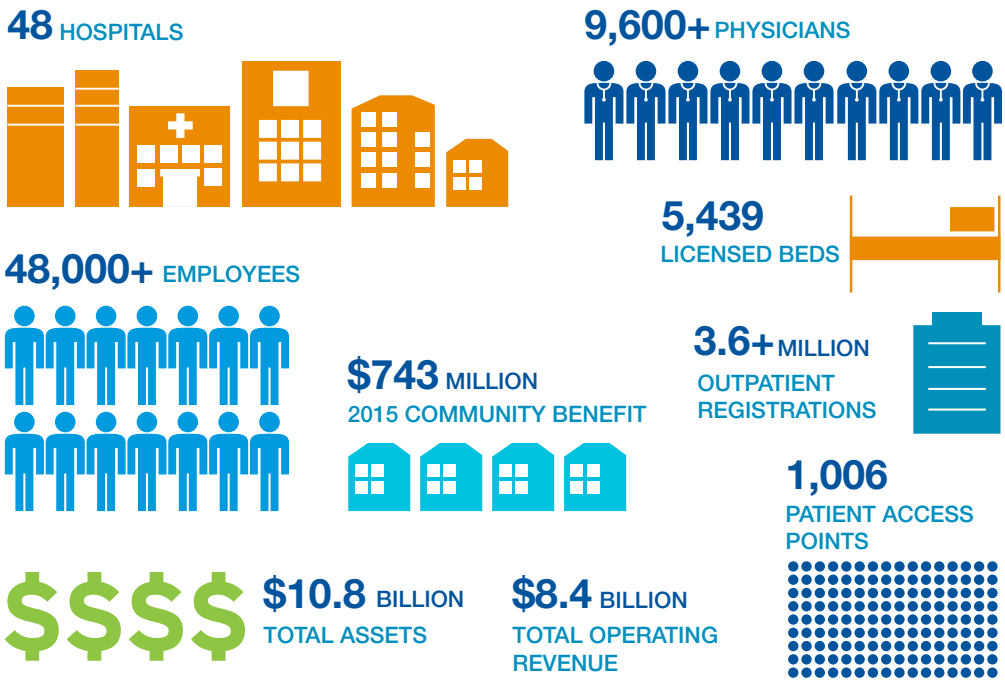
11 Stark, R. (2012). America's Blessings: How Religion Benefits Everyone, Including Atheists. West Conshocken, PA: Templeton Press.
12 Koenig, H., King, D.E., and Carson, V.B. (2012). Handbook of Religion and Health. Second Edition. New York: Oxford University Press. See also Pargament, K.I. (2013). APA Handbook of Psychology, Religion, and Spirituality: Volume 1 Context, Theory, and Research. Washington, DC: American Psychological Association.

APPENDIX I

CHANGING HEALTH CARE. FOR LIFE.®

Baylor Scott & White Health is the largest not-for-profit healthcare system in Texas, and one of the largest in the United States. Baylor Scott & White was born from the 2013 merger of Baylor Health Care System serving North Texas and Scott & White Healthcare serving Central Texas. After years of thoughtful deliberation, the leaders of Baylor Health Care System and Scott & White Healthcare decided to combine the strengths of the two and create a new model system able to meet the demands of health care reform, the changing needs of patients and extraordinary recent advances in clinical care.

Baylor Scott & White is known for quality patient care where people can fulfill their calling and be an integral part in changing healthcare to meet the needs of the future. The System currently has 48 hospitals, 1,006 patient access points, more than 9,600 physicians and 48,000+ employees as well as the Scott & White Health Plan—a health insurance company that insures employees and consumers alike.



With a commitment to and a track record of innovation, collaboration, integrity and compassion for the patient, Baylor Scott & White stands to be one of the nation's exemplary healthcare organizations.

Financial information is FY 2016. Community Benefit is FY 2015. Other information is as of 12/31/2016. Employees include ~8,000 JV employees. Physicians include active clinical staff.

APPENDIX II: SECOND LIFE RESOURCE CENTER

Purpose Statement:
To accumulate recyclable medical supplies and equipment and to re-purpose them to supply domestic and international missions of all faiths and those of none, in order that BSWH can demonstrate both its stewardship of healthcare resources and to support the value placed on missions.

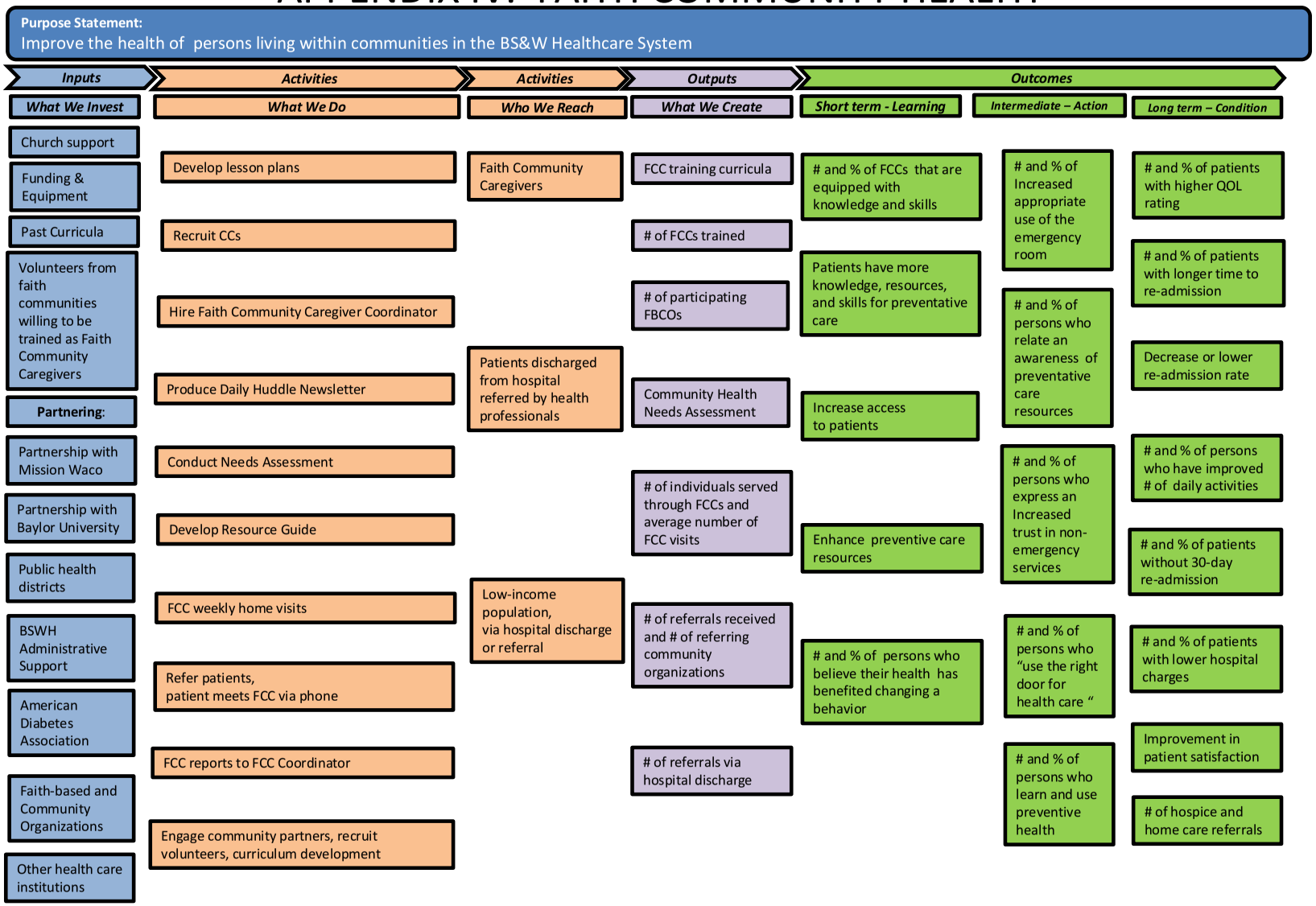
Inputs	Activities	Activities	Outputs	Outcomes		
What We Invest	**What We Do**	**Who We Reach**	**What We Create**	**Short - Learn**	**Intermediate – Action**	**Long – Condition**
Funding (via BSWH and Joel T. Allison FIA Fund	Conduct outreach to BSWH doctors, nurses and other staff about the SLRC, both for volunteering opportunities and in support of medical missions trips.	BSWH doctors and nurses	# of physicians and nurses volunteering at the SLRC	Increase in the # of physicians and nurses and the # of hours spent volunteering at the SLRC	Metrics associated with a heightened public profile for BSWH relating to SLRC activities	Recipients of medical missions better served due to the addition of supplies and equipment
Full time and part-time Staff		Other BSWH staff	# of other BSWH staff volunteers	Increase in the # of other BSWH volunteers and hours spent at the SLRC.		
Clinical Volunteers	ROI analysis of warehouse benefits to domestic and international medical missions: # of lives saved, # of lives changed, improved medical application, etc.	BSWH Leadership	Produce ROI analysis reports of projected impact of SLRC activities	Increase in storage space devoted to the two SLRCs (Dallas and Waco)	Greater awareness of BSWH charitable activities among BSWH staff	Generate goodwill to both the faith community and through inter-hospital fellowship through support of mission efforts
Donated Supplies and Equipment		BSWH Community Benefits Office	$ value of benefits on SLRC activities reported through BSWH Community Benefits Office	Increase in the $ value of SLRC as reported through BSWH's Community Benefits Office		
Partnering:	Distribution of medical supplies and equipment to domestic and international medical missions.	Economically marginalized people in community who visit local clinics and hospitals supported through SLRC	Volume, weight or other relevant metric to measure supplies and equipment throughput at SLRCs	Increase in number of news stories concerning SLRC activities on behalf of BSWH	Greater level of awareness and appreciation on the part of senior leadership (presidents of hospitals, CMOs and CNOs of hospitals, directors of clinics) in order to catalyze more activity of both human and physical resources.	Improved health status of individuals served by domestic health mission programs using SLRC supplies and equipment
Children's Health Frisco	Coordinate with BSWH's PR and Communications office re: news stories on SLRC clients, emergency relief efforts, etc.					
Medical Center of Plano				Improved throughput time for supplies and equipment		
Scottish Rite	Development of warehousing software for improved management of supplies and equipment received.	Red Cross, Salvation Army, Habitat for Humanity, NTACC, City Church, The Bridge, Dallas Life (job training), etc.	# of domestic medical missions supported with supplies and equipment through SLRC			
Methodist Dallas				Increased # of domestic and international medical missions supported by SLRC supplies and equipment.		
Methodist Charlton	Conduct outreach to BSWH's 400+ clinics to encourage donations of supplies and equipment.		# of international medical missions supported with supplies and equipment through SLRC			Improved health status of individuals served by international health mission programs using SLRC supplies and equipment
North Texas Area Charitable Clinics (NTACC)		Individuals served by medical missions conducted in partnership with international clinics and hospitals				
Rotary North Dallas, McKinney	Provide compelling evidence to senior leadership of the overwhelmingly advantageous ROI provided through FIAI's SLRC		# of BSWH clinics donating supplies and equipment	Increased # of BSWH clinics involved in donating un-needed supplies and equipment.		

APPENDIX III: SACRED VOCATION PROGRAM

Purpose Statement:
Engage employees in a participatory dialogue and activities in order to discover or re-discover their vocation, rejoin soul and role, and improve their work environment.

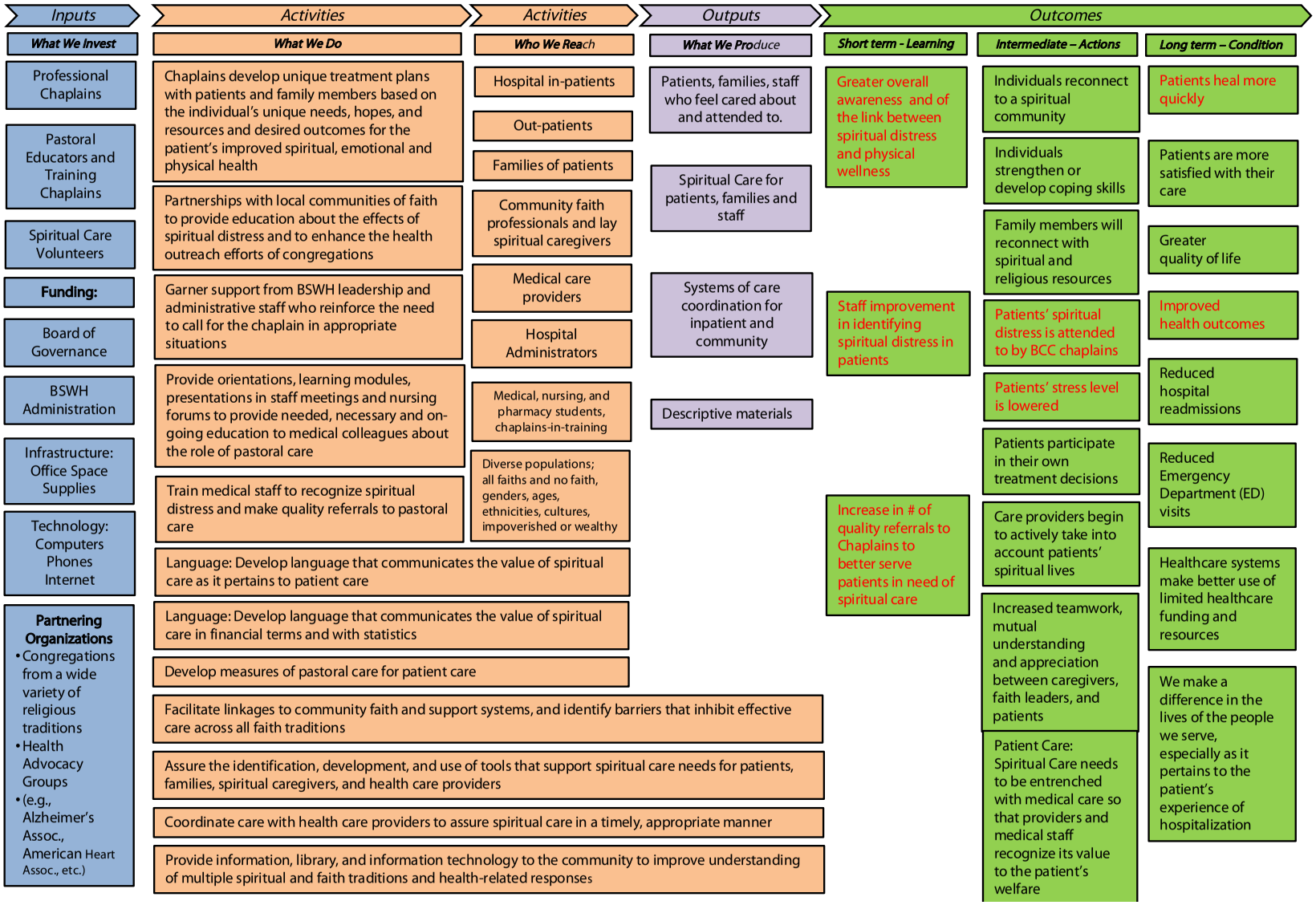
Inputs	Activities	Activities	Outputs	Outcomes		
What We Invest	*What We Do*	*Who We Reach*	*What we Create*	*Short - Learn*	*Intermediate – Action*	*Long – Condition*
Program Manager	Design for short meditations	BSWH facility leadership	Completion of design for short meditations. # of participants in short meditation	# of SPV grads engaging in short term meditations at least 3x per week	Staff provide patients and families with emotional support	
Coordinator for NTX	Utilize web ex for facilitated sessions		Number of facilitated web ex sessions and participants in sessions	# and % of SVP grads demonstrating knowledge of their purpose in life and how expressing that in their work brings satisfaction	staff provide support to co-workers	Improve staff safety
Coordinator for CTX					Staff consider spiritual preferences and needs	
Budget, supplies and equipment	Write a "how to" implementation manual	All those from BSWH who **deliver direct** patient care (e.g., nursing staff, patient care technicians)	Completion and dissemination of "how to" implementation manual	# and % of SVP grads demonstrating knowledge of their capacity to do emotional and spiritual healing and harming	staff provide care for emotional/comfort needs (fear, pain, anxiety, etc.)	
Staff SVP Graduates and facilitators (contracted and staff)	Monthly newsletter			# of Hospitals holding renewal sessions	# and % of staff who recognize and respond with compassion to family members concerns and needs	Improve employee retention
	Encourage quarterly 1 hour renewal sessions		Completion and distribution # of Monthly newsletter and # of subscriptions	# of participants in renewal sessions	# and % of staff who restate what you think a patient has said to confirm understanding	
Partnering:			Number of 1 hour renewal sessions provided and # of participants	# and % of SVP grads demonstrating skill of accepting that because they are human they are not perfect and will sometimes do harm		
BSWH System Leadership	Encourage Leadership to experience and participate in SV	All those from BSWH who **support** those who deliver care, (e.g., staff managers)	Number of persons in Leadership who have experienced and participated in SV	# and % of SVP grads demonstrating skill of using their Coping Tips and Oath	# and % of staff who address comfort needs (patient satisfaction on pain, concern, and caring)	Improve patient satisfaction
Hospital Presidents	Encourage leadership to use SV language in Level 1 and 2 rounding and other conversations		Numbers of persons in leadership who use SV language in (rounding?) and other conversations	# and % of SVP grads demonstrating knowledge that no one can take away their power to heal	# and % of staff who ask, "Is there anything else I can do for you before I go? I have time."	
Chaplains					# and % of Staff who follow through on promises, e.g.., when they will be back.	
Chief Nursing Officers	Encourage leadership to remove barriers to people, including themselves, from participating		Number of barriers to SV participation identified and addressed			

APPENDIX IV: FAITH COMMUNITY HEALTH



APPENDIX V: DIRECT SPIRITUAL CARE (SPIRITUAL DISTRESS)

Purpose Statement:
Alleviate Spiritual Distress by providing a reconnection with spiritual and religious resources in order to inject a sense of meaning, purpose, and value into the lives of patients and their families so that they are better equipped to either battle an existing illness, or to stay well.



APPENDIX VI:

ESTIMATES OF MEDICAL AND PRODUCTIVITY SAVINGS ASSOCIATED WITH IMPROVEMENT IN MANAGING CHRONIC CONDITIONS

Average per Patient Savings

This component of the analysis addressed the projected savings (or the "R" – Return – in ROI) in Medical and Work Productivity (for those that were employed), based on a literature search conducted concerning these three chronic conditions:

1. Diabetes;
2. High Cholesterol; and
3. High Blood Pressure.

The next step was to assign values to pre/post improvement for each condition (see Appendix VI for a summary of the research citations and methodology applied to derive these values).
Table A-1 below summarize the projected average per patient savings based on pre/post changes (improvements, specifically) in one or more of the three primary chronic conditions chosen as the focus for our evaluation: Diabetes (A1C), Cholesterol (LDL), and Hypertension (blood pressure).

TABLE A-1: SUMMARY OF CHRONIC CONDITION MEDICAL AND PRODUCTIVITY SAVINGS

CHRONIC CONDITION	INTAKE VALUE (PRE)	CURRENT VALUE (POST)	EST. ANNUAL MEDICAL SAVINGS	EST. ANNUAL PRODUCTIVITY SAVINGS[F]
Diabetes (A1C)	3 (uncontrolled)	1 (well-controlled)	$1,203	$8,203
	3 (uncontrolled)	2 (moderately-controlled)	$760	$6,152
	Average medical and productivity savings from improved management of diabetes		$982	$7,178
Cholesterol (LDL)	3 (uncontrolled)	1 (well-controlled)	$1,439	$1,190
	3 (uncontrolled)	2 (moderately-controlled)	$720	$595
	Average medical and productivity savings from improved management of cholesterol		$1,080	$893
Hypertension (Blood Pressure)	2 (uncontrolled)	1 (controlled)	$2,707	$472

[F] For Institute patients, these savings were applied on an individual basis for any member with an Occupation status of: Manual Labor, Other, Professional, Self-employed, Trade/Vocational, and Unknown. This represented 67% of the sample.

Derivation of Calculations for Valuing Improvements in Proximate Indicators of A1C, Blood Pressure and LDL Cholesterol

1) The Value of Lowering A1C:

A) Medical savings were derived from "The Business Case for Diabetes Disease Management for Managed Care Organizations"; Nancy Beaulieu et al; Forum for Health Economics & Policy (2006), we know that medical costs of $5,345 in 1995 dollars were saved from 1995 – 2004. That savings came from people with diabetes who were able to lower their A1C from 8.7 to 6.8, which is equivalent to lowering their A1C from "Uncontrolled" to "Controlled" in DWHI's lingo. When translated to 2015 dollars using the medical cost inflation adjuster at http://www.halfhill.com/inflation_js.html we see that $12,028 is saved over a ten year period. Therefore, the average annual savings = $12,028 / 10 = $1,202.80. Therefore, $1,202.80 was the value used for annual medical savings for dropping 1.9 points on the A1C measurement. A straight line function was used to pro rate the dollar savings from 8.7 to 7.5 (from "Uncontrolled" to the midpoint of the "Moderate Control" range), and from 7.5 down to 6.8 to estimate the savings from moving from "Moderate Control" to "Well Controlled."

B) Productivity savings were derived from "Health Economic Benefits and Quality of Life During Improved Glycemic Control in Patients with Type 2 Diabetes Mellitus: A Randomized, Controlled, Double-Blind Trial"; Testa MA, Simonson DC: JAMA 280:1490-96, 1998 (Testa). There were three components of the productivity savings per the table below:

CATEGORY	SAVINGS IN 1995 DOLLARS
Absenteeism	$1,092.00
Bed-Day Losses	$110.96
Restricted Activity	$589.48
TOTAL	$1,792.44

$1,792.44 in 1995 dollars equals $2,788.67 I 2015 dollars when adjusted by the medical cost of living index found at http://www.halfhill.com/inflation_js.html. Therefore, $2,788.67 is the value assigned to those participants who were employed and whose A1C level moved from 9.3

"Uncontrolled" to 7.5 "Moderate Control." In other words, a drop of 1.8 in the A1C level = $2,788.67. In order to calculate the increase in productivity savings associated with another drop from 7.5 (the mid-point of the "Moderate Control" range) to 6.9 (the up- per limit of the "Well Controlled" range), a straight-line function was assumed so that a ratio of .6/1.8 was applied against the $2,788.67 and equals $929.56. The value of a patient moving from "Uncontrolled" to "Well Controlled" is the sum of those two values or $3,718.23 ($2,788.67 + $929.56).

C) Employment Savings were derived from the Testa article cited above which also found that there was a higher retained employment rate of employees when their A1C level improved from "Uncontrolled" to "Moderate Control" (85% to 97%). Using the same logic as in 1B above, we can posit that there would be an additional 4 points (one-third of the twelve point differential for moving from "Uncontrolled" to "Moderate Control") added to the algorithm, but since we cannot move 100% retained employment we will add only 3 points for movement from "Moderate" to "Well Controlled." That is not to say that 100% of the employed people in the DHWI data set would retain employment, but that if they could get their A1C into the "Well Controlled" range, then their diabetes would not be the reason for not retaining employment.

According to the U.S. Bureau of Labor Statistics, the average weekly earnings of a worker at the upper limit of the first quartile was $539 at the end of the fourth quarter of 2015[13] . That equates to annual income of $28,028. Therefore, assuming DHWI partici- pants who are employed earn at a rate at the upper limit of the lowest 25% of wage earners, the expected value of moving their A1C level from "Uncontrolled" to "Moderate Control" would be 12% (85% to 97%) x $28,028 or $3,363.36. A further improvement from "Moderate" to "Well Controlled" would result an additional expected value of 3% (from 97% to 100%) x $28,028 or another $840.84. The following table summarizes the gains for those that are employed.

PRODUCTIVITY	GAINS	EMPLOYMENT GAINS	TOT GAINS
From 3 to 2	$2,788.67	$3,363.36	$6,152.03
From 2 to 1	$929.56	$4,484.48	$8,202.71
From 3 to 1	$3,718.23	$1,121.12	$2,050.68

13 http://www.bls.gov/news.release/wkyeng.t05.htm

2) The Value of Lowering Blood Pressure:

A) According to "Summary Health Statistics for U.S. Adults: National Health Interview Survey, 2010" 59,259,000 Americans suffered from hypertension in 2010. An article entitled, "Forecast- ing the Future of Cardiovascular Disease in the United States[14]" estimated the full medical cost to the nation for hypertension as a risk factor in congestive heart failure, coronary heart disease, stroke, and other cardiovascular disease equaled $130.7 Billion in 2008 dollars in 2010. Divid- ing the full medical costs to the nation by the number of people afflicted with hypertension tells us that the per person cost was $2,205.57 in 2008 dollars, which equals $2,707.12 when inflated to 2015 dollars[15]. The medical cost savings for reducing blood pressure from "Uncontrolled" to "Controlled" equals $2,707.12.

B) The productivity savings from reducing blood pressure from "Uncontrolled" to "Controlled" was derived from an article entitled, "Forecasting the Future of Cardiovascular Disease in the United States2. Table 3 is entitled "Projected Indirect (Lost Productivity) Costs of CVD, 2010-2030 (in Billions 2008$) in the United States. The far right column entitled "Hypertension as Risk Factor" has $25.4 billion as the estimate for 2010. Using the same 59,259,000 Americans suffering from hypertension in 2010 means the per capita productivity losses were $428.63 in 2008 dollars or $471.77 in 2015 dollars[16].

3) The Value of Lowering LDL:

A) According to the National Institutes of Health, it is estimated that a 1% reduction in LDL-cholesterol level, on average, reduces risk for hard CHD events (myocardial infarction and CHD death) by approximately 1% (Grundy, et al., 2004). Table 1 of the Grundy article shows a Log-linear relationship between LDL-C levels and relative risk for CHD. This relationship is consistent with a large body of epidemiological data and with data available from clinical trials of LDL-lowering therapy. These data suggest that for every 30-mg/dL change in LDL-C, the relative risk for CHD is changed in proportion by about 30%. The relative risk is set at 1.0 for LDL-C=40 mg/dL. These articles were used to establish the relative risk of changes in LDL. The Grundy article set the 10-year risk of developing coronary heart disease between 10 and 20 percent for someone with an LDL of 130 and two other risk factors. This finding was corroborated by the Third Report of the National Cholesterol Education Panel. Using these absolute and relative risk factors it was

14 http://circ.ahajournals.org; DOI: 10.1161/CIR.0b013e31820a55f5.
15 Using Medical-Cost Inflation option at http://www.halfhill.com/inflation_js.html
16 Using Consumer Price Index Inflation option at http://www.halfhill.com/inflation_js.html

determined that risk was 15% for the "Moderate Control" group, 20% for the "Uncotrolled" group, and 10% for the "Well Controlled" group. The calculations for lowering the medical costs associated with lowering LDL are based on the per person costs for patients with CHD, HF and Stroke times the 5% differential in the likelihood of developing those diseases based on the LDL category of risk. The same sources as those used above were used to arrive at the per person medical costs and productivity costs for CHD, HF and Stroke.

ABOUT THE AUTHORS

Byron Johnson is Distinguished Professor of the Social Sciences at Baylor University. He is the founding director of the Baylor Institute for Studies of Religion (ISR). He is a Faculty Scholar at the Center for Spirituality, Theology, and Health (Duke University), Senior Advisor at the Religious Freedom Project (Georgetown University), Senior Fellow at the Witherspoon Institute (Princeton), Senior Fellow at the Sagamore Institute (Indianapolis), and Senior Advisor at the Religious Freedom Project (Washington, DC). Before joining the faculty at Baylor University, Johnson directed research centers at Vanderbilt University and the University of Pennsylvania. Professor Johnson recently completed a series of empirical studies for the Department of Justice on the role of religion in prosocial youth behavior and is a member of the Coordinating Council for Juvenile Justice and Delinquency Prevention (Presidential Appointment). He is recognized as a leading authority on the scientific study of religion, the efficacy of faith-based organizations, domestic violence, and criminal justice. Recent publications have examined the impact of faith-based programs on recidivism reduction and prisoner reentry and is his book, More God, Less Crime. Johnson also directs the Program on Prosocial Behavior, which examines the ways in which religion impacts key behaviors like volunteerism, generosity, and purpose. His new book The Quest for Purpose, will be released summer 2017. He is working with the Gallup Organization to design empirical studies exploring religion and spirituality in the world. Johnson was the 2013 Lone Star Big Brother of the year for Big Brothers Big Sisters of Texas.

William Wubbenhorst serves as a Non-Resident Fellow for the Institute for Studies of Religion (ISR) at Baylor University. He is also a Principal for Harvest Home Institute, LLC and Co-founder of Social Capital Valuations, LLC. He also served a total of 13 years as a Senior Management Consultant and Return On Investment (ROI) Specialist for ICF International and Macro International. Over the years, William Wubbenhorst has collaborated with professors from several prestigious academic institutions, including Baylor University, Boston University and Harvard University. He has published a variety of peer-reviewed journal publications and case studies. He co-authored Demonstrating the Value of Social Service Programs: A Simplified Approach to Calculating Return on Investment -- a peer-reviewed article, published in the Foundation Journal (September 2010). Mr. Wubbenhorst also co-authored an article entitled: Assessing the Effectiveness of the Violence Free Zone in Milwaukee Public Schools, published in the Journal of Knowledge and Best Practices in Juvenile Justice & Psychology (2013). Additionally, two recent case studies were published through the Baylor Institute for Studies of Religion entitled: The Ohio Adolescent Health Centers: A Collaborative Model for Sexual Risk Avoidance Education in 2016 and Multi-State Mentoring Research: The Center for Neighborhood Enterprise's Violence Free Zone (VFZ) Initiative in 2015. Other recent Baylor ISR publications related to prisoner re-entry and recidivism include: Recidivism Reduction and Return On Investment: An Empirical Assessment of the Prison Entrepreneurship Program (2013),

INSTITUTE FOR
Studies of Religion
BAYLOR UNIVERSITY

INSTITUTE FOR STUDIES OF RELIGION
BAYLOR UNIVERSITY
ONE BEAR PLACE #97236
WACO, TX 76798
254/710-7555
254/710-1428 (FAX)

WWW.BAYLORISR.ORG

BAYLOR
UNIVERSITY