A WHITE PAPER

THE

MICRO

HEALTH IMPACT BOND

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GLOBAL HEALTH INNOVATION

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A HOWARD UNIVERSITY HOSPITAL HYPOTHETICAL

SUPPORTED BY

Infinite 8 Institute, L3C

Design and Finance of Social Impact Systems


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Ean Garrett, J.D. is the Chief Innovation Officer of Infinite 8 Institute, L3C, a low-profit limited liability company.

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INTRODUCTION BY EAN GARRETT, J.D.

Chief Executive Officer, Infinite 8 Institute, L3C

There are often many formalities and procedures as well as other hierarchy of thought that the medical field has traditionally followed as a business model. With a new century, arrives an urgent need to transform the way we think about providing services in the healthcare sector. In a field full of specialists, the heavy integration of cross-sector disciplines in collective impact efforts, must also lead to the adoption of external viewpoints by the medical field and constant adaptation and learning.

The Micro-Health Impact Bond (Micro-HIB) is not the sole answer but it is a tool that has the potential to help get us there. There is a huge burden on the healthcare system from widespread issues, such as Depression, Heart Disease, and Pneumonia, which form a large sum of healthcare related costs. As a result there is a larger pressure on the healthcare system with a smaller set of resources. In such an environment, continued existence relies on the ability to navigate the current healthcare landscape, which is plush with uncertainty.

However, the strategic implementation of initiatives and the efficient utilization of resources in the form of Social Impact Bonds (SIBs), provides a unique opportunity to pilot innovative healthcare products and services that may provide potential systematic solutions. The Micro-Health Impact Bond (Micro-HIB), is a further step in that direction. The aim of the model is to provide creative financing for the design and implementation of innovative and prototypical global healthcare initiatives. The model brings outcomes to the forefront of the healthcare paradigm, and the consequence is putting the patient back at the center of everything.

The Micro-HIB, was created specifically to address the ailing issues at the forefront of hefty costs associated with patient readmissions and emergency admissions. However, we expect the model to widely expand in the coming years to include many other health subjects. In the private sector, if a client base continually returned with a similar problem unsolved there would be a strong effort to address the issue. When a person's very existence and well-being are the issue, an even more valiant effort should be made to effectively and efficiently address a customer's needs.

Over the past year we have communicated with healthcare professionals and researched the finest healthcare systems in the world. Every community and population is faced with a unique set of challenges, both measurable and immeasurable. The role and potential of various technologies in the future of medical science cannot be denied, such as wearable technologies. The Micro-SIB provides a replicable framework for healthcare professionals from which to launch the next life-saving technology or methodology. We hope that this will be the start of a much larger conversation concerning where we can go from here.

Ean Garrett, J.D.

Chief Innovation Officer, Infinite 8 Institute, L3C

Infinite 8 ***Institute, L3C***

The design and finance of social impact systems

WHAT IS A HEALTH IMPACT BOND?

Social Impact Bond's or (SIBs), which are debt or equity instruments – sometimes referred to as "pay-for-success," "social innovation financing" or "outcome-based financing arrangements" – through which third-party investors take on the financial risk associated with expanding social programs.[1] The first Health Impact Bond (HIB), was implemented on May 2013, in Fresno, California, a city with one of the nation's highest asthma rates (20%).[2]

The California Endowment awarded Social Finance and Collective Health $660,000 in grant funding to launch an HIB aimed at improving the health of low-income children with asthma. Savings accrued to the state, who benefit from the reduced costs associated with the emergency treatment of childhood asthma.

RISING HEALTHCARE COSTS

In the first quarter of 2015, health spending was 7.3% higher in the previous year, and hospital spending increased 9.2%. Many of the gains are credited to increase healthcare system usage as a result of the Affordable Care Act (ACA). Likewise, the number of days people spent in the hospital also rose as well.[3] Also, by 2022, the ACA is projected to reduce the number of uninsured people by 30 million, add approximately 0.1 percentage-point to average annual health spending growth over the full projection period, and increase cumulative health spending by roughly $621 billion. Furthermore, health spending is also projected to be 19.9% of the DGP by 2022.[4]

With the steady increase in healthcare expenditures over the next decade, costs must be curbed in order to relieve pressure on the system. The area where costs have been admitted to be the highest among the Federal government, as well as the industry at-large, concerns cardiovascular diseases, more specifically heart disease, myocardial infarctions, and pneumonia. In 2013, 2,225 hospitals were fined up to 1% Medicare reimbursements for too many readmissions related to heart attacks, heart failure (myocardial infarctions), and pneumonia. The maximum penalty will reach up to 3% in 2015 for non-compliant health institutions.[5]

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[1] The Center for American Progress describes SIBs as: an innovative financial arrangement between one or more government agencies and an external organization—sometimes called an "intermediary" – that can either be a nonprofit or for-profit entity. *See, e.g.,* Kristina Costa et al., *Frequently Asked Questions: Social Impact Bonds,* CTR. FOR AM. PROGRESS, 3 http//:www.americanprogress.org/wp-content/uploads/2012/12/FAQSocialImpactBonds-1.pdf (last visited on Aug. 7, 2015).

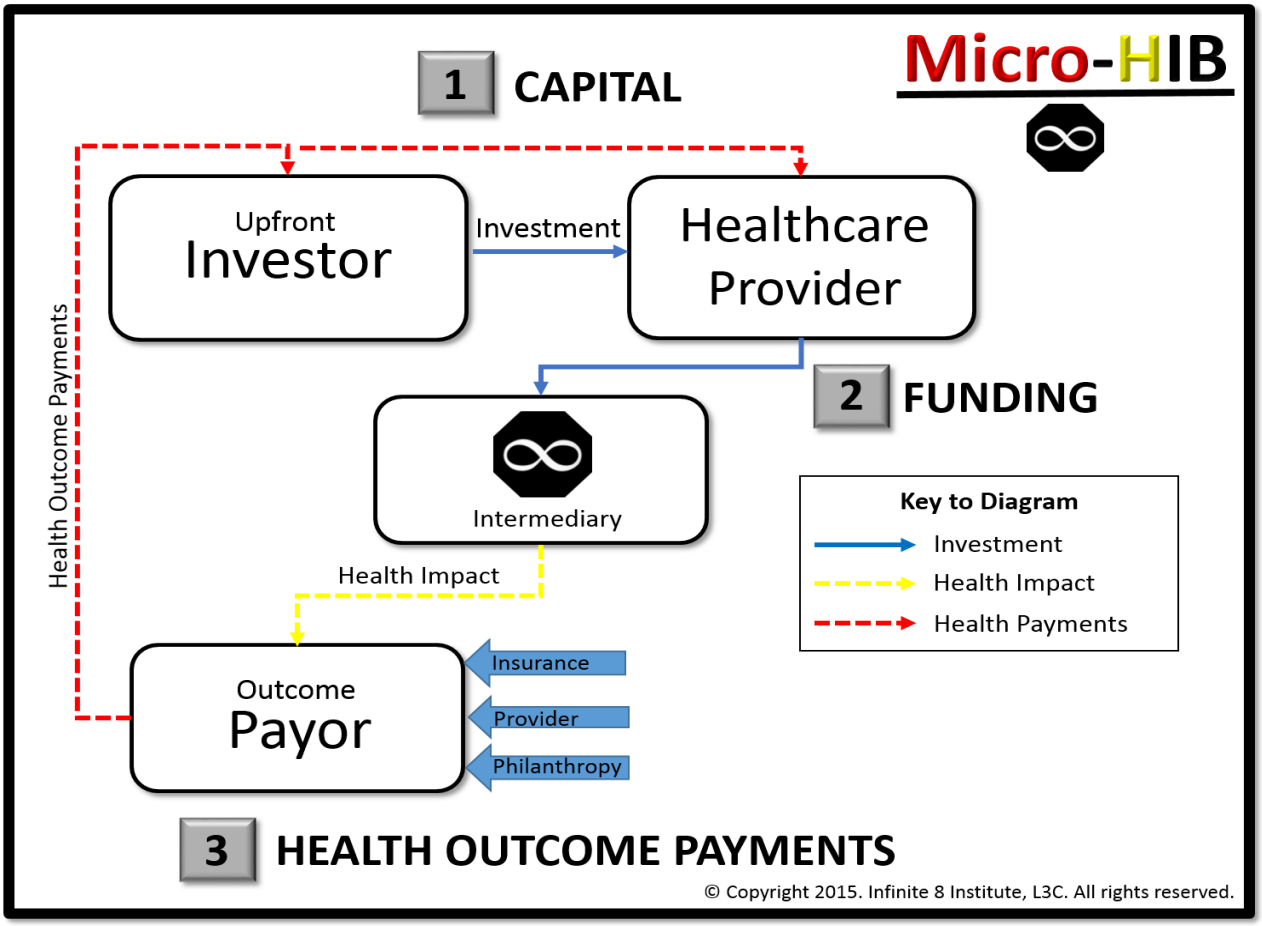
[2] Kennedy, K. (2013). *Social Finance: The California Endowment Awards Grant to Social Finance and Collective Health.* Retrieved from http://tcenews.calendow.org/releases/social-finance-the-california-endowment-awards-grant-to-social-finance-and-collective-health

[3] Altman, Drew (2015). The New York Times. *New Evidence Healthcare Spending is Growing Faster Again.* Retrieved from http://blogs.wsj.com/washwire/2015/06/11/new-evidence-health-spending-is-growing-faster-again/

[4] Centers for Medicare & Medicaid Services. Office of the Actuary, National Statistics Group (2012). *National Health Expenditures Projections 2012-2022.* Retrieved from https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/downloads/proj2012.pdf

[5] Daily Briefing (2013). *CMS: The 2,225 hospitals that will pay readmissions penalties next year. The Advisory Board Company.* Retrieved from https://www.advisory.com/daily-briefing/2013/08/05/cms-2225-hospitals-will-pay-readmissions-penalties-next-year

THE MICRO-HEALTH IMPACT BOND



A HYPOTHETICAL CASE STUDY: HOWARD UNIVERSITY HOSPITAL

The purpose of the following hypothetical is to stimulate conversation and scholarly debate relating to the pressing needs of the healthcare industry across the globe, especially institutions servicing dynamic populations and communities with unique needs, similar to a metropolitan hospital, such as Howard University Hospital. Founded in 1862, the century-old hospital services the largest population of impoverished patients in the District of Columbia.[6] The scenario and programmatic model, while fictitious, utilize existing scientific methodologies and publicly available quantitative data with real cost-savings. The hypothetical provides healthcare practitioners, government, and the private sector a tangible look into creative financing in the healthcare sector, in hopes of spurring action and further creative innovation.

Summary

The world's first Micro-Health Impact Bond (Micro-HIB) is aimed at reducing readmissions of patients suffering from cardiovascular diseases, as well as a reduction of overall emergency room (ER) visits. The Howard University Hospital (HUH) Non-cognitive Development Institute (HU-NDI) and the Howard Non-cognitive Development Institute-Alliance (HU-NDIA), will form a group of community businesses, organizations, and

[6] Kaiser Health News (2013). Panel says Medicare unfairly penalizes hospitals serving the poor. Retrieved from http://www.medicalpracticeinsider.com/news/compliance/panel-says-medicare-unfairly-penalizes-hospitals-serving-poor

healthcare patients coming together to ensure quality affordable healthcare and innovative research initiatives. The Alliance will collectively achieve a higher level of efficiency and productivity in the development of a patient centered paradigm. Its purpose will be achieved by the implementation of a globally competitive health impact structure.

The Micro-HIB, will serve a total of 100 residents annually for three years in the target areas of Northeast Washington, DC. The area was chosen because of its immense need and opportunity to yield substantial results. After completion of the readmission program, participants will demonstrate a proficiency in a set of low-cost therapies, including smile therapy, non-cognitive development therapy, and mindfulness meditation to enhance health outcomes related to Major Depressive Disorder (MDD), while achieving and maintaining a high level of patient satisfaction. Partnering with relevant local organizations, the HUH Micro-HIB will accomplish significant cost-savings by decreasing patient readmissions for cardiovascular diseases and lowering the number of daily ER admissions.

Objectives

The Micro-HIB will meet the goals of reducing cardiovascular patient readmissions and daily ER admission through the implementation of leading international health and management strategies. The Micro-HIB will achieve the following five measurable objectives by Year 3 of the pilot program:

1) Decrease daily emergency admissions by 1% in YR-1, and 2% in YR-2 & YR-3;
2) Decrease in-patient readmissions for cardiovascular diseases by 8%;
3) Decrease MDD by 5% among program participants admitted for cardiovascular diseases (i.e., Heart Disease, Myocardial Infarctions, and Pneumonia) and/or prevent episodes of MDD as a result of low-cost therapies;
4) Increase patient non-cognitive development by 20% in at least one non-cognitive development area (i.e., self-discipline, self-responsibility, persistence, fearlessness, excellence, foresight, character, and humility);
5) Achieve a 3-star rating on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) for patient satisfaction (the current rating is 2-stars).

Program Plan

The HU-NDIA will be placed within the existing framework of HUH, who will coordinate and house the programming, while I8I will provide consulting, project management, technical assistance, leaderships, and resources for the life of the 3-year Micro-HIB. A collaboration of organizations will form the HU-NDIA, who will serve as a university, community, and city-wide research, best-practices, and innovation network. The HU-NDIA will share best-practices and accelerate innovation through the voluntary production of presentations, panel sessions, and a single annual white paper concerning project discoveries by members of the board. The HU-NDIA will also serve as an advisory body to the NDI, comprised of eight voting board positions. The HU-NDIA will initially consist of the following organizations and/or organization types: Howard University & Howard University Hospital, Quality Improvement Organizations, University Hospital Consortium, District of Columbia Hospital Association, District of Columbia Healthcare Finance Administration, Managed Care Organizations, Long-term Acute Care Hospitals and Skilled Nursing Facilities, Home Health Agencies, Walgreens Pharmacy, CVS Pharmacy, and Uber & other transportation companies.

Additionally, the HU-NDI will coordinate the following internal programs to achieve program objectives: Community Health & Family Medicine, Dietary, Finance, Pediatrics, Environmental Services, Information Desk,

Medical Records, Nursing Patient Transportation, Physical Therapy, Printing and Duplicating, Radiology, Multicultural Affairs, Occupational Therapy, Anesthesiology, Emergency Medicine, Internal Medicine, Psychiatry & Behavioral Sciences, Howard University Heart Center, Howard University Diabetes Center, and Center for Sickle-Cell Disease.

I8I and HUH will collaborate to form a hiring committee to determine qualified candidates for the position of NDI Executive Director, Patient Experience Manager, and Administrative Assistant. The NDI will also independently contract with in-home healthcare providers to provide patient *follow-up within 3 days*, in addition to status monitoring, wellness counseling, educational development, and specialized therapies for 3-months following patient readmission. Patients will also be retro-fit with wearable technology (i.e., Smartwatches), in order to better manage their heart rate, exercise, and emergency communication. Independent contractors will receive 16 hours of training to deliver the following specialized therapies, which include: Smile Therapy, Mindfulness Meditation, and Non-cognitive Development. Oxygen and Exercise Therapy Training will be provided to patients upon need. Independent contractors will also carry a caseload of 10 voluntary of physician recommended program participants. A waiting list will immediately fill program slots as they become available. The Community Clinic will also be extended for one hour during week days in YR-1 and two hours in YR-2 to curb unnecessary ER visits.

Financials

The Micro-SIB will be a private contractual agreement between multiple interested parties. I8I seeks to create a 3-year Micro-SIB with an annual budget of $500,000, utilizing national and international best healthcare practices to accomplish the project objectives. The outcomes will be assessed by an independent third party intermediary. I8I will also conduct a feasibility study to quantify cost-savings and assess potential quantitative impact as a result of Socially Responsible Investments (SRI). I8I will collaborate with HUH to solidify investors for up-front costs as well as philanthropic and/or financial sector support to pay for successful outcomes. The outcomes will be assessed by an independent third party assessor.

A. Initial Estimate of HUH Cost-savings

a. Annual In-patient Readmission Cost-savings (Heart Disease, MCI, & Pneumonia)

i. 5% reduction in YR-1
    1. YR-1 Cost-savings = $117,553
ii. 6% reduction in YR-2
    1. YR-2 Cost-savings = $142,301
iii. 8% reduction in YR-3
    1. YR-3 Cost-savings = $185,610
iv. 3-YR Subtotal Cost-savings = $445, 464

b. Annual ER Admission Reduction Cost-savings

i. 1% reduction in YR-1 (ER hours extended +1)
    1. Annual Cost-savings = $2,562,090.125
ii. 2% reduction in YR-2 (Clinic hours extended +2)
    1. Annual Cost-savings = $5,124,180.125
iii. 2% reduction in YR-3 (Clinic hours extended +2)
iv. 3-YR Subtotal Cost-savings = $12,080,450

B. TOTAL Annual Estimated HUH Cost-savings

a. Annual Subtotal YR-1 = $3,007,554.125
b. Annual Subtotal YR-2 = $5,569,644.25
c. Annual Subtotal YR-3 = $5,569,644.25
d. ANNUAL TOTAL COST-SAVINGS YR-1 = $2, 305,054.125
e. ANNUAL TOTAL COST-SAVINGS YR-2 = $4,867,144.25

f. ANNUAL TOTAL COST-SAVINGS YR-3 = $4,867,144.25
g. (Subtracted) Annual Programmatic Costs YR-1, YR-2, YR-3 = $500,000
h. (Subtracted) Annual Investor 13.5% Interest Rate YR-1, YR-2, & YR-3 = $202, 500
i. 3-YR TOTAL PROJECTED COST-SAVINGS = $12,039,342.63

Recruitment

HU-NDI will collaborate with HUH staff to recruit up to 100 newly admitted candidates to participate in the HU-NDI programming. Candidates will then be interviewed while admitted, and selected upon June 22, 2015 evaluation and joint recommendation by HU-NDI and HUH Staff. HU-NDI will also recruit candidates for the program on a referral basis. Candidates will then be interviewed, and selected by a joint committee of HU-NDI and HUH staff.

A. Target population of NDI program participants:

1. District of Columbia (DC) residents; and
2. Medicare/Medicaid patients admitted for complications related to Heart Disease, Myocardial Infarctions, and Pneumonia.

Role of Major Depressive Disorder (MDD) in Patients with Cardiovascular Diseases

Heart Disease & Myocardial Infarctions

Heart Disease & Myocardial Infarctions are among the leading causes of patient readmission in America. Up to 15 percent of patients with cardiovascular disease and up to 20 percent of patients who have undergone coronary artery bypass graft (CABG) surgery experience major depression.[7] Unmanaged stress can lead to high blood pressure, arterial damage, irregular heart rhythms and a weakened immune system. Patients with depression have been shown to have increased pro-inflammatory markers (such as C-reactive protein or CRP), which are all risk-factors for cardiovascular disease. For people with heart disease, depression can increase the risk of an adverse cardiac event such as a heart attack or blood clots.[8]

For people who do not have heart disease, depression can increase the risk of a heart attack and development of coronary artery disease. In one landmark study, the continued presence of depression after recovery increased the risk of death (mortality to 17 percent within six months after a heart attack versus 3 percent mortality in heart attack patients who didn't have depression).[9]

During recovery from cardiac surgery, depression can intensify pain, worsen fatigue and sluggishness, or cause a person to withdraw into social isolation. Patients who have had coronary artery bypass graft and have untreated depression after surgery also have increased morbidity and mortality. Patients with heart failure and depression, have an increased risk of being readmitted to the hospital, and also have an increased mortality risk. Early research findings have indicated that

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[7] Jiang W, Davidson JRT. Antidepressant therapy in patients with chemic heart disease. American Heart Journal, November 2005. 871-881
[8] Frasure-Smith N, et al. Depression following myocardial infarction: Impact on 6-month Survival. JAMA, October 20, 1994. 270(15): 1819-1825.
[9] Frasure-Smith N, et al. Depression following myocardial infarction: Impact on 6-month Survival. JAMA, October 20, 1994. 270(15): 1819-1825.

there may be genetic factors that increase a patient's risk of depression and risk of recurrent events after a heart attack.[10]

Patients with heart disease and depression also perceive a poorer health status, as manifested by Quality of Life (QoL) Studies. Furthermore, heart disease patients with depression have worse treadmill exercise and medication adherence than that of patients with heart disease, who do not have depression.[11] [12][13]

Negative lifestyle habits with depression, such as smoking, excessive alcohol consumption, lack of exercise, poor diet and lack of social support – interfere with the treatment of heart disease. Depression has been proven to be such a risk factor in cardiac disease that the American Heart Association (AHA) has recommended that all cardiac patients be screened for depression using simple screening questions and an easy-to-administer survey called the *PATIENT HEALTH QUESTIONNAIRE* (PHQ-2).[14] Patients with MDD had a significantly higher probability of an intensive care unit admission, need for mechanical ventilation, and in-hospital death than patients without MDD.[15]

Pneumonia

Depression was associated with 1.28-times greater odds of pneumonia hospitalization.[16] After treatment for pneumonia, patients also had nearly double the risk of substantial depressive symptoms.[17] After adjusting for demographic characteristics, clinical factors, and health-risk behaviors, depression was independently associated with increased odds of hospitalization for pneumonia.[18]

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[10] Nakatani D, et al. Influence of Serotonin transportation gene polymorphism on depression symptoms and new cardiac events after acute myocardial infarction. American Heart Journal, October 2005. 150 (4): 652-658

[11] Ruo B, et al. Depressive Symptoms and heart-related quality of life: the Heart and Soul Study. JAMA, July 9, 2003. 290(2): 215-221.

[12] Geh, AK, et al. Self-reported medication adherence and cardiovascular events in patients with stable coronary heart disease: the Heart and Soul study. The American Journal of Cardiology, September 15, 2003. 922(6) 705-707.

[13] Gehi AK, et al. Relations of Sel-reported angina pector is to inducible myordial ischemia in patients with known coronary artery disease: the Heart and Soul Study Archives of Internal Medicine, November 2005. 165(2): 2508-2513.

[14] Litchman JH, et al. Depression an coronary heart disease: Recommendation for screening, referral and treatment. A science advisory firm from the American Heart Association Prevention Committee of the Council on Cardiovascular Nursery, Council on Clinical Cardiology, Council on Epidamology and Prevention, and Interdisciplinary Council on Quality of Care and Outcome Research: endorsed by the American Psychiatric Association. Circulation, Oct 21 2008. 118(17); 1768-1775.

[15] Kao L-T, Liu S-P, Lin H-C, Lee H-C, Tsai M-C, Chung S-D (2014) Poor Clinical Outcomes among Pneumonia Patients with Depressive Disorder. PLoS ONE 9(12): e116436. doi:10.1371/journal.pone.0116436

[16] Kao Li-Ting, Poor Clinical Outcomes among Depression Patients with Pneumonia. 2014 Dec 31; 9(12): e116436. http://www.jpsychores.com/article/S0022-3999(14)00286-4/abstract.

[17] Catherine L. Hough, M.D., M.Sc., U-W; Deborah A. Levine, M.D., M.P.H., U-M and VA; Kenneth M. Langa, M.D., Ph.D., U-M and VA. Functional Disability, Cognitive Impairment, and Depression After Hospitalization for Pneumonia," American Journal of Medicine, doi:10.1016/j.amjmed.2012.12.006.

[18] Davydow DS, Hough CL, Zivin K, Langa KM, Katon WJ. Depression and Risk of Hospitalization for Older Americans. J

LOW-COST STRESS REDUCTION THERAPIES

Smile Therapy

Holding a smile on one's face during periods of stress may help the heart. Muscle problems brew in a core of the body with the shoulders at its base and the forehead at its peak – the tension triangle. Muscles in this area react dramatically to psychological pressure: the brow furrows, the jaw clenches, the neck tightens and the shoulders rise. Corrugator muscles, the ones the knit the brow into a frown, tighten in response to emotional tension. A study at the Massachusetts General Hospital in Boston shows that depressed people have chronically tensed corrugators, even when they do not look as if they are frowning. Furthermore, tension in the corrugators, along with the nearby frontalis muscle is such a good gauge of muscle tension throughout the body that the forehead muscles are used in bio feedback training to monitor overall tension. As muscles throughout the body relax, tension leaves the forehead.[19] Researchers say their findings suggest smiling during brief periods of stress may help reduce the body's response to stress, regardless of whether or not the person actually feels happy or not.[20] According to Mark Stibich, Ph.D., at Columbia University, smiling:

a. **Relieves stress** – Stress does express itself right in our faces. When we smile, it can help us look better, less tired, less worn down.

b. **Boosts Immune System** – Smiling can actually stimulate your immune response by helping you relax.

c. **Lowers Blood Pressure** – When you smile, there is evidence that your blood pressure can decrease.

d. **Releases Endorphins and Serotonin** – Research has reported that smiling releases endorphins, which are natural pain relievers, along with serotonin, which is also associated with feel good properties.

e. **Duchenne (full)** – Smiles are the only types of smiles that create this positive effect. These smiles engage the muscles in the mouth, cheeks, and eyes and are considered to be genuine smiles.[21]

Mindfulness Meditation

We conclude that an intensive but time-limited group stress reduction intervention based on mindfulness meditation can have long-term beneficial effects in the treatment of people diagnosed with anxiety disorders.[22]
Psychological risk factors such as anxiety and depression have been associated with Coronary Heart Disease (CHD). Stress can have an impact on the risk factors for the disease, such as high blood pressure (BP), physical activity, and being overweight. The economic and social burden on the healthcare system due to CHD, is increasing

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Psychosom Res. 2014 Dec;77(6):528-34. doi: 10.1016/j.jpsychores.2014.08.002. Epub 2014 Aug 11.

[19] Goleman, Daniel, and Tara Goleman. "Relieving Stress: Mind Over Muscle." *New York Times* 28 Sept. 1986: n. pag. Print.

[20] Kraft, Tara L.; Pressman, Sara D.; "Grin and Bear It: The Influence of Manipulated Facial Expression on the Stress Response."

[21] Stibich, Mark, Ph.D. "Top Reasons to Smile." Web log post. *About Health*. N.p., 7 Mar. 2015. Web. 7 June 2015. <http://longevity.about.com/od/lifelongbeauty/tp/smiling.htm>.

[22] Miller, John J; Fletcher, Ken; Kabat-Zinn, Jon. Three-Year Follow-up and Clinical Implications of a Mindfulness Meditation-based Stress Reduction Intervention in the Treatment of Anxiety Disorders. General Hospital Psychiatry 17, 192-200, 1995.

medical costs of heart disease, including surgeries and cardiac rehabilitation programs. The present study provides evidence for the effectiveness of Mindfulness Meditation-based Stress Reduction programs in reducing symptoms of anxiety and depression, perceived stress, BP and BMI in patients with CHD, and offers new insights in the management of patients with CHD.[23]

Non-cognitive Development Therapy

Non-cognitive skills represent personality traits and socio-economic skills…including extraversion, conscientiousness, openness to experience, agreeability, and emotional stability.[24] The strongest correlation…are among non-cognitive skill measures, such as between internalizing and externalizing behavior (i.e., and between these two indicators and the depressive symptoms scale.[25] Higher health outcomes at age 42 were observed among clinical adolescent participants who scored higher on non-cognitive assessments and self-reports.[26]

The Macro-SIB is a public transaction, where government either pays investors for successful outcomes, or government serves as the financial administrator of funds, using the full faith of the government to add legitimacy to the transaction and mitigate investor risk.

FEASIBILITY

As a part of the service provision of the Micro-SIB, a full feasibility study will be conducted by I8I in order to formalize and assess the overall economic impact, qualitative impact, costs, as well as cost-savings concerning the HUH Micro-HIB for Cardiovascular Diseases.

DATA COLLECTION & ANALYSIS

Data collection and analysis will be implemented by the Patient Experience Manager, who will report bi-monthly to the Executive Director concerning project updates. Data will be input and kept current by the Administrative Assistant and Executive Director. The Executive Director will be responsible for meeting quarterly and reporting annually to the HU-NDIA, who will provide recommendations and assessment. The Executive Director will publish the HU-NDI's annual report, making the results and progress available to the public and academic community. The NDI will follow a three-pronged plan: Communication, Education, and Follow-up in accordance with National best-practices (Cleveland Clinic). This will include information continuity, management continuity, and relational continuity. The Cleveland Clinic is among the 15% of hospitals that achieved an overall three-star rating from the Society of Thoracic Surgeons (STS) FOR CABG Survey. The ratings reflect the highest quality of cardiac surgery. The HU-NDI will measure the following metrics among project participants:

1. Patient Satisfaction Survey
2. Discharge Rx Correct Capture rate

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[23] Parswani, Manish J; Shama Mahendra P; and Hyengar, SS. Mindfulness-based Stress Reduction Program in Coronary heart disease: A randomized control trial. International Journal of Yoga 6(2), 2013 June 13; 75, 111-117.

[24] Mohamed Ihsan Ajwad, Joost de Laat, Stegan Hut, Jennica Larrison, Ilhom Adbulloev, Robin Audy, Zlatko Nikoloski, and Federico Torrachi

[25] Glewwe, Paul, Qiuqiong Huang, and Albert Park. "Cognitive Skills, Non-Cognitive Skills, and the Employment and Wages of Young Adults in Rural China." *2011 Annual Meetings*, *July*. 2011; 17.

[26] Carneiro, Pedro; Crawford, Claire; Goodman, Alissa. The Impact of Early Cognitive and Non-cognitive Skills on Later Outcomes. Centre for the Economics of Education. 1 January 2007.

3. 30-day readmission rates
4. Patient Loyalty Scores
5. MDD Survey
6. Hospital Anxiety and Depression Scale, Perceived Stress Scale, Blood Pressure, and Body Mass Index (BMI).
7. Exercise Stress Test[27]

WEARABLE TECHNOLOGY

The program will also integrate affordable wearable technology with the patient experience for the duration of the 3-month program, specifically the *Pebble Smartwatch*, providing a discrete and modern device with heartrate monitoring and exercise focused applications that will be customized to the specifications of HUH and the needs of the NDI program. The device will also be simple to use, further allowing for a one-touch emergency response feature to contact all designated parties, such as caretakers, family, physicians, and 911 emergency support. The device will be returned to the HU-NDI upon patients exiting the program.

CONTRACT FORMATION

The University of Georgetown's Social Enterprise & Non-profit Law Clinic, a division of Georgetown Law, has agreed to partner with I8I, and author a standard contractual agreement for the Micro-SIB, providing a framework for Micro-HIB's.

STANDARD VS. COMMUNITY-BASED METRICS?

The Micro-HIB will utilize the IRIS Metrics as a bare framework, providing standard metrics for a variety of fields to build off of, while also encouraging stakeholders to exercise freedom of discretion regarding the customization and implementation of community-based standards. Therefore, the local negotiating table will have the final say concerning the ultimate determination of project metrics.

RELEVANT LEGISLATION

Federal Legislation

Social Impact Partnership Act (H.R. 1336) – On March 4, 205, U.S. Representatives Todd Young (R-IN) and John Delaney (D-MD) – along with eight other bipartisan cosponsors reintroduced H.R. 1336, which would create a one-time $300M fund at the Office of Management and Budget to support the development of new social impact bond deals at the state and local level over the next 10 years.[28]

Social Impact Partnership Act (S. 1089) – On April 27, 2015, U.S. Senators Orrin Hatch (R-UT) and Michael Bennet (D-CO) reintroduced a companion bill to H.R. 1336, the Social Impact Bond Partnership Act (S. 1089), which would create a $300M fund at the U.S. Treasury to support PFS at the state and local level.[29]

Every Child Achieves Act (S. 1177) – On July 16, 2015, the U.S Senate passed legislation that would reauthorize the Elementary and Secondary Education Act (ESEA), (1) which would allow states and local school districts to invest in their Title I, Part D funds (Programs for Neglected, Delinquent, and At Risk Children and Youth, $47.6M in FY15) in PFS initiatives; (2) allow local school districts to invest their Title IV, Part A funds (Safe and Drug Free Schools and Communities, $70 million in FY15) in PFS initiatives; and (3) allow states to invest their early childhood coordination funds (Early

[27] Haggerty, J.L., R.J. Reid, G.K. Freeman, B.H. Starfield, C.E. Adair, R. McKendry, "Continuity of Care: A Multi-disciplinary Review," BMJ 327 (7425)(2003): 1219-1221

[28] H.R. 1336, 114th Cong. (2015).
[29] S. 1089, 114th Cong. (2015).

Learning Alignment and Improvement Grants, newly authorized program) in PFS initiatives.[30]

The Student Success Act (H.R. 5) – On July 8, 2015, the U.S. House passed its ESEA reauthorization bill – H.R. 5, the Student Success Act, which would (1) allow states and local school districts to invest their Title II, Part A funds (Teacher Preparation and Effectiveness, approximately $2.3 billion in FY15) in Pay for Success initiatives; and (2) would allow states and local school districts to invest their Teacher and School Leader Flexible Grant Funds (a new program authorized at $697 million) in PFS initiatives.[31]

Workforce Innovation and Opportunity Act (WIOA) – On July 22, 2014, President Obama signed the WIOA into law. This bipartisan legislation, authorizes the three largest federal workforce development programs (Youth Workforce Investment program, Adult Employment and Training program, and Dislocated Workers Employment and Training program), which includes new provisions which: (1) increase the amount of WIOA funds can set aside and distribute directly from 5-10% and authorize them to invest these funds in Pay for Performance initiatives; (2) authorize states to invest their own workforce development funds, as well as non-federal resources, in Pay for Performance initiatives (3) authorize local workforce investment boards to invest up to 10% of their WIOA funds in Pay for Performance initiatives; and (4) authorize states and local workforce investment boards to award Pay for Performance contracts to intermediaries, community based organizations, and community colleges.[32]

Second Chance Act – Through the U.S. Department of Justice' Second Chance Act, whose program goals are to "reduce recidivism, provide reentry services, conduct research, and evaluate the impact of reentry programs." The FY14 and FY15 federal appropriations bills also authorized the Department to invest up to $7.5M of its Second Chance Act funds in Pay for Success efforts, including $5M to implement projects using the Permanent Supportive Housing model.[33]

Corporation for National and Community Service – FY16 and FY15 Federal appropriations bills authorized the Corporation for National and Community Service (CNCS) to invest up to 20% of the Social Innovation Fund (SIF) (up to $14 million) in Pay for Success initiatives. Key focus areas include: economic opportunity, healthy futures, and youth development. Federal grant dollars must be matched by the grantee with nonfederal dollars and services.[34]

U.S. Dept. of Housing & Urban Development – The Obama Administration's FY16 Budget request seeks demonstration authority allowing the U.S. Department of Housing & Urban Development (HUD) to use PFS deals to finance energy efficiency retrofits in HUD-assisted housing through reduction in utility costs.[35]

FY16 Total Proposed Exec. Budget = $364M

U.S. FEDERAL TAX INCENTIVES

New Market Tax Credits (NMTC) – The New Market Tax Credit program stems from the Community Renewal Tax Relief Act of 2000, which to date has allocated $29.5B in investments to privately management investment institutions. Through the creation of

[30] S. 1177, 114th Cong. (2015).
[31] H.R. 5, 114th Cong. (2015).
[32] H.R. 803, 113TH Cong. (2014).
[33] H.R. 1493, 110th Cong. (2008).

[34] "National Service Agency Announces $12M to Support Pay for Success Projects. *NCS.* NCS, 1 October 2014. Web. 7 September 2015.
[35] "Improving Outcomes through Pay for Success." *White House.* White House, 13 April 2015. Web. 7 September 2015.

Community Development Financial Institutions (CDFIs), who privately administer raised capital for Micro-SIBs, investors are able to recoup tax credits of up to 39% of their cash equity investment over a period of seven years (5% in years 1-3, and 6% in years 1-3).[36]

Low-income Housing Tax Credits (LIHTC) – The LIHTC program was created in 1986 to encourage private investment in the development and rehabilitation of rental housing for low to moderate-income families, seniors, and persons with special needs. LIHTCs are governed by Section 42 of the Internal Revenue Code and corresponding Federal Regulations. Tax credits under the LIHTC program are transferrable and able to be sold to investors for capital or equity. The aim of the legislation is to provide lower rents that are affordable for low-income and moderate-income households, while giving investors' tax breaks that exceed their total investment in the real estate.[37]

Consumer Energy Efficiency Tax Credits – Under the Tax Increase Prevention Act of 2014, eligible consumer items, such as Geothermal Heat Pumps, Small Residential Wind Turbines, and Solar Energy Systems, provide tax credits for up to 30% of the cost, up to $500 per .5 KW of power capacity. Existing homes and new construction do qualify. Rental homes and second homes do not qualify.[38]

Losses on Sale of Small Business Equity – Under IRS 1244, investors' who invest in a company with less than $1M in assets – and lose their investment, may be able to write off the loss as an ordinary loss rather than a capital loss, which allows investors to write off up to $50,000 in losses on a qualified domestic corporation. This in turn can be used to reduce an investor's ordinary income, which otherwise would be taxed at a maximum rate as high as $39.6%.[39]

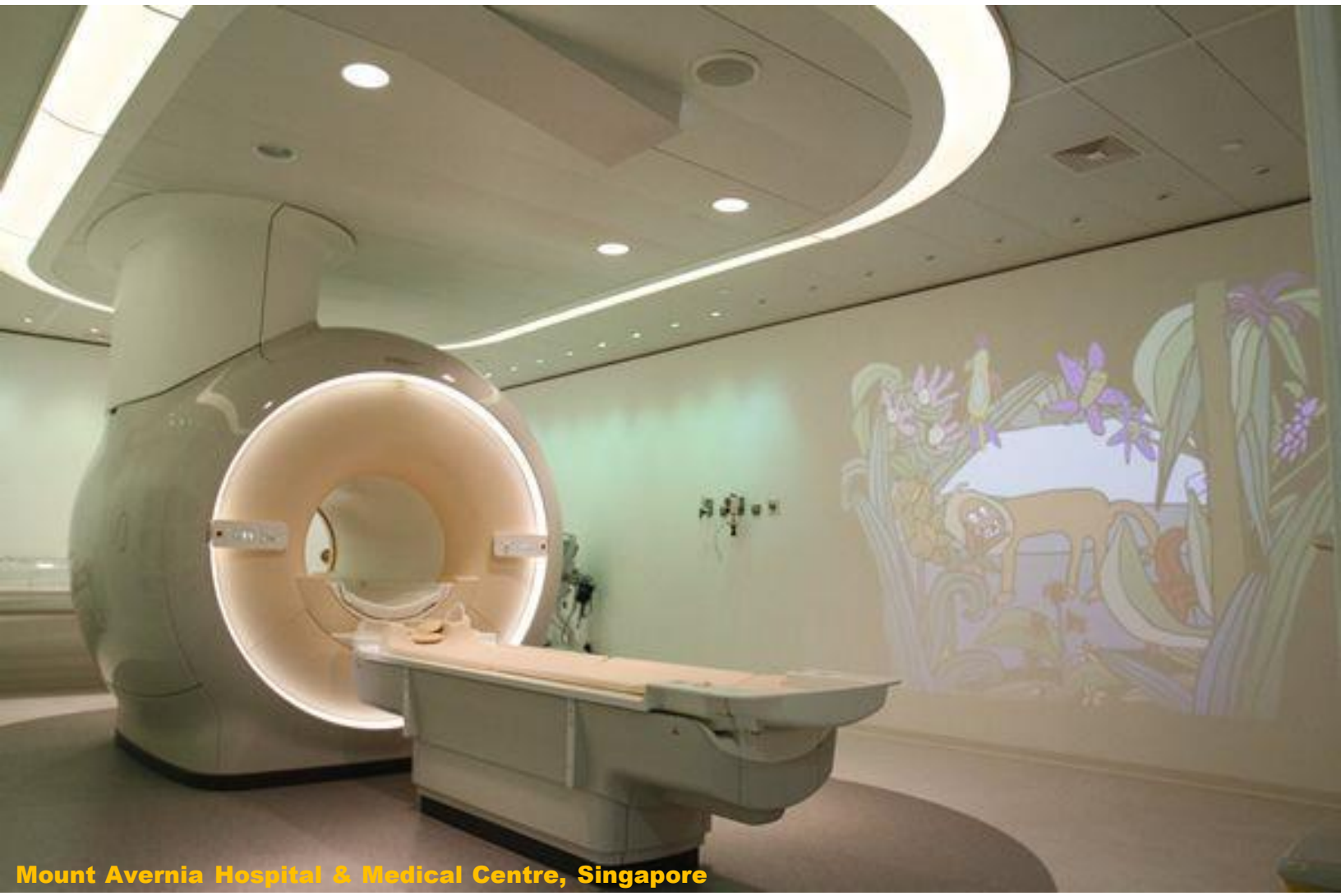
For more information on Micro-HIB's, please contact us at info@infinite8institute.com and www.infinite8institute.com.

[36] "New Markets Tax Incentive Program." *CDFI*. CDFI. 3 September 2015. Web. 7 September 2015. http://www.cdfifund.gov/what_we_do/programs_id.asp?programID=5.

[37] National Association of Home Builders, *The local Economies Impact of Typical Housing Tax Credit Developments (March 2010).*

[38] "Federal Tax Credits for Consumer Energy Efficiecy." *Energy Star.* Energy Star, 30 October 2013. Web. 7 September 2015. https://www.energystar.gov/about/federal_tax_credits.

[39] 26 U.S.C. Sec. 1224 (1958). https://www.law.cornell.edu/uscode/text/26/1244,



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