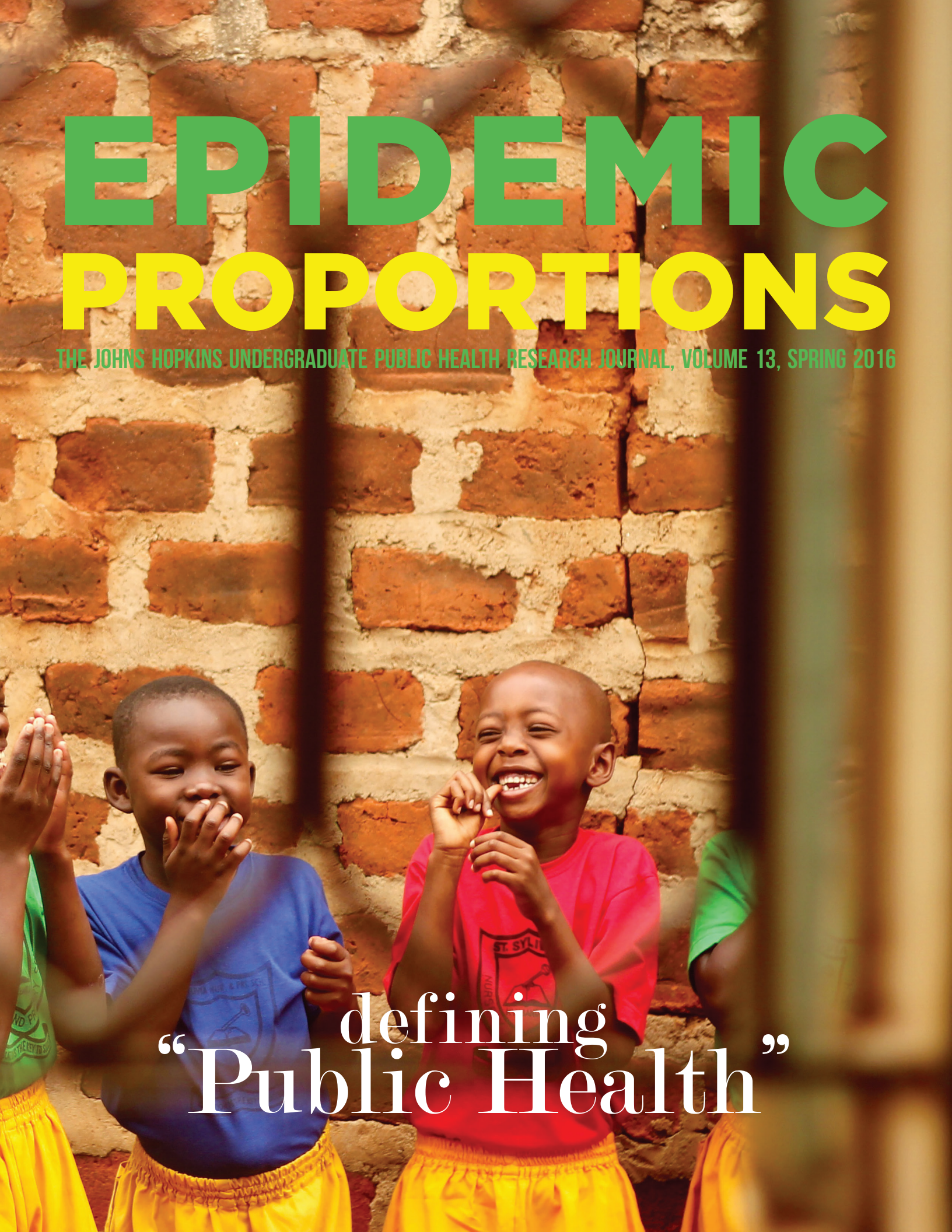


EPIDEMIC PROPORTIONS

THE JOHNS HOPKINS UNDERGRADUATE PUBLIC HEALTH RESEARCH JOURNAL, VOLUME 13, SPRING 2016

defining "Public Health"

About

(n.) Johns Hopkins University's premier undergraduate public health research journal. Designed to highlight students' research and fieldwork in the realm of public health; combines research and scholarship; seeks to capture the breadth and depth of the undergraduate public health experience.

BOTSWANA Photo by Benita Pursch '19

Contents

(n. pl.) A list of titles of the parts of a book or document, organized in the order in which the parts appear.

BOTSWANA Photo by Benita Pursch '16.

Letters

(n. pl.) a written, typed, or printed communication, especially one sent in an envelope by mail or messenger.

UGANDA Photo by Grace Kwak '18.

From the Editors

Welcome to Epidemic Proportions!

The Epidemic Proportions Undergraduate Public Health Journal is designed to highlight student research, fieldwork, and interest in public health through a selection of diverse articles. Each article emphasizes a unique perspective or experience. This year we publish the 13th volume of our journal, an effort made possible by the contributions of our talented and passionate team of staff and authors.

With the constant evolution of public health, we chose this year's theme, Defining Public Health, to stress the many distinct attributes that form this extensive field. Through this focus we hope to shed light on the complexities of public health as well as to call attention to the wide scope of this discipline.

Public health is a field teeming with compassionate and dedicated people interested in helping more than just the individual, but rather entire populations. Because of this service, the public health community has been able to accomplish many amazing achievements such as eradicating small pox, improving maternal and infant health, and establishing regulations for worker safety. While there is still much work to be done, public health is a budding field that is rapidly expanding. Each day new problems are uncovered and each day new teams confront these challenges. Being a part of this field is truly like being a part of a community where everyone has the same goal in mind: to help populations improve their health and wellbeing.

The diversity of this field will be evident in our selection of articles. The range of topics include: opinion pieces on smoking and gun violence, research on blood safety and migrant workers, policy discussions regarding health programs both domestic and abroad, and depictions of unique student experiences. These serve to highlight our theme, Defining Public Health, by showing the many facets of the field. To give us some perspective we turn to Johns Hopkins University Professor and Director of Social and Behavioral Interventions Program, Dr. Peter Winch. Dr. Winch has been involved in public health for over 30 years and provides valuable insight on the nature of this field.

With this we invite you to enjoy the many thought provoking articles in this year's journal, Epidemic Proportions: Defining Public Health, and encourage you to contribute your own perspective to this diverse field.

Sincerely,

Maisa Nimer '16
Public Health Studies
Molecular & Cellular Biology

Lawrence Lin '18
Chemistry

From Dr. Peter Winch

What is Public Health?

I am often asked this question by students, as they ponder whether it is something they should take an interest in, or even consider as a career. There is no simple answer. Notions of public health in the late nineteenth and early twentieth century had a laser-like focus on viruses, bacteria and parasites. Over recent decades, the scope of public health has expanded to include non-communicable diseases, mental health, injuries and violence, as well as a range of social and economic factors that affect health: poverty and marginalization, stigma and discrimination, conflict and forced displacement, torture and imprisonment.

To counter this broader range of threats, public health has developed a dazzling array of research methods and intervention modalities. The latter include tools to formulate and influence policy, drugs and vaccines, interventions to promote behaviors such as hand-washing with soap and smoking cessation, approaches to strengthen health systems and ensure an adequate health workforce, alternatives for health care financing, monitoring and surveillance systems, and ways to engage with and work in partnership with marginalized and powerless communities to address complex and their multi-faceted needs.

On one hand, public health is incredibly broad. On the other hand, some question whether it is far too narrow. Public health typically limits itself to the health of the world's human population, but leaves out the health of the biosphere, and the non-human species with whom we share the planet. The numbers support this line of questioning. We are witnessing steady decreases in global deaths due to diseases such as HIV/AIDS and malaria. At the same time, we are witnessing increasing numbers species going extinct and degradation in ecosystems, along with the services these ecosystems provide to us as a species.

The Lancet-Rockefeller Commission on planetary health[1] is one of several groups warning that we need to take preservation of the biosphere and ecosystems services seriously, if we want to have a future as a species. What does this mean for public health at JHU? Among other things, it means breaking down walls between departments and academic programs dealing with ecosystems and environmental sustainability, and those seeking to improve public health. It also means that each member of the Hopkins community needs to take steps to reduce her or his impact on the biosphere, most notably by consuming less. Environmental sustainability is an enormous challenge. But we need to fold it into all aspects of public health, if we want to extend the progress we have made in recent years.

Sincerely,
Peter Winch
Director, Social and Behavioral Interventions Program

1. See http://www.thelancet.com/commissions/planetary-health and https://www.rockefellerfoundation.org/planetary-health/

BOTSWANA Photo by Benita Pursch '16.

Research

(n.) the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions.

UGANDA Photo by Grace Kwak '18.

St. Joseph's Block Therapy Treatment Evaluation

GAURI BHATNAGAR '17
PUBLIC HEALTH STUDIES

Gauri spent two months in South Africa working at a children's home and hospital, analyzing how various external determinants affect the health and well-being of underserved populations.

Description

St. Joseph's home is a secondary and tertiary pediatric rehabilitation center located in the suburb, Montana, off the N2 in Cape Town, South Africa. It is the only rehabilitation and therapy focused pediatric institution in Sub-Saharan Africa. St. Joseph's mission is to provide holistic healthcare to children from disadvantaged backgrounds whose families are unable to give them the care they need.[1] At the home, they teach the caregivers how to better care for their sick child to prevent further readmission They offer a variety of services to those who need it such as: post acute care, restorative and rehabilitative care, palliative care, nursing training, special needs education, pastoral care, and training placements for medical, nursing, physical, occupational and speech therapists. The facilities offer housing for parents and caregivers of children who are receiving intensive therapy. Following the holistic model of health they are striving for, St. Joseph's emphasizes good nutrition and healthy eating, spiritual and emotional support through grief counselors and therapists, and access to education.[2] The majority of these children are from very disadvantaged backgrounds and have been diagnosed with life threatening illnesses such as HIV/AIDS, cancer, arthritis, heart-lung-kidney failure, neurological impairments, and brain damage/trauma. Thirty-one percent of the children are HIV+, 19 percent suffer from cancer, and 14 percent have diabetes.[3]

Background

The purpose of this synthesizing assignment is to a) demonstrate the key public health concepts I have learned while working in South Africa and b) discuss and analyze a program specific to my worksite, St. Joseph's. We critically analyzed their "Block Therapy" program in the search for loopholes, unstable aspects, and, most importantly, ways to increase the effectiveness of the rehabilitation. Program evaluation is an important aspect to any program to ensure the continued efficiency, effectiveness, and fluidity of organization, financial aspects and structure. Here we will examine the various factors from institutional structure, outside health and social disparities that contribute to and affect the Block Therapy Program.

Introduction

The Block Therapy program at St. Joseph's is particularly structured. Its intention is to provide an intensive two-week rehabilitation program for children who require postoperative rehab, suffer from cerebral palsy, traumatic head injury, or global developmental issues. The most common diagnosis at the facility is some form of Cerebral Palsy, traumatic brain injury, hemiplegia, and TB/Meningitis.[4] Because the Block Therapy program is such a short intensive program, their goal is not only to rehabilitate the child but also to educate the primary caregivers.[5] The therapists want to show the caregivers how proper therapy is to be given so that the caregivers can treat the child appropriately at home. Many of the patients at St. Joseph's have returned after being discharged due to lack of good treatment at home.[3] In the interest of patient confidentiality, I will provide a general example of what I witnessed at the home. The children would come in for their three to six month general therapy rehabilitation (separate from Block Therapy). Afterwards, they would be discharged and go back home. At home, although the parents would keep up with the appropriate therapies and medications for a small time being, after a while some parents and caregivers would default (neglect giving medication) and the child would suffer from a secondary infection or, in some cases, stroke. Brain damages caused by these incidents could cause stunted growth, global developmental delays, lack of mobility, etc.[6] Due to this, the children generally are returned back to St.Josephs' for their treatment.[3] One of the major things I learned was although the parents did default, the blame can't be pinpointed on neglect or lack of love. Sometimes, they are single working parents with other children to take care of. Having a sick child is a huge responsibility and they have to tend to other responsibilities for the safety and health of their other children, the household, work and additional familial and societal duties.

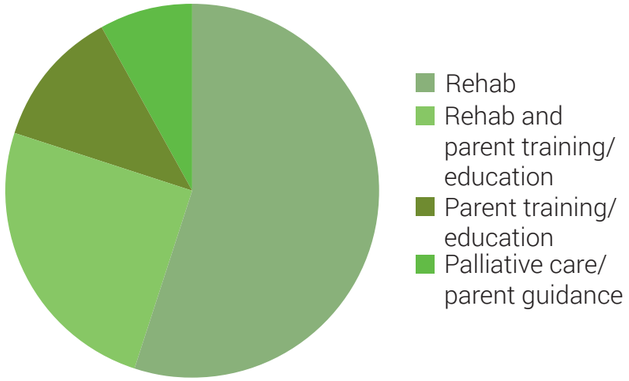
AMONG THE MOUNTAINS Table Mountain and Devil's Peak loom above the University of Cape Town in South Africa. Photo by Gauri Bhatnagar.

Research Methods

In order to collect all of our data and come up with solutions for their difficulties in organization and management, we performed literature reviews of the materials given to us at the worksite, conducted interviews with the Occupational Therapists, Physical Therapists, Speech Therapists, Rehab Care Workers, the Director of the Home, the Director of the Rehabilitation program, and noted observations that we witnessed from working and volunteering in the wards with the Sisters (Nuns) and the range of full time nurses to volunteer nurses.

During the Block Therapy program, the child is seen every day by all three therapists: the occupational therapist who deals with trying to recover work function and maintain daily living, the physical therapist who works on the child's mobility, and the speech

therapist who helps develop speaking, pronunciation and enunciation skills. The three different therapists coordinate with one another to ensure that the child is progressing on all three fronts.[2] The therapy needs to be intensive to maximize the quality and amount of care the child receives at St. Joseph's before he or she is discharged for home. St. Joseph's provides housing for the caretakers during the Block Therapy program so that they might learn and implement the skills at home



INTENSIVE CARE Reasons for referral to the Block Therapy Program. Source: Director's Review.

and in effect, continue the therapy that was started. In order to implement the practices at home, the caretaker must be engaged in the therapy at St. Joseph's. Not only will they watch the various activities that the therapists do, they must show comprehension of the activities. The parents and care takers are required to show up to at least two of the therapy sessions per week. There are always going to be innate issues with programs such as these communication and organizations disconnects. From the parents and caretakers side, sometimes they do not have the time to be at St. Joseph's for as long as needed because they must go to work or stay at home and take care of the other children. To combat this, the therapists put together "take home" packets that have pictures of the activities along with the explanations of what is required. However, sometimes the parents are illiterate and can only comprehend the pictures as they can not read the explanations.[2] Additionally, there are three main languages in South Africa: Xhosa, Afrikaans, and English. Many times, translators are needed to communicate efficiently between the caregivers and the therapists. The "take home" packets are generally written in English with some exceptions in Afrikaans. However, the majority of the families that come to the Home are Xhosa speaking families. Since it's hard to read and understand the packets, over time, they slowly forget the small nuances of the activities. Therefore, they are not as effective and their children are not getting the best treatment possible. In this case, the child might degrade in what they were capable of doing before rendering the services of St. Joseph's unnecessary. Additionally, during the therapy programs themselves, the children get tired. Seeing three therapists for at least an hour each day is not only time consuming but exhausting. If the child vehemently resists the treatment, it can not be forced therefore he/she will not receive it, putting them back on their therapy plans.[3]

Home Visits

Some of the biggest issues we picked up on were regarding the home visits. The purpose of the home visits is to analyze how a child is doing health wise, socially, and emotionally. The Rehab Care Workers (from here on out referred to as RCWs) are the ones who conduct the visit. Once the child is released from the home, they are visited by the RCW once a month for the first three months then once every three months until the end of the year when they are brought back to the home for a check up by the therapists. The RCW is to monitor the patients in their home environment and then report back if they find that the child has regressed in any way. While this is helpful in some ways, it would also be valuable to have reports on the progress that the child has made. Because the child is at most seen once a month, there could be a gap of time in which the child requires more stimulation such as speech and physical therapy but are not receiving it. The child could have mastered the original memorization, reading and identification activities before the re-evaluation, and since the therapists only see the child once every three months, there is a time in which the child's progress is stagnant. The therapists only go to the child's home when a need or problem arises. Having the therapists accompany the RCWs more often could potentially reduce the chance that the child is left unchallenged for gaps of time. On the flip side, RCW's also monitor and ensure the child is not degrading in his/her motor, physical and speech skills since the time he or she left the St.Joseph's.

Common Goals

Finally, another issue we observed was shared goals between caregivers and therapists. In many cases, the caregivers do not fully understand the severity of their child's disability. Whereas the caregiver might want their child to have better physical skills, the therapists might want to focus more on the motor skills because they know long term, developing motor skills will be more important than developing physical skills like walking (especially if the child is so disabled that walking properly may never be a possibility for them at all).

Suggestions and Solutions

The Home should ensure that the therapists and caregivers have the same goals and make the home therapy more mother-friendly by providing lots of pictures and easy to follow directions. During the assessment, the therapist should communication more efficiently with the caregiver by asking and acknowledging the goals of the caregiver. During the actual therapy, the therapist should take into account what the caregiver believes is important for the child, in addition to the therapy they believe is needed. The therapists should work together to create complementary activities for the child, which reflect their goals as well as the caregivers' goals.

Having the therapists accompany the RCWs more often could potentially reduce the chance that the child is left unchallenged for gaps of time. However since this may not be feasible, the RCWs should more comprehensively report on the progress of the children's mobility, and learning skills. Since the therapists are the only ones who assign new activities, they should be kept aware of any progress that the child makes in between re-evaluations, that can be done through the RCW's reports.

And finally, St. Joseph's should provide a support group for the parents whose children have similar disabilities. It could help them better understand their situation, and help relieve unreasonable emotional guilt. Through interviews with the caretakers and parents of the patients, it was revealed that they feel a sense of disappointment and sadness if they are unable to fully take care of their children as they wish to. Sometimes they are unaware of the proper regime and other times, they are unable to fully perform them. They can tell the caregivers as much as they want, but they won't hear it unless they want to. If the caregivers find others that they can relate to, then they would be more inclined to. This is why a support group would be so beneficial. Members can give others suggestions and advice on living with a disabled child. It provides a safe space for the parents to voice their opinions and concerns without fear of judgment. The caregivers will be more inclined to work with their children and feel more comfortable with their children's' disability and more motivated to help. Through the support and care in these groups, a healthier caregiver-child relationship may develop.

When a patient or parent does not speak the same language as the therapist, someone has to sit in and translate. It is known that the RCWs sit in when there is a communication barrier, however information can get lost in translation. Sometimes information is paraphrased rather than directly translated, which could lead to misunderstanding. At the moment it is not effective to suggest that everyone learn Xhosa. However, a potential option would be to bring in translators to sit in during the therapy sessions. Since the translators' sole task would be to facilitate communication, they will be more engaged, and hopefully this will help fix the communication barrier.

There are posters with useful Xhosa, and Afrikaans words and phrases. However, it may be helpful to create a portable booklet with more phrases and words pertaining to therapy and general health.[3]

Lessons Learned

South Africa is such an incredible country filled with so much history, much of it recent. The dynamics in this country and the complexities of relationships between races and communities created such disparities that include health disparities, social, mental, living situations. This causes very visible community differences. All of these factors must be taken into account when one challenges or analyzes any social issue. These factors trickle down to the hospital levels and even non-profit centers such as St. Joseph's Home. When we started evaluating the Block Therapy Program, we specified that we must take everything into consideration before coming up with solutions or making suggestions. Everything is very sensitive and we must always try our best to remain neutral when giving our opinion. The socio-economic and racial factors change how health care is provided to people in differing communities. This is one of the largest public health issues in South Africa. In order to solve and better the situation concerning health disparities, work must start from the ground up, working with people who need the most help and figuring out what works best in different communities. After, implementation of the solutions can be more widespread. Tackling health care, especially in second and third world countries will always carry a heavy burden. However, steps can be taken to alleviate the situation in hopes that one day, medicinal default, the spread of preventable infectious diseases and access to care can be achievable.

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A Shift in Student Activism: Navigating Divestment through Hopkins' Backdoors

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Tasked with archival research, this team of five students explored student activism at Johns Hopkins during the 1980s.

The 1980s student movement for Johns Hopkins University to divest from companies involved in South Africa focused their efforts on working through the channels of university administration. This issue marks a transition in student activism on campus. Student protests in the late 1960s and early 1970s were generally broadly based confrontational movements directed at the U.S. government to protest the Vietnam War. In contrast, when working towards divestiture, students had to learn not only about foreign policy, but also about their own university's structure in order to effectively work through the administration and Board of Trustees. Our team studied this event through an analysis of documents written between 1985 and 1987 by a student group named the Coalition for a Free South Africa, the University Administration, and members of the Board of Trustees. Each of these documents draws out the complexities of carrying out student activism with the goal of influencing the University's involvement in foreign policy, which further reflects a changing relationship between the students and administration.

Although universities have long been a locus of protest activity, the explosion of student activism in the sixties signified a break from the more docile nature of the university campuses of the forties and fifties. By the mid-1960s, with the rapidly growing civil rights movement, emergence of the new feminist movement and the beginnings of the anti-Vietnam War movement, by the mid-1960s universities had transformed into active—and at times violent—sites of protest. The historian Michael Wall has written extensively about the antiwar activities and student political activism, and he has explained the movement from "protest to resistance" as one fueled in part by the futility felt by those who tried to change US policy through legal protest against the draft. There was a growing sense that a stronger resistance was necessary in order to influence US policy. The 1970 US invasion of Cambodia was met with vigorous opposition, particularly on college campuses. In the days following Nixon's decision over five hundred college campuses were closed, and violence erupted at Kent State University and Jackson State University when several protesters were killed by National Guardsmen and Mississippi police, respectively.[1]

It is significant that the anti-war protests of the late sixties were directed at US foreign policy; students were challenging the military's involvement in another country and were directing their anger and frustration towards the government. This stands in contrast to the student divestment movement of the 1980s, which aimed to pressure the University administration to reconsider its investment portfolio. In the documents we analyzed, we noticed that the approach taken by the students of the Hopkins Coalition for a free South Africa was one that necessitated knowledge of the University's administrative structure. The students needed to understand how the financial decisions of the university were made, and by whom, in order to affect change. Furthermore, the Coalition was not targeting U.S. foreign policy by directly protesting the U.S. government. Instead, they tried to affect change in South Africa by leveraging the University.

The University's Board of Trustees serves as the guiding hand of daily operations and initiatives. This is certainly true for Hopkins, where the Board of Trustees is the oldest part of the University. Throughout its history, the Board of Trustees has mostly served outside of the purview of the student body. However, the Hopkins Board of Trustees was given unprecedented attentin during its involvement with the divestment crisis. Students heavily petitioned the Board of Trustees, specifically the Board's Investment Committee, to divest from South Africa, as that seemed to be the most direct recourse to remedying the situation at hand.

A September 10th, 1985 memorandum to the Board of Trustees from the University President and Trustee Steven Muller sheds light on the protocol for making decisions regarding University investments.2 Muller entrusts the Public Interest Investment Advisory Committee (PIIAC), comprised of students, professors, and Trustees, with carefully considering social issues and making recommendations to the President and the PIIAC Subcommittee of the Board of Trustees Investment Committee. In the same memo, Muller states that "businesses in South Africa already are embarked--or are about to embark—on the course of withdrawal, for economic more than social reasons."[2] He uses this to argue that "the question of divestiture may be moot as a result."[2]

While he shares these thoughts with the Board of Trustees, Muller's own opinions and suggestions in regards to divestment aren't openly stated. He asks the Trustees for permission to answer possible future questions about divestiture. In his proposed statement to such questions, he explains, "It is my intention to raise with the Investment Committee the question of terminating over time Johns Hopkins ownership of stock in only those companies which announce publicly that they are not planning to reduce or phase out their operations in South Africa".2 This carefully worded statement offers the possibility of divestment without making any strong statements or obligating the university to take action—it does not even explicitly state that Muller will bring the topic to the Committee, only that he intends to do so. Muller's inclusion of such a statement in his memorandum also reflects the authority and power divisions within the University. Although he is President, Muller cannot issue a statement on the topic of divestment without first consulting the board of Trustees on specifically what he will say and in what context he will comment.

While he shares these thoughts with the Board of Trustees, Muller's own opinions and suggestions in regards to divestment **aren't openly stated**. He asks the Trustees for permission to answer possible future questions about divestiture.

The president goes on to expand on his idea of the university, asserting his belief that as a place of learning, "a university is not structured in engaging in social action that goes beyond the research and teaching mission."[2] Muller advocated that the university abstain from social and political partisanship in order to avoid splitting the university into factions "at the detriment of its mission."[2] At the same time, Muller acknowledges the fact that the university functions in the world socially and economically and thus cannot avoid some involvement in social issues. Because the university has chosen to invest in commercial enterprises, Muller argues, it has entered the "sphere of social action" if only marginally.[2] Because of this marginal involvement, Muller points out the fact that any action on the part of the university can be interpreted as a political statement. He then brings up the work of the PIIAC, which represents many parts of the University and which issues recommendations to the President and Trustees. Although he does not explicitly state this, Muller alludes to the invaluable nature of such a committee's suggestions, as they represent a wide array of perspectives and interests across the University.

Muller opens his memorandum by discussing his past statements on the issue of divestiture. Referring to newly-forming student groups, he states that his statements "have obviously been taken over by events. At best they would now appear to be both belated and irrelevant".[2] His cautionary tone is warranted, as this issue increasingly moves into the limelight on campus. Only a few months later, the Coalition for a Free South Africa, a student group focused on the divestiture of the University from companies in South Africa, formally introduces themselves to President Muller with a letter dated January 28th, 1986, which followed a January 6th meeting with the President. The letter, authored by Paul Genest of the Coalition and Darrel Cook of the Black Student Union, begins by emphasizing the university's moral obligations through the example of the group's recent demonstration at a Martin Luther King Jr. Day address by Bishop Tutu and President Muller. The students reference Muller's statement that "the spirit of Dr. King is with us," which they contrast with Dr. King's call for "the economic isolation of South Africa in 1965."[3] While the President spoke in honor of Dr. King, the students believe that investments in South Africa are keeping the University from upholding Dr. King's values. They explain that they intended to honor Martin Luther King and Bishop Tutu through their demonstration, an event that brought

widespread attention to the issue of divestment.

The Coalition continues by presenting their intentions and goals. First, they ask that the Trustees add the issue of investments in South Africa to their February 22, 1986 meeting. The Coalition views the Investment Committee as holding all power in this issue, building off of the fact that "the Investment Committee decided to divest from non-Sullivan Principle signatories without consulting the rest of the Trustees or discussing it with PIIAC."[3] This contrasts the importance that President Muller attributed to the PIIAC's recommendations in his September 10th letter to the Trustees. By requesting that all Trustees discuss this issue in a general meeting, the Coalition in effect asks for diffusion of power within the Board of Trustees with regards to divestment. Quoting President Muller, the students write,

"You explained that our goal of full divestment of JHU from companies in South Africa could only be achieved if a majority of the Trustees could be convinced of its appropriateness. Presumably you meant by this that such a major move could not be carried out by the Investment Committee alone. Accordingly, we intend to direct an educational effort towards all of the Trustees to facilitate their full grasp of the factual and moral considerations involved here."[3]

This statement summarizes the efforts of the Coalition. Although they continue to demonstrate on and off campus to spread awareness, they focus on working with the administration in order to bring about divestment from companies involved in South Africa.

While acknowledging that the President and Trustees do not advocate for apartheid, the Coalition closes their letter with yet another plea for the administration to consider the moral implications of the school's investments, stating, "the conclusion is utterly inescapable that foreign corporations are major contributors to the perpetuation of apartheid, that the black community wants them out, and that we, by our investments, are helping keep these companies there, supporting the institutionalism of racism."[3] This opinion provides a stark contrast to President Muller's belief that the university should avoid involvement in social issues. While the President recommended that the university avoid further involvement and partisanship, the Coalition takes a strong stance on the university and presents divestment as a moral obligation of the school. In the final paragraph, the Coalition emphasized that they do not advocate JHU to stop taking corporate donations from companies working in South Africa, since the relationship between divesting and future donations has not been fully explored. At this point in time, the group remained focused on investigating and educating on the issue, in hopes of eventual school divestment.

A year later, the relationship between the Coalition and administrators had developed greatly. A memorandum written for administrators describing the January 8, 1987 meeting between the Coalition and Administration depicts this relationship, in which both groups appear to be making efforts to communicate and collaborate. However, the relationship is strained. Both groups express frustration about the lack of communication between the students and administrators and the necessity for each group to understand the organization of the other. This is followed by a description of the Coalition's organization for administration reference: they are a loosely organized group with fluid membership. There was a steering committee with six to eight "faithful members," but there was no designated leader, and decisions were communicated through a phone tree.[4] This loose organization led to confusion amongst administrators, who received varying information requests from different members asking for different information. In response to this problem, the Coalition agreed to have one representative request all administration information and to put these requests in writing.

The Coalition also expressed confusion about the organization of the school's administration and asked for a university organizational chart in order to better direct their requests and letters. They wee told that key Coalition members should get to know specific administration officers and are not guaranteed an organizational chart. The students also requested a progress from the Board of Trustees Investment Committee and are told that at the most recent Committee meeting no divestment notes were taken. Furthermore, the Committee still planned to study investments before taking action.[4] This answer mirrors that which was proposed to the Trustees by Steven Muller in his September 1985 memorandum, possibly reflecting the lack of progress since that time.

The Coalition made further requests: for the date of the next Investment Committee meeting, the full list of South Africa-related investments held by the school, and a written progress report from the Investment Committee. None of this information was guaranteed by the administration. The Coalition also proposed a scholarship to be issued to black South African Students, but no additional information about the program or next steps was offered in the document.[4] Overall, the memorandum shows a willingness on the part of the administrators to listen to the Coalition's intentions and ideas. However, it also presents the problems that the students faced in working through the university: they appeared somewhat disorganized in their efforts because of their loose organization and lack of leader. At the same time, they did not have access to the University's organizational chart, and most of their requests for action and information from the school were received but never fully addressed until this point.

In a Feb. 8, 1987 follow up letter about this same meeting, Vice President Joseph Hall provided updates to Paul Genest, the Coalition member who co-wrote the introductory letter to President Muller on January 28th, 1986. Hall provided the Coalition with an administration organizational chart, as they had requested. He also explained that the Dean of Homewood has instituted policy for selecting Black South African students to study at Hopkins, and they had already begun reaching out to Black South African students to provide support. Furthermore, the he gave updates from the Investment Committee: the treasurer is monitoring companies involved in South Africa, but no further action has been taken.[5] While the administration provided some information requested, they avoided the main issue of divestment. Hall sent no information about investments in companies involved in South Africa, and they had not taken action through the Investment Committee. Although they provided the organizational chart in order to increase transparency, they did not take any tangible action in regards to their investments.

However, more progress was apparent in a Feb. 20, 1987 letter to Joseph Hall from Paul Genest. This document reflects a stage in the relationship between the Coalition and the administration when they had achieved some transparency of the Board of Trustees. The administration finally complied with the request for a complete list of the University's investments in companies involved in South Africa, and the Coalition moved forward to negotiate

HERE AT HOMEWOOD

Similar to the Coalition, in September 2014, the Black Student Union held a silent and peaceful protest in response to the fatal shooting of Michael Brown, an African-American 18-year-old, by white police officer Darren Wilson in Ferguson, Mo. Photo by Ivana Su.

demands. First, they aimed to educate the administration on a "new definition of apartheid," meant to counter a "sham divestment measures" taken by certain companies, including IBM.[6] This contrasted with President Muller's original belief that companies are already embarking on withdrawal—the Coalition believed that while it may appear that companies have left South Africa, it may not be the case. In order to facilitate communication, the Coalition provided a list of contacts for the university but did not release a full list of membership "pending the resolution of matters of contempt charges against four coalition members, the injunction against shanties and the ban on unauthorized structures at JHU."[6] Although they had moved forward in working with school officials, the students continued to protest and were unwilling to cease these demonstrations. Their main form of public protests had been through the construction and occupation of shanties on campus, built to emulate the conditions of living for black South Africans.

The Coalition continued open communication by telling Hall they intended to build another structure on Feb. 22. This would be built as an "East Baltimore rowhouse," in direct defiance of the Board of Trustees' August 1986 edict banning the construction of "unauthorized structures" on campus.[6] This structure protested gentrification and displacement of East Baltimore residents. Like their original introduction letter to the President in 1986, the Coalition again showed their concern with the University's morality—not just in South Africa, but also their role within Baltimore. Just as they quoted President Muller's to explain their reasons for demonstrating at the Martin Luther King Jr. remarks, the students again utilize the administration's words to argue their case. This time, they brought up the President's Committee on Freedom of Expression "which came out in favor of allowing such diverse forms of expression on campus and which condemned the past suppression by the University."[6] They asked the administration to respect these past remarks and not to act against this new structure. Additionally, they asked for response to an unanswered request for information about Johns Hopkins' housing ownership in the vicinity of Homewood. These efforts reflect a willingness by both groups to communicate and negotiate, but a fundamental difference about how the University should approach the issue of apartheid.

Throughout these correspondences, we see an attempt on the part of the students to navigate the inner-workings of university administration in order to discern the most effective way to bring about divestiture from companies involved in South Africa. The course of these letters, sent between 1985 and 1987, show a steady increase of transparency and understanding. The students slowly gleaned a greater comprehension of the administration, and the administration grew more transparent with the Coalition. However, while these correspondences reveal a willingness to communicate, they also reveal differing agendas between the students and administration.

The groups collaborated, but only to a certain point. While the administration could share their stances amongst each other, as evidenced by President Muller's 1985 Memorandum to the Board of Trustees, they could not be as rendered as public opinions. Furthermore, it was not until January 1987 that the Coalition obtained a university organizational chart and February 1987 that they obtained a list of the school's investments within South Africa. Beyond discerning the exact viewpoints of key administration members, the Coalition struggled to obtain information about whom to address their concerns, and about the University's actual holdings. At the same time, they continued to protest through the construction of shanties on campus, which the Board of Trustees had explicitly banned.

While both groups made an effort to communicate and work with the other, they also held to themselves the rights to certain actions or pieces of information. Reflecting the original statement Muller suggested in his 1985 memorandum to the Board of Trustees, the Administration continuously said they were continuing to research their investments related to South Africa. Despite the University's clear disapproval, the Coalition continued to construct shanties and hold protests. The University administration was never fully transparent with the Coalition, and the Coalition never let go of their more rebellious forms of protest. However, the effort to work together still reflects a shift in student protests. The Coalition's communication with the administration demonstrates their growing interest in creating and maintaining a working relationship, as they seem to recognize the importance of that. At first, the administration complained of the differing requests from many members of the Coalition. As meetings between administration and representatives of the group happen more frequently, these angry demands were reported less frequently, and they started to politely request documents, reflecting a growing understanding of the procedures used within the university.

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Patient Blood Safety, Locally and Internationally

RADHA BHATNAGAR '18
PUBLIC HEALTH STUDIES

Last summer, Radha interned for AABB's CEO Miriam Markowitz. AABB pioneered U.S. blood safety standards and is on frontiers around the world to help developing countries standardize their practices.

The American Association of Blood Banks (AABB) is a non-profit organization based outside of Washington, D.C. that deals with blood safety. It covers diverse aspects of public health such as biostatistics, community health, public policy, and occupational safety and health. AABB deals with blood-related products, donors, recipients, technicians, institutions, and facilities. It is an international organization that creates standards for safety, efficiency, and treatment in the blood industry and is widely accepted as the most reliable and trustworthy accrediting body in the United States. Furthermore, the AABB keeps a constant watch on new bills and acts in the legislative side of the US, as well as research and technology developing around the world. By continuously creating alliances and attending conferences, it is a constantly evolving organization. It is also willing to expand to low and medium income countries. The AABB is a small organization that has a wide reach, mostly because of its dedication to the mission of health and the passion of its workers.

One of the major accomplishments of the AABB is that it kick-started the movement for patient safety with regards to blood. In 1984, the Human Immunodeficiency Virus (HIV) was identified as the cause of Acquired Immune Deficiency Syndrome (AIDS). This caused a huge panic in the blood transfusion industry and the general populace. Data stated that red blood cell products infected with HIV that were stored for more than 3 weeks were 50 percent infectious. If products were held for less than 8 days, they would rise to a staggering 96 percent infectious.[1] In the 1980s, resource-rich countries such as Germany and the United States began to investigate cures for HIV/AIDS. The United States suggested that precautionary measures be taken for blood transfusions because the number of infected people among donors was unknown. In addition, 90 percent of those who had received HIV-antibody positive blood products were found to be infected after one year of checkups. The National Blood Data Institute funded the creation of the AABB in 1997 to become an accrediting agent and create donor standards, as well as to analyze and distribute data and knowledge on all aspects of blood banking and transfusion medicine.

During my internship, I was involved in the distribution and writing of blood safety and transfusion information updates. I also researched new methods of donation and alterations of blood products and was able to experience the process of facility blood accreditation.

As a public health association, AABB keeps a constant eye on the legislative arena. As an intern, I checked on various websites to look for updates on bills and in committees, whether or not they were directly related to blood. I wrote several executive briefings on bills introduced, bills that were passed through committees, or proposals that were catching on. The bill that stood out most to me was the 21st Century Cures Act. The 21st Century Cures Act would create a huge difference in healthcare if passed. Examples of its drastic effects would include: additional billions to NIH funding, surrogate checkpoints for drugs, and repurposement of drugs. Surrogate checkpoints are data points that are not directly related to disease. For example, a drug might lower cholesterol levels, which is related indirectly to heart disease but might not actually improve conditions. Such drugs will be passed if this act were to pass and will affect the blood industry. I did extensive research and realized that all policies can hold importance in healthcare. Between the mid-eighteenth and mid-nineteenth centuries, as well as in the first half of the twentieth century, human life expectancy increased rapidly at an unprecedented rate.[2] The

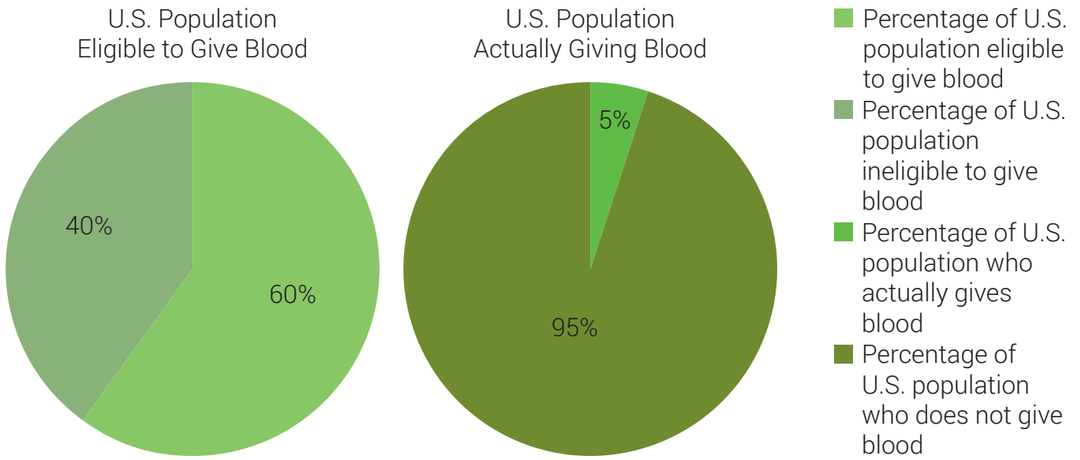
RESEARCH

study proved that non-health policies can have formidable consequences on the public's health and on institutions throughout the U.S. It further suggested that more studies should be executed to policies that are non-health related.

The AABB accredits nearly all hospitals and blood clinics in the US. The full process takes about six to nine months, but I was able to shadow some of the major steps and decision-making processes in accreditation. The set of standards created by the AABB has made blood transfusion much safer for the donor, technician, and the recipient. The AABB has several differing accreditation programs for facilities that include, but are not limited to: transfusion services, blood banks, cellular therapy services, immunohematology reference laboratories, and relationship testing (dealing with customer service, sample collection, testing, and reporting). Each accreditation process and assessment is tailored to the specific type of laboratory and service. I specifically shadowed an accreditation expert to a facility for somatic cell services. These types of facilities deal with qualifying donors, collection, processing, storage, and distribution of somatic cell products. The standards are not extremely harsh, nor are the personnel. Their main focus, as well as those of the institutions, is patient safety. AABB updates the standards to mirror new technologies, methods, and research in order to create safe environments. Institutions adhere strictly to the standards that are created and conduct their own interior checks to maintain secure environments and methods.

Aside from the U.S., many other countries have used AABB standards. During my internship at the AABB, I worked with doctors abroad who spearheaded the standard practices for their home countries. For example, I had a conference-call with doctors in South Asia who were involved with the Asian Association of Transfusion Medicine (AATM). The doctors were mostly from Pakistan, Nepal, and Bangladesh. I compiled many different reports for them, including the common safety standards in other countries and different adaptations of the AABB standards. I analyzed Bhutan's recent AABB-based standards, Indian national standards, and World Health Organization (WHO) recommendations. Some of the suggestions included screening 100 percent of blood products and making sure that 75 percent of red blood cell products met certain requirements.[3] I also helped them go over workshops that were done by the AABB to promote blood safety practices and create more workshops of their own. I made reports and calls to estimate the efficiency of the workshops, as well as to examine any possible improvements. It was a long-term project that required intense coordination between various workers at the AABB and referencing old texts and previous attempts. Of the 108 million blood units worldwide, only half are done in medium- and low-income countries. Of the medium- and low-income countries that actually practice blood transfusions, only 60 percent of medium-income countries have legislation and standards for blood donation, while only 44 percent have standards in low-income countries.[4] Even after having these standards, only 33 percent of medium-income countries have an external assessment for their facilities, and this percentage is as low as 16 in low-income countries. In comparison, 97 percent of high-income countries have facilities monitored by external assessment schemes. Therefore, it is important to have organizations from high-income countries with established protocols that will provide financial support and help create guidelines and practices in medium- and low-income countries.

GIVING LIFE
Approximately 60 percent of the U.S. population is eligible to give blood. Only 5 percent of the U.S. population actually gives blood in a given year. Source: American Red Cross.



One group of projects that I did for the AABB was analyzing the efficiency of distributing information and booklets, as well as organizing events. I checked whether emails were sent, PDFs were downloaded, and event pages were looked at. I also analyzed how many people attended an event, how long they were there for, and for how long people visited the AABB website. The purpose of sifting through numerous pages of data and numbers was to see if the AABB's information was transmitted successfully. AABB continuously revises its standards based upon developments in research, so it is crucial that blood safety workers are constantly updated. With the advanced communication technologies and social networks, it is easier than ever to relay such information in a quick and efficient manner.[5] Understanding the implications of innovations and how the public as a whole adopts them is important for every field but especially in the health field. The AABB is really focused on how it can spread safe and efficient practices quickly and effectively.

The AABB has several differing accreditation programs for facilities that include, but are **not limited to**: transfusion services, blood banks, cellular therapy services, immunohematology reference laboratories, and relationship testing.

Finally, I researched various practices regarding blood products and cellular therapies in the United States and abroad. The head of the cellular therapies department was interested in an in-depth evaluation of many types of treatment, varying from those that are practiced in the United States without FDA approval to practices done in Europe that have been approved by their own agencies to practices done in Europe that have been recently adopted into the United States. Specifically, I looked into platelet-rich plasma injections. I evaluated research articles and data in order to see whether or not these injections decrease pain, alleviate symptoms, or help cure any ailments. While doing this, I simultaneously examined clinics all over the world, mostly in the United States and Australia, regarding the cost of injections, the typical number and length of treatment, the effects of treatment, the injuries platelet-rich plasma injections should be used for and the device used. While it was not FDA approved, the doctor wanted such information to see whether or not these injections were a viable option for treatments and whether he and other institutions should accredit the treatment and suggest its approval to the FDA. Another similar project was on buffy coat platelets. It is a practice done in Europe that extracts blood and platelets, followed by combining donor platelets and storing them in a different way than how it is done in the United States. It is widely accepted throughout Europe and other non-American high-income countries. Data showed that it provided a better, safer, and less wasteful option of donating and receiving platelets than the current American system.

My time at the American Association of Blood Banks taught me many things that I find invaluable. I found out how to work efficiently and collaborate with others to reach a common goal. I also saw firsthand how the administration of organizations works, as well as how these organizations are affected by larger policies. I consistently witnessed how everyone in the workplace was aware of and dedicated to their mission: patient and donor safety. Everyone who worked there felt passionate about their jobs, devoting a substantial amount of time and effort to make sure that the safest and most effective ways to use blood are being practiced and helping to extend that practice to those who cannot do it themselves. Their passion has stuck with me most, as well as their mission as public health professionals to serve and advance public health both locally ad internationally.

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Features

(n.) a special or important article or program, esp. one that gives details about something that is not part of the main news.

UGANDA Photo by Grace Kwak '18.

Namaste from Nepal

IVORY LOH '18
PUBLIC HEALTH STUDIES

Ivory visited Nepal over intersession and shadowed at the largest governmental children's hospital. There, she experienced its health care and public health system firsthand.

This winter break, I signed up for a medical volunteer trip with a non-governmental, non-profit organization called VCD Nepal and had the amazing opportunity to visit Kathmandu, the capital city of Nepal! During my stay, I shadowed at the largest governmental children's hospital in Nepal, Kanti Children's Hospital (K.C.H.), and stayed with a local host family. Living with a host family allowed me to better experience the realities of living in Nepal. According to Nepal Electricity Authority (NEA), there will now be power outages for 80 hours per week, a substantial increase from the previous 63 hours per week1. I can personally attest to this, as we experienced power outages for up to 11 hours every day. The power typically came back on around 10-11pm, and the living room—dimly lit with the single solar-powered light at the back of the room—would suddenly brighten up. Rashna, one of our hosts, would then immediately get up from the couch to turn on the TV. There was also no heating system or hot water due to the fuel embargo by India. I often saw long lines of people, taxis, and microbuses queuing at empty petrol stations while I was walking home from the hospital and exploring the city. Our main host guide, Brakash, told us that he was trying to buy fuel from the black market so that we could finally have a hot shower after our first four days. However, even at a higher price in the black market, the supply for gas remained scarce. I had never appreciated a lukewarm shower more than I did the day Brakash finally brought home a liter of gas. However, knowing that the gas was split between everyone's showers as well as cooking and other necessities, I took a very short-lived but blissful shower before facing the biting cold of the Nepalese winter.

The critical fuel shortage that hit Nepal early August[2] has been causing more problems with the declining temperature. I slept under five thick blankets every night and wore at least three layers of clothes whenever I headed out in the evening. After the sunset, the temperature would fall drastically. I often saw groups of people on the streets, huddled around a fire fueled by firewood and small pieces of trash, including plastic, which emits highly toxic fumes. I also frequently observed small restaurants and street vendors cooking with firewood, as cooking gas had become very scarce and expensive.[2] Wood smoke not only contains carbon monoxide and sulfur dioxide that enter straight into our respiratory system but also various irritant gases and carcinogenic chemicals.[3] This is extremely deleterious to infants and children that still have developing lungs and can increase their risk of lower respiratory infections, including bronchitis and pneumonia.[3] According to the Environmental Protection Agency (EPA), wood smoke can cause "coughs, headaches, eye and throat irritations in healthy people," as well as exacerbate the risk of chronic respiratory and cardiovascular diseases in vulnerable populations.[3] Most of the time, I saw people cooking with firewood in a small, enclosed "kitchen," which considerably increased their exposure to these toxic particles. The smog on the streets during the daytime, notably rush hours, is also one of the worst I have ever experienced, which is rather telling given that I have lived in both Beijing and Shanghai. In Yale's 2014 Environmental Performance Index, Nepal was ranked 177th out of 178 countries for air quality.[4] The unbearable fumes are the combination of dust from the dirty roads, black smoke expelled from old buses, and exhaust from the countless cars and motorcycles as well as tractors with open motors.[4] Walking to and from the hospital, there were many times that I had to hold my breath to prevent breathing in a large wave of smog blown into my face. I often wondered how the people of Nepal could live like this everyday, even with the facemasks many of the residents wear. I can only imagine that many of the patients at the hospital must be the victims of the heavy pollution and lack of proper hygiene and sanitation.

Every morning, my two friends and I took a microbus congested with people who were both cramped on seats and

SERENE SUNRISE Dhampus village is located in the mountains of Pokhara, Nepal. Photo by Ivory Loh.

half-standing to K.C.H. With a medical team consisting of local senior doctors and medical residents, we would complete rounds at the medical wards. I would listen in on the presentation of each patient's case, symptoms, possible diagnoses, results of any medical tests and scans, and the recommended treatment procedure. On other days, I would shadow a general pediatrician, Dr. Ram, at the Outpatient Department (OPD), as she evaluated patients that came flooding in one after another for consultations.

The two most common diseases among inpatients at Kanti are pneumonia and acute gastroenteritis.[5] One of the patients that I saw during OPD presented with fever for two days, cough for 14 days and facial puffiness. Dr. Ram stressed that just because his cough was clear did not necessarily mean that he didn't have pneumonia. An alternate diagnosis could be tuberculosis. According to Dr. Ram, "When a patient presents with prolonged cough, the doctors here must first do tests to rule out tuberculosis, as tuberculosis is very common in Nepal." Viruses and bacteria are the most common causes of pneumonia, with the most common causative bacteria being *Streptococcus pneumoniae, Staphylococcus aureus, Escherichia coli,* and *Haemophilia influenza*.[6] Dr. Ram taught me that different bacterial pneumonia requires different treatment courses. One of our patients who we visited during rounds was diagnosed with salmonella pneumonia. Dr. Ram explained that the patient likely ingested unclean foods with fecal contamination of salmonella, which happens very commonly in dairy foods due to unhygienic food handling and processing. However, the diagnosis of salmonella as the causative bacteria was purely from clinical investigation and the high incidence of salmonella pneumonia. In Nepal, specific testing, such as a blood culture test, for the accurate detection of the causative bacteria is seldom done due to cost considerations and limited resources. The doctors must make their best judgment with regard to antibiotics based on the patients' symptoms and other clinical markers. If the antibiotics against salmonella prove to be futile, the doctors will then switch to a different antibiotic for a broader bacterial group. According to Dr. Ram, the doctors' educated guesses are typically correct, and patients are effectively treated. From shadowing in OPD and the medical wards, I learned that the inpatients in wards have regular follow-ups, as the residents do daily rounds at least twice a day. However, the patient consultations at OPD last for roughly five minutes. The short consultations are the result of a high patient-to-doctor ratio, which results in a dramatic decrease in the overall quality of care relative to the United States (U.S.) or other industrialized nations. However, due to the lack of human infrastructure and economic resources, I believe that Nepal focuses on improving public health and prioritizes it over individual health needs.

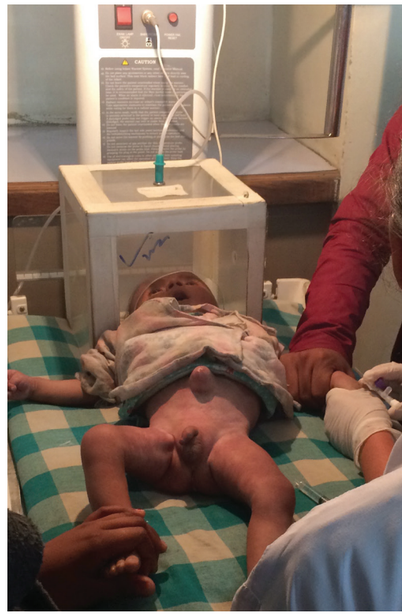
According to the doctors at Kanti and my personal observations of frequent antibiotic prescriptions to patients in OPD, antibiotic resistance is a serious issue in Nepal. Lacking adequate medical knowledge, patients often ask doctors to prescribe antibiotics to them. Many patients would also buy antibiotics from outside pharmacies and medicine vendors. According to Dr. Ram, "prescription-only" antibi-

otics are very easy to procure, as they are not stringently regulated. When a patient comes into OPD for a consult and has already started on an over-the-counter antibiotic, the doctor usually has to tell the patient to finish the antibiotic course even when it's not the right treatment. In some cases, patients are aware of the issue of antibiotic resistance and refuse to take or complete the prescribed course of antibiotics even when they should. In addition, the misuse of antibiotics also occurs more frequently without the specific identification of the bacteria or virus as the causative agent for the illness. Doctors in OPD ascertain whether or not an infection or illness is caused by a virus or bacteria based on the patients' symptoms and the results of standard general investigations, such as basic blood and urine testing and chest x-rays. Furthermore, almost all the inpatients at the hospital are prescribed antibiotics to safeguard against secondary infections, as there is a high risk of bacterial infection within a hospital setting. Therefore, the excessive and unfounded antibiotic use in Nepal has caused considerable antibiotic resistance, as studies of acute respiratory infections reveal that "half of the cases analyzed were resistant to first-line antibiotics" and "most cases of bacterial diarrhea were resistant to at least one drug in the four 2007 studies, with one-third of the cases in the largest study being resistant to the four top antibiotics for those bacteria."[7] Antibiotic resistance is significant, as it reduces the efficacy of drugs and can cause a pathogenic bacteria to persist in individuals and spread to the community.[8] To improve this issue, the government could apply more stringent, regulated control with regardes to the sale of antibiotics and public sanitation standards, provide more vaccines to prevent bacterial diseases such as pneumonia and diarrhea, and better educate the public on the problem of antibiotic resistance to reduce self-treatment with antibiotics.[7] Healthcare workers, doctors, and nurses will also need to change their habits and treatment methods. While shadowing the doctors at Kanti, I was surprised that none of them washed their hands between patients. The doctors I shadowed in Singapore and the U.S. always stressed that it is standard practice to wash their hands for at least 30 seconds after each patient visit. In the rush of the OPD, I could see how the doctors would neglect washing their hands between each patient; yet, hand washing is a cheap and simple intervention that could prove to be the most effective strategy in preventing hospital-acquired infections.[7]

Another striking finding was the lack of transplant surgeries in Nepal. One of our patients in the medical wards had bronchiectasis, which is a condition usually caused by an infection that damages the lungs' airways and impedes their ability to clear out the dust, bacteria, and other particles trapped in the mucus.[9] The final recommendation from the senior doctor of our medical team was for the patient to do a lobectomy or surgical removal for his infected bottom left lobe. She explained to me that ideally the patient should get a lung transplant, but this is not feasible in Nepal. There is not even a pediatric cardiologist in K.C.H. All cardiac surgical cases are sent to the nearby Teaching Hospital, where there is a general cardiac surgeon. However, this is much more expensive than Kanti. The doctor explained that the patient would likely have to travel to India or elsewhere for the lobectomy, which will be extremely costly for his family. I later inquired about the lack of transplant services with more doctors, and they informed me that organ transplants are virtually nonexistent in Nepal, due to the lack of an organ donation system. Furthermore, there are neither the facilities to properly preserve the organ and facilitate the procedure nor doctors who can perform the transplant. There are also extremely limited post-operative care and long-term follow-up care for donors, which significantly increase their risk of infections and other complications in the recovery process.[13] In Nepal, organ donation is largely limited to the eyes and kidneys, although bone marrow transplantation is a burgeoning field.[10] The Human Body Organ Translation (Regulation and Prohibition) Act of 1998 and the Kidney Transplantation (Regulation and Prohibition) Act of 2002 govern organ transplantation in Nepal.[10] By the 1998 Act, kidney donors must share a legal relationship with the recipient and relationship certificates amongst other documentations must be submitted before the transplant.[13] However, kidney trafficking still remains an issue in Nepal, posing various post-donation health issues on the patients, including "fatigue and weakness (77.8%), lost stamina for work and walking (75%), headache and cold symptoms (55.6%), vomiting (33.3%)" among others.[13]

When my friends and I visited the Pashupatinath Temple, one of the most sacred Hindu temples of Nepal, we watched two cremations take place.[1] Our tour guide noted that the deceased are always cremated, though they can choose to donate their eyes at a center near the cremation site of the temple. Before the center was instituted, corneas were excised in the open before the cremation took place.[12] Hinduism and Buddism are the two main religions in Nepal. As part of the Hindu tradition, "the dead should be cremated on the banks of the holy Bagmati River."[12] Speechless, I watched as a group of people carried a dead body across the bridge and dipped it into the river. I later noticed a man drying his hair after rinsing himself in the river. Our tour guide explained that the man is likely the first son of the deceased. As the chief mourner, he must take a bath in the holy river water after the cremation takes place.[12] The tour guide then showed us where the cremations took place, and I saw men gathering wood in preparation for another cremation, which takes place after the body is dipped in the holy river water three times.[12] After the cremation, the ashes are then collected in an urn, as most Hindu families choose to dispose of them in a special ceremony at the end of the year.[12] According to our guide, many families dispose of the ashes into the Bagmati River, making me wonder about the level of pollution in the river and its ramifications on the aquatic ecosystem and the health of the population the river supports. The influence of cultural practices on the environment and public health is a whole other issue on its own.

After our daily morning rounds, my friends and I would end up in the outdoor "Doctor's Lounge" with our team of doctors. As we sat around and drank the standard Nepalese drink of choice, sweetened milk tea, I started inquiring about the doctors' daily schedules and the national healthcare system in Nepal. To my surprise, many of the doctors ended their work at Kanti Children's Hospital around noon unless they were assigned to be on a 24-hour shift in the Emergency Department. On most days, the doctors I shadowed left the hospital after lunch to work at another private hospital or run their own private clinic elsewhere. They explained to me that private clinics only provide outpatient services. They purely offer consultations but at a much higher cost to those who can afford it. The benefits afforded by a private clinic are the minimal waiting time and a lengthier consultation with the doctor of their choice. Private clinic consultations last for approximately thirty minutes, a large contrast to the brief three to five minutes at the OPD department at Kanti and other hospitals. The doctors told me they operated on their own with no oversight from bosses or any restrictions from any other author-



BLOOD TEST (Top) A doctor, wearing no gloves, draws blood from a baby girl for investigation. **KEEPING WARM** (Right) A baby in the emergency department is kept warm by a lamp. The equipment surrounding his head delivers oxygen. Photos by Ivory Loh.

FEED THE BIRDS Women sit in Durbar Square in Kathmandu, Nepal. Photo by Ivory Loh.

ity in these private clinics. Apart from private clinics, private hospitals also exist. They are much more expensive, and for that reason, they most likely have more facilities, services, and space than a governmental hospital. For instance, when there are not enough beds for inpatients, patients who can afford it will be sent to private hospitals. Also, as aforementioned, because Kanti does not have a cardiothoracic surgeon, they refer patients to private hospitals that can provide the specific treatment that the patient needs. Nonetheless, the private sector with "for profit" hospitals are considerably more costly, which limits its access to many people. For example, an OPD consult at Kanti costs 20 NPR, whereas one at a private hospital could cost anywhere from 250 NPR to 500 NPR. Public hospitals are also no less "efficient, accountable or medically effective" than private hospitals.[14] There are three major governmental hospitals, including Kanti, and they are all located in Kathmandu. Governmental hospitals are essentially the means through which the government provides healthcare to the public, as the treatments are heavily subsidized in these hospitals. At Kanti, patients often pay as much as they can afford. Those who cannot pay at all typically still receive treatment. Therefore, patients from all over Nepal will travel to Kathmandu in order to seek the medical care they need at these large governmental hospitals.

According to the doctors I spoke with at Kanti, there is no national insurance policy in Nepal. "Governmental policies are set in place but lack implementation for the most part", says Dr. Ram. Nepal's Interim Constitution of 2007 stated that health is a fundamental right and that "every citizen has the right to basic health services free of cost."[15] However, consistent with what the doctors told me, this is far from the truth. Upon further research, I found that Nepal actually implemented a National Health Insurance Policy in 2013 and community-based health insurance (CBHI) schemes were launched since the 1970s. However, the insurance system "suffered low enrollment and retention of members as well as from a pro-rich bias."[15] The fact that the local doctors are not apprised of the national insurance system certainly attests to the failures of the system. Just recently in February 2015, the Nepalese government established a Social Health Security Development Committee to launch a social health security scheme (SHS), which is in effect social health insurance, in order to provide universal health coverage.[15] "The details of the SHS design and regulations for implementation are yet to be made public."[15] From my discussions with the doctors, I have come to gather that the government provides healthcare at different levels throughout Nepal. The lowest level is primary health care centers, which are staffed with health assistants that have undergone training for two years. They take the place of certified doctors and have very limited supplies of medication, treatment, and diagnostic equipment. The government sets up these health centers in every Nepalese village. The grade above primary health care centers is district hospitals, which have general doctors but lack specialized departments and treatments. Beyond district hospitals are zonal hospitals, which have doctors and specializations, but often lack many facilities and equipment. There are also areas in which district and zonal hospitals overlap, reducing the doctor-to-patient ratio and resources available to the patients in those communities. The highest grade of hospital is tertiary hospitals, such as Kanti, which have specialized departments, intensive care units (ICU), and extensive equipment and medicine, etc. There are only tertiary governmental hospitals in Kathmandu. This presents a sizeable issue for the distribution of health care amenities, as the communities in rural areas only have access to lower grade health care, such as primary health centers, unless they are able to travel to Kathmandu or pay the high fees of private hospitals. Apart from this, other challenges that the health system in Nepal faces include "poor infrastructures, inadequate supply of essential drugs, poorly regulated private providers, inadequate budget allocation for health, and poor retention of human resources in rural areas."[15] The Nepalese doctor and nurses per 1000 population ratio (0.67) is significantly lower than the World Health Organization's recommended 2.3 ratio.[15] With the recent earthquake disaster and current political turmoil that has led to the Indian fuel embargo, the health care needs of the Nepalese people are only becoming more demanding. In short, there are certainly many challenges that Nepal faces politically, economically, and socially.

In closing, I would like to assert that my time in Nepal was definitely worthwhile and insightful. Having grown up in a very comfortable home in the bustling and developed city of Shanghai, I was undeniably unaccustomed to the harsher Nepalese lifestyle. Nonetheless, despite experiencing the difficult realities of living in Nepal, I also came to appreciate many of the amazing features it has to offer. I was welcomed with open arms into a very hospitable host family, who cooked me breakfast and dinner every day. They always generously offered to make me hot milk tea, which made the cold nights substantially more bearable. Likewise, the doctors and medical team at Kanti were incredibly friendly. I owe much of my learning and shadowing experience to Dr. Ram, who took the time to patiently translate and explain all the cases to me from Nepalese to English. Nepal is certainly a remarkable country rich in both culture and natural beauty. I can only hope that with international aid, NGOs, and other additional support, this nation can further develop and thrive in the near future.

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LEARNING ABC'S
(Left) A young girl recites the alphabet at a preschool in Kanye, Botswana. Photo by Benita Pursch.

Reducing Stigma in Botswana: The Role of NGO's

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PUBLIC HEALTH STUDIES

Benita studied abroad in Botswana last spring and interned for the Project Concern International Botswana office. Her particular project focused on developing curricula for at-risk youth in rural northern Botswana.

Botswana has become a democratic success story in the last 50 years and has since been viewed as a paragon for other developing nations. Despite 70 percent of the country being covered by the Kalahari Desert, Botswana has succeeded in moving from abject poverty to upper middle income status since its bloodless rise to independence in 1966.[1] Since then, the country has solidified its place as one of the most stable countries in Africa, making it a shining beacon of hope for an often struggling continent. With the world's richest diamond mines and a growing tourism industry, Botswana appears to have all the required resources to continue its success.

Despite its wealth and peaceful history, Botswana still deals with significant challenges. As of 2014, it had the 2nd highest HIV/AIDS prevalence in the world, second only to Swaziland, with 18 percent of the population living in poverty and 17.8 percent in unemployment.[2] These challenges are endemic in many countries, particularly those that are still developing, but their existence in a country with resources and a relatively high GDP is unique. Because of this, nongovernmental organizations have had to restructure their approach to providing aid and development in order to adapt to the needs at hand. Botswana currently has a high functioning nationalized healthcare system, where all services are provided either for free or for a nominal fee of 50 cents, so the instillation of basic health services is no longer an issue. While any health system can always use more health professionals (Botswana's first medical school class only graduated in 2014) and more funding, international and national aid organizations have a different role to play. Specifically, they are refocusing their efforts towards non structural challenges of increasing healthcare access and awareness—challenges that the government has neither the time nor the resources for. Stigma, education, and youth outreach are all aspects of the health system that often fall by the wayside in governmental health care, and it is up to NGOs to fill in that gap.

In 2015, I experienced these challenges firsthand, as I studied and worked in Botswana for five months. It was far from a typical study abroad experience. Instead of spending my time in the classroom, I mostly volunteered at local government clinics and visited other government-run facilities, such as the national microbiology lab and the abattoir. While these field trips and short term volunteering experiences gave me a diverse view of the governmental side of the health care system, I desired to increase my exposure to the other side. I started working for Project Concern International (PCI), the Botswana branch of an international NGO based in Gaborone. PCI initiates provisions of health and development aid to developing countries in the areas that need it most. Like many organizations throughout Sub-Saharan Africa, PCI focuses many of its initiatives on the prevention and control of HIV/AIDS. Over the last few years, one of its main projects has focused upon reducing the stigma that accompanies reproductive health amongst youth. It is hard to balance between reducing the stigma of HIV transmission with having an open precautionary conversation. We want to encourage people to speak up and also maintain safe sex habits, condom use, and STD testing.

PCI has chosen to combat the issue of HIV/AIDS stigma and awareness through an initiative that foremost addresses not reproductive health but financial literacy. Through this project, we hoped to prove to youth in rural Botswana that their HIV status was not the defining factor of their lives but just a circumstance that they could learn to live with. By not having HIV status as the primary importance, we hoped to reinforce that their lives were defined instead by their knowledge and drive in fields that they are passionate about. The Tweende Project provided youth in northern Botswana with an extensive course of financial literacy, covering everything from opening a bank account to creating a business plan and applying for grants through PCI and the Barclays Bank. Although sexual health awareness and HIV/AIDS knowledge did not fall seamlessly into this curriculum, by working to incorporate it into every module, PCI hoped to make sexual health education the norm. By expanding sexual and reproductive health education to all program participants, STDs, and HIV/AIDS in particular, was presented as a common problem that anyone may encounter, reducing stigma overall.

Because stigma and ignorance breeds intolerance, making HIV/AIDs more **'mainstream'** serves to encourage target populations that a positive HIV outcome is no longer a death sentence.

Expanding sexual and reproductive health education into other interventions is by no means the best or only method of reducing stigma of HIV/AIDS. However, what it does do is make the knowledge of infectious diseases, such as HIV, more widespread. Because stigma and ignorance breeds intolerance, making HIV/AIDs more "mainstream" serves to convince target populations that a positive HIV outcome is no longer a death sentence. While safe sex and a negative status are obviously preferential, the message is that regardless of status, life is still worth living. In Botswana, where both prevention (Option B+) and treatment (ARVs) are free to everyone, the challenge is in encouraging the potentially infected to come forward and be tested in order to receive accurate treatment.

Reducing stigma and increasing awareness are hard initiatives for NGO's to implement. Their progress is hard to measure, and without quantitative data, many organizations find it hard to satisfy their sponsors and find new ones. However, as the world develops and many countries progress to the point of having their own functioning health systems, NGOs, such as PCI, are shifting focus from structural to environmental and social initiatives. My experience in Botswana was just one small piece of the puzzle but an important concept to keep in mind in an ever changing field like public health. While they have always been considered important, I found that addressing environmental and cultural factors in order to combat health challenges in a behavioral way has become an even larger portion of the role that NGOs are taking in Botswana. At least in Botswana, which has been and is still deeply affected by HIV/AIDS, the importance of this focus role cannot be underestimated.

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How Global Brigades Changed My View of Healthcare

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BIOMEDICAL ENGINEERING

Emily is the president of the Global Medical and Dental Brigades chapter of Global Brigades at Johns Hopkins. She has been on four medical, dental, and public health brigades.

According to the World Health Organization, over 400 million people (around six percent of the world's population) lack access to one or more basic forms of healthcare.[1] This fraction is higher in developing countries where there are fewer doctors and hospitals. Hospitals in developing countries are often ten hours away from families in rural areas, and the costs of healthcare are insurmountable when the families only make a couple dollars per day. In rural Honduras, for example, one out of seven people do not have access to any basic form of healthcare.[2] For every 10,000 people in Honduras, there are generally only four doctors, two dentists, and 11 nurses.[2] The hospitals are too far away and the medicines are too expensive, so the families generally go without necessary treatments. Living conditions are poor, leading to many health problems, especially respiratory problems, that could have been avoided with proper flooring and basic sanitation practices. There is a wide array of health issues that can be both prevented and treated, but they are not due to the lack of access to resources and the high cost of prescriptions. Throughout my time at Hopkins, I've had the incredible opportunity to both see these health issues firsthand and work on a comprehensive solution for them.

During my freshman year at Hopkins, I was introduced to an incredible organization called Global Brigades (GB). GB is an international organization that provides resources and support to developing communities in Honduras, Panama, Nicaragua, and Ghana in a variety of ways. GB prides itself on its holistic model of development, aiming to support both individual families and communities as a whole, from providing healthcare to teaching the communities about loans and helping to establish community banks. Largely student-run, GB annually sends more volunteers into the field than the Peace Corps, and students from universities all over the world travel to these countries year-round to participate in any of the nine brigades supported by GB.[3]

The idea behind GB makes a lot of sense: first, send in a medical and dental brigade to a community to assess the needs of the community members. If a community is deemed to have health problems that can widely be relieved by other types of brigades, water and engineering brigades will come and help get the families in the community easier access to clean water. A public health brigade will come next to build things like showers and an eco-friendly stoves for the families. Once the basic health needs of the families are met, the final four brigades enter the community. An environmental brigade comes and helps implement sustainable agriculture projects. A microfinance brigade enters the community to provide financial literacy to the families and develop a community bank. A business brigade empowers small businesses within the community to become more economically stable. Finally, a human rights brigade supports the community with pro-bono legal consulting to resolve family law cases. Once a community has seen all of the brigades, the community is sustainably exited, and brigades no longer travel to that community. By this point, the health of the families in the community is better, and the families know how to run businesses and deal with finances. The community is self-sustaining which allows it to support other local families as well. The community is able to function as a cohesive and productive unit.[4]

During intersession of my freshman year, I was presented with the opportunity to travel to Honduras for a week with a dental brigade. Throughout my time in Honduras, I became enamored with both the country itself and all of the people that I met throughout my stay there. Needless to say, my first brigade was life-changing, and since then, I've returned on both medical and public health brigades. All of these brigades have given me much greater insight into the health problems that families in rural areas of Honduras face, and I've learned more shadowing doctors in Honduras than I could ever learn from doctors in the U.S.

On the dental brigade, I worked alongside other brigaders from Hopkins and UC Berkeley to set up a medical clinic in a community called Jalaca. We set up in a small school building that had four rooms: one for vitals and symptoms, another for consultation with the doctors, a dental clinic room, and a last room for a pharmacy where all of the medicines were packed and given to the patients. Because I was a dental volunteer, I spent a lot of time administering fluoride treatments to little kids and shadowing dentists performing fillings and extractions. I feel like everyone that I know in the U.S. takes going to the dentist for granted. We go twice a year covered by our insurance, and we spend that hour awkwardly answering questions that the dentist asks us while trying to scrape plaque off our teeth. Most of us see dental visits as an inconvenience and generally do not give it a second thought. Working in the dental clinic in Honduras changed my perspective after seeing the dental issues that the patients faced.

I saw an eight-year-old boy whose adult teeth weren't growing in properly since he wasn't taking care of them. There was a 40-year-old woman whose teeth were rotting away so badly that only the roots of her teeth remained, physically unable to fall out of her mouth. There was a 30-year-old woman who had a tooth growing in the middle of the roof of her mouth, and there wasn't anything she could do about it. The most impactful experience of that dental brigade, though, was when we saw a 20-year-old patient who only had two teeth. The rest of the man's teeth had fallen out because he wasn't able to take care of them. The two teeth he had left were both in pretty bad shape, so the dentist said that they had to be extracted. Realizing that this twenty year old man would soon be completely toothless forever was something that was hard for me to grasp. I was 19 at the time, and envisioning myself having no teeth at such a young age was hard to do.

QUENCHING THIRST A boy drinks water from a pail with his unwashed hands. Internal parasites are a nearly universal problem with children in Honduras. Photo by John Jiao.

On my medical brigade last May, I shadowed in the dental station again, and we saw similar problems. The moment that was most salient to me was when we saw a five-year-old boy. He still had his baby teeth, but some of his teeth were rotting so badly that serious health problems could have arisen had we left the teeth in. The boy was very visibly shaken by the whole experience. He opened his mouth, and the dentist determined that we would have to extract five of his teeth. Extracting five teeth from such a small boy seemed excessive, but the bacteria on his rotting teeth could infect his bloodstream and cause major health problems. The boy became even more nervous when he heard this, and he started to silently cry. My job immediately switched from assisting the dentist to being the hand-holder for the event. The next fifteen minutes were spent holding the boy's hand and trying to reassure him in very mediocre Spanish.

These experiences showed me that many people around the world have absolutely no access to dental care.

DOLL-LIKE
Two girls swaddle a small doll like a baby in Honduras. Photo by John Jiao.

Why did we rarely do fillings and almost exclusively pull anywhere from three to six teeth from each patient? Toothbrushes are not prevalent in rural Honduras, and alternatives to using a toothbrush aren't known. How can the issue of proper teeth cleaning be addressed across such large populations? GB believes that the best way is to target education to the kids. Along with giving out toothbrushes and toothpaste to each of the patients that we see, we also hold a children's charla—a workshop to teach kids about basic sanitation and hygiene practices. While administering the fluoride treatments, we teach the kids how to brush their teeth. We tell them that if they lose their toothbrush and can't get another one, gurgling salt water is a good substitute. The kids (and adults) leave with the knowledge of how to take better care of their teeth, and this knowledge can be passed along to other members of the community. This obviously isn't the perfect solution to getting everyone access to toothbrushes and toothpaste, but information about how to take care of your teeth without a toothbrush is a step in the right direction to better dental practices and hopefully fewer extractions in the future.

During intersession of my sophomore year, I decided to try out the public health brigade offered by Hopkins and GB since I had already seen the dental side of things. On this brigade, I worked closely with one family for the week (as opposed to seeing 600 patients over the three clinic days in the dental brigade). I worked alongside other Hopkins, Boston, Kentucky, and Berkeley volunteers to construct a clean water basin, cement floors, an eco-stove, a shower, and a toilet for five families in a community called Palo Verde. Seeing how these families live was a different experience from seeing hundreds of patients in a school building on the dental brigade. Again, seeing the living conditions of these families changed my perspective about the way that we live in the U.S.

The family with which I worked lived in a house with three rooms. Living in this house was the mother, father, grandmother, three teenage daughters, one eight-year-old son, and a three-year-old son who had epilepsy. One of the rooms in the house was the kitchen, and the remaining two rooms housed eight people. My room at school is the size of their two rooms combined. The house had dirt floors, and their beds consisted of blankets layered on the floor. Their stove in the kitchen was basically just an open fire on which they cooked. The family had a hole in the ground behind their house that they used for their toilet. Their shower was the most heartbreaking. In a corner of their yard, there were four wooden poles forming four corners of a rectangle. There was a bright blue tarp wrapped around three of the sides with the open side facing the house. At first, I didn't even realize that the family was using it as a shower. To take a shower, the person would stand inside the rectangle and dump buckets of water over their head since they didn't have running water. I felt disgustingly privileged.

These living conditions would cause health problems for anyone. Constantly laying on dirt floors brought the family into close contact with bacteria and parasites. Regularly breathing in dirt from the floors caused respiratory problems for the family, especially for the kids. The stove in the kitchen generated a lot of smoke that remained in the room since it didn't have any way to be ventilate. The mother and older daughters who mostly cooked had severe respiratory issues from inhaling all of the smoke. The family didn't have anywhere to store the water that they brought to their house from miles away, so the water was kept in dirty buckets leading to more parasite infections. The family was not living in a healthy environment, and the symptoms that they presented were evidence of that.

Over the week-long public health brigade, the other volunteers and I worked alongside the families as well as with Honduran masons to pour cement floors and build a sanitation station as well as an eco-stove for the families. I spent most of the week sifting sand and mixing cement. I learned the proper way to lay bricks and level a cement floor. I saw all of the plumbing involved in installing a toilet. I practiced my mediocre Spanish and handed the masons hammers, shovels, and cement before correctly handing them the tool for which they had asked. It was a hard week of physical labor, but so worth it in the end. On the last construction day, I was sifting the last pile of sand with a couple other volunteers, and I looked up at one point to see the father walking out of the house. I watched him as he walked over to the blue tarp, untied the rope holding the tarp to the wooden poles, and pulled the tarp down. He pulled the four wooden poles out of the ground and brought them back into the house. Where the family's old shower once stood, there was nothing. I looked over to the right, only 15 feet away, to see a shower that wasn't there when we started that week. There were cement walls and a metal door. There was plumbing to allow the water to flow. Seeing the father pull down the blue tarp and wooden poles, it finally hit home that this family was going to be much healthier. I distinctly remember stopping sand sifting to wipe the tears from my eyes knowing that we had spent a week giving them resources for basic sanitation and health.

Above all, the most significant thing that I learned from this trip was the importance of a basic public health infrastructure to promote good health. The families with which we worked didn't have the resources to create cement floors or a shower for themselves. Because of this, they settled for breathing in dirt and smoke daily and drinking dirty water. Just by bringing cement and some bricks to these families with volunteers who were excited to do some construction for the week, the basic health level of these families exponentially increased. Knowing that the families are better off because I helped means everything. Public health brigades run year-round to help provide these resources for families throughout Honduras, Nicaragua, Panama, and Ghana, and every family that is given cement floors and an eco-stove is a family that will have a better baseline of health. This brigade taught me the importance of public health in ensuring that basic health needs are met, and I hope to get more involved in public health classes and other opportunities in the future to learn more about how problems like this can be solved.

This past May, I traveled back to Honduras on a medical brigade to Las Animas. Having seen the public health side of things and why many families present respiratory problems and parasites, I was interested to see how these symptoms and diseases could be relieved with medicines. On this brigade, I rotated through the many stations of the medical brigade: triage (where vitals are taken and symptoms are assessed), consultation (where the patients talk to the physicians), gynecology (where pap smears were done), and pharmacy (where medicines were sorted and packaged for the patients). Over the three clinic days, we saw over a thousand patients for a variety of conditions, many of which could have been avoided had the families had the proper public health infrastructure.

For every patient that came through the clinic, we prescribed anti-parasite medication. The water that the families drink is so unclean that nearly the entire rural population of Honduras has some sort of parasite, so the medication was blanket-prescribed to everyone. About three-quarters of the patients were afflicted with some sort of cough or respiratory infection, a consequence of the dirt and smoke constantly inhaled by the families. Other common conditions that we saw were rhinitis (stuffy nose) and diaper rash in infants. Again, these problems could definitely be relieved with the projects implemented during the public health

FEATURES

brigade. I anticipated the stuffy nose due to constant irritation of the nasal cavity, but I didn't expect diaper rash to be so common. Of course, once I realized that it was extremely common, it was immediately clear why. These families don't have access to the Pampers wipes or baby powder that we have here in the United States. The babies often wear towels for diapers or diapers that have been reused multiple times. Without the proper wipes and ability to clean the babies, diaper rash becomes a prevalent issue in rural Honduras.

In addition to these common problems, there were some conditions that would be hard to relieve even with public health measures. One woman had a brain tumor but had no way to try to get it removed. She came to the clinic in hopes of having a surgery performed, but we didn't have that capability. We could have referred her to a hospital for a brain surgery that would cost around $1,000. This price seems extremely cheap compared to surgeries in the U.S., where surgeries routinely cost hundreds of thousands of dollars. However, in rural Honduras, there is little access to these surgeries despite the relatively low cost. To the patients seen on the medical brigades, $1000 seems almost insurmountable when the families make less than a dollar a day. Though we couldn't help in the clinic itself, we were able to fundraise the thousand dollars to cover the cost of the woman's brain surgery, which was performed in Tegucigalpa.

The most interesting case that I saw on my medical brigade was that of a 14-year-old girl with Type I diabetes. It was already known that she had diabetes, but she and her family had an extremely difficult time obtaining the necessary insulin injections to keep her healthy and alive. The family was only able to obtain a week's worth of insulin at a time, and they had to travel all the way into Tegucigalpa to get it. Tegucigalpa is about three hours away by car from where the family lives. They didn't have a car though, so they had to either walk or bike, which made getting the insulin a day-long event. When they arrived at the hospital in Tegucigalpa, they had to pay $15 for every week's supply of insulin. This is an absurdly high price when the family only makes one dollar a day, and it is even worse when they have to take the whole day off to obtain the insulin in the first place. There wasn't much that we could do for this patient and her family, but we took down their address so that they could be followed and helped in any way possible. If a brigade ever goes back near their community, GB will try to bring a supply of insulin for the girl. Unfortunately, this is not a sustainable way to treat her, and many others in rural parts of the world face the same types of health problems with no feasible solution.

> Seeing the father pulling down the blue tarp and wooden poles, it finally hit home that this family was going to be **much healthier**.

Seeing all of these health problems on my medical brigade showed me that a more sustainable mode of health for these families in rural Honduras is necessary. At most, we could prescribe three months of medications to the families—a very temporary solution. Medical brigades generally try to return to the communities every six months to monitor health changes and prescribe necessary medications, but this is just a band-aid for the underlying problems of poor health at home and almost no access to higher care for more severe problems. Many of the patients that we saw in the clinic could have benefitted from a public health brigade returning to their homes. The respiratory problems, stuffy noses, and parasites all could have been avoided had the families had clean water and a stove that vented out of the house. The access to higher care is a larger issue that GB can't do much to solve. We can give referrals to patients so that they know they'll be seen if they travel the 10 hours to the hospital in Tegucigalpa rather than being told to leave. This doesn't solve the problem of the relatively high cost of healthcare though. GB administers all treatments and prescribes medications free to the patient, but if a patient has a more severe health problem, they're pulled back into the standard system of healthcare. Expecting a family to travel 10 hours to a hospital and pay what amounts to months of work for treatments is unreasonable. Because of this lack of access to healthcare, many patients forgo treatment and live unhealthy lives or pass away at an early age. A more sustainable healthcare method needs to be created for the families in rural Honduras and similar areas around the world, but this is obviously easier said than done.

All three of these brigades opened my eyes to the common healthcare disparities around the world. Having my first medical experience be in a developing and rural area is something that I wouldn't change for the world. I saw the problems that hundreds of millions of people around the world face in terms of living conditions and healthcare before seeing how healthcare in the States is delivered. Volunteering on these brigades in Honduras furthered my interest in medicine. I have shadowed in a variety of pediatric oncology clinics, and the time and money that the patients dedicate to treatment is absurd. The patients come to the clinic multiple times a week for years to be administered treatments that cost thousands of dollars per pill. Their average commute to the hospital is 15 minutes by car on an expressway. Their insurance often covers most of the cost of the treatments and hospital stays. People in rural Honduras absolutely do not have this luxury. They go to a hospital maybe twice in their entire life. They don't have insurance to cover the costs for a $1,000 brain surgery or the $15 a week for insulin, amounts that many of us wouldn't even consider an issue for life-saving treatments.

These disparities exist not only between the U.S. and rural parts of developing countries, but also between wealthy people in the States and those that fall below the poverty line. Though the nearest hospital is still often under half an hour away, those that fall below the poverty line generally cannot afford lifesaving treatments. Many attempts have been made to make healthcare more accessible in the U.S., but arguably many of these attempts have been unsuccessful. With such a widespread problem that requires a lot of money and government involvement to solve, something else needs to be done to keep those without healthcare healthy. This is where public health comes into play.

Providing the resources to meet the basic health needs of families that don't have access to healthcare can largely allow the families to avoid having to go to the hospital in the first place. Ensuring that everyone has access to clean water is an easy way to avoid many parasites and diseases caused by unclean drinking water. This is a problem that has been easily solved in the States, but has yet to be solved in rural parts of countries like Honduras. Having living environments with paved floors and stoves that vent out of the house is another way to avoid certain parasites, infections, and respiratory problems. Again, this is a larger issue in developing countries than it is in the States, but one that needs to be addressed everywhere. Lack of education regarding proper sanitation and hygiene also needs to be addressed to explain alternatives to those that don't have access to a standard level of healthcare.

Basic public health projects like the ones on my public health brigade could ease and potentially even solve most of the problems that I saw on the medical and dental brigades. While these projects need to be directed mostly towards developing countries, some projects are also needed here at home. Low-income working families are often uninsured because the cost of healthcare is too expensive. These families can't afford to go to the hospital and get medications, and they also have trouble affording a clean living environment and healthy food to eat. Different public health projects put in place by both the government and private organizations aim to ease these problems, but the problems are still there. While politicians debate over the best way to provide healthcare, another solution needs to be put in place. Public health projects around the world could raise the baseline health level of those without access to healthcare and reduce the need of many families to go to the doctor. Some day in the future, healthcare might be less expensive and more accessible to those with low incomes or those who live far away from hospitals. With everything that I've seen on my medical, dental, and public health brigades, it's tempting to believe that that sustainable method is the expansion and creation of more widespread public health projects in both the U.S. and also in developing countries around the world.

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BRIGADE BRUSHING
A young boy shows off his new teeth-brushing skills and holds a fluoride rinse. Photo by John Jiao.

In Focus

(n.) the state or quality of having or producing clear visual definition.

UGANDA Photo by Grace Kwak '18.

PUBLIC HEALTH IS AN ECLECTIC FIELD THAT MEANS SOMETHING DIFFERENT TO EVERYONE.

How Do You Define Public Health?

BEING AWARE OF HOW TO PROTECT THE CURRENT AND FUTURE GENERATIONS FROM PREVENTABLE SICKNESS AND DISEASE
Josh DiGiacomo '16, Chemical and Bimolecular Engineering and Molecular and Cellular Biology

TAKING A MORE HOLISTIC AND BIG-PICTURE VIEW THAN MOST HEALTH PERSPECTIVES
John McLaughlin '18, Sociology

THE STUDY OF IMPROVING THE HEALTH AND LIFESTYLES OF COMMUNITIES AND FAMILIES IN A GENERAL POPULATION
Arshad Ajani '18, Economics and Computer Science

PERCEIVING AN ENTIRE POPULATION AS A CONTINUOUS BODY, EVERY INDIVIDUAL A SINGLE CELL
Karl Johnson '18, Chemistry and Economics

ENCOURAGING SOCIETY TO CARE ABOUT EVERYONE, FROM THE CEO TO THE SINGLE MOM
Oren Fishman '16, Molecular and Cellular Biology

THE WILLINGNESS TO LOOK AT SOMEONE'S LIFESTYLE AND SURROUND ENVIRONMENT, AND IMPLEMENT A WAY TO INCREASE THEIR STANDARD OF LIFE
Marysol Encarnacion '16, Neuroscience

WE CANNOT ACHIEVE PROGRESS IN IMPROVING PUBLIC HEALTH WITHOUT AN INTERDISCIPLINARY COLLABORATION BETWEEN EXPERTS ACROSS MANY FIELDS
Devon Morgan '16, Biology and Psychology

A CAREFULLY PLANNED AND MANAGED APPROACH TO ENSURE THE SAFETY AND HEALTH OF THE MAJORITY OF A POPULATION AFFECTED BY A DISASTER
Kristina Zambo '19, Molecular and Cellular Biology

PROMOTING HEALTH AND WELL-BEING OF SOCIETY AS A WHOLE THROUGH POLICY AND RESEARCH
Hyejune Limb '19, Public Health Studies

THE WELL-BEING OF THE GENERAL POPULATION
Rahul Kenny Ling '18, Chemical and Biomolecular Engineering

A COMBINATION OF PREVENTATIVE MEASURES
Tai Barber-Gumbs '19, Public Health Studies

CREATING SAFER, CLEANER, AND HEALTHIER COMMUNITIES AND, IN TURN, CREATING A BETTER FUTURE FOR NOT ONLY THE PEOPLE OF THOSE COMMUNITIES BUT ALSO FOR PEOPLE WORLDWIDE
Zereen Sarwar '18, English

HOW GOVERNMENT POLICIES CAN REDUCE OR COMBAT AILMENTS OF THE GENERAL POPULATION
Antonio Malacad '18, Chemical and Biomolecular Engineering

AN OPPORTUNITY TO LOOK AT THE WORLD AS A WHOLE IN ORDER TO SEE THE REAL BIG-PICTURE HEALTH CARE PROBLEMS
Niya Surya '18, Public Health Studies

LEARNING ABOUT WORLD ISSUES RANGING FROM SOCIAL ISSUES, TO NEW AND OLD EPIDEMICS,
Amy He '18, Economics and Computer Science

DEALING WITH HEALTH ON A LARGE-SCALE, POPULATION LEVEL IN WHICH, HISTORICALLY, THE STATE HAS BEEN ABLE TO INTERVENE
Sam Paek '18, History of Science and Technology

IT'S A COOL FIELD THAT USES INDIVIDUAL HEALTH EXPERIENCES TO PROTECT SOCIETY
Paula Nwosu '16, Applied Mathematics and Statistics

THOUGH HEALTH MIGHT BE DIRECTLY ASSOCIATED WITH TERMS LIKE "DISEASE" AND "CURE," OTHER PUBLIC ENTITIES CAN PLAY INTO THIS SYSTEM
Abby Biesman '18, International Studies

WITH POLICY AND RESEARCH WE CAN SAVE HUMANITY WITHOUT A 1-ON-1 INTERACTION; IT ALLOWS US TO BE PHYSICIANS FOR HUMANITY
Mira Sohby '18, Earth and Planetary Sciences

A WAY TO EFFECTIVELY AND EFFICIENTLY REACH A LARGER GROUP OF PEOPLE
Gina Ma '17, Public Health Studies

POLICIES AND ACTIONS THAT CAN BE TAKEN TO IMPROVE THE HEALTH OF LARGE POPULATIONS AT A TIME
Karina Ikeda '18, Public Health Studies

A FIELD THAT AIMS TO IMPROVE PEOPLE'S WAY OF LIVING
Rahul Reddy '19, Molecular and Cellular Biology

A SYSTEM OF HEALTHCARE PROVISION WHICH AIMS TO MAXIMIZE THE HIGHEST BENEFITS BY EMPHASIZING ON THE NUMBER OF PEOPLE WHO ARE MEDICALLY TREATED
Tam Thanitcul '19, Biomedical Engineering

BEYOND THE STANDARD DEFINITION OF PROMOTING HEALTH AND PREVENTING DISEASE, PUBLIC HEALTH IS A BROAD FIELD WHERE YOU FIND AN OPPORTUNITY TO APPLY YOUR OWN TALENTS AND INTERESTS TO SOLVE PROBLEMS
Melka Smart, Associate Director, Public Health Studies Department

A REASON NOT TO LOOK A THINGS IN BLACK AND WHITE, A REASON TO KNOW AND LEARN ABOUT SOMETHING DEEPLY BY CONTINUALLY ASKING WHY
Rinas Osman '17, Public Health Studies

Policies

(n. pl.) a course or principle of action adopted or proposed by a government, party, business, or individual.

UGANDA Photo by Grace Kwak '18.

Sexual and Reproductive Health Intervention in Rural Ethiopia

MONICA ZEWDIE '18
PUBLIC HEALTH STUDIES

Ethiopia has long been a country suffering from sporadic famine, high rates of urbanization, and alarming poverty rates. To help alleviate these problems, a local Ethiopian non-profit is using a new and integrated approach that is rapidly on the rise in public health and could solve decades-old problems.

In recent decades, a new approach has emerged in Public Health practice—attempting to integrate approaches previously found in separate sectors. The Population, Health and Environment (PHE) approach is a multi-sectoral approach that addresses the social, economic, and environmental issues in the world. A typical PHE project understands the links between an environment and its effects on the human population's health and livelihoods. For example, the relationship between high population growth and deteriorating living conditions is one acknowledged link. PHE projects are designed to address several problems by modifying activities found in multiple sectors and combining them into one integrated project. The activities complement each other in order to maximize the effects of individual activities.

The developing world has been a major focus of public health projects. Although many improvements have been made, factors such as poverty, environmental derogation, and sporadic famines are still widely experienced. Many have theorized why insufficient progress has been made; corruption, political unrest, and lack of focus on sustainable development have been argued as causes.[1] Another explanation may be the lack of focus on an approach that mirrors the world. If people take a step back they will realize that the world is extremely interconnected. Similar to a natural food web, our world is dependent on many factors and interactions. Despite this, our manmade institutions are extremely sectionalized. For example, non-profits tend to section their functions and focus areas. Also, traditional development organizations have established operating structures with only one main focus. For instance, the World Wildlife Fund is primarily concerned with conserving wildlife and Engender Health centers its efforts on family planning and reproductive health. Although both are just causes, the single-factor approaches do not mirror the interconnectedness of the world that the organizations are working in. If several factors are involved in creating a problem, various approaches should be used to "tag-team" a solution. This, essentially, is the PHE approach.

I worked at PHE Ethiopia Consortium (PHEEC), a non-profit organization based in Addis Ababa, Ethiopia focused on solving pressing public health issues using the PHE approach. PHEEC operates in various areas in Ethiopia. A favorite of the non-profit is biodiverse ecoregions of the country. The project I focused on was the Support for Horn of Africa Resilience[2] (SHARE) project under the action name "Conservation of Biodiversity and Ecosystems Functions and Improved Well-being of Highland and Lowland Communities Within Bale Ecoregion." The project received a €5.5 million grant from the European Union with the following expected results: expanded understanding of sustainable eco-region management, enhanced livelihoods and health of the local communities, a constructed institutional capacity for natural resource conservation.[2]

The overall objectives were set in order to improve drought resilience, food, and nutrition security of vulnerable populations while conserving ecosystem function and services in the Bale Ecoregion (BER). The BER is one of the 34 world biodiversity hotspots, a unique and significant ecosystem spanning 22,000 km.[6] The eco region hosts 26 percent of Ethiopia's endemic species including several rare amphibian species. The BER is also a crucial water drainage system to East Africa and its oceanic coasts. This region has a human population of about 3.3 million. The BER has an average household size of eight, which is greater than the national average of 5.4. Such high population growth is forcing the expansion of farm land and increasing the rate of resource and environmental derogation. The upper catchments of the BER are under strong anthropogenic pressure resulting in a deforestation rate of up to 6.7 percent per annum. Unregulated use of grassland and forest resources have resulted in soil erosion, flooding, as well as a negative impact on other ecosystem services, most notably biodiversity and carbon storage. For instance, between 2000 and 2009 alone, the BER lost 263,000 square hectares of high forest resulting in a release of 118 metric tons of carbon dioxide and greenhouse gases. Consequently, the lowland communities of the BER experience high drought vulnerability and food insecurity, forcing them to depend on emergency food aid.[4]

Due to these realities, the BER is an essential area to conserve. The living conditions of the people in the region are also threatened by the high population. This rising trend demands attention in order to ensure better quality of life. The SHARE project is a vast project attempting to decrease the high population pressure on the environment in the Bale Ecoregion as well as on the livelihood and health of the human population. The project is utilizing an integrated multi-sectoral approach which understands the links between social, economic, and environmental issues in this region and attempts to address each sector's problems. The project is operated by five members of PHEEC, including PHEEC itself. Each member brings its expertise to the table. The expertise of the partners are farming, water management, environmental conservation, and health. Some aims of the project

WELLNESS FOR WOMEN
(Left) A local clinic where women receive family planning information and services.
BIG SISTER
(Right) Having many children means that young children look after their siblings at a very young age. Photos by Monica Zewdie.

include increasing food stability, improving agricultural practices, piloting environmentally sustainable economic practices for local communities, increasing use of family planning/reproductive health services, and conserving the Bale Mountains National Park. The primary beneficiaries of this project are estimated to be around 878,000 people living in the BER and up to 12 million people living downstream.

One of the largest gaps we at the PHEEC office identified in the SHARE project was the lack of behavior change material pertaining to family planning and therefore a lack of demand for family planning services. This is where we focused our efforts: creating behavior change material promoting the use of family planning with an emphasis on the health and indirect environmental benefits family planning. The BER is located in Oromia, one of nine regional states in Ethiopia. The Oromo people are the most prevalent ethnic group in Ethiopia accounting for 34.4 percent of the 94 million people in Ethiopia. Seventy-five percent of the population is involved in farm-related employment, including agriculture and herding cattle. Most families live on less than a dollar a day. Access to water and electricity are sparse. Most households only have one place of shelter, forcing the family to share the small space with cattle as well.[5] Polygamy is widely spread within this region. It is estimated that the fertility rate in Oromia reaches eight, but to my knowledge, there has not been a reliable evaluation of the fertility rate in this region. Only 26 percent of women in Oromia are currently using a method of contraception, with injectables and implants being the most popular methods.[6]

Health workers insisted that most women had heard of family planning but many **held misconceptions**, desired to bear many children, or had husbands that forbade contraception use

In August, we traveled to the Bale Mountain National Park. At the beginning of our trip we were based in Goba and Robe, small towns in the Bale Mountains considered to be the region's hubs. We decided to first conduct informal formative research in order to "identify social, economic, and political factors blocking or facilitating desired behavior changes".[7] In our case, we focused on the use of contraception in the BER. To begin our qualitative research, we met with several non-profit organizations operating in the region. Among them were Pathfinder and Marie Stopes, as well as a head government health officer in the region. All three have significant experience working in family planning and reproductive health in the region and gave us insight on the cultural and religious barriers to family planning use. The most widely emphasized barrier expressed by these public health officers was opposition voiced by Muslim religious leaders accusing contraception use to be against the teachings of the Quran, misconceptions concerning contraception methods and their effects on infertility, and the tradition and culture of the Oromo rural communities in encouraging large families.

Next, we traveled to a rural, small village, Malka Arba. A cluster of homes made from dung and sticks transected by a dirt road made up the settlement. No service coverage or any modern amenities existed out there. Malka Arba is one of the pilot villages for the RH/FP sector of the SHARE project led by PHEEC and was therefore an ideal site to visit and learn more about the culture and community we would later tailor our behavior change material to. To aid in this mission, we spoke to community health workers at a local health post, government RH/FP program coordinators, and even locals that took an interest in our presence. From these conversations, we gathered vital information on the psyche behind the lack of demand for family planning services. Health workers insisted that most women had heard of family planning but many held misconceptions, desired to bear many children, or had husbands that forbade contraception use. During our trip we also talked to the women whom our material would be targeting. One 19-year-old woman with four children told us she was not using contraception because she had not completed her ideal family size of eight children. Her oldest child was seven, implying she began childbearing when she was twelve, not uncommon in this region. When asked why she desired eight children, she responded: "They serve me, they serve the country." This mimics a common idea that having many children is economically beneficial to their household and will provide the country with human resources to drive the nation forward. Another woman, 34, began childbearing at 16. She has five children but proudly told us that she used family planning, without us even asking. She reiterated the health benefits she is experiencing from spacing her births. Some other factors that play a role in the high fertility rate is the civic instability in this area. Families frequently get into altercations over land or other social issues. A common practice is setting fire to the house of the person they disagree with. Having a large family is believed to offset the vulnerability to such security threats.

Through collaboration with Semere Sileshi, PHEEC's main officer in the BER, we created a tailored behavior change flipbook outlining the differences in quality of life for members of a large family and members of a small family whose mother used family planning methods. The main messages include the economic and social benefits of small family and the health benefits of family planning. We highlighted the dangers of early and late childbearing as well as the dangers of short birth spacing. We then proceeded to explain the benefits and how to achieve appropriate spacing. It was very important not to imply anything negative about large families, especially about the women of large families. We phrased the flipbook to emphasize that the smaller family is simply the "ideal" family that everyone can try to strive for, instead of narrating the small family as the better one. The final draft is currently awaiting printing before being used in the SHARE project. Like many projects in the PHE approach, many factorsWW and projects must collectively target an issue in order to achieve the best results. This behavior change material will hopefully move women up the behavior change continuum to a stage where they are consistently using family planning methods and enjoying its benefits.[8]

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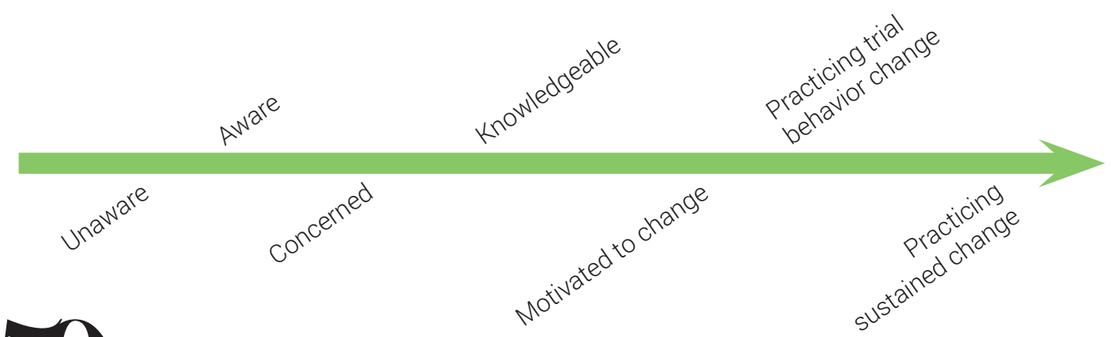
IN SESSION
A SHARE meeting site where the new flipbook will be used. Photo by Monica Zewdie.

STAGES OF CONTINUUM The SHARE Project recognizes that creating lasting change requires sustained effort and describes the multistep process with the stages of continuum. Source: Measure Evaluation.



The Health and Social Issues within Nyarugusu Refugee Camp and Surrounding Areas

MICHELLE KIHARA '17
PUBLIC HEALTH STUDIES

A native Swahili speaker, Michelle was first drawn to working on this project because of its proximity to her home in Kenya.

There is only one remaining refugee camp in the western province of Kigoma, Tanzania. Throughout the 20th century, Tanzania became a temporary home for refugees who fled from war and other threats in their native countries of Rwanda, Burundi and Congo. Created in 1996 by the Tanzanian government and the United Nations High Commissioner for Refugees, the camp is now mostly inhabited by Congolese refugees who fled from civil war. An immense amount of data has been collected and translated from Kiswahili broadcasts on various health topics on Radio Kwizera, a popular regional radio station. The radio programs are uses of mass media to disseminate important information to a large audience. The data ranges from first hand patient accounts in the clinical setting to interviews with distinguished individuals involved in academia and even politics. The interview subjects discuss health issues like HIV/AIDs, the recent Ebola epidemic, Malaria, and teen pregnancy. The audio has been transcribed to a script through a qualitative data analysis program known as Nvivo. Utilization of healthcare resources in Kigoma has been largely influenced by the social stigma behind seeking care for various diseases and a strong belief in traditional healers. Education through mass media has allowed many in the area, including the refugees, to learn how and where to seek care as well as about the social/political issues that impact their daily lives. These findings will be applied to a larger project with an aim to push international non-profits like the U.N to open up more resources within Nyarugusu to improve healthcare outcomes.

In every urban environment, there is a marginalized population who has limited to no access to basic healthcare resources. It is a major public health issue because this health disparity leads to poor health outcomes that are totally preventable through education, policy changes, and advocacy. The same applies to other groups who are suffering from a lack of resources and proper care in other parts of the globe. Perhaps one of the more marginalized groups is refugees who have fled their home country due to war and other threats. These refugees are subjected to their host country's rules and regulations and they do not possess the same access to resources that natives of the country do. This includes stringent limitations on where and when they can access healthcare and other basic needs. The findings from this project will highlight the primary needs of the Nyarugusu inhabitants. The ultimate goal is to spark a series of improvements that will increase access to basic resources as well as better the conditions of the camp.

As a native of Kenya, I witnessed many of the healthcare injustices experienced by marginalized populations, which often include refugees from other countries seeking better living conditions. All the data (transcriptions) are in Kiswahili, and I was able to translate into English with ease. Through Nvivo, I have been able to gain some skills in data analysis. The first hand accounts from mothers caring for their children who are afflicted by malaria simply because of a lack of mosquito nets provide a vivid depiction of the deep need for an intervention. These findings may eventually lead to a new approach to healthcare in the camp and surrounding areas: healthcare could become more about preventing illness than treating it, which in the long run will have better outcomes and save many lives.

I will first discuss the use of mass media in creating changes in behavior. I will then introduce the major themes discussed in the radio broadcasts, which include different approaches to tackling healthcare issues. These themes include the following: the policies behind access to care, HIV/AIDs treatment, access to anti-malarial drugs and nets, complications during pregnancy, and increased rates of abortions in young mothers. Many African countries who were previously very receptive to refugees fleeing from human rights abuse in their home countries have become less open to granting asylum. With the recent Ebola pandemic, health departments in countries with high refugee populations have put regulations in place to insure that no infected persons are allowed into the camps. At the time, Ebola had already spread to the Democratic Republic of Congo, which is where most of the Nyarugusu originate. To deal with this, the health officials and the Tanzanian government turn to the radio waves to try and educate as many individuals as possible on disease transmission and treatment.

Mass media campaigns have been used in the past to disseminate important messages to a generally passive audience. The campaigns have been successful because these media sources are easy to access and have the ability to reach a wide range of individuals, all while remaining low in cost. It is also important to take into consideration the demographics of the audience. The message must be age-appropriate and engaging enough to keep the audience's attention. According to Mass Media Campaigns, homogeneous messages may not be persuasive to heterogeneous audiences; and campaigns might address behaviors that audiences lack the resources to change.[1] The message has to remain general enough so it can be applied to large masses; there is a need to know the amount of resources within access to the population if the message promotes any type of behavior change.

The programs directed toward the camp's inhabitants seek to inform on various health issues and give advice on how to care for the ill, promote healthy habits and prevent sickness. When the Ebola pandemic struck, government officials tightened up border security and relied heavily on education to try and alleviate some of the panic that was caused. During a special segment on Ebola, public health specialist Dr. Joshua Monge explained that the disease must be treated with urgency because ¾ Ebola cases are lethal.[2] He also explained exactly how the disease is transmitted from person to person, through body fluids. Many of the fears from the target audience were addressed during the broadcast, and Dr. Monge gave simple yet effective instructions on preventing infection. The result was that many of the camp's inhabitants became well versed in seeking immediate care and caring for those who may be infected. This ended up alleviating much of the anxiety surrounding the lack of knowledge on the illness.

The radio campaign is an indirect approach to behavior change because it seeks to increase discussion on the various issues within Nyarugusu and surrounding areas. An indirect campaign is defined as one where the main goals are to "increase the frequency, depth, or both, of interpersonal discussion about a particular health issue within an individual's social network, which… might reinforce (or undermine) specif-

IN ADVANCE
The table shows the United Nations High Commissioner for Refugees' 2015 planning figures for the United Republic of Tanzania. Source: United Nations High Commissioner.

Type of population	Origin	January 2015		December 2015	
		Total in country	Of whom assisted by UNHCR	Total in country	Of whom assisted UNHC
Refugees	Burundi	37,790	12,790	39,310	13,300
	Democratic Republic of the Congo	59,440	59,440	57,820	57,820
	Various	160	160	170	170
Asylum-seekers	Democratic Republic of the Congo	2,200	2,200	2,200	2,200
Others of concern	Burundi	189,700	189,700	197,290	197,290
Total		289,300	264,290	296,780	270,780

ic changes in behavior.[1] On the other hand, the direct approach to behavior change is one that seeks to "invoke emotional and chemical responses."[1] A direct approach would be effective at sparking thoughts within individuals but it would not do enough to incite change through conversation. The refugees lack political power and have very limited access to resources; it is only through discussions within communities that any policy changes will be made. This particular project is of special interest because most mass media campaigns have been conducted in wealthier countries where research capacity is substantial. An analysis in the future will determine how effective Radio Kwizera programming is in inciting change on a policy level and within the camp.

The radio campaign is an indirect approach to behavior change because it seeks to increase discussion on the **various issues** within Nyarugusu and surrounding areas.

Faraja kwa wagonjwa, which translates to "Comfort for the Patients," is one of the programs that involves a direct interaction with patients in the clinical setting. A radio presenter usually travels to a clinic in Kigoma and has a one on one interview with a patient about the quality of care that he/she receives. Overall, the patients are usually satisfied with the care that they receive, although the clinics have low funding. Once in a while, a patient would complain about the inadequate amount of beds or waiting time but otherwise be satisfied with the services provided. The patients travel from towns near and far for healthcare services for a wide array of maladies. A majority of the women in the clinics bring in their young children who suffer from malaria, which is very common in the region. Their visits involve a one to two night stay before symptoms improve, and they are discharged. Many of the mothers also mentioned that they gave birth to their children at the clinic and would always come back for treatment when needed. This continued relationship with patients is perhaps one of the reasons why so many are satisfied with the services regardless of funding.

Religious beliefs are known to generally have a positive effect on health; many of the patients who were interviewed gave high regards to their god. The main religions in this part of East Africa are Christianity and Islam, and the patients would give thanks to Allah or Christ for their well-being. Even those who were bed-ridden with severe injuries and other ailments remained positive and thanked God that their situations were not any worse. During one interview, a healthcare provider at the clinic brought to attention that some of the patients come to the clinic to seek care when symptoms worsen, rather than when they first appear. He attributed this to the belief in waganga or witch doctors. Some individuals visit these traditional healers due to cultural beliefs that have been passed down for several generations. As a result, some patients come into clinic when their sickness has spread, which increases the resources needed for treatment. For this reason, there is a greater push to get members of the community to turn to the clinic first for care and not other healers. This also shows how the culture of a community can influence perspectives on healthcare and the decision on whether an individual will seek care from a healthcare professional.

Another area of health impacted by the community's culture is the treatment of HIV/AIDs, which affects a large proportion of the population in this region of Africa. According to the United Nations Office on Drugs and Crime, Eastern Africa is the second most affected region by HIV and AIDS in the world after Southern Africa.[3] The social constructs do not allow for open conversation about the illness as it is seen as a curse. Those who are infected are often kept isolated from the rest of the community because of myths on the spread of the virus. Those who do know that they are infected choose to keep their status a secret to avoid discrimination. The government has created many centers where individuals can be tested and find out their status soon after. There has also been an initiative to educate the community, especially the youth on how the virus spreads from person to person. In fact, many of the radio advertisements involve short skits where characters that are HIV+ talk about treatment options and living normal lives. In one interview, a refugee from Nyarugusu mentioned that some people believe that if the butcher is infected, then the meat that he/she sells is also infected. Breaking down these myths through educational segments on Radio Kwizera has somewhat succeeded in the community. Increasing conversation about the topic has led to people being comfortable enough to discuss the virus. As far as treatment, the U.N. and foreign governments have provided funding for antivirals that are given to those who are infected.

Teen pregnancies are also on the rise in the region, and many of the girls come from families that cannot afford to support the newborn child. Traditionally, teen girls would get married to men twice or thrice their ages. With time, the youth have been more educated than in previous years and have deviated from the tradition of being married at a young age. More of them have the opportunity to complete secondary school and in the process end up engaging in sexual activities within their social circles. This has led to an increase in the amount of abortions from pregnant teens. During a segment of Utupaji wa Watoto or Abortions, high school aged girls were asked why there has been such an increase in the rates of abortions in the region. One of them talked about social economic status, where those who come from poor families prefer to abort because their families cannot afford to support any additional members. If the girl no longer has to take care of her child, she can get a job and work to help support her family. Another reason that arose is the girl's upbringing. If the girl in question was never taught to abstain or practice safe sex, then she simply does not know any better and ends up having to abort. On the other hand, there are some who choose to engage in sexual activities in an act of rebellion against their parents' teachings.

Although it was less discussed, an interviewee attributed the rise in abortions to orphaned teens that are forced to take care of their younger siblings. The older siblings find other ways to make a living, and some may join the sex industry and get pregnant in the process. Other reasons include students in higher education who believe that pregnancy may serve as a hindrance to achieving their goals. The students who were interviewed suggested an increase in education and mentorship for the youth, to try and decrease the abortion rates. A few of them even suggested that teens should be instructed to concentrate on their studies rather than dating to find a mate. Some of the students believed if teens focus on graduating and starting a career before pursuing relationships, then they would better their livelihoods. This sense of responsibility will encourage financial stability and independence, as well as decrease teen pregnancies.

Whenever a large organization like the U.N. seeks to improve the healthcare outcomes in a region such as Kigoma, it is important for the organization to draw from the community's culture and beliefs. Keeping this perspective will allow those volunteering foreign aid to better understand the climate in the target population and how to approach various issues. Instead of dealing with political leaders who may otherwise have selfish motive, nonprofits should pay closer attention to the needs of the population at large. Radio Kwizera provides an accurate glimpse into the health issues that plague Nyarugusu and the surrounding regions. Local authorities have found some success in using mass media as a means to educate the community on improving healthcare with limited resources. Instead of heavily funding policies that generalize and fail to take into account traditional ideals and culture, large nonprofits should focus on gaining knowledge on what the population at hand actually needs. This strategic planning is the only hope that exists as far as improving healthcare outcomes.

Radio Kwizera will continue to be a major source to help understand the healthcare topics in Nyarugusu and other regions around. As mentioned before, the goal is to raise awareness on how to approach healthcare within a refugee community. HIV remains a controversial topic that deserves more attention than it already has in order to decrease its rates to similar levels as in the rest of the globe. The goal of the project is to eventually raise questions and help propagate change in healthcare for refugees and other marginalized groups in Eastern Africa.

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BY THE SEA
A group of children bathes and plays in the shadow of a *dhow,* a traditional Arab sailing vessel, off the coast of Tanzania. Photo by Alex Wald.

Insourcing of Utilization Management Review

ZAEEM LONE '18
PUBLIC HEALTH STUDIES

Zaeem spent the summer working for Evergreen Health Cooperative, Maryland's not-for-profit insurance company created directly out of a provision from the Affordable Care Act.

Health care in the United States costs significantly more than it does in any other industrialized nation in the world. Health care spending increased by 3.6% in 2013.[1] Furthermore, nearly 18% of our Gross Domestic Product (GDP) is spent on health care; a dollar amount totaling nearly 3 trillion dollars.[2] When compared to other industrialized countries, particularly Organization for Economic Cooperation and Development (OECD) countries, the United States pays more per capita for health care.[3] However, it should be noted that spending more on health care is not synonymous with improved quality of care. In a 1999 report, the Institute of Medicine reported that approximately 44,000-98,000 individuals die in hospitals because of medical error.[4] Another study by the Rand foundation found that only 50% of the time do we receive proper, quality care that is rooted in evidence.[5] These alarming publications led to another report by the Institute of Medicine (IOM) in 2001 that characterized the American health system as fundamentally broken.[6] Fundamental flaws of our health system include that costs are rising faster than GDP, an overuse of services, a misuse of health services and procedures, and poor quality of care. The IOM report delineated a system where health care is safe, effective, timely in that it reduces wait and harmful delay, patient-centered, efficient, and equitable.

Therefore, in an effort to remedy the problem, President Obama pushed for legislation that offered affordable and high-quality coverage to all individuals via the Affordable Care Act. The main provisions of the Affordable Care Act aimed to increase health insurance coverage. Nevertheless, there were measures designed to control costs and improve quality.[7] Around this time, a policy making body, the Institute for Healthcare Improvement, developed three triple aims of health care. The triple aims of health care are improving the patient experience in terms of quality and satisfaction, improving the overall health of populations, and reducing health care costs per capita.[8]

At Evergreen Health Cooperative, Maryland's newest insurance company, along with providing affordable insurance, an effort is made to improve the patient experience. Integrating these two generally adversarial functions allows for better care coordination. A mechanism that aids this fusion is Utilization Management Review.

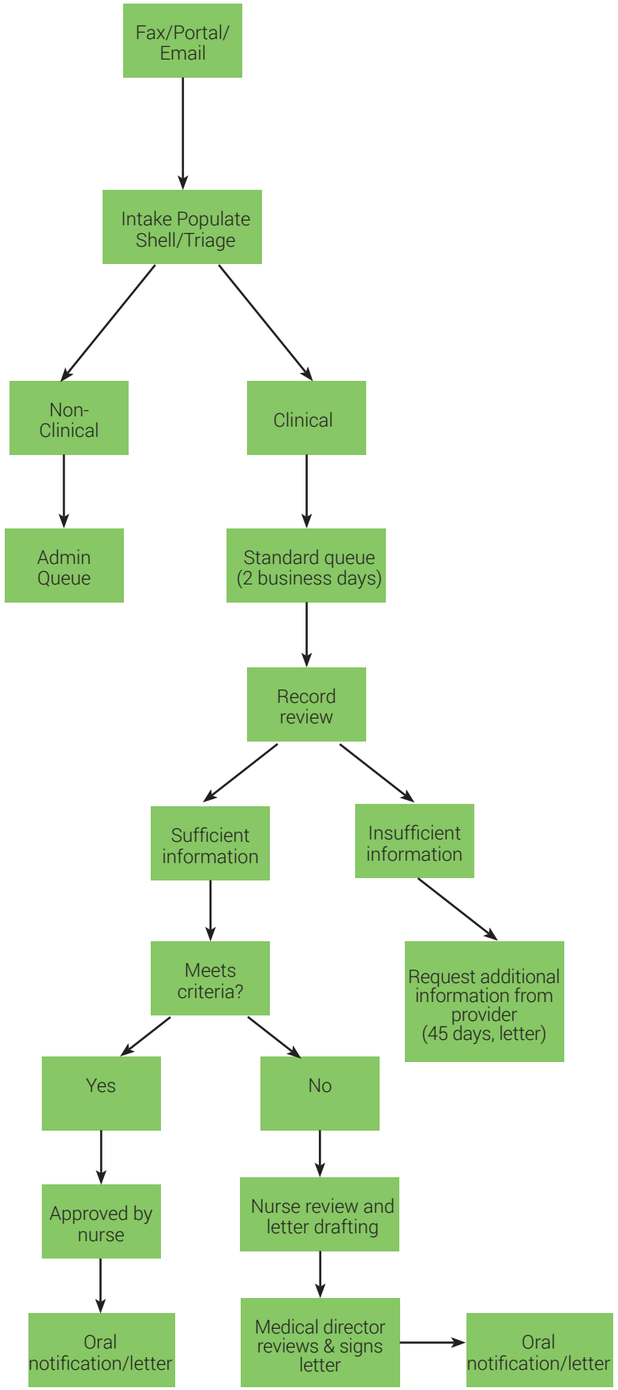
Utilization management is the evaluation of the medical necessity and need for certain health care procedures. In a fee-for-service environment, doctors aim to maximize profit by subjecting patients to a host of tests. Utilization management is a tool that combats the overuse of health procedures. It is used by payers, insurance companies, as a cost containment tool.[9] Proper utilization of a utilization management review represents an attempt to satisfy the triple aims of health care. By properly utilizing this service, a payer can determine whether or not patients truly require the service. It aims to counteract waste in the healthcare environment. At an organization like Evergreen, where the goal is to provide affordable and improved care to the patient, proper usage of utilization management represents a method to better manage patient health.

Traditionally, these functions are outsourced to a third party. The third party organization determines whether or not services are necessary. However, in an effort to achieve its goal of better care coordination, Evergreen decided to insource the process of utilization management with a Go Live date of 11/1. Having control over the utilization process will allow Evergreen to potentially better manage all of its members. There are a few aims of this report. First, to outline the process to insource utilization management. Second, to show the benefit of insourcing this process as it relates to population management. Finally, engaging in a more in-depth discussion on the benefits of utilization management.

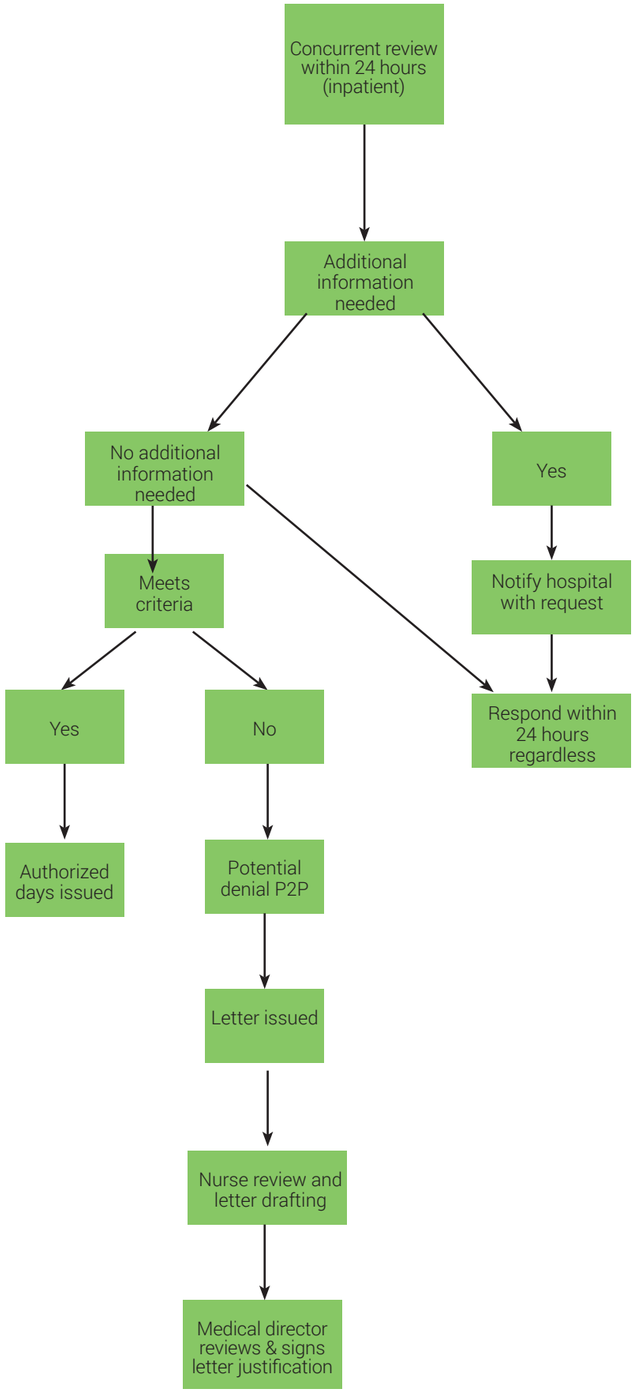
Methods

Insourcing of this function eschews traditional laboratory science methodology. However, it provided insight into the business operations of a public health entity like a health insurance company. To insource utilization management a software platform must be generated to carry out these functions. Therefore, a Request for Proposal (RFP) was sent to out to a few companies that had the capability to design the platform for utilization management review. The RFP was sent out to four companies, Altruista Health, Valence Health, Essette Home, and CaseNet technologies. Each of these companies provided responses to the questions contained in the RFP and then were evaluated based on their response. A scoring matrix was devised to rate the responses. These companies were rated on their pricing offer, ability to integrate and adapt, timeliness of the implementation process, technical infrastructure, and knowledge of the Affordable Care Act and Maryland Insurance Articles. At the end of this evaluation period, Altruista Health was awarded the right to build the platform.

However, to build this platform, Altruista Health needed the blue-prints and design of the system. As mentioned above, utilization management is the evaluation of the medical necessity and need for certain medical procedures. These designs must reflect the various medical reviews that a utilization management staff must make. Furthermore, these plans must be in compliance with the Maryland Insurance Articles, quality standards determined by the National



PRE-AUTHORIZATION
The process by which Evergreen Health Cooperative makes a determination on whether or not they will authorize a medical service. Source: Zaeem Lone.



Committee for Quality Assurance, the Maryland Insurance Agency, a regulatory body, and the evidence based criteria used to make the medical necessity determination. Along with other EHC staff, I designed these blue prints. There are four types of services a utilization management staff can make determinations on: pre- service authorization, emergent and/or urgent, concurrent review inpatient, and concurrent review outpatient. Pre service authorization refers to services that require pre-certification or approval. An emergent or urgent service would refer to emergency department visits. Concurrent reviews of inpatient service determine whether or not a patient's inpatient stay should be extended. Concurrent outpatient review is utilized for services like physical therapy. After this initial review, patients have the opportunity to appeal the decision. Therefore, a design for the appeals process needed to be generated. Along with these blue prints, business rules that articulate the flow charts needed to be created. These blue prints and business rules compose the backbone of how the system functions. With all of these items completed and approved, these plans are turned over to Altruista Health for designing the platform.

The goal is to have the utilization management operational at Evergreen on November 1, 2015 which corresponds with the open enrollment period for all new insurance members. Therefore, the platform will be completely developed and ready for testing the month before the open enrollment period.

Sample Business Rules

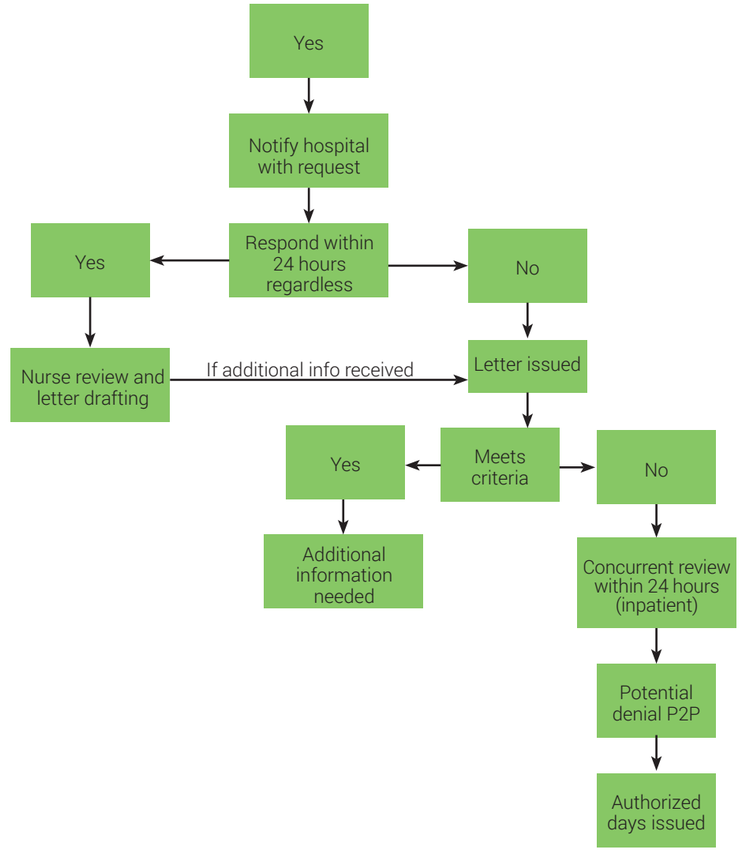
Pre-Service Authorization

1. Request comes into Evergreen via phone, fax or email (ePA)

CONCURRENT REVIEW INPATIENT

How the health insurance company makes the determination on whether or not they will authorize and pay for your stay and visit at a hospital. Source: Zaeem Lone.

2. Request is triaged by Intake Coordinator (IC):
   a. IC completes the shell
   b. IC determines if the request is emergent. If so the case is forwarded to a nurse or placed into the que (see rules for emergent/urgent requests). If not standard procedures are followed (see below)
   c. IC will determine if case if clinical/non clinical and place into appropriate que.
3. If the request is clinical, it will be placed into the standard preservice que to be picked up by a nurse reviewer
4. Nurse will determine if sufficient records were sent with the request.
5. If additional information is needed to conduct the clinical review, the nurse will send the "additional information request" letter to the provider. The provider has 45 days to submit the additional information.
6. If no additional information is received by day 35, the IC will send a reminder to the provider requesting the additional information.
7. If no additional information is submitted within 45 days, the nurse will conduct a case review with whatever records were submitted for this case and issue an adverse determination.
   a. The nurse will follow the process outlined below for preparing and issuing the adverse determination letter.
8. If the requested additional information is received, the records must be reviewed within 2 business days of receipt. If criterial is not met for medical necessity (even with reviewing additional records), the nurse will follow the process outlined below for preparing and issuing the adverse determination letter.
9. If it is determined that criteria is met for medical necessity the nurse will issue an approval letter.
10. If the initial request has all the necessary information (e.g., additional information request was not needed), the nurse reviews the request to determine if it meets criteria for medical necessity.
11. If the request does meet medical necessity the nurse will issue an authorization letter.



CONCURRENT REVIEW OUTPATIENT

How the health insurance company makes the determination on whether or not they will authorize and pay for your stay and visit at a clinic instead of a hospital. Source: Zaeem Lone.

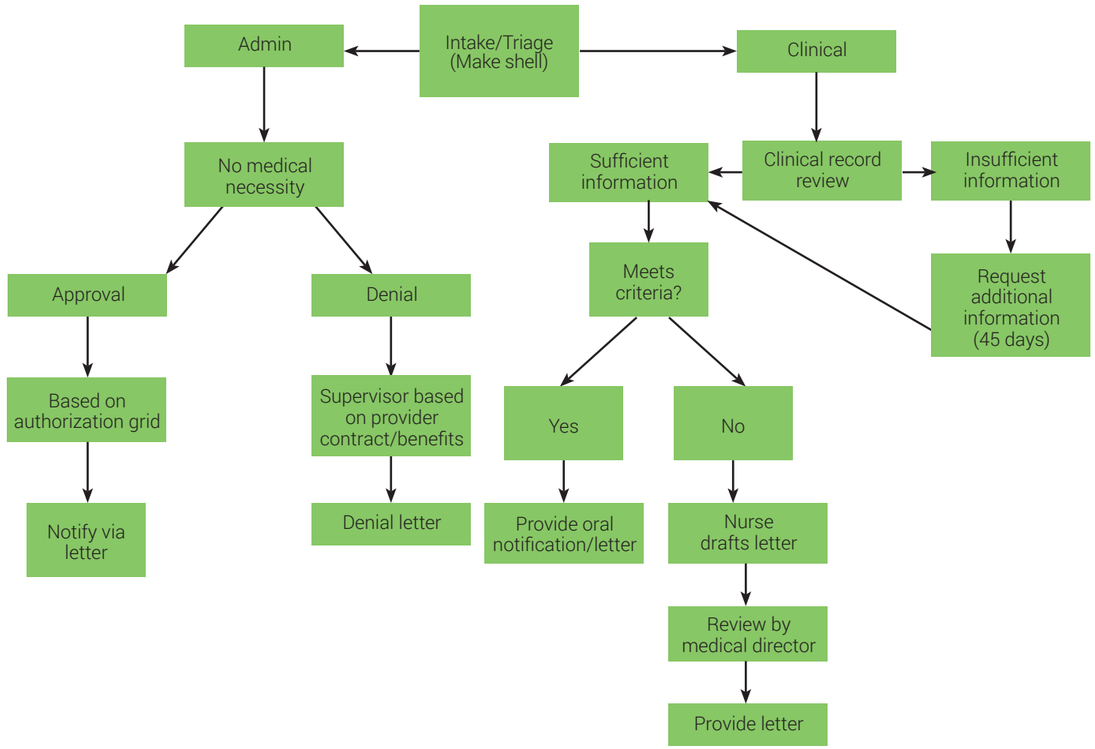
12. If the request does NOT meet medical necessity, the nurse will draft a denial letter and send to the Medical Director for review and approval. See process immediately below for drafting and issuing adverse determination letter.
13. ADVERSE DETERMINATION LETTER. Nurse will draft response. This includes inserting free text language, including: a) list of all documents reviewed, b) cite to relevant benefit plan language, and c) cite relevant criteria
14. Nurse places draft letter in Medical Director que. Medical Director will review and edit and return to nurse.
15. Upon receipt of the letter from the Medical Director, nurse provides oral notification to the provider which is documented in the member's file.
16. Adverse determination letter is sent to provider, copy sent to member, within five (5) days of oral notification.

Results

The data below shows a comparison of utilization management data for the past year compared to Milliman

(Top) **UM METRICS FROM JAN 1, 2014 THRU JUNE 1, 2015**
Statistics to determine effectiveness of utilization management at Evergreen Health Cooperative. Source: Evergreen Health Cooperative.
(Bottom) **GRIEVANCE/APPEALS PROCESS, 30 DAYS**
How Evergreen Health Cooperative handles the appeals process from its members. Members have the opportunity to appeal denial of services by Evergreen. Source: Zaeem Lone.

	EHC	Milliman annual benchmarks	EHC projections for November 1, 2015-2016
Admits/1,000	33.64	89.16	30.958
ALOS	3.66	4.3	3.48
ED visits/1,000	188	162	179



benchmarks. Milliman is a healthcare consulting firm that provides annual projections on the appropriateness of various healthcare metrics. For utilization management purposes, some of the data looked at is number of admissions per 1000, average length of stay (ALOS), and number of emergency department visits per 1000. The table at left provides a comparison of these metrics currently against Milliman and also provides a projection of next year's statistics. These projections are based on the belief that the insourcing of this particular function leads to better management of Evergreen's population.

Discussion

The results from this project indicate that insourcing the utilization management function decrease these particular metrics all across the board. To begin with, Evergreen outperformed the benchmarks for admissions and average length of stay. However, there are a host of reasons why Evergreen outperformed these metrics. Evergreen could have denied the inpatient service for most of its population. Another potential reason is that individuals that used Evergreen as a carrier did not get admitted to the hospital as much. The most probable reason is that Evergreen has a low population load compared to other carriers in the Maryland marketplace. Therefore, admissions rates were lower than the Milliman benchmark. Nevertheless, moving forward, as Evergreen insources this function and membership continues to grow with the coming open enrollment period, the projected number of admissions continues to drop. This continued drop suggests that Evergreen will be able to better manage admissions and inpatient care for its members. Looking at average length of stay (ALOS), Evergreen outperforms the Milliman benchmarks. The reasons for this are quite similar to the admissions statistic—mainly smaller membership compared to other carriers in the marketplace. Nevertheless, insourcing this function continues to decrease the number of average days spent in a hospital. The only statistic where Evergreen lags is emergency department (ED) visits. Currently, EHC has many more visits to the emergency room than the Milliman benchmark. This is a problem for members as ED visits are quite expensive. A report from the NIH reveals that on each ED visit a patient spends $2,000.[10] That amount is 40 percent more than what people spend on their home rents. Therefore, when individuals possess health insurance, they should avoid emergency department visits. Insourcing this function represents a decrease in ED visits as there will be better care coordination in terms of providers being aware that patients healthcare benefits and Evergreen managing all member's medical management. Although still higher than the annual benchmark, a decrease in ED visits represents progress.

The use of utilization management review has become ubiquitous in the healthcare industry. It is generally seen by many as a cost-containment strategy. Therefore, it engenders great debate as providers sometimes tend to view it as limiting.[11] Utilization management is a far more valuable tool than just a cost containment mechanism. It is the primary tool utilized to ensure if patients are receiving the appropriate level of care and if that care is providing quality and value. By insourcing this process, Evergreen is better situated to make smart decisions related to its health plans that maximize value for its members. Furthermore, utilization management is a necessary tool when it comes to accountability. It presents a method that accurately articulates the cost for its members and the actual benefit, health care outcomes.

Moving forward, once Evergreen has completed the insourcing process it will allow the company to use this feature in many ways. Evergreen will be able to comprehensively look at all the denials and approvals of services and corresponding appeals to deem whether there is proper usage of services. Furthermore, by insourcing this function, there can be better communication between Evergreen's insurance component and its patient centers. This could better facilitate communication between providers and payers and better assuage provider concerns that utilization management restricts doctors. Nevertheless, proper usage of utilization management represents a method that not only saves cost but also improves quality. This tool, if properly used, represents a small piece in the puzzle to satisfy the Triple Aims of healthcare.

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Editorials

(n. pl.) a newspaper article written by or on behalf of an editor that gives an opinion on a topical issue.

UGANDA Photo by Grace Kwak '18.

A Rotting Inside, A Pretty Outside

STEPHANIE NG '15
CHEMISTRY

Stephanie is a research assistant at the Institute of Global Tobacco Control at Johns Hopkins Bloomberg School of Public Health. She is part of the TPackSS team.

It's hard to fight off an addiction like smoking. Over time, it becomes a bad habit that people can't quite shake. Even after they manage to stop, the shadow of their actions still follow them. Yet before an addiction can develop, there must be a starting point. Unfortunately, preventing the onset of smoking can be very difficult.

Each year, tobacco use kills more than 5 million people, yet it is estimated that thousands of young adults will begin smoking cigarettes every day.[1,2] Though it is obvious that smoking is detrimental to people's health, many still choose to smoke cigarettes or other tobacco products regardless of the increased risk for cancer, heart disease, and stroke amongst other illnesses.[2] In addition to peer pressure and other cultural connotations that contribute to the problem, imagining the long term effects of smoking once presented with a tobacco pack is difficult for tobacco users.

Previously, I had not given smoking and tobacco use much attention because I had never smoked or possessed any desire to form the addictive habit. But after a few months with the TPackSS team at the Bloomberg School of Public Health and working with tobacco packs, I began to realize something.

That is, tobacco packs are generally appealing.

Many of the packs that I handled were designed with splashes of vibrant colors or eye-catching pictures. There were packs catered towards young females, shaped to mimic lipstick tubes with a slim package and enticing pictures of a pretty girl shopping in Paris or relaxing on a beach. Other packs had iridescent branding—changing colors as the pack was tilted towards and away from the light. All of them were designed with one purpose in mind: to make the consumer forget that they were really chipping away at their health with each cigarette.

Thankfully, the spotlight on tobacco as a public health concern has been heavily emphasized in recent years. In 2005, the World Health Organization (WHO) established the Framework Convention on Tobacco control (FCTC), a convention focused on increasing tobacco control support in all of the ratifying countries as well as meeting FCTC guidelines for health warning labels (HWLs) and other packaging designs.[3] Currently, there are 180 parties of the WHO FCTC, with Zimbabwe most recently joining in March 2015.[4] In general, an increasing number of countries are starting to strengthen their tobacco control measures. One measure to decrease the effectiveness of tobacco packaging has been to increase the percentage of coverage by HWLs. HWLs may come with a text warning, such as "SMOKING KILLS". Some HWLs are being improved further with the addition of graphic pictorials that depict consequences of smoking, such as emphysema, rotting teeth, or throat cancer. By improving the use of HWLs, it is more likely that people will be reminded of the side effects, making them think twice about their decision to smoke.

Though the status of HWLs is improving, a portion of the pack area will always be used by the tobacco companies for their own advertising since HWLs do not cover the entire package. The establishment of HWL laws is done by country, ranging from 30 percent to 80 percent coverage of the tobacco pack with more country specific laws regarding display of colors, text, pictures, or positioning on the pack.

Australia has become one of the first countries to take a much stronger stance on tobacco pack advertising. In 2012, they implemented the laws requiring plain packaging for tobacco packs in the country.[5] Plain packaging refers to the removal of all branding, permitting the printing of only the brand name in a mandated size, font, and place on the pack. In effect, the use of standardized packaging has resulted in tobacco packs that are quite basic and unassuming. It is even difficult to differentiate between one pack and another, decreasing draws such as brand awareness. As a result, the eye is more drawn to the graphic HWLs, forcing the consumer to take note of the health issues first and foremost.

However, this progress hasn't happened without push-back. It wasn't until December 2015 that Australia won its legal battle against Philip Morris over the use of plain packaging.[6] Philip Morris filed a claim to challenge the plain packaging law due to its strong stake in the tobacco industry (think Marlboro). The courts have dismissed the case, declining jurisdiction to hear the company's claim.[7] By upholding the policy, Australia has potentially paved the way for other countries to follow suit and lobby for plain packaging as well. In addition, Australia has now become a country of interest to study the effect of implementing plain packaging on tobacco use, and many studies are beginning to take place.

While making headway is difficult due to both objections from big corporations and the sluggishness of policy-making, it is important that the battle against tobacco use continue. After all, many lives could be saved if the outside of the package reflected the ugly consequences of the inside.

1

2

PRETTY PACKAGING (1) Sweet Dreams cigarettes from the Russian Federation. (2) Diao Yu Tai cigarettes from China. Photos courtesy of Institute of Global Tobacco Control at Johns Hopkins Bloomberg School of Public Health.

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Gun Violence Needs to be Treated as a Public Health Issue

ROBERT BESCH '17
PUBLIC HEALTH STUDIES

Robert is head volunteer of the pediatric emergency department at Johns Hopkins Medical Institutions and is a public health studies student interested in epidemiology.

Volunteer at a Level 1 Trauma Center and you will see many victims of gun violence. Rotate through Maryland's quintessential center for penetrating trauma and you're going to see more victims. Coming from a military family living in the pro-gun sportsman's culture of rural Alaska, I learned how to shoot growing up. The arguments surrounding gun violence are important to me not only because it's been part of my life, but also because I've personally seen those affected by it: some are lucky and are discharged only with permanent scars. Others are admitted with life-threatening injuries. Some do not survive. Mass shootings have also become an unfortunate recurrence in the U.S. The calling of these widespread tragedies as "outbreaks" of violence and denoting the overall phenomenon of U.S. gun deaths as an "epidemic" attempts to view this issue through a public health lens. In the larger gun violence issue, more people are questioning if this huge problem should be treated as a public health one.

In 2015 there were more than 340 gun-related homicides in Baltimore.[1] Nationally we experienced almost as many incidences of mass shooting as days (330 events versus 365 days).[2] This statistic refers not to deaths from mass shootings, but mass shooting events (a mass shooting is classified as "an incident in which four or more people are killed or injured by gunfire").[3] One aspect that must be understood is that gun violence is a much larger issue than just mass shootings. While these are intertwined topics, they are not the same thing. Public health practice seeks to maximize the number of lives saved by collecting data, establishing theories, conducting research, and then informing key decision-makers. This utilitarian approach involves allocating the most resources to the greatest cohort suffering from a specific health threat. Yet this process has not been applied in the case of gun violence. In fact, less than 0.5 percent of the more than 33,000 deaths from firearms in 2015 occurred during a mass shooting, despite massively disproportionate airtime coverage of these events.[4] Furthermore, Congress passed a rider, the Dicky amendment, which prevents federal funding from supporting gun control policy and effectively places a ban on the National Institutes of Health (NIH) and Centers for Disease Control and Prevention (CDC) conducting research on gun violence.[5] Without research we cannot progress. Imagine attempting to tackle vehicular deaths without knowing the statistics of the details surrounding car accidents. The number of gun deaths whether accidental, suicidal, or homicidal in nature is far too high, and removing that gag order is certainly one of the first steps that should be taken to address this issue. The annual rate of firearm-related deaths in the U.S. has been estimated at nearly 20 times the rate of other high-income countries.[6] Even the rate of unintentional firearm deaths in the U.S. is double that of peer countries. Unless one argues that Americans are just more careless (or violent) than citizens of other countries, the statistics are persuasive. The U.S. is heavily saturated with firearms, more than any other country on earth, and rates of deaths are much higher than other developed countries.[6] In a quote from the Johns Hopkins Center for Gun Policy and Research "The higher prevalence of gun ownership and much less restrictive gun laws are important reasons why violent crime in the U.S. is so much more lethal than in countries of similar income levels."[7]

Gun violence is, and should be treated as, a public health issue. In comparing gun violence to another public health concern, for example cardiac arrests, we would analyze the scope of the problem, identify risk factors for mortality, establish direct and indirect causal factors, implement and evaluate effective interventions to mitigate those factors, and then work to implement effective interventions and routinely assess them for improvement.[8] For cardiac arrests, this could include preventative measures such as promoting weight loss programs to combat obesity and raising awareness of cholesterol. The same approach is applicable to gun violence. We can collect details of gun violence from emergency departments and medical examiners, and identify risk factors for gun violence, such as geographical location since there is evidence of increased incidence in urban and poor areas.[9] We can conduct research by means such as cohort studies with at risk-individuals, and with the results we can construe effective policy and prevention programs such as aggression management classes through public schools, law enforcement outreach through community liaison, and public awareness programs on the increased risks of having guns in the home. In this way, local leaders can mitigate direct and indirect aspects which lead to violence through non-discriminatory, blanket programs built on already-existing community partnerships.

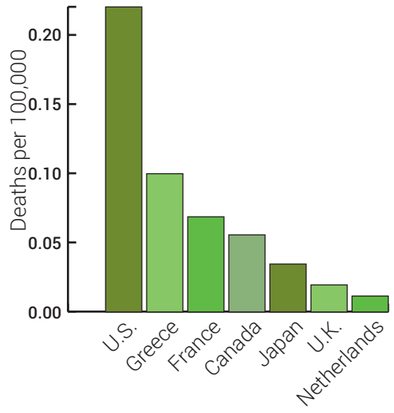
At the state level, an association was found from a study published in the American Journal of Public Health between laws regulating handgun ownership and statewide suicide rates.[10] Almost two-thirds of these deaths from guns were suicides—an overwhelming majority. Using data and objective, peer-reviewed studies such as this one, more effective gun violence reduction policies at the state level can be created. But it is critical that key stakeholders, mainly those involved in enforcing new laws, be consulted. From ride-alongs with Baltimore law enforcement, I learned that the enforcement of gun laws, especially those carrying a firearm illegally, was often persecuted weakly due to poor gun control policy support. This resulted in many criminals back on the street within a short time—still armed. This very dangerous behavior completely bypasses a vetting process involving background checks and registration, and ultimately illegally, armed, high-risk individuals are still in the high-risk environment and with little fear of legal consequence. As I discovered repeatedly, law enforcement is frustrated with the lack of policy surrounding enforcement of illegal carrying of firearms. One popular solution is to change state policy, raising the severity of the crime to a felony. This would remove more offenders from the streets and reinforce a stricter message of the consequences of carrying illegal guns. Opponents argue that laws targeting illegal gun wielders in urban areas are likely to disproportionately affect African-Americans, a group already suffering from significantly higher imprisonment.

At the national level, policies should include the creation of a national gun violence incident reporting system with involvement of the CDC, NIH, and Bureau for Alcohol, Tobacco, Firearms and Explosives (ATF), which has primary federal jurisdiction over the "manufacture, import, domestic and interstate commerce of firearms, [and] ammunition."[11] This would be in addition to the complete lifting of the Dickey amendment. In addition, law enforcement should further investigate the source of weapons and raise awareness in impacted communities of the consequences of allowing others to borrow or buy guns through family or friends since over 37 percent of weapons carried by criminals are believed to have obtained their weapons from friends or family. Mandating safe storage of firearms can decrease the incidence of accidental shootings from children, as well as theft of firearms from homes and cars, which fuels urban gun violence.[12] From the Gun Policy Summit held at Johns Hopkins last year, a released evidenced-based report recommended "establishing universal background checks, [and]…prohibiting high risk individuals from purchasing guns," establishing policy which evaluated and appropriately restricted access to guns for persons with serious mental illness, and establishing legislation and executive actions concerning trafficking, dealer licensing, personalized guns, assault weapons, and high capacity magazine.[13]

Despite these suggestions from an array of respected evidence-based centers there is strong opposition against recognizing gun violence as a public health issue. There is a widespread argument that Americans don't have enough firearms, and that the solution to gun violence is more guns. To counter, the U.S. has on average more than one gun for every American citizen, and undisputedly has more per capita ownership than any other country.[14,15] Furthermore, the NRA claim that firearms are used for self-defense millions of times a year is based on a discredited 1995 study and never supported by an academic paper, and no armed civilian has stopped a U.S. mass shooting in 30 years.[16,17]

The call for increasing mandatory minimum sentences to 'make criminals think twice before breaking the law' is rebutted by the finding that they are to be ineffective in affecting criminal behavior in the U.S.[18] This is a separate approach from the policy of increasing the severity of illegal carrying to felony offenses, which aims to prevent future attainment of firearms through background checks and other means. The establishment of greater police presence can be advocated for, as there is a strong correlation between police forces and crime rates; however, this raises another particularly complex issue in times of budget crises, cuts, and public calling

UNINTENTIONAL FIREARMS DEATHS Death rates comparing U.S. and peer countries in 2013 among both sexes and all ages. Source: Global Burden of Disease Study.



EDITORIALS

for police scrutiny.[19] It is difficult to hire more officers, especially in Baltimore's case, when even squad cars are often poorly maintained, often have broken critical equipment such as sirens, lights, communication, and many of the cars aren't even equipped with computers, moving radar, radio, or dashcams.

We know that decreasing access to dangerous or unhealthy situations decreases the incidence of harm from those sources. Some politicians and organizations, such as the NRA, argue that gun violence cannot be easily affected by public health measures with the reasoning that criminals and those with the intent to harm others don't obey the law and seek out the black market. The 2015 San Bernardino shooters acquired their weapons legally through a local gun shop, and the Newtown Connecticut shooter had access to unlocked weapons in the home belonging to a family member. Reducing the access to guns for criminals through universal background checks (which is supported by the majority of the U.S. public) and for mentally unstable persons through laws evaluating the risk of individuals suffering from mental health issues further reduces risk. To those who say that determined individuals contemplating suicide will kill themselves with or without guns, just remember that 90 percent of individuals who survived a first attempt at suicide never attempt again, meaning that an attempt is often driven by a moment of emotional distress and once passed, is unlikely to occur again.[20] Furthermore, decreases in gun ownership in households is strongly correlated to decreases in suicides with firearms.[21] Reducing access to deadly firearms in this population likely to reduce the success of first attempts for these individuals and save lives for those contemplating suicide and possibly others, as mental illness may be a contributing factor in mass shootings.[22] The argument that firearm homicides will simply be replaced with homicides with knives is disputed by the epidemiologically valid public health approach. Guns and knives are not equally dangerous weapons and reducing more severe causal factors of violence, such as access to firearms by high risk persons, will reduce the opportunities resulting in casualties of violence. Using the Swiss cheese model, in which many circumstances must occur to allow a harm-producing result to get through all the aligned 'slices,' it is predicted with strong confidence that the incidence of injury from firearms would be far less than the opportunity from injury if replaced with knives or lesser weaponry, since bullets can be fired and impact victims at far ranges and through walls, whereas knives require significantly greater deliberation, skill, and precision. Thus, reducing the prevalence of gun access to high-risk individuals would greatly decrease the more than 33,000 deaths, 80,000 hospitalizations, untold suffering, and hundreds of billions of dollars in direct and indirect costs, from gun violence.[23,24]

The recent attention groups such as Doctor's For America to overturn the ban on federal funding for research on gun violence, as well as the voiced regret from the senator who proposed the legislation, is a step in the right direction.[25,26] The public health approach supports the propositions from the American College of Physicians encouraging doctors to counsel patients of the risks of guns in the home, the support of universal background check legislation, and laws banning sale of guns designed to "increase their rapid killing capacity" to civilians.[27] Effective gun control measures will save lives, and they are highly unlikely to lead to a slippery-slope argument that the government will seize all firearms. To those who say that the recent executive actions (promoting gun technology and firearm design to prevent stolen firearms from fueling gun violence and reduce injury, respectively) won't be effective in reducing deaths, remember that tens of thousands of guns make their way to the streets as a result of theft and fuel the violence, that there are another 2,000 accidental deaths a year; many of the victims are innocent or children; they all have families; and every single one of them matters.[28]

OFF-TARGET The Dicky amendment prevents federal funding from gun control policy and bans gun violence research. Illustration by Angela Hu.

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It is Past Time to Make Homewood Campus Smoke-Free

SATHVIK NAMBURAR '18
PUBLIC HEALTH STUDIES

Sathvik is a sophomore class senator for the Johns Hopkins Student Government Association. He serves on its Health and Safety Committee.

According to the No-Smoke Campaign by the organization Americans for Non-smokers' Rights, more than 1,600 college campuses nationwide are now smoke-free, but Johns Hopkins—with its number-one ranked Bloomberg School of Public Health—is not among them.[1] In fact, 50 years after the landmark U.S. Surgeon General's report on the dangers of smoking, smoking on Homewood campus remains ubiquitous. Anyone who walked through a cloud of smoke to enter MSE Library or Brody Learning Commons—locations where many smokers congregate—can attest to this fact.

I serve on the Student Government Association's (SGA) Health and Safety Committee, and this year, we received significant correspondence from students who desire to make Homewood campus smoke-free. Two years ago, in a campus-wide referendum, Johns Hopkins undergraduates supported a potential smoking ban on the Homewood campus by a 60-40 margin.[2] The SGA, as the representative of the undergraduate student population, commenced efforts to prompt the administration to institute a smoking ban on the Homewood campus, and the administration formed a task force to study this possibility. This task force consisted of university leaders representing a variety of disciplines and viewpoints from the Homewood and Peabody campuses. I have spoken to members of the task force, and their proposal regarding this issue will be put forth in spring 2016 to the upper administration.

As the task force prepares to release its findings, I have heard from some students who are opposed to a potential smoking ban. Despite this opposition, I believe that there are many reasons why Homewood campus should institute a smoking ban, the least of which is the improved image that we would project to prospective students, their parents, and other visitors. However, opponents of a smoking ban believe they have a right to smoke, just as they have a right to drink alcohol and partake in other behaviors. Such an argument is flawed because smoking is unique in that it harms the health of both smokers and bystanders. Secondhand smoke is a known carcinogen, and students walking to class and the library on Homewood campus are currently exposed to secondhand smoke many times throughout the day.[3] It should not be acceptable for the personal rights of a small minority (only about 15 percent of college students smoke, according to studies) to supersede the health of the vast majority.[4]

Furthermore, news articles from some of the 1,600 college campuses that have already banned smoking, such as George Washington University and Towson University, have reported that bans on smoking on college campuses demonstrably reduced student smoking on campus, despite minimal enforcement.[5] Additionally, these news articles reported that following the implementation of smoking bans, non-smokers were more likely to admonish people smoking on campus, prompting many smokers to move off-campus. Those who oppose a smoking ban on Homewood campus assert that campus police officers are already overworked and that requiring them to enforce a smoking ban would divert them from providing essential services. However, based on reports from other colleges, even a largely symbolic ban on the Homewood campus would probably be effective, since it would continue to raise awareness of the public health dangers that smoking poses to all.[5] Regardless of enforcement, however, the university should definitely dedicate resources to smoking cessation programs to help those who want to quit smoking. After all, the objective of a smoking ban should not be to merely vilify smoking; we must also help people break their habit.

Opponents of a smoking ban on Homewood campus rightfully point out that any such policy would not solely affect the student body but would also affect faculty, staff, and visitors. Yet despite this argument, numerous universities across the country have already banned smoking entirely, providing Hopkins with a solid legal precedent for the total elimination of on-campus smoking. Also, secondhand smoke does not discriminate based on a smoker's affiliation to the university; the only way to protect the public health of all students is to ban smoking on campus by all.

Another argument that some have against a smoking ban on Homewood campus is that smoking helps students relieve stress. However, such an assertion is simply incorrect. While the pressure to succeed at Hopkins is undeniable, smoking has not been scientifically shown to relieve stress—and some studies have found a correlation between smoking and increased stress levels.[6] Furthermore, those who smoke to relieve stress are merely trying to treat the symptoms of their stress, not the root causes, and they are likely to only feel increased stress over time. Seeking support through the counseling center or free tutorial programs for difficulties is the only way students can effectively reduce their stress over time. Smoking is not an effective solution and will only ruin students' health over the long run.

Some have posited that a possible solution to this issue would involve creating smoking zones on-campus and then banning smoking in all other locations. But this suggestion, while it has merit, would also create many issues. First, from an economic standpoint, the maintenance of the smoking zones would be immensely costly. This money could be better spent on cessation and education programs for university affiliates seeking to quit smoking. Additionally, by implementing a complete smoking ban, the university would be making a clear statement that smoking is so deleterious to health that is not even allowed on-campus. Johns Hopkins is recognized worldwide for its public health program, so a complete on-campus smoking ban would resonate nationally and internationally.

Enacting a complete smoking ban on-campus would not be an easy decision; it would likely face some level of backlash, and it would cost hundreds of thousands of dollars to create resources to help people stop smoking—which would be the goal of the ban. However, our university can and should overcome these obstacles and ban smoking because doing so would incontrovertibly benefit all university affiliates and would be a major step forward in the fight to raise continued awareness of the dangers of smoking.

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HOMEWOOD INHALE Smoking is currently permitted on Gilman Quad. Photo by Euphie Ying.

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(v.) We encourage students to share with us their experiences in local communities and abroad. Research, features, policies, and editorials contribute to the much-needed conversation on public health.

Thanks

(n.) an expression of gratitude.

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UGANDA Photography by Grace Kwak '18.

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(n.) a group of persons, as employees, charged with carrying out the work of an establishment or executing some undertaking.

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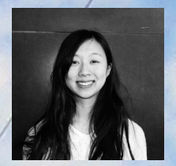

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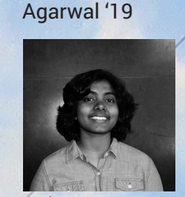

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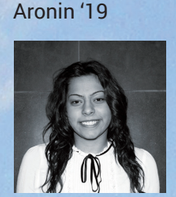

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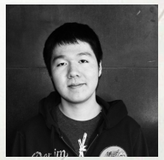

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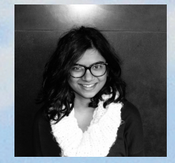

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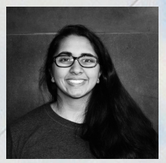

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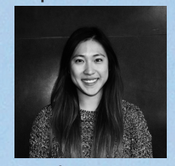

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