

QMR

QUEEN'S MEDICAL REVIEW



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Please address all correspondence to:
Queen's Medical Review
c/o Undergraduate Medical Office 80 Barrie
Street
Kingston, ON K7L 3J7
Email: queensmedreview@gmail.com

Letter from the Editors

Dear Readers,

Our writers and editors have worked hard to provide a well-rounded and complex analysis of some of the most important contemporary issues and advances in global health. We hope you'll enjoy engaging with these articles, both through thought and via written discussion on our website, qmr.qmed.ca.

Thomas Krahn (2017) provides a thought-provoking philosophical analysis on the moral responsibilities of physicians. This is augmented by Amro Qaddoura's (2017) in-depth look at the social determinants of health. To concretize the issue, Genevieve Rochon-Terry (2017) examines the actions being taken by healthcare providers and policy makers to fight mental illness around the world. Mahvash Shere (2018) continues the discussion on mental health with a focus on women. Rosa KW Lee (2018) investigates a second key global health issue - surgery, while Gerhard Dashi (2017) tackles another current topic: ebola's impact on children.

Shannon Willmott (2018) and Louisa Ho (2017) discuss the pros and cons of the increasingly prevalent medical voluntourism. This is complemented by Chintan Dave's (2017) piece on his personal experiences volunteering abroad. Ashwin Padiyath (2017) also shares a personal experience, providing a glimpse into global efforts to fight leprosy, and Fei Qu (2017) relates the differing cultural perspectives on health that she observed on her travels.

Laura Bosco (2017) shares an important new technological advancement: an artificial spleen that could have improve sepsis outcomes. Gina Eom (2017) further investigates technological considerations with a discussion of Intellectual Property and its relation to global health.

This issue includes interviews with two brilliant minds in the global health field. Adam Mosa (2018) shares his discussion with Dr. James Orbinski, past international president of Médecins Sans Frontières/Doctors Without Borders. Luba Bryushkova (2018) delves into the issue of child abuse in an interview with Dr. Esme Fuller-Thomson (University of Toronto).

We also showcase some of the creative talent in the Queen's Medicine community, featuring the runner-ups of our cover contest. Our winning cover image was provided by Adam Mosa (2018) - congratulations. Thanks to all who submitted images.

Last but not least, we would like to extend our sincerest gratitude to our fantastic team of writers and editors for their incredible contributions to this issue, as well as to our faculty advisor Dr. Jacalyn Duffin for her continued support. Without all of you, the QMR would not be possible. Thank you, and we hope you enjoy the QMR: The Global Health Issue.

Cheers,

Genevieve Rochon-Terry

Louisa Ho



Medical Volontourism: Point

- A Potential Change-Agent in Need of Optimization

SHANNON WILLMOTT, CLASS OF 2018

Millions of people in developing countries die each year from preventable infectious diseases such as malaria, tuberculosis (TB) and human immunodeficiency virus (HIV). Yet the spread of illnesses such as TB and HIV can be reduced through patient and community education. In addition, according to the World Health Organization, over 100,000 individuals died from measles in 2008 – a vaccine-preventable illness that is almost nonexistent in developed nations. There is no question that medical relief is much needed in developing countries – the provision of health care for preventable illnesses and education about the spread of infectious disease can make a huge difference to millions of individuals. This need, while one of the most convincing arguments for voluntourism, is not by any means where the arguments for it end.

“There is no question that medical relief is much needed in developing countries...”

Beyond medications and medical care, there are direct and indirect benefits for communities involved with voluntourism organizations. Some organizations work to improve infrastructure – providing manpower and resources to build schools and homes, or to clean up the local environment. As well as providing medical care, many organizations work to improve sanitation and improve access to clean drinking water. Various voluntourism organizations create jobs for local people – as translators, organizers, guides, cooks, drivers, and a variety of other positions that wouldn't exist were it not for the needs of visiting volunteers. Azafady, for example, is a London-based charity working on the island of Madagascar. The organization has just three paid positions in the UK – the majority of their paid staff are locals in Madagascar².

There are many non-profit programs that aim for sustainability and promote transparency and accountability. The Canada Africa Community Health Alliance (CACHA), for

example, provides medications, but also aims to improve the social determinants of health by allocating resources to water and sanitation, housing, nutrition, and childhood education³. Such well-managed projects require helping hands in order to achieve their goals, and here student volunteers can make a difference without exceeding their skill level. Tasks can include helping to set up and take down medical clinics, recording of patient data, and assisting in keeping the clinics organized as physicians see patients. These roles keep clinics running smoothly and efficiently. Volunteers may also participate in educating patients about preventive health care and determinants of health: drinking clean water, exercising, maintaining hygiene, and isolating individuals who are ill. True, an individual volunteer may not make a substantial difference on their own in the limited time frame that they can spend working on a project, but a lack of volunteer labour would create a substantial barrier to many long-term sustainable projects.

“...people are going to travel regardless of whether the trip involves volunteer work...”

Moreover, voluntourism is a feasible option for individuals who lead busy lives but would like to volunteer as well as travel. Many individuals cannot afford to take six months or a year off from education, career, family, and other obligations to volunteer for global health initiatives, but nonetheless still have a strong desire to contribute. It is often argued that global health work can be done in our own backyard, but consider for a moment the fact that people are going to travel regardless of whether the trip involves volunteer work. If an individual is already going to travel, why not encourage more travel to areas in need of health care initiatives (rather than other developed countries), and make use of the willingness to contribute to local global health projects? In this respect, with proper organization, voluntourism has incredible potential for change in the host country.

When asked about the pros of travelling to perform medical volunteer work, most students emphasized the value of learning about different cultures and different health care systems. By learning, student volunteers benefit as much as the local individuals benefit from the health care provided. A third year medical student said that travelling abroad gives volunteers an opportunity to “go beneath the fabric of tourism to have an idea of how different cultures live.” First and second year students agree – they state that their experience broadened and changed their perspectives on other cultures. Even more so, however, students spoke of learning about the medicine: about a different system of health care delivery, about providing medical care in resource-limited areas, about diseases that are less prevalent in North America, and about approaching epidemiological challenges faced in other parts of the world (such as the spread of TB). These are practical lessons that are next to impossible to learn from a textbook in a classroom in Canada, and so volunteer travel in a medical context is invaluable in its capacity to teach us, as medical students, about global health.

“...voluntourism holds great potential – the potential to harness the manpower and willingness of student volunteers to help, and the potential to teach, to inspire, activate, and motivate students in moving towards better international health...”

The important result of this learning is the potential that it holds for future global health activism. The real life exposure makes global issues in health care more salient and will help students to gain insight into contemporary issues in global health, insight that will shape them into physicians better able to advocate for international health care and human rights. Individuals who have had positive experiences volunteering abroad are often inspired to volunteer again as well as actively fundraise and raise awareness at home.

In conclusion, there is no question that voluntourism has a bad reputation with many concerns that need to be addressed. It is important that involved organizations consider how to optimize the ethics and sustainability of their trips. But if executed properly, voluntourism holds great potential – the potential to harness the manpower and willingness of student volunteers to help, and the potential to teach, to inspire, activate, and motivate students in moving towards better international health.

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- (1) <http://www.doctorswithoutborders.org/work-us/work-field/general-requirements>
- (2) <http://www.cacha.ca/about-us/overview/>
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Medical Voluntourism: Counterpoint

- A “Band-Aid on, Airplane Take-off”

Model of Care

LOUISA HO, CLASS OF 2017

We have all felt the pull of the wide-eyed HIV orphan on our TV screen, or the earnest activist reminding us how “one person really can make a difference!” There is no question about the beneficent intentions of those who devote their attention towards growing health needs abroad. And yet, both research and anecdotal reports suggest that short-term volunteer medical missions – which are continuing to increase in popularity amongst pre-medical and medical students – tend to do more harm than good to the local community^{1,2}. This model of aid has been critiqued as a fleeting Band-Aid solution for a small handful of patients.

“This model of aid has been critiqued as a fleeting Band-Aid solution for a small handful of patients...”

Agencies coordinating international medical initiatives have found a lucrative business; there is no shortage of volunteers willing to pay an exorbitant amount of money to buy themselves a global volunteering experience, whatever their personal motivations may be. Facilitating organizations have capitalized on this rapid growth in popularity, glorifying voluntourism at the expense of creating ethically responsible global citizens. An extreme example of a highly commercialized and exploitative program is World Unite!, which advertises the “voluntourism hopper” trips they offer as “alternative holidays”. Other private companies embody the narcissism of global volunteering -- what is best described as an “operating room selfie” graces the front page of the Gap Medics website, with the tagline “Dreaming of becoming a doctor? Join Gap Medics!” It’s hardly a surprise that searching “Gap Medics” on Google images returns the unwelcome sight of a shocking number of photographs with patients who almost certainly have not given their consent.

Fortunately, parallel with the increase in interest of these medical missions is the increase in scepticism and caution. For example, Queen’s University School of Medicine

“...is the benefit gained by the community enough to counterbalance the collateral culture damage?”

has mandatory pre-departure training to encourage ethical behaviour when abroad; Harvard recently published a paper on responsible engagement in global health programs versus voluntourism³; even the popular media has coined satirical phrases such as “Doctors Without Licenses”⁴ and “#InstagrammingAfrica”⁵. Despite the increased awareness, there remains considerable controversy surrounding these missions with regards to the ethical and safety standards, sustainability and financial transparency, and appropriateness and effectiveness in meeting the real needs of our neighbours. I will outline these contemporary issues below.

Ethical Considerations:

Fundamentally, the very presence of a team of foreign doctors taking over care in the community is a point of ethical contention. Going into a community and changing the local culture is indisputably poor global health practice, and it is readily apparent that reconciling this constraint with the goal of providing the best medical care possible can be a significant challenge. In terms of the medicine, local traditional healing principles may directly conflict with evidence-based Western medicine⁶. Beyond the medicine, volunteers may encounter issues that pose as barriers to health-care or are unacceptable to them on principle, including the role of women and children in the society, domestic abuse, or ceremonial practices. The question becomes, “is the benefit gained by the community enough to counterbalance the collateral culture damage?”

Furthermore, medical missions may be actively engaging in or contributing to continued exploitation in the communities. First, volunteers are commonly given the opportunity to perform procedures above and beyond their scope and

level of training without adequate supervision. The ethical dilemma inherent in having unskilled volunteers perform clinical tasks exploits the community as a population on which to practice technical skills. Even with full understanding and adequate training, there is a risk of unforeseen adverse events that can have disastrous consequences. This concern is amplified in countries where medical situations are further complicated by resource limitations – such circumstances increase the likelihood of potentially fatal consequences for the patient. Secondly, medical voluntourism initiatives undermine patient autonomy because volunteers often lack the language and cross-cultural competencies to communicate effectively with patients. Furthermore, patients are likely unaware of a volunteer's educational status, and even if they are informed there may be a cultural custom of “not saying no”, regardless of one's wishes.

Sustainability:

Much of the criticism of voluntourism surrounds the unsustainability of this model of care. Health initiatives not integrated within local health infrastructure can be harmful for communities. For example, locals may stop purchasing health insurance because they know that there will be free foreign health care and medications available every couple months. This leaves them medically vulnerable in the intervening times, as well as in the event that the organization is unable to continue supporting the community⁷. Moreover, the presence of foreign learners may take away from opportunities for locals to learn the skills, and reduce the demand for local labour, exploiting the community as a learning center. This contributes to the continued need for and increasing dependence on foreign medical aid rather than encouraging the community to become self-sufficient.

“Health initiatives not integrated within local health infrastructure can be harmful for communities...”

From a financial standpoint, short-term medical missions are not the best use of limited financial and human resources. The costs involved in financing medical missions, such as airfare, visa, accommodations and vaccinations, are considerable. In addition to airfare costs, tour organizers charge roughly \$1000 to 2000 a week, depending on the destination and organization. One has to ask whether that approximately \$3000 per person would be better spent towards stocking supplies and buying equipment for a clinic run by trained local doctors, rather than sending an inexperienced student overseas for a week.

Suitability:

In the vast majority of cases, claims by volunteer tourism organizations that these activities improve people's lives and contribute to development goals are yet to be evaluated. Medical missions tend to employ a rapid shotgun approach aimed at covering as wide of a population as possible in the short term; in consequence, insufficient attention is given to the critical issues of follow-up and ongoing care. Often there is a failure to refer patients for ongoing care for their chronic issues, such as high blood pressure, asthma, or epilepsy. In addition, the poor continuity of care provided by voluntourism can have adverse social and psychological effects, especially in children. Essentially, volunteer health professionals wash their hands of these patients as they board their plane home.

Tour operators' business methods cater to the needs of the volunteer rather than the volunteer project. On VolunTourism.org, the greatest benefit cited is the value gained from working and living in another cultural environment⁸ – such value is gained by the volunteer individually. Even so, it can be argued that these trips may actually serve to reinforce stereotypes and the “us and them” dichotomy, instead of bringing people from different backgrounds together and promoting solidarity between volunteers and recipients. Voluntourism may contribute to poverty rationalization – reinforcing preconceived ideas especially if volunteers lack knowledge about the country in which they are volunteering and about how policies and history have affected its development.

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Medical Voluntourism: Final Words

There will always be groups who want to partner with international organizations and individuals who desire to spend their free time helping others, and it is important to harness the positive power of this enthusiasm and interest. However, it must be recognized that despite the well-meant intentions and claims of “making changes for the better”, poorly conducted, irresponsible volunteer efforts often fail to live up to their constructive potential.

Aid programs should focus on development that helps local people increase their own skills. The goal should be a self-sufficient community where recurring medical missions would be a redundancy. Organizations can aim to decrease harm within this framework by giving volunteers the opportunity to immerse themselves within the culture, focus on broad global health competencies, and observe native health care providers who are dedicated to their community’s long-term health.

Looking towards the future, voluntourism holds great potential when executed responsibly – it has the potential to harness the manpower of volunteers who have a strong desire to help; the potential to raise awareness and teach students about contemporary global health issues; and perhaps most importantly, the potential to inspire and motivate young people to continue to engage in global health advocacy and activism.

When surveyed by QMR, members of the QMed community who had previously volunteered for international health initiatives were unanimous in recommending that their colleagues also participate in such initiatives in the future – as long as their are strategies in place to minimize possible harmful outcomes.

QMed Speaks: *Pros and Cons of Medical Voluntourism*

	<i>Pros</i>	<i>Cons</i>
First Year	<ul style="list-style-type: none"> • Connect with people from different backgrounds • Broaden cultural perspective • Learning opportunity for developing new skills to examine the world more critically 	<ul style="list-style-type: none"> • Unawareness of local issues • There are not always answers to local issues • Performing procedures beyond training level • Cost
Second Year	<ul style="list-style-type: none"> • Perspective on systems of health care delivery outside of Canada • Exposure to management of diseases not prevalent in North America • Understanding new approaches to tackling epidemiological challenges • Insight into global advocacy, needs of developing countries • Interaction with and immersion in different cultures 	<ul style="list-style-type: none"> • Difficulty making a meaningful difference • Ethical issue of doing things in another country unable to in Canada; risk of doing more harm than good • Potential health risk to volunteer from inadequate personal safety measures against hazardous exposures • Frustrating to adapt to less efficient system • Putting money towards improving infrastructure and training people indigenous to the area to create sustainable change is a much more long-lasting investment
Third Year	<ul style="list-style-type: none"> • Go beneath fabric of tourism and truly get an idea of different culture • Meet like minded interesting people with interesting life experiences 	<ul style="list-style-type: none"> • Expensive • What you can do is often limited • Takes a long time to institute real changes • Often have to leave country by the time one is integrated
Fourth Year	<ul style="list-style-type: none"> • Understanding disease not prevalent in NA • Compare and contrast various health care systems • Context for global health issues facing today • Personal growth because challenges are unique • Opportunity to connect with people around the world and learn lessons they have to offer – create strong connections that last • Learn to be adaptable and leave one’s comfort zone 	<ul style="list-style-type: none"> • Limited role as volunteer • African practice of medicine is quite different from Canadian guidelines • Consider local experience with many of same benefits • Money better spent elsewhere • Benefits to others grossly overestimated • More benefit as a practising physician or someone with public health experience

Intellectual Properties: An Inconvenient Tool for Global Health?

GINA EOM, CLASS OF 2017

The use of medication is an essential strategy for the delivery of healthcare and management of disease. From the very first year of medical school, we learn that we rely heavily on blood pressure pills, anti-inflammatory agents, and antimicrobials to treat health conditions.

Our reliance on drug therapy for medical practice is predicated on the notion that an appropriate supply of the drug is available. However, we often forget that this availability hinges on a dynamic, complicated, and somewhat nebulous entanglement of public research and commercial enterprises.

Take, for example, amphotericin B. It is an old ergosterol inhibitor that we still use for antifungal therapy at Kingston General Hospital. An off-label use of amphotericin B is in the treatment of Leishmaniasis, a parasitic infection that causes 57 000 deaths worldwide, and contributes to the burden of disease by 2.35 million disability adjusted life years and 1.5 million new cases of infections each year¹.

Given that the current formulation of amphotericin B has to be administered intravenously (IV), one can imagine the infrastructure required for its use – one that allows for IV insertion and safe aseptic delivery. Such resources may not be readily accessible in regions of developing countries where many patients suffer from the infection.

In 2009, Professor Kishor Wasan from the University of British Columbia (UBC) published a manuscript describing a heat stable, highly effective oral formulation of amphotericin B². This has the potential to circumvent some of the infrastructural barriers of administering the drug in parasite-endemic regions³. But what about the cost of the drugs? Would the new formulation be affordable to developing nations?

Publicly funded research institutions such as UBC are powerhouses of innovation. Their output undergoes commercialization – the translation of novel ideas into tenable products that are useful to society. This classical model of patenting and licensing allows the pharmaceutical company to hold a monopoly over the market for cost recovery from

the hefty overhead investment to develop a drug, including funding of expensive clinical trials.

Dr. Wasan had the pioneering vision to include global accessing clauses in both the drug's patent and the licensing agreement that was signed with biotechnology company iCo Therapeutics. These required that the intellectual property tenets would be lifted in regions of the developing world, where there was no profitable market anyways. As soon as drug development is completed, an affordable version of this innovative amphotericin B is expected to become available in developing nations³.

Dr. Wasan's amphotericin B formulation and the lack of opportunity for pharmaceutical companies to profit from drug sales in developing nations underscores the severe mismatch of demand and supply (or rather, demand and accessible supply) of drugs, particularly for diseases specific to developing nations.

This article does not seek to demonize the pharmaceutical industry; they are an important partner in our treatment of our patients in North America and other high-income regions. Instead, the intent is to emphasize that the conventional drug pipeline does not meet the demand of the healthcare burden globally, as the geography of "markets" is not congruent with regions of medical need.

What are some alternative models for drug development? Several non-governmental organizations have formed since the early 2000s to address this health gap and come up with forward thinking solutions. These include essential medicine campaigns by Medicins Sans Frontiers (MSF), Knowledge Ecology International (KEI), One World Health, Drugs for Neglected Diseases Initiative (DNDi), and Universities Allied for Essential Medicines (UAEM). However, a structural shift and a change in culture are still awaited.

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Social Determinants of Health in Canada: An Overview

AMRO QADDOURA, CLASS OF 2017

When Canadians are asked about what causes poor health, most think about diseases like heart attacks, stroke, and diabetes^{1,2}. Few consider the daily social and environmental conditions that people experience, but in fact these have repeatedly been shown to be the primary factors in the health of Canadians¹⁻⁴. Collectively termed the “social determinants of health” (SDH), ample evidence has documented the role of these conditions in explaining health inequities, including infant mortality, children’s health, and even cardiovascular disease and diabetes⁵⁻⁷. Despite continuous efforts by the Public Health Agency of Canada and other organizations to research and report on SDH⁸, Canadians are generally unaware that health is primarily shaped by income distribution, early childcare, and access to healthcare, water, food, housing, and education².

Canada has one of the highest poverty rates for wealthy developed nations, and among the lowest rates of spending to support families, people with disabilities, and the elderly population^{11,12}. The result is unequal access to the SDHs, leading to poor health outcomes. The SDH are largely determined by government and public policy decisions⁹: governments in Canada have a long road ahead to improve these factors¹⁰.

The inset table provides a framework for the SDH^{1,13}. To appreciate the importance of these factors, the three primary SDH will be explored. It is worth noting, however, that an intricate interplay exists between the SDH, and they cannot be studied in isolation.

“...Canadians are generally unaware that health is primarily shaped by income distribution, early childcare, and access to healthcare, water, food, housing, and education...”

1) Income Distribution

Income distribution is potentially the most important SDH in Canada^{1,2} due to its influence on all the other determi-

nants. Low income prevents individuals and families from being able to afford basic necessities of life such as health, housing, food, and water. A low income also exacerbates social exclusion, making it difficult to obtain employment and contributing further to the vicious cycle². Moreover, social exclusion fosters further hopelessness that ultimately hinders participation in society².

Income affects both physical and psychological health. Several studies found that risk of heart attacks and diabetes were higher in Canadians with a low income^{5,6}, while suicide rates in the lowest income neighbourhoods of Canada were twice those in the wealthiest neighbourhoods¹⁴. Absolute mortality rates in the most deprived neighbourhoods were also much higher than the least deprived neighbourhoods¹⁴.

“...Canada has one of the highest poverty rates for wealthy developed nations, and among the lowest rates of spending to support families, people with disabilities, and the elderly population...”

Canada was identified as one of two wealthy developed nations among 30 to have the greatest increase in income inequality and poverty from the 1990s to the 2000s^{11,12}. This further underscores the problem of income distribution in Canada, despite the belief of many Canadians that the country is free of poverty^{1,2}.

2) Child Care and Development

The environment for child care and development has long-lasting effects on health^{1,2}. Children spending a longer time in environments ill-adapted for their care and development have an increased likelihood of developing adverse health outcomes, such as cognitive and emotional deficits¹. This subsequently impacts Canadians at a macro level due to reduced quality of community life, lower Canadian economic performance, and increased social problems like crime and educational underachievement^{1,2}. Despite popu-

lar beliefs about the excellence of Canada’s child care services, the state of early childhood development and care in Canada may be concerning^{1,2}. As estimated by several organizations, 15% of Canadian children are living in poverty^{1,2,13}. This indicates that many Canadian children are developing in deprived environments. Complicating this issue further is the fact that only 17% of Canadian families have access to regulated child care^{1,12}.

The key factors influencing early childhood care and development are the economic, social, and public resources available to parents and the communities in which children grow^{1,2}. While external organizations can certainly help in improving the situation, some research suggests that developing comprehensive childhood education programs is the best way to improve Canada’s health outcomes^{1,15}. This would require the government to provide additional support to children and their families through public policy with the aim of improving education, resources, and overall care for children in Canada.

3) Access to Healthcare Services

Access to high quality healthcare is both a SDH as well as a human right. The Canada Health Act mandates that all regions of Canada must provide medically necessary health care services equally to all residents irrespective of their financial status, age, and health condition¹⁶. However, the actual state of affairs shows evidence to the contrary. Canadians with a lower income are more likely to wait a longer

period of time to see a doctor, less likely to see a specialist for necessary medical care, and less likely to receive necessary care on weekends, holidays, and evenings^{1,2,17}. Moreover, there are disparities in access to medically necessary investigations and treatments: Canadians with a lower income are less likely to receive a needed test or treatment because of cost^{1,2}. The current healthcare system covers only select drug costs, and some regions of Canada lack coverage of nursing and home care. The lack of access to high quality healthcare services tends to compound the existing inequalities in access to the SDHs. This disparity is perhaps most striking for certain minority groups and Aboriginals, who have reduced access to healthcare services compared to most other Canadians.

“...health care systems that do not consciously address the SDH worsen health inequalities...”

Given the above discussion, it is clear that health care systems that do not consciously address the SDH worsen health inequalities⁴. Health professionals and trainees are well suited to address these challenges, as they most closely see the impact of poor SDH. These individuals should engage in public policy discussions, either through professional associations or as citizens, to continue developing strategies to strengthen the SDH for effective translation into better health outcomes. Recommendations for action are given in the table below.

SDH	Recommendations
Income Distribution	- Reducing inequalities in income through progressive taxation has been shown to improve health equity ¹ - Increasing unionization in the workplace helps to narrow the gap for income inequalities ¹
Childcare and Child Development	- Creating and amending public policies to provide support to families in order to reduce child poverty and improve early childhood development ¹ - Governments providing equal access to high quality, comprehensive child education irrespective of income level ¹
Healthcare Access	- The involvement of health care professionals as advocates to identify barriers to services, and actively work to improve health inequities ¹ - Health care professionals limiting the use of costly, ineffective pharmaceuticals, procedures, and tests that are overly marketed, explicitly or implicitly, by private corporations ^{1,2} - Governments providing more support to low income families with necessary pharmaceutical care, while increasing coverage for nursing and home care ¹

Table 1: A model for the determinants of health showing how factors that influence health are embedded within broader aspects of society^{1,13}.

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Young Survivors: Ebola's Immediate and Long-lasting Impact on Children

GERHARD DASHI, CLASS OF 2017

Ebola, also known as Ebola virus disease (EVD) or Ebola hemorrhagic fever (EHF), was once a rare and dreaded disease. Recently, it has become a global health disaster, devastating parts of West Africa and inciting fears that it may spread to the rest of the world. Sadly, in addition to the immediate health impact, the effects of this disease on children – an often forgotten but especially vulnerable population – may last for decades¹.

“...this epidemic is reversing years of health gains in countries like Liberia, where rates of child mortality were at historical lows...”

The prevailing thought is that the Ebola virus is transmitted to people from an animal reservoir, like fruit bats or primates, and then spreads between humans by direct contact.² As of October 2014, nearly 5000 have died from this disease, which has a case fatality rate of over 50%². The number of children who have succumbed to the disease, have been infected, or have lost caretakers can only be guessed. In fact, this epidemic is reversing years of health gains in countries like Liberia, where rates of child mortality were at historical lows and steadily declining³.

“...those associated with the disease, including children, are vehemently excluded from social circles and communities...”

In addition to the direct health risk posed by the Ebola virus, children are facing numerous other hazards that are underreported in the media due to the focus on disease prevention and treatment. Evidently, many children have been left without parents. As a result, while dealing with their own grief they must often assume the additional responsibility of carrying for their remaining family members, especially younger siblings. This adds an incredible amount of both psychological and economic strain. Furthermore, these children are often left homeless, either because they

cannot afford to pay for their homes or because they refuse to return to homes where they saw loved ones suffer and perish. Such conditions make them susceptible to physical threats, as well as psychologically, medically, and economically vulnerable.

“...pregnant mothers are missing crucial tests and medications, while others are delivering children in unsafe environments without healthcare professionals or basic resources...”

In addition, many children are not allowed to return to their communities. Family members, neighbors, and friends may reject them due to fears that they will bring or spread the disease. A significant number of people affected regions believe Ebola is associated with witchcraft or indicates a curse on the people who contract it⁴. As a result, those associated with the disease, including children, are vehemently excluded from social circles and communities. Needless to say, this adds to the pain, fear, humiliation, and burden of children trying to survive without parents and exponentially increases their vulnerability to various types of harm.

Yet, it is not only children who have been directly impacted by Ebola that suffer its consequences. Since the outbreak, many people have stopped going to clinics, either because they fear sick individuals or because they think health professionals are intentionally spreading the disease⁴. As a result, pregnant mothers are missing crucial tests and medications, while others are delivering children in unsafe environments without healthcare professionals or basic resources. These consequences place a child's health in jeopardy before it is even born. Moreover, many infants and toddlers are missing routine health assessments, immunizations, and treatments for preventable diseases. As a result, the number of childhood deaths due to treatable diseases like diarrhea and malaria has soared, especially in those under the age of two⁵.

“...many infants and toddlers are missing routine health assessments, immunizations, and treatments for preventable diseases...”

Finally, many children are being kept isolated in clinics or at home, away from contact with other children at a time when development of communication, cognitive, and social skills should be a priority. This problem is aggravated by the fact that many schools in the affected countries have been closed for months and will remain so for the foreseeable future⁶. In Sierra Leone alone, school closures are affecting two million school-aged children. In a country where only 40% of males and 33% of females attend secondary school, this is significantly reducing the amount of education that children will ever receive and creating unfavorable conditions for their future. Given the fear of bringing children together in closed settings, many children will likely not receive any formal education until their schools re-open in early 2015, at the earliest. In an attempt to reach these children, the government has started to broadcast daily lessons over radio and TV stations. However, the impact of this policy will be hard to predict, even in the short term. While 65-95% of homes in Sierra Leone have access to a radio, only about 25% of households actually own one⁶.

Children in West African countries affected by Ebola are currently facing a crisis that will impact their short and long-term health, development, and social circumstances. In terms of the disease itself, new research from the Center for Disease Control and Prevention (CDC) indicates that “different pathophysiologic mechanisms of disease may be at work in pediatric patients, and children may benefit from different treatment than their adult counterparts”⁷. However, the Ebola problem will require social and economic solutions just as much as scientific answers. In the meantime, preventing the spread of disease, while protecting and supporting children affected by it, are key to limiting the consequences of Ebola from having an extremely long-lasting impact.

“...Given the fear of bringing children together in closed settings, many children will likely not receive any formal education until their schools re-open in early 2015, at the earliest...”

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Mental Health in Crisis: The Long-Overdue Global Health Response

GENEVIÈVE ROCHON-TERRY, CLASS OF 2017

Psychiatry is not usually what comes to mind when imagining slums sealed against Ebola, or overflowing refugee camps existing somewhere far away. Often, mental health support is forgotten amidst the effort to provide basic necessities and medical care. But the evidence shows that mental illness and emotional trauma is a key barrier to quality of life even when medical care is available. Mental health is closely tied to physical health and, when impaired, can hinder success in school, work, and in society^{1,2}. Improving mental health care in global settings, including within vulnerable groups in Canada, is key to enabling those communities to build brighter futures for themselves.

“It’s not just a so-called ‘first world problem’...”

This issue has recently gained steam: early this year, the World Health Organization (WHO) released a 92-page report titled, “Preventing Suicide”³. Suicide, it states, happens “in all regions of the world and throughout the lifespan”. It’s not just a so-called ‘first world problem’; in fact, the scarcity of accessible resources and services in low- and middle-income countries means that rates of suicides in developing countries are some of the highest. Approximately 804,000 suicide deaths occurred worldwide in 2012, making this the second-highest cause for death (after traffic accidents) in people 15-29 years of age. Previously, the WHO had been criticized for leaving suicide off the list of non-communicable diseases that require the world’s attention (the list includes cardiovascular disease, respiratory diseases, diabetes and cancer), but critics are now acknowledging the shift in its focus. The organization’s recently adopted Mental Health Action Plan aims to reduce suicide rates by 10% by 2020⁴. The success of the Plan’s recommendations, however, will depend on the resources in countries worldwide – many nations may not be able to afford such interventions.

The WHO’s report outlines several additional risk factors which make suicide more likely, from difficulties in accessing appropriate care, media reporting that sensationalizes suicide, and stigma around help-seeking. When health systems are especially complex or limited in resources, people

“...current worldwide unrest has devastating effects on mental health...”

with low health and mental health literacy often have an especially hard time navigating what is available. Finally, the risk for suicide and other mental illnesses is increased by experiences of war and disaster, cultural displacement or loss, discrimination, feelings of isolation, abuse, violence, and conflict in relationships.

It’s unsurprising, then, that current worldwide unrest has devastating effects on mental health. In turn, poor mental health can propagate that unrest by limiting the ability of a population to empower themselves and change outcomes for their generation. In their 2013 year-end report, the United Nations (UN) High Commissioner for Refugees (UNHCR) reported that 51.2 million individuals were currently forcibly displaced worldwide due to human rights violations, persecution, conflict, and violence⁵. This astonishing figure represents a record high in worldwide refugee numbers. Though some studies show that disasters bring people together, reducing rates of suicide, other reports provide a different picture⁶.

“...41% of Syrian refugees living in Lebanon between the ages of 15-25 have contemplated suicide....”

Consider, for example, the mental health crisis impacting a generation of young Syrians. Syria is currently the second largest source of these refugees, with many – including over a million children – ending up in neighbouring Lebanon. This year, joint research between the UN and Save the Children International found that 41% of Syrian refugees living in Lebanon between the ages of 15-25 have contemplated suicide – for women in that age group, the number is over 50%². Causal factors include trauma, interrupted education, as well as isolation from and lack of access to health, psychological and social services. While many aid organizations working with these Syrian refugees offer psychosocial support programs for youth, they often lack the resources to

provide one-on-one therapy and treatment, leaving expensive referred services as the only – and generally unaffordable – option for children with severe mental illness⁷.

In light of this emerging evidence, global health advocates like Annie Sovcik, director of the Washington office of the Center for Victims of Torture (CVT), are calling for access to mental health support to form a key part of the global health agenda⁸. The CVT provides mental health rehabilitation for Syrian and Iraqi survivors of torture and war atrocities, but the numbers of people in need of these services hugely exceed the capacity⁹. The WHO’s report on Preventing Suicide is an excellent step in this direction, but to be truly effective, the report’s recommendations must be adopted and matched with both sustainable funding and thoughtfully designed interventions.

“Suicide rates in Aboriginal communities, while not universally elevated, are around eleven times the national average...”

The WHO’s report also highlights the stress of acculturation and dislocation as a major suicide risk for a number of vulnerable groups, including indigenous peoples, asylum-seekers, internal and cross-border refugees, people in detention centres, and newly arrived migrants. Canada is certainly no

“...it will take sustained effort at the community level to ensure beneficial programs and adequate funding come out of the strategy...”

exception: suicide rates in Aboriginal communities, while not universally elevated, are around eleven times the national average. The 2012 release of our first Mental Health Strategy, “Changing Directions, Changing Lives”, created by the national Mental Health Commission, marks an increased focus on mental health in indigenous groups. The Strategy’s fifth principle highlights the need to “Work with First Nations, Inuit, and Métis to address their mental health needs, acknowledging their distinct circumstances, rights and cultures”. In tackling this reality, Canada’s Mental Health Commission has reported on the need to acknowledge historical and ongoing Aboriginal realities, the importance of working with Aboriginal communities to address mental health issues with a holistic approach, and the need to appreciate the role of culture in supporting good outcomes. At this point, 6,600 copies of the strategy have been distributed (according to the Mental Health Commission’s twitter, and you can download a PDF in English, French, and several Aboriginal languages on the Mental Health Commission’s website)¹⁰. As with international mental health initiatives, it will take sustained effort at the community level to ensure beneficial programs and adequate funding come out of the strategy.

Map 1: Age-standardized suicide rates (per 100 000 population), both sexes, 2012

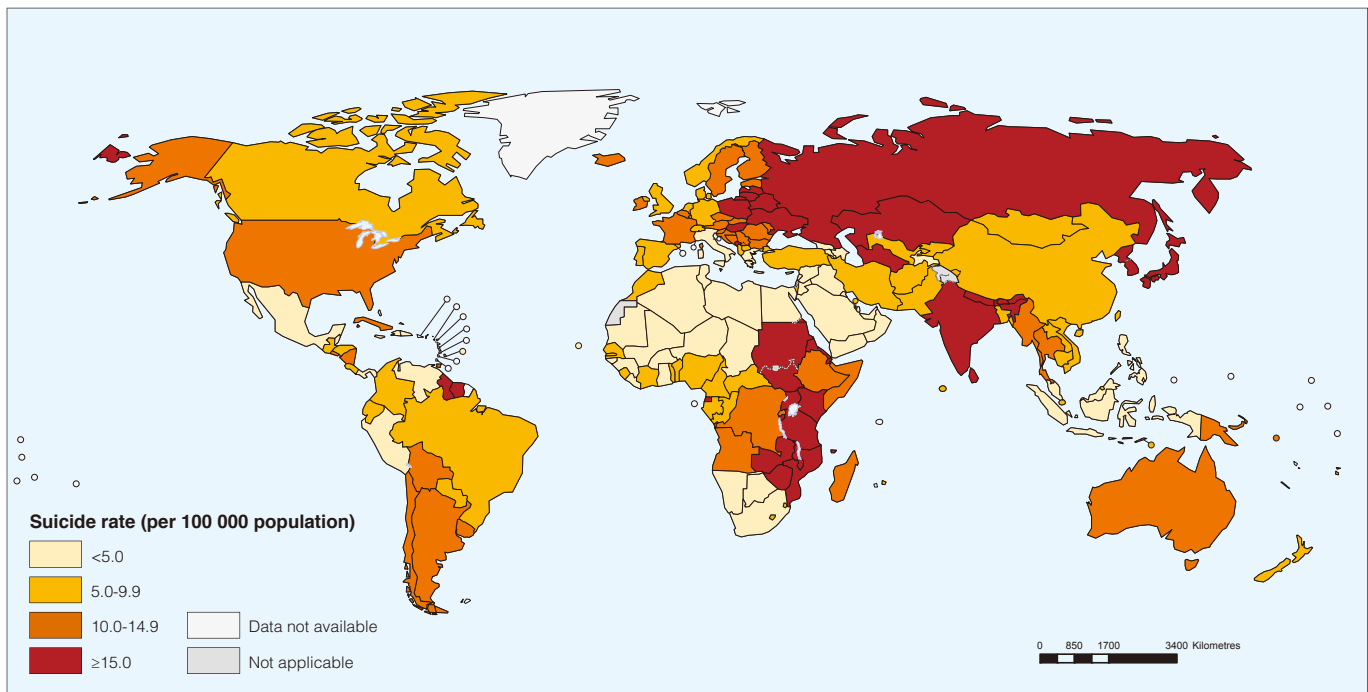


Image 1: Map, WHO report on Suicide Prevention, page 16

“Encouragingly, support does exist for finding solutions in the field of global mental health...”

Encouragingly, support does exist for finding solutions in the field of global mental health. In October 2014, Grand Challenges Canada¹¹ announced that \$2.9 million CAD in funding would be provided for eleven novel projects focusing on mental health issues in specific vulnerable groups. The initiatives are specific and build on existing resources and cultural norms. One project is based in Haiti, where spiritual leaders are often the informal mental health care providers. The plan is to teach these individuals to deliver Cognitive Behaviour Therapy interventions, in order to treat the high rates of post-earthquake depression and post-traumatic stress disorder¹². Another team is using the money to open sustainably planned alternative living spaces for mentally ill women in India who would otherwise face homelessness¹³. In addition to the potential for these ideas to positively impact their target community, all can also be scaled up to benefit other regions. Notably, innovators in low- and middle-income countries designed ten of the eleven projects. With models like this setting an example, there is hope for the state of global mental health.

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Mental Health Access in Women as a Population Health Priority:

“No Health without Mental Health”

MAHVASH SHERE, CLASS OF 2018

Mental health is fundamental to physical health, and gender is a significant determinant of health. Despite contributing to about 14% of the global health burden of disease¹, mental illness remains inadequately addressed in most parts of the world. The World Health Organization (WHO) estimates that about 1 in 3 women around the world suffer from mental illnesses², a risk ratio much higher than the 1 in 4 risk generally stated for the general population.

“Despite contributing to about 14% of the global health burden of disease¹, mental illness remains inadequately addressed in most parts of the world...”

Mental health problems are among the most important contributors to the global burden of disease and disability, accounting for 12.3% disability-adjusted life years (DALYs) lost globally³. Overall, research suggests that several gender-related factors affect women’s experience of mental illness, including the societal construct of gender roles, biological differences, differences in the nature of mental health problems incurred as well as society’s response to healthcare³⁻⁵.

This article briefly outlines the major factors associated with gender-related differences unique to the female experience of mental illness, limitations of current research on these issues, as well as future directions in public health policy and clinical practice in order to make mental health access in women a population health priority.

Prevalence and Presentations

While there are no overt sex differences in the total prevalence of mental and behavioural illnesses, significant differences exist in the onset and course of specific disorders, in the symptoms and presentations experienced by women in

“Adolescent girls have a higher prevalence of eating disorders, depression, suicidal ideation and suicide attempts compared to boys...”

comparison to men. Adolescent girls have a higher prevalence of eating disorders, depression, suicidal ideation and suicide attempts compared to boys³⁻⁵. As adults, women continue to have a higher prevalence of depression and anxiety-related disorders, while men tend to present with issues related to substance abuse³.

Women face greater disability due to mental illness than men because of the higher prevalence of depressive and anxiety disorders. Although men and women have approximately the same prevalence of chronic and more serious disorders like schizophrenia and bipolar disorder^{3,4}, the longer-term impact of depression and anxiety tends to be more severe in women⁶ – in terms of physical function, social function, role function and days spent in bed – leading to greater overall disability.

Biological Factors

Hormonal changes – during the menstrual cycle, menopause, or in postpartum period – can affect women’s susceptibility to mood and behaviour disorders in many ways^{3,5,6}. In these cases, the interaction of psychosocial factors with biological ones puts women at an elevated risk for mental illness.

Societal Factors

Gender-based differences intrinsic to the societal construct of gender also play a significant role in amplifying the stressors associated with mental illness in women. Studies suggest that gender roles influence the presentation of mental illness in women: adolescent girls have greater self-esteem issues related to body image and societal expectations, compared

to boys of the same age^{3,4}. Similarly, gender roles also influence depressive and anxiety disorders in women⁶, who may feel like their fates are largely dictated by socially determined gender roles, expectations, and responsibilities. In the developing world, studies often quote the domestic expectations within a marital context as a major stressor⁵, but even women in the Western world have similar issues around societal gender normals.

The prevalence of gender-based violence and abuse is also a major contributor to the greater burden of mental illness in women. Current estimates indicate that 1 in 3 Canadian women have experienced violence at some point in their lives, and 1 in 10 continue to experience violence⁷. Studies indicate a strong association between gender-based violence and overall mental distress^{6,7}.

“1 in 3 Canadian women have experienced violence at some point in their lives, and 1 in 10 continue to experience violence...”

Patterns of Healthcare Access

Women are generally a more health-seeking population compared to men. Studies have shown that women more consistently seek outpatient healthcare services and seek care earlier, in comparison to men, who may seek health care much later after the onset of symptoms^{3,6}.

Barriers to Healthcare Access

“...gender bias has historically played a significant role in acting as a barrier in the access of care for women...”

Despite a greater health-seeking behaviour, gender bias has historically played a significant role in acting as a barrier in the access of care for women^{3,5}. Some recent studies demonstrated that even if a man and woman express the same symptoms, doctors are more likely to diagnose a woman with depression⁵. Similarly, women are also more likely to be prescribed psychotropic drugs, without a holistic consideration of the underlying problems contributing to a woman's experience of mental illness⁶. Overall, this affects the ability of women to gain proper referrals and specialist care because the majority present to primary care physicians when they have a mental health issues.

“...if a man and woman express the same symptoms, doctors are more likely to diagnose a woman with depression...”

Future Directions in Terms of Policy and Practice

While the greater susceptibility of women to mental health issues is a multifaceted issue with biological, social and historical contributing factors, further research into the overall contribution of these factors in the disability caused in women due to their mental illness is warranted. The interplay of biological and social factors in increasing the risk associated with mental illness in women is a complex one; further research and policy-based changes are required to enable a better model of health care provision when a woman presents with signs of mental distress.

A Canadian Mental Health Association policy paper⁸ highlights the issue of the majority of medical education and training being centered around the male experience, with gender-based differences not perceived or taught to be important to a patient's health care. Like many other conditions, even the research studies supplying evidence for health care are largely based on men. In Canada, mental health research by women receives only 6.05% of all mental health research funds, and only 0.42% of all health research funds⁸. Adopting a gender-sensitive approach to mental health care, and training future physicians to have such a mindset, is hence an important step in a positive direction.

While there are recognized social determinants of mental health and risk factors associated with mental distress in women, research is limited in establishing how they affect mental illness in women, how a risk factor may affect the specific presentation of mental illness in women, and finally, how the interplay of these factors associated with mental illness should impact a physician's approach to treatment of a given illness.

The Canadian government announced the creation of the Mental Health Commission of Canada (MHCC) in March 2007 to manage mental health-focused health care strategies. Considering its relatively recent creation, and the focus of its initial messages on reducing the stigma surrounding mental illness and increasing awareness of mental health issues in general, further work is necessary in tackling mental health issues specific to underserved and vulnerable populations. Some of these currently targeted by the MHCC include seniors, children and youth, and First Nations populations⁹. However, movement is needed towards recognizing wom-

“...medical students should be trained to adopt a more holistic approach in the recognition and treatment of mental illness as it relates to women...”

en as a special population requiring targeted recognition of mental health issues in primary care. Given the plethora of risk factors that women face: including a higher risk for violence, abuse, stressors due to work or domestic life, gender roles and societal expectations, primary care physicians and medical students should be trained to adopt a more holistic approach in the recognition and treatment of mental illness as it relates to women – an approach that takes into account the underlying determinants of mental wellness.

A public health approach to mental health would involve awareness campaigns to reduce risk factors (stressors, substance abuse and addiction, violence) and encourage positive behaviours (exercise, peer support) associated with mental health. It would also include early recognition of the early signs of mental illness or distress, as well as a holistic approach to follow-up, so that a patient is directed to the appropriate resources for multi-faceted support and treatment. In clinical practice, this kind of early recognition and well-rounded approach to understanding a patient’s experience of mental illness requires targeted mental health-based training. Programs like e-mental health (meant to reduce the gap between a patient and their healthcare team in seeking treatment for mental illness) and Mental Health First Aid (intended to train individuals to recognize early signs of mental distress, and manage them appropriately before forwarding them for specialized care) by MHCC¹⁰ represent platforms and approaches that will have a profound impact if applied in a targeted manner to specialized populations. While these platforms and approaches are transferable and generalizable to the overall patient population, they will have immense impact if adopted in a structured manner to reducing the pre-existing elevated risk present in vulnerable populations such as women. Thus, a population and public health-based approach to mental health for women calls for a gender-sensitive approach that hinges on early recognition of risk factors and holistically managing distress, before helping a patient obtain specialized care.

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Global Surgery as a Human Right: State of Global Surgery and Its Prioritization on the Global Health Agenda

ROSA KW LEE, CLASS OF 2018

“Surgery may be thought of as the neglected stepchild of global public health.”

- Paul E. Farmer and Jim Y. Kim

Introduction

“The era of only the best for the few and nothing for the many is drawing to a close. Yet, the vast majority of the world’s population [still] has no access whatsoever to skilled surgical care and little is being done to find a solution. This is the challenge I want to face with you.” These words were spoken by Dr. H. Mahler, a then Director-General of the World Health Organization (WHO), at the XXII Biennial World Congress of the International College of Surgeons in 1980. Over 30 years has passed by since then, yet at least 2 billion people worldwide still lack access to surgical care.

Moreover, the poorest third of the world’s population receives only 3.5 % of worldwide surgical operations, with Africa having only 1% of the number of surgeons in the United States (MacGowan, 1987; and Ozgediz et al., 2008). Global surgery, defined as the global and equitable access to surgical care, has traditionally been the “neglected stepchild of global public health,” and although there is now a growing global health interest in surgical care, the disproportionate lack of prioritization given to global surgery in the global health agenda persists.

This article discusses the need to prioritize surgery in the global health agenda, describes the past and present state of global surgery, illustrates barriers that must be overcome to promote global access to surgical care, and proposes key recommendations for medical students to become effective global surgery advocates.

“The era of only the best for the few and nothing for the many is drawing to a close. Yet, the vast majority of the world’s population [still] has no access whatsoever to skilled surgical care...”

Is Global Surgery important and is it an urgent issue?

The large gap in the quality and access to surgery across the globe is a serious issue of human equity, considering that surgical conditions account for 11-15% of the total global burden of disease, and 25 million disability-adjusted life years (DALYs) in Africa (Jamison et al., 2006). Moreover, the Global Burden of Disease 2010 suggests that the growing burden of both non-communicable diseases and injuries often encompass surgically treatable problems (Lim et al., 2013), and surgical care intersects closely with major global health concerns such as maternal health, child health, non-communicable diseases and HIV (Ozgediz and Riviello, 2008).

Despite evidence suggesting the urgency of global access to essential surgeries, global surgery is still not part of the Millennium Development Goals (MDGs), which largely guides global health efforts.

State of Global Surgery

Dr. Mahler’s 1980 speech on “Surgery and Health for All” at the World Congress of the International College of Surgeons was one of the first attempts to put surgery on the global health agenda. However, global health focused more on communicable diseases during this time for a complex array of reasons, one being that most pathologies requiring surgeries are not communicable and thus less eligible for public funding. Overall, no concerted effort to address the need for equitable surgical care in low and middle-income countries (LMICs) was made until 2005, when the World Health Organization (WHO) launched its Global Initiative for Emergency and Essential Surgical Care (EESC). The EESC now works to: (1) support the development and adoption of evidence-based policies and plans towards strengthening surgical services; (2) set norms and standards for surgical care; (3) strengthen education and training programmes to improve anaesthesia and surgical services; (4) build capacity for safe and high quality surgical care at all levels; and (5)

monitor the progress and impact of our strategies in reducing global surgical burden (WHO, 2014). One initiative being pursued in line with these objectives is the WHO Global Initiative for Emergency and Essential Surgical Care (GIEE-SC), which provides a global forum for multidisciplinary stakeholders to discuss and share best practices, set a list of essential surgeries (i.e. necessary for survival), collaborate on future projects, and create educational and training materials which have included training workshops and videos, self-learning evaluation tools, safety measure manuals, and practice recommendations.

“...at least 2 billion people worldwide still lack access to surgical care...”

Other initiatives that recently arose include the Lancet Commission on Global Surgery, where The Lancet has commissioned interdisciplinary global surgery experts to collaborate and produce an annual report for governments, policy-makers, academic and professional institutions and healthcare providers on the progress on and policy recommendations for global surgery.

Challenges/ Barriers

Why did it take 25 years before Dr. Mahler’s speech recognizing the need for global surgery translated into a concerted global health effort?

One of the greatest challenges with any global health efforts is ensuring the most effective way to allocate limited resources. In the case of global surgery, there is a tradeoff between providing immediate delivery of service and long-term investment for training. The latter is crucial and necessary for a sustainable and systematic change, and thus should not be neglected; yet it is difficult for physicians to turn down patients that need immediate medical attention for education.

Moreover, even within the immediate delivery of surgical care, physicians must be able to distinguish and prioritize essential surgeries over surgeries that deal with quality of life.

In terms of the need for human resources, surgery requires highly trained surgeons, and it also requires concerted efforts of anesthesiologists and nurses, as well as advanced medical supplies (Farmer and Kim, 2008). It thus demands strong medical infrastructure that requires long-term investment. The need for long-term investment before seeing

measurable outcome introduces a political barrier, as campaign managers prefer to focus on issues that shows quick improvements per unit of investment. Overall, this is a large contributor for the lack of funding allocated to global surgery.

Finally, to create a more concerted global and public health effort into this issue, the misinformed perception of surgery being expensive and complex must be demolished (Chao et al., 2014). The next section examines this in greater detail.

Cost-Effectiveness of Global Surgery

Perhaps the greatest barrier to global surgery and lack of funding is the common misconception that surgery is a luxury and is relatively expensive. According to a systematic review and analysis of cost-effectiveness studies assessing surgical interventions in LIDC, however, many essential surgical care are cost-effective in resource-poor LIDC (Chao et al., 2014). For instance, the median cost-effectiveness ratios (CERs) of general surgery, hydrocephalus surgery and ophthalmic surgery were similar to that of the BCG vaccine, and median CERs of caesarean sections and orthopedic surgery are more favourable than HIV treatments with multidrug antiretroviral therapy (Marseille and Morshed, 2014; Chao et al., 2014).

The stigma surrounding cost-effectiveness of global surgery is essential to dismantle to get more public interest, have foundations more willing to financially support global surgery pursuits.

“...surgical conditions account for 11-15% of the total global burden of disease...”

Moving Forward

With the understanding that there is a tradeoff between the need for immediate delivery of service and long-term investment for training to integrate a self-sustainable medical system, there are questions to address moving forward. First, what pedagogical methods can be implemented to increase quality of surgical service in LIDCs? To this end, the WHO has started launching educational training videos and workshops for an easily accessible source of training, and the increased use of technology may catalyze the sharing of best surgical practices in other innovative methods in the future. Moreover, greater promotion of international electives (both from and to LIDCs in greater need for surgical care) and exposure and awareness of international surgery

may invite more surgeons to participate in both short- and long-term surgery missions.

Second, immediate needs should continue to be addressed through short-term medical missions. Although these are admittedly Band-Aid solutions, they are still effective for certain surgical subspecialties (Wright et al., 2007). This should be supplemented with measure to improve long-term improvements through education.

Finally, for an improved prioritization of limited global surgery resources, a limited list of accepted essential surgical procedures with international consensus should be made, as the WHO did for essential medicines. These lists can also be accompanied by lists of essential related equipment and supplies for each procedure, such as anaesthetics, drugs and patient beds.

Conclusion

A great deal of work remains before we can come close to achieving a global equity in access to surgery. The scope of the problem must be further understood through research, infrastructural and systematic challenges must be addressed through evidence-based policies, surgical providers must be trained, medical resources must be increased and safety standards and quality of care must be improved. Despite these challenges, global surgery is perhaps the “most serious manifestation of social inequity in health care” (as described by Dr. Mahler, 1980) and its priority should rise higher in the global health agenda.

Acronyms: LIDC, Low Income Developing Countries; WHO, World Health Organization; CER, Cost-Effectiveness Ratio; MDG, Millennium Development Goal; DALY, Disability-Adjusted Life Year; EESC, Emergency and Essential Surgical Care; GIEESC, WHO Global Initiative for Emergency and Essential Surgical Care

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What can medical students do?

As future physicians, medical students play an integral role in the future of the global state of access to essential surgeries. Below is a list of steps, adapted from Chu 2010, that medical students can take to prepare for a career in humanitarian global surgery:

1. Recognize access to essential surgical care as a human right
2. Engage in international global health research project
3. Attend global health and surgery meetings
4. Learn a foreign language that the region you want to work in speaks
5. Take international clinical elective course
6. Considering pursuing a Masters degree in public/ global health
7. Consider choosing a surgical residency closely applicable to global health
8. Find a mentor with similar surgical and/or global health interests
9. Consider taking an international elective residency

Please Doctor, I Beg You, Don't Tell Him he has Cancer

FEI QU, CLASS OF 2017

While having dinner at a restaurant with my aunt in China this summer, her phone rang. "You need to stay in the hospital, so that the doctors can discuss his condition!" she said. "I know you are in shock and feel scared, but you can't just wander in the halls. If the doctors come and need to talk with someone, you need to be there! You don't want them to have to explain things to him, do you?!" My jaw dropped, a spoonful of soup held mid-air, as I listened to the rest of the phone conversation.

My aunt was talking to the wife of a close friend who had recently fallen ill. He was in his early forties, married, with one young son. He had been diagnosed with a type of lung cancer with a very poor prognosis; the chance of recovery was low even with surgery. The doctors had informed his wife of this tragic outlook; desperate and feeling helpless, she had phoned my aunt for guidance. Their plan was to lie about the diagnosis, telling the patient that they had found a benign lung lesion, easily removed with surgery, and that he would be just fine after.

"Their plan was to lie about the diagnosis, telling the patient that they had found a benign lung lesion, easily removed with surgery, and that he would be just fine after..."

As medical students, we have been repeatedly drilled on the importance of patient confidentiality and respect for persons. To me, this act of excluding the patient is inconceivable. If I were the patient, how would I feel if I later discovered that everyone else knew of my serious illness? That my doctors had been actively excluding me from discussing treatment and prognosis with my family, despite my physical and intellectual capability of understanding my condition? I would feel angry. I would feel disrespected as a human being who has a right to know what is going on with her body. I would feel frustrated that the opportunity to plan out my precious few months to live was taken away from me.

I have heard several other instances of caregivers attempting to hide the true diagnosis and prognosis from patients. Often, the patients often find out eventually. Other times they die without ever having an honest discussion about their condition. It is hard to say whether or not these patients were aware of their diagnosis despite the physician and family's effort.

"As medical students, we have been repeatedly drilled on the importance of patient confidentiality and respect for persons..."

This well-intentioned non-disclosure seems to be a common behaviour in Eastern culture¹. Compared with Western culture's value of individualism and autonomy, many Eastern cultures have a collectivist nature wherein the decision and values of the family are prioritized over those of the individual. In Japan, for example, physicians often discuss a diagnosis with family members before including the patient, and are most likely to comply with the requests of the family regarding whether or not a true diagnosis is disclosed².

I asked several family members and friends why they chose to hide the truth from the patients. The most common response was that they wanted to protect their vulnerable loved ones: they fear that finding out about a terminal condition will make patients hopeless, stressed, unable to accept reality, and could even shorten their life. As a result, family members preferentially burden themselves with the stress of hiding a grim diagnosis while faking a smile and carefree tone of voice to mask the patients' prognosis.

"... The most common response was that they wanted to protect their vulnerable loved ones: they fear that finding out about a terminal condition will make patients hopeless, stressed, unable to accept reality, and could even shorten their life..."

“...patients have a right to not know, and can choose to have the physician talk to someone else they trust who would then make decisions on the patients’ behalf...”

In Canada, physicians have a legal and ethical responsibility to inform patients of their health condition, although patients have a right to not know, and can choose to have the physician talk to someone else they trust who would then make decisions on the patients’ behalf. Beyond the legal obligation, there are certainly benefits to telling the patients truth. Some of these are:

- We have progressed beyond the traditional paternalistic doctor-patient relationship. Although disclosure of the truth could distress the patient, health care workers and family members should respect the patient as an autonomous individual, with a right to be informed about his/her health status and be involved in deciding which treatment options to pursue.

- If the condition is serious but manageable, explaining the diagnosis and discussing treatment options with the patients will give them a better understanding of their illness. This can lead to better compliance with treatment, especially with uncomfortable or tedious interventions.

- If the disease is terminal or has very poor prognosis, being honest with patients gives them a chance to ask questions, and a chance to plan out their remaining time in a way that is meaningful and important to them.

- Patients sense changes of their body, and can easily access information about their health through online resources. If their loved ones are falsifying information, patients may become suspicious or may even imagine their condition to be worse than it actually is.

- If patients eventually learn the truth about their health, they may feel betrayed by their loved ones. Alternatively, they may want to pretend that they still do not know in order to comfort their family. This charade would only create more stress on both parties, and prevent them from having an open discussion about what the patients wish to achieve in their end-of-life care.

“Any physicians practicing in Canada will care for patients from various cultural backgrounds...”

It is important that as future physicians we judge each circumstance separately, and determine the best way to care for patients, respect their autonomy while also treating their family members considerately. Facing a terminal illness is an extremely emotional experience for both the patients and their loved ones. We should always try to discuss with the patient – well before a diagnosis is made – about whether or not they would like full disclosure or have a trusted third party be informed instead. If this is not possible, and for cultural reasons the family begs us not to disclose the true diagnosis to the patient, perhaps the best option is to meet with the family members to address their fears, answer their questions, discuss the benefits of disclosure, and try to reach a decision that is best for everyone.

Any physicians practicing in Canada will care for patients from various cultural backgrounds. Understanding their cultural beliefs and communicating empathetically will facilitate the process of caring for them. Regardless of cultural origin, being diagnosed with a serious illness has a significant impact on the patients and their family, and we must be compassionate and understanding of the needs of all affected individuals.

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Voluntourism: More Harmful Than Beneficial?

CHINTAN DAVE, CLASS OF 2017

It has become almost a rite of passage for Western-nation undergraduate students to go on trips to developing countries to volunteer and see the sights. This phenomenon has become so prevalent that a new word has emerged to describe it: voluntourism, defined by Merriam-Webster dictionary as “the act or practice of doing volunteer work as needed in the community where one is vacationing”. What could motivate so many students towards voluntourism?

Given the definition, it presupposes that the individual undertaking the task of voluntourism is on a vacation, presumably composed of sightseeing, exploring major tourist attractions, and completing common, if not all, tourist checkpoints. This sounds great in and of itself, so why do so many Western students opt for the added volunteering option on their vacation? There are countless possible reasons, ranging from the desire to engage in exotic experiences and help others, to building up personal accolades. A bigger driving factor may be the certain sense of necessity that surrounds voluntourism due to the volume of students pursuing it and the underlying narcissism of global voluntourism. Any average 20-something year old student undoubtedly has at least a couple of friends who have voluntoured internationally, as proven by the countless and heart-warming pictures of said friends “helping others”. Millions of images that show students staying in impoverished communities, interacting with disease-affected people, and helping to build schools are circulating all throughout social media. These voluntourism journeys, typically lasting 3-4 weeks, are changing peoples’ Facebook and Instagram profiles for the better, as they portray the student as a gift to the local community. However, the true depth of the situation is more profound than can be conveyed by any Instagram filter.

The benefits of voluntourism, as explained by many volunteer organizations, is quite simple. International volunteering allows students to experience living conditions that they may not have encountered before, to help build infrastructure (e.g. schools or libraries), and help adults/children living with various diseases – among the many options. Volunteer organizations emphasize the life-changing experience that is waiting to be had by all, through building relation



Figure 1: Some of the children that I spent four weeks living with in an HIV/AIDS orphanage in India. The vibrant hopes and smiles of the children shine brightly through this picture.

ships with, and learning from, people with whom you are placed in the developing country. Given the high prestige associated with international volunteering, it is hard to believe that in terms of requirements - barring age restriction - there are none. A college or university educated individual would be, within reason, expected to have good communication skills, ability to raise money, train volunteers, and coordinate programs, which, on paper, illustrates the picture of a competent international aid worker. However this is an incorrect illustration; just as an avid art-connoisseur may understand the materials, style, and technique required to create a masterpiece, they may yet be unable to produce a respectable piece of art. Similarly, anyone who is not a trained professional cannot be expected to do the task of a teacher, doctor, engineer, or any other professional to a level of standard that is acceptable and will actually benefit the community and its members.

Anecdotes best illustrate the straightforward concept that work without standards can be more harmful than helpful. One such story tells of a class that went to Tanzania to build a library¹. The group of students were all around the age of 20 years and they spent 3 weeks building a solid foundation for a library in a needy community. However, the students were so inept at basic construction work that the locals would break down the students’ day work and put up a more

stable structure after sunset while the students were sleeping, day in and day out. One can easily see how this is an inefficient use of materials, man-power, and money. While one might argue that the connections and relationships built and nurtured in this short time were valuable to the individuals involved, further evaluation of the strength and importance of these relationships may yield a less rosy picture. Take for example, children with HIV/AIDS in an orphanage, who do not have any major support system other than each other and the leaders in the orphanage. If a student were to spend four weeks in this orphanage, they would be deeply entrenched in the orphanage's daily work and would build and nurture relationships with the children. However, at the end of four weeks, this relationship would be abruptly severed. While the student leaves with an influential and stimulating experience, the children are typically left heart-broken at the sight of seeing someone who they trusted and bonded with in the past four weeks simply disappear. Yet, they'll repeat this cycle with the next person who volunteers there. Ultimately, this perpetuates a cycle of broken relationships without long-term sustainability and lasting changes.

I was once an enthusiastic undergraduate student who wanted to experience poverty, poor living conditions, and neglect – things that were not widely apparent my life. For four weeks, I lived in an orphanage for children with HIV/AIDS in the outskirts of a metropolitan city in India. My excitement and nervousness knew no bounds; I was to be pitched into the depths of poverty and poor living conditions, ones that I had never encountered before. Yet, I found courage from the goal I had set for myself: to make a positive impact, regardless of how minimal it was. Within the first two weeks of staying at the orphanage, I quickly realized how limited my “volunteer work” was: I helped clean around the orphanage, helped some of the kids get ready for school, took them to the hospital for checkups, and built relationships with them by playing and enjoying each other's company. At this time, it quickly dawned upon me that I had spent half of my allocated time here accomplishing nothing more than making some new friends – friends whom I would be leaving in two short weeks, and would likely never see again. I decided to take action.

I had noticed that the orphanage was lacking donations, such that some students were not able to attend school, and serving meals three times a day was difficult to maintain. I also witnessed and experienced (by association) how the children were stigmatized at the hospital and consequently the lack of proper service they received. I approached local political and business leaders to address the lack of local donations, explore possible government aid that could

be provided to the orphanage, and investigate how to tackle societal stigma. By working alongside the orphanage leaders, we were able to get donations to fund schooling for all the orphanage children up to grade 12, and enough to make food three times a day worry-free for two years. The orphanage leaders are also applying to a government program that funds free highly active anti-retroviral therapy (HAART) HIV therapy to orphans. The stigma is something that will be a slow progression – nonetheless we can start by changing our own attitudes first.

Inspired by this experience and similar experiences of a few friends, we decided to start a non-profit group where we fundraise money and send it back to orphanages in India and Kenya. I visited the children again on my recent family trip to India and followed up with monthly phone calls. The voluntourism experience may not have been designed to be the most impactful, but my friends and I were able to make the most of it then and thereafter when we came back to our “normal” lives.

Though many people are willing to pay hefty sums of money to experience, mentally and physically, life in a developing country, the motives of these trips are unclear at best. Having participated in the rising trend of international volunteering, I appeal to you: before you embark on this vacation filled with short-term, superficially-impactful volunteer work, ensure that this is not a subconscious attempt to showcase the superiority of your character through deliberate embrace of poverty and its hardships. Before embarking on this life experience, one must objectively assess whether their primary goal is to help others, to add something to their resume, or to simply experience something different. Yet regardless of the motive, the fundamental problem remains: the focus is on the volunteer and not the local communities. This skewed emphasis on the benefits accrued by the volunteer reinforces the cycle of short-term and unsustainable solutions for real problems in developing countries, allowing the brokers of voluntourism to be the primary beneficiaries of these vacation and volunteering packages. Voluntourism experiences can generate positive outcomes, however: they should inspire further involvement with grassroots non-governmental organizations (NGOs) and other international aid organizations to fund and organize long-term solutions for communities. Such a shift would allow students and professionals to play critical roles in achieving a goal that emphasizes tangible community improvement.

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Confronting Leprosy: A Shift in Thinking

ASHWIN PADIYATH, CLASS OF 2017

It began as just another summer vacation in Mumbai. Walking on the street one afternoon, I saw a man sitting on the ground with disfigured hands. I could not tear my eyes away from his struggle to balance a bowl with his few healthy fingers. My cousin quickly ushered me away, informing me that his hands were abnormal because of a terrible illness. The “disease of beggars”, people called it.

“The “disease of beggars”, people called it...”

Fast-forward 20 years to the summer of 2014. I returned to Mumbai on a Global Health elective and was scheduled to spend the first week learning about that very disease: leprosy. My supervisor, Dr. W. S. Bhatki, is a renowned dermatologist and specialist in managing leprosy. He instructed me to visit a leprosy clinic before receiving any formal education on the topic. I walked into the clinic, expecting poor men and women with disfigured hands and large skin patches. The moment was striking. People of all ages were scattered about the clinic: amputees, crying toddlers, and seniors struggling to keep the ulcers under their feet from touching the floor. They sat there patiently, waiting to be seen by the nursing staff. At that moment, I was hit by a sudden surge of sadness. Leprosy devastated so many individuals, yet the clinic seemed grossly undersized. I felt deeply disappointed in myself; disappointed that I never made the effort to learn more about such a debilitating disease. Most of all, I felt helpless; all I could do was observe as the nurses relentlessly cleaned ulcer after ulcer, massaging and straightening hand after hand, with permanent smiles on their faces. Their dedication inspired me.

“Leprosy devastated so many individuals, yet the clinic seemed grossly undersized...”

I returned the next morning for a lecture on leprosy. Dr. Bhatki explained the project that he began in 1981 to contain leprosy in Mumbai, facing a known disease load of 100,000 cases. Thirty years later, there are only around 500 active cases. Such immense success was a result of years of confronting medical, psychological and social misconcep-

“Such immense success was a result of years of confronting medical, psychological and social misconceptions of the disease...”

tions of the disease. Medically, the only requirement is a daily regimen of appropriate antibiotics. However, socially, leprosy continues to be among the most stigmatized diseases in the world. Thirty years ago, any person with visible signs of leprosy, primarily limb disfigurement, would have been ostracized, both from work and often even from his or her family. With no social or financial support available, the inevitable result was poverty. This gave rise to the identification of leprosy as the “disease of beggars”.

Dr. Bhatki realized that education and awareness was the only solution to reversing this social problem. The Acworth Leprosy Museum was established to gather historical evidence to help educate the public on the history of leprosy. Several campaigns were held in slums and schools to increase awareness and encourage sufferers to volunteer for treatment. To help reduce barriers to treatment, Dr. Bhatki opted to open his clinics within the slum regions of Mumbai, making leprosy care easily accessible to the marginalized, impoverished sufferers. I was fortunate enough to visit one of these clinics the following day.

The clinic was located within the heart of a large slum in the Northwest of Mumbai. It was equipped with all the materials required for ulcer care, physiotherapy and electrotherapy. The patients, many of whom lived in the slum, began to file in and await their round of treatment. Over the day, I realized how different the situation was today as compared to the one described thirty years ago: patients appeared at the clinic with family members at their side. This exemplified the progress seen in terms of relieving the social stigma surrounding leprosy among affected families. It was also encouraging to see patients actively seeking medical assistance and experiencing the benefits of treatment. However, it was clear that there is still a long way to go. A couple of the patients had travelled a fair distance to receive care in a region where they would not be recognized by members of their

community. Dr. Bhatki explained that such patients did not want to be seen entering a leprosy clinic for fear of being ostracized. It is patients like these, he says, who remind him that his efforts need to be continued and extended far beyond their current boundaries.

“...patients did not want to be seen entering a leprosy clinic for fear of being ostracized...”

Dr. Bhatki's vision of work in containing the spread of leprosy in Mumbai was immensely inspiring. At the same time, he was clearly not satisfied with stopping there. Upon further questioning, he mentioned he would like such efforts to be mimicked all over the world so that other ostracized populations can receive adequate leprosy care in the comfort and shelter of their neighbourhoods without facing ridicule. Already, such a grassroots approach is being used to tackle leprosy across various communities in India. Clinics are being set up within these regions, while campaigns and educational efforts seek to teach children, family members and affluent community members to destigmatize the disease.

As the week drew to a close, it became clear that I had experienced a truly radical shift in emotion: from disbelief and helpless anxiety, to feeling inspired and driven to support such initiatives. In my quest to identify and learn strategies to confront diseases affecting developing nations, I also confronted and redefined my own misconceptions about leprosy. I take this opportunity to encourage you all to examine medicine being practiced in a novel environment. Most importantly, I implore you to identify and support initiatives that strive to redefine and destigmatize diseases that unjustly subject thousands of individuals worldwide to a life of constant shame and ridicule.

Collective Morality: A Case for Physicians as Advocates for World Health

THOMAS KRAHN, CLASS OF 2017

Why do you want to become a doctor? This is the definitive question one is first asked upon embarking on the journey to pursue a career in medicine. The decision is highly personal or dependent on particular experiences, with prestige, financial and familial considerations, tradition, and a belief in public service all consistently listed as important reasons for people wanting to become physicians. But for most, the desire to help others is the predominant reason they enter medicine and is a primary motivator of achievement in the medical world.

“...success in medicine is a highly personal endeavour...”

Despite the valued societal role medical professionals play, success in medicine is a highly personal endeavour. The commitment to pursue the profession is as much a pledge to individual achievement as it is to the betterment of society. Medical students are selected not only for their talents and accomplishments, but also for their fundamental nature as human beings, as interview selection processes attempt to uncover the intrinsic moral goodness of potential candidates in addition to their intellectual excellence. Upon entry to medical school, the student is presented with countless career opportunities from industry, banks, the community, research and medical institutions, and international development organizations.

To the interested student or newly trained physician, these opportunities also pose a dilemma: what actions are best suited to the purpose of helping people? Since the doctor's job is, generally, to save lives, is not the vague sense of calling to help people satisfied once the individual's goal to enter medicine is realized? How do the influences of individual morality and obligation to society that lead many people to pursue the medical profession extend beyond clinical practice, or even national borders? If people are drawn to the medical profession by a desire to help others, what about those in greatest need of help?

These questions become all the more pressing when we consider the context in which the 21st century physician op-

“...given the powers and responsibilities afforded to the modern physician by society, is there a moral obligation to contribute more in the global sphere than the average citizen?”

erates. Globalization has produced an economic system in which cheap goods and food in Western markets are subsidized by systemic inequality that does not make amends for innate health or human rights transgressions. The reliance of Western markets on the consumption of foreign goods made in substandard working conditions raises ethical concerns about the degree to which Western consumers are responsible for the health of workers in other countries. Is the mental health of workers in China producing iPhones our concern? Are we worried about the dangerous working conditions of Bangladesh textile factories that make disposable fashion possible? Do we recognize the risk of lung cancer for people who live in houses insulated with Canadian asbestos? Should North Americans feel responsible for the nutritional deficiencies of sub-Saharan Africans, when up to one-third of global food production is wasted? Put simply: given the powers and responsibilities afforded to the modern physician by society, is there a moral obligation to contribute more in the global sphere than the average citizen? Does a physician's commitment to health extend to the global citizenry?

“Part of what makes medical science so complex is the human element that defies generalization...”

Certainly there is a moral dimension to every action a doctor performs. Part of what makes medical science so complex is the human element that defies generalization. Each patient brings with them unique experiences and distinct physical, mental, cultural, and spiritual values, contributing to particular concerns that must be addressed with caring and sensitivity. Doctors encounter patients at important milestones in their lives: during times of emotional gravity, birth, death, acute diagnosis, and chronic illness. Doctors must be conscious of ethical considerations in every aspect

of their practice; they must balance obligations to the individual patient with responsibilities to the medical system to ensure appropriate and sustainable use of health-care resources.

“...the medical profession shoulders some of the moral responsibility to individuals and to the health-care system with which each individual physician is entrusted...”

As an institution, the medical profession shoulders some of the moral responsibility to individuals and to the health-care system with which each individual physician is entrusted. Evidence-based practices and institutional guidelines exist to help direct each physician's personal decision-making with regards to what constitutes best practices and how to best direct resource allocation. Patient autonomy and team-based care have collectivized ethical decision-making, reducing the need for the individual physician to bear a moral burden alone. In a secular world, we have enshrined a new doctrine of morality.

But when that moral obligation extends beyond the individual patient is less clear. The 1948 Universal Declaration of Human Rights declared health - encompassing physical, mental, and social well-being - to be an essential human right. The collective European and American professional bodies for Internal Medicine recently published a joint Charter on Medical Professionalism considering the advancement of social justice in the healthcare system an obligation of the profession and defining it as one of three core principles: patient welfare, patient autonomy, and social justice. The Royal College of Physicians and Surgeons of Canada has identified health advocate as one of the key roles in the CanMEDS framework, mandating future physicians to advocate for vulnerable or marginalized populations and to respond to both individual and community health concerns

Indeed, Canada has played a key role in helping to define the fundamental social determinants of health. The Lalonde report, produced by the Canadian minister of health and welfare in 1974, was one of the first modern health policy documents to recognize that a main limitation of the Western medical model in caring for the public is its emphasis on biomedical care, to the disregard of health promotion and preventive health care. The First International Conference on Health Promotion, held by the World Health Organization in Ottawa in 1986, decided upon eight key prerequisites for health: peace, shelter, education, food, income, a stable eco-system, sustainable resources, social justice, and equity.

“...inequity in society created by the unequal distribution of wealth is considered to have greatest impact on human health, over any one individual risk factor...”

In the early 1990s, a Canadian Institute for Advanced Research initiative brought together interdisciplinary experts to determine factors influencing the health of populations. Four different stages were identified at which interventions could be targeted: the fundamental stratification of society, the exposure of disadvantaged populations to health-damaging factors, the vulnerability of disadvantaged populations to those health-damaging factors, and finally, the role of the healthcare system to intervene when declines in 'health' lead to manifestations of 'disease.' A common theme running throughout these reports is that inequity in society created by the unequal distribution of wealth is considered to have greatest impact on human health, over any one individual risk factor.

“Evidence strongly suggests that the conditions of early childhood have a large impact on health in later life, and 15% of Canadian children are said to be living in poverty...”

Yet Canada is not an equal society. According to the Organization for Economic Co-operation and Development (OECD), Canada is among the top countries in terms of income inequality, a trend that has progressed over the past three decades. In Montreal, men who live in the poorest neighbourhoods have been found to have life expectancies of 11 years shorter than those in the richest. Evidence strongly suggests that the conditions of early childhood have a large impact on health in later life, and 15% of Canadian children are said to be living in poverty. Studies in Toronto have highlighted income insecurity, poor housing conditions, and racial identity as predictors of poor health outcomes. Rent increases, poor housing conditions, and an inadequate supply of affordable housing in Canada's major cities have contributed to a looming housing crisis. Education, income, and housing conditions are all significantly worse in Aboriginal populations, leading to poorer health outcomes than in non-Aboriginal Canadians: life expectancies in Aboriginal populations are 5 to 14 years shorter than Canadian averages, while rates of infectious and chronic diseases, suicide, depression, and sexual abuse are significantly higher. Gender inequality persists in Canada, contributing to disease conditions in both men and women: women are more likely to experience long-term disability and chronic

“The rapidity with which pandemic H1N1 influenza, SARS, and now Ebola have spread globally has challenged the world to consider the fragility of our collective global health...”

disease than men; men are more likely to face deaths due to accidents or experience social exclusion. Women participate less in the workforce, and earn on average 80% of men's wages for similar work. Social and working conditions also exclude individuals with disabilities from participating in society: Canada has one of the lowest budgets spent on disability-related issues among OECD nations, and persons with disabilities are less likely to be fully employed or earn as much as their able-bodied counterparts.

So it is clear that inequity leads to poorer health outcomes. Whether Canadians bear some moral responsibility for the continuation of global trends that negatively impact global health, Canadians are affected by poor health in other countries. Despite its use being banned in Canada, asbestos is still being mined in Quebec and sold to developing nations in the rest of the world, where it contributes to disease by significantly increasing risks of lung and related cancers. Canada continues to obstruct global initiatives to curb greenhouse emissions, which degrade both the environment and population health. The degree to which Canada has embraced both globalization and multiculturalism has reduced barriers to moving trade and people across borders, meaning that people affected by activities detrimental to global health often have some relation to people in Canada, either through business, familial, or travel relations. And with that increased movement of people comes a greater possibility for the spread of infectious diseases. Infectious diseases remain real threats to human population health: tuberculosis and malaria, despite available treatments and preventative measures, are major causes of worldwide mortality, and are important concerns for Canadians who travel abroad (tuberculosis still remains endemic in Northern Canada). The rapidity with which pandemic H1N1 influenza, SARS, and now Ebola have spread globally has challenged the world to consider the fragility of our collective global health.

Therefore, it is difficult to say that the aims of public health and individualized biomedical medicine are philosophically opposed. Chronic diseases such as diabetes, arthritis, and chronic back pain are as much biological diseases as they are diseases with important cultural and psychosocial risk factors. Addressing these collective contributors to disease through public health can improve individual health, either through the prevention of disease, the reduction in harm

caused by the presentation of disease, or the increased ability of society as a whole to respond to the needs of someone with disease in full presentation due to a more efficient allocation of resources. A better understanding is needed, especially in physicians, of how the complex interplay of factors that influence global health ultimately affect individual health. It is impossible to consider biological presentations of disease on an individual level without understanding the social, political, and economic factors that integrally impact human health. The fiduciary duty of physicians necessitates advocacy for patients within existing institutions. If, however, the power structures of existing institutions are contributing to the factors that create disease, specifically inequality, then physicians have a professional and moral obligation to combat these power structures.

“It is impossible to consider biological presentations of disease on an individual level without understanding the social, political, and economic factors that integrally impact human health...”

So although individual morality, defined as caring for the individual patient who presents in clinic with disease, may be necessary in producing adept and compassionate physicians, it is not sufficient to fulfill the ideal role of the physician as envisioned by the WHO and Royal College of Physicians and Surgeons of Canada: one who embodies these collective professional values on a global scale. Professionally and ethically, there exists a collective moral imperative: physicians have an obligation to more of the world than their patients. Put another way: physicians are challenged to consider the scope of their patients to include all citizens of the world.

What can empowered physicians do to positively influence global health? Certainly action must start with a greater awareness of social health and human rights issues, and a belief in the professional role of the physician in society. Engagement with these issues can begin with each individual patient, through institutional and individual advocacy, and by attempting to understand the societal barriers and cultural currents that influence disease presentation and management. By reading the news, scientific and policy literature, and participating in dialogues on world health through conferences and international travel experiences, physicians can inform themselves with a rational and objective view of the health challenges that the world faces. Because physicians are afforded credibility, professional privileges, monetary resources, and connections to existing power struc-

tures, an informed view can powerfully influence education and policy changes. Education can begin on a personal level with individual patients or in the community, helping to increase collective awareness of these pressing health issues, and creating points of outreach for collective action. Finally, political involvement within or without existing power structures can drive changes in social and health policies to address identified shortcomings in the social determinants of health.

There are real and tangible concerns in global health that confront us every day. As empowered and aware members of a professional global society, physicians can work against endemic health inequity by making informed decisions in all aspects of their practice. The personal is political, so the saying goes. For physicians, when it comes to decisions that influence collective global health, it seems this personal realm is subject to professional and moral obligations. The physician is then called to consider each individual patient interaction through the lens of the universal human experience, and to draw from each encounter lessons that allow for greater awareness and action on global health issues. The politics of health inequalities and the obligations of physicians make public health a personal cause.

Since time immemorial, philosophers have asked the question: “What does it mean to live a good life?” Immersed in the corporeal world, doctors can be blithe to this quintessential dilemma, relying on the notion that a physician’s role in society is inherently good. But, in a world where so much of suffering is institutionalized and a product of the status quo, we should be asking ourselves not only what we can do for our patients on an individual level, but how we can extend that care and concern to the inequalities that plague all other aspects of life.

A prescription for global health. What physicians can do to alleviate injustice and promote health on a collective scale:

- A belief in the professional role of the physician in society
- Individual patient advocacy
- Community activism and charity to empower disadvantaged groups
- Involvement in health education
- Awareness of social health and human rights issues
- An understanding of public and health policy
- Engagement with the political process

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Artificial Spleen for Bloodstream Infections: Worldwide Implications

LAURA BOSCO, CLASS OF 2017

Sepsis is a potentially life-threatening complication of infection, in which microbial pathogens in the bloodstream lead to systemic inflammation. This inflammatory response can trigger a cascade of changes that initiate damage and failure in multiple organ systems. Sepsis is typically classified as a three-stage syndrome: mild sepsis, severe sepsis, and septic shock. The majority of patients can recover from mild sepsis, but if sepsis progresses to septic shock, the blood pressure drops markedly and is associated with a 50% mortality rate¹.

“Sepsis treatment usually involves broad-spectrum antibiotic therapy for three main reasons: blood cultures are often negative; the process of identifying the source of the infection can take days; and the source of the infection that triggered sepsis cannot be determined in 50% of cases...”

Sepsis affects 18 million people worldwide each year² and accounts for 60-80% of child deaths in developing countries³. It is becoming an increasingly common diagnosis in HIV patients – currently, sepsis in HIV-infected patients accounts for 23% of intensive care unit (ICU) admissions, an increase of 20% since the anti-retroviral therapy era began. Moreover, sepsis is associated with the highest mortality rates in ICU-admitted HIV patients⁴. In addition, those infected with Ebola often develop sepsis. According to the National Institutes of Health, those who die from Ebola can usually attribute their death to the low blood pressure and poor organ perfusion associated with septic shock⁵.

Sepsis treatment usually involves broad-spectrum antibiotic therapy for three main reasons: blood cultures are often negative; the process of identifying the source of the infection can take days; and the source of the infection that triggered sepsis cannot be determined in 50% of cases⁶. However, broad-spectrum agents are not as effective as microbe-targeted therapy, and as a result, mortality rates can increase as much as 9% for every hour without the correct antibiotic treatment². Other treatment methods, such as anti-throm-

bus therapy or filtering the blood of inflammatory markers, fail to address the underlying problem driving sepsis: the presence of live and dead pathogens releasing toxins into the bloodstream².

In search of a novel generalized method to clear infections, a team led by Dr. Donald Ingber, a bioengineer at the Wyss Institute for Biologically Inspired Engineering in Boston, Massachusetts, initiated a project based on two observations. First, that the amount of pathogens in the bloodstream is a prominent contributor to the severity of disease and mortality of sepsis patients. Second, that many patients respond to targeted antibiotic therapies that lower the pathogen load in the blood⁶. Inspired by the spleen’s filter-like ability, they created a device that can clear the blood of pathogens and toxins from unidentified infectious agents. Known as the biospleen, this device uses a modified version of man-nose-binding lectin (MBL), a human protein that binds sugar molecules and toxins on the surface of more than 90 different microbes². The team coated magnetic nanobeads with MBL. As blood from the infected patient is collected into the device it passes by the MBL-coated magnetic nanobeads, which bind to most pathogens without activating complement factors or coagulation pathways². A magnet in the biospleen device pulls the beads, along with the MBL and attached microbes and toxins, out of the blood, which can now be routed back to the patient².

“The device removed more than 90% of bacteria from the rat’s blood, and they found that the rats whose blood was filtered had less inflammation in their organs...”

To test their device, Dr. Ingber and his team infected rats with *Escherichia coli* or *Staphylococcus aureus* and filtered their blood through the biospleen at a rate of 535mL/hour². Five hours post-infection, 89% of rats whose blood had been filtered were still alive, compared to 14% of those that were infected but did not have their blood filtered². The device removed more than 90% of bacteria from the rat’s blood, and they found that the rats whose blood was filtered had less inflammation in their organs². Next, the authors tested

whether the device would be able to handle the volume load associated with the average adult human - approximately 5 litres². They ran *S. aureus* infected rat blood through the device at a rate of 1L/hour, and found that the device was still able to remove 60% of pathogens². Finally, to mimic infection with multiple microbes, as seen in intra-abdominal sepsis, they ran banked human blood spiked with cecal contents from rats at a rate of 10mL/hour². They found that the device removed >98% of anaerobic bacteria and >80% of aerobic bacteria after a single pass through the device^{2,6}.

Dr. Clifford Deutschman, a sepsis researcher in New York, has raised concerns that although the device could help many patients, including those with compromised spleen function, some people with sepsis do not have microbes or toxins present in their blood -- the device may be not be useful for that particular population⁶. In response, Dr. Ingber states that antibiotics often benefit patients with sepsis regardless of whether microbes are present, so reducing the pathogen load in the blood should provide a similar benefit⁶.

“The biospleen presents an opportunity to allow both researchers and clinicians to treat systemic blood infections without needing to identify the pathogen...”

The biospleen presents an opportunity to allow both researchers and clinicians to treat systemic blood infections without needing to identify the pathogen. This is a definite advantage as many patients with sepsis have negative blood cultures, preventing the use of targeted antibiotic therapy. Additionally, the whole blood volume of a patient can be processed quickly and cleansed multiple times without a coagulation response or changes in blood composition. In regards to global implications, Dr. Ingber states that the biospleen may be used to help treat critical viral diseases, such as HIV and Ebola, where survival often depends on lowering the pathogen load in the circulation^{2,6}. Currently, Dr. Ingber and his team are testing the biospleen on porcine models, whose pathophysiology is thought to more closely resemble human sepsis⁶.

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What is Global Health?:

An Interview with Dr. James Orbinski *Chair in Global Health Governance, Centre for International Governance and Innovation*

ADAM MOSA, CLASS OF 2018

James Orbinski is a Canadian physician and one of the world's leading experts in Global Health. Dr. Orbinski was the International President of Médecins Sans Frontières/Doctors Without Borders (MSF) when it won the Nobel Peace Prize in 1999. He is the Center for International Governance Innovation (CIGI) Chair in Global Health at the Balsillie School of International Affairs and a Professor of Medicine at the Dalla Lana School of Public Health at the University of Toronto. QMR spoke with Dr. Orbinski to discuss his experience working in global health and current issues in the field.

QMR: MSF has responded to an increasing number of global crises in the past year. Are the numbers of issues that require humanitarian action straining organizations like MSF in an unprecedented way?

Orbinski: I think it's important to qualify a couple of things because there are different kinds of organizations. Civil society organizations, such as MSF, are typically volunteer associations of people who freely come together to address an issue that they think is important. Others, like the Red Cross, have a mandate in international law, and as such, the allocation of resources towards the fulfillment of that mandate is dependent on the degree of political value associated with that particular mandate. A third kind of organization is one that is institutionally structured as an international governmental organization and that would include all United Nations (UN) agencies and institutions, and others like the World Trade Organization, the Global Fund for AIDS, TB, and Malaria, The World Health Organization and so on. Finally, informal institutions exist by virtue of normative practice and choice of its members. These are typically referred to as concertations; for example, the G8 and G20 are concertations.

These organizations come together with different purposes and mechanisms by which resources are allocated. I give that preamble with a view to saying that the degree to which an

organization is strained, or not, is a reflection of two things: first are the resources that it has, and how it gets those resources, and second are the needs that it either chooses or is mandated to address.

QMR: So the identified mission of various organizations and the nature of arising circumstances are dynamic?

Orbinski: It's important to see the world as a dynamic place. The question is what needs are relevant to a health-oriented organization, particularly a humanitarian organization, and that's a different kind of question.

"...what is the nature of the threat before you? Is it existential? Or, does it still leave you breathing room?..."

What I'm trying to do is complexify the question to suggest that sometimes the way we think about need and the world requires more nuance. In order to develop the kind of complex responses that are required to genuinely address real need, we need to have a more complex understanding of causality and of the context in which those needs emerge. And also, a more complex understanding of the mechanisms and political processes by which potential solutions, interventions, and institutions are created.

QMR: How do you balance your time between responding to a current crisis and trying to understand the mechanisms driving events in order to anticipate new situations that may require assistance?

Orbinski: A simple way of approaching that is to ask: "what is the nature of the threat before you?" Is it existential? Or, does it still leave you breathing room? Existential threats require immediate attention. If you have marginally variable risks in front of you, the question of how you make choices becomes more nuanced. I think it really is about recog-

nizing that there are immediate existential issues that have to be dealt with for an individual, community, nation, and the planet. There are also longer-term issues that have to be dealt with. It's a matter of finding the right relationship to those two categories, and it's dependent on the nature of existential risks you are confronted with –and the sphere of influence and action you operate from. As an individual, your actions are very different from those of the community, and different from what a nation would do, and those are different from what a collective global governance system would do. One hopes for and should plan for synergy between the global and literally the intimate personal level, but these are not the same things. The actions are not the same, the spheres of influence are not the same –they overlap and are interdependent, absolutely, and one should seek synergy, but they are very different things.

“The reality is that in a particular circumstance, in order to relieve suffering and provide humanitarian assistance, one has to be neutral to the causes of war and yet not to the conditions under which one operates...”

QMR: How does one find navigate the dual responsibilities of remaining neutral while engaging in advocacy?

Orbinski: Neutrality and impartiality are principles that should guide behaviour and choice in a humanitarian organization. It doesn't mean you don't have to make choices, and it doesn't mean you don't have to act. Silence, as I've said before, has long been confused with neutrality. The reality is that in a particular circumstance, in order to relieve suffering and provide humanitarian assistance, one has to be neutral to the causes of war and yet not to the conditions under which one operates –the conditions of war. So one has to be silent about the causes of war, because in that circumstance you don't want to be aligned with a belligerent, or with the rightness or wrongness with the particular belligerent's rationale for the waging of war. But the conditions under which warfare is waged have direct bearing on one's ability to act and to provide humanitarian assistance to people who are suffering. One has to be both vigilant, and vociferously so, about the conditions of war. To the extent that there are violations of humanitarian law, which are the parameters that govern the provision of humanitarian assistance, one has to speak out against those. So if there is human rights violations or crimes against humanity, or war crimes, or, in the worst case, genocide, one has an obligation to speak.

QMR: What are your thoughts on Joanne Liu's (MSF International President), recent address to the UN Security Council where she said, “Complacency is a worse enemy than the Ebola virus.”

Orbinski: In a situation like Ebola, it is not a situation of war, but like a natural disaster, there is a limit to what independent humanitarian action or civil society organizations can do. This has direct bearing to the discussion earlier, about these organizations and so on. A civil society organization has no mandate in law or protection in law to act in the way that it does. It also has a limit on its capacity. When the disaster is of such a scale that it's beyond the capacity of an organization to work, one has a humanitarian responsibility to call those other actors into play, and to their responsibility to act to ameliorate the causes and conditions of the particular circumstances you find yourself in.

So it behooves an organization like MSF, in my view, to call out the United Nations system, and specifically within the system, the locus of responsibility, which it did at the Security Council, for the political decision to act to create a viable coordination mechanism so other actors can work effectively to contain, control, and mitigate the Ebola virus.

QMR: Is there a risk to speaking out?

Orbinski: The difficulty is really about – and it does not apply in this situation to MSF – an inflated sense of importance as a civil society organization claiming the right to speak out about everything all the time – to be constantly pointing fingers and accusing, denouncing and so on. That actually is a major risk because it deflates the value of what you say when it is of significant importance, as in the Ebola epidemic we now face in West Africa. Traditionally, MSF has, in my view, got the right balance in its approach to bearing witness and calling others to their responsibility and quite parsimonious in the exercise of its voice.

“MSF is not an organization that is constantly up on the soapbox – it just gets on with its work...”

MSF is not an organization that is constantly up on the soapbox – it just gets on with its work. It doesn't try to change the world, or remake politics. Its main thing is the direct relief of suffering and the provision of humanitarian relief to people in very difficult circumstances. In certain situations, it's necessary to speak, and I think Ebola is one of those circumstances.

To me, one of the issues that emerge here is that this epidemic illustrates, apart from its direct and immediate global health implications, a major crisis in global governance. At some point, questions must be asked about what went wrong, why, and how did the current global system create such vacuous governance black holes. And how can this failing system be fixed?

QMR: I'd like to quickly change topics and ask about your thoughts on the effects that climate change will have on the provision of healthcare globally.

Orbinski: Climate change affects us all. It is altering the very nature of the planet we live on, and good planets are quite hard to find. So climate change, in terms of health, has enormous impacts. For example, the impact of air quality, smog and the increasing intensification of greenhouse gases in and around urban environments have massive impacts on cardiovascular and respiratory health. The reality of the health impacts of climate change are irrefutable and also not coming, but here.

“...you have prior experience and can make informed choices where to go – “I’ll avoid that because it looks a little too dark, and maybe that is a cliff, but that looks like a rock I can step on to move forward...”

The majority of impact is most heavily felt, almost inevitably, by the poor and marginalized of society. But the nature of the problem must be understood in its full nature and not simply from the point of a singular point of impact, no matter how extreme that single point is. If you say, “we have to do something about climate change, so let’s focus on disaster preparedness and early warning in the developing world” – well, okay, but what else is going on? What else are you doing? Are there other elements of your problem-solution that reflect the complexity of the problem analysis?

QMR: Thank you for agreeing to participate in this interview, Dr. Orbinski. As a final question, with regard to your own education, how did you enter the global health field?

Orbinski: I chose and had the opportunity to become a physician and that was my starting point to get a basic level of education before I began to practice. I practiced in very particular ways from direct patient care in Southwestern Ontario to Northern Ontario to eventually working with MSF in war, famine, and epidemic disease. Gradually, with my

experience, my understanding changed, and the world continued to change.

It’s a path made by walking, and it’s a path that responds to an emerging terrain – a dynamic relationship between action and the context in which you’re acting. It’s like walking at daybreak, when the sun is just coming up and you can’t quite clearly see what’s in front of you, but you kind of can, and you have prior experience and can make informed choices where to go – “I’ll avoid that because it looks a little too dark, and maybe that is a cliff, but that looks like a rock I can step on to move forward.”

Dandelions, Orchids, and Resilience: Child Abuse as a Determinant of Health

LUBA BRYUSHKOVA, CLASS OF 2018

QMR interviewed Dr. Esmé Fuller-Thomson, a professor at the University of Toronto's Factor-Inwentash Faculty of Social Work, about her work in understanding the impact of child abuse on lifelong health and wellbeing.

“Almost every ailment that comes to mind—cancer, heart disease, osteoarthritis, migraines, peptic ulcers, thyroid disorders – is more likely in those who were maltreated as children...”

The past century saw many victories for public health: the discovery of antibiotics, invention of vaccines, and the cultural shift in recognizing the devastating effects of smoking on lung health. These advances have made our lives easier, healthier, and longer than those of our 19th century ancestors. One of the final frontiers may be the most challenging to understand and confront: not viruses, bacteria, or environmental toxins, but violence at the hands of fellow humans. According to data from the World Health Organization (WHO), an estimated twenty percent of adults worldwide were physically abused as children. It has long been known that children who grow up in chaotic and abusive environments are more likely to develop mental illness as adults. The far more subtle connection between childhood abuse and an adult's physical health outcomes has only recently been acknowledged.

“They react to every stressor with a very large response, which makes sense in a childhood environment where your father may come home drunk and you're always attentive, ‘What's his move today? Am I okay? Am I safe?’”

Dr. Fuller-Thomson is cautious in inferring a direct cause and effect relationship: “We don't necessarily know causality, but we know that children who are abused, whether physically or sexually, are more likely to have a wide range of negative health outcomes later in life.” Almost every ailment that comes to mind— cancer, heart disease, osteoarthritis,

migraines, peptic ulcers, thyroid disorders – is more likely in those who were maltreated as children. Does bad luck just strike them twice? Or are there underlying processes that contribute to this association?

“It's a question that I often have as a social worker. How come you can have two siblings in the same household who are experiencing the same level of household dysfunction and one seems to do okay and the other one constantly struggles?”

Fuller-Thomson's research suggests that several mechanisms may be at play. Victims of child abuse are more likely to engage in damaging behaviors as a way of dealing with the psychological aftereffects of their traumatic childhoods. They are more likely to abuse alcohol, smoke, and overeat. However, even after adjusting for these lifestyle factors, “there was still a strong association between childhood physical abuse and these outcomes, over and above what was accounted for by health behaviours,” says Fuller-Thomson. “[Another] hypothesis was that maybe it was the socioeconomic status. If your home life is very chaotic, you're more likely to leave an abusive home early, drop out of school early, earn less in adulthood, and that puts you on a trajectory of earlier-onset disabilities or physical health problems. We also adjusted statistically for adult income and education level and that really didn't explain the association we were seeing between abuse and these health outcomes.”

A crucial piece in understanding this connection may come from the biology of stress. The classic “fight-or-flight” mechanism activated by acute stress puts many of the other bodily processes on pause, including growth, immunity, and tissue repair. In abuse environments, acute stress becomes chronic, interfering with normal development. Research led by Dr. Elisabeth Binder at the Max Planck Institute of Psychiatry in Munich, Germany shows that adults who experienced high levels of stress during childhood have epigenetically modified DNA, leading to a very different stress response than

in healthy controls. “They react to every stressor with a very large response, which makes sense in a childhood environment where your father may come home drunk and you’re always attentive, ‘What’s his move today? Am I okay? Am I safe?’ but when you’re in a safe environment in adulthood you don’t want to have that high level of reactivity because that strains your system,” Fuller-Thomson explains.

People vary in their resilience to childhood adversities. “It’s a question that I often have as a social worker. How come you can have two siblings in the same household who are experiencing the same level of household dysfunction and one seems to do okay and the other one constantly struggles? Two researchers, Boyce and Ellis, proposed the theory of genetic sensitivity to context. They called it the dandelion or orchid children,” says Fuller-Thomson. The dandelion children are incredibly resilient and do equally well in adverse circumstances and in a good environment. The orchid children, on the hand, are genetically sensitive to context. Growing up in an abusive environment, they are more likely to become depressed, drop out of school, abuse drugs and alcohol. However, when placed in a nourishing, enriching environment, these children flourish socially and academically, often doing better than the resilient dandelion children. Evidence from research around the world is accumulating to show that this phenomenon indeed exists, and that certain genes grant increased susceptibility – or resilience – to early environments.

We can’t change our genes, or alter our genetic “dandelion” or “orchid” state. But is there anything that can be done to alleviate the suffering of victims and survivors of child abuse? As it turns out, quite a lot. For instance, as little as ten weekly sessions of an intervention called trauma-informed cognitive behavioral therapy can improve mental and physical health outcomes for victims of abuse. This type of therapy teaches different coping techniques that avoid self-blame and reduce stress. The problem is that many of these children never reach out for help – as Dr. Esme Fuller-Thomson tells us, “I think there’s stigma in disclosing. I’m fairly certain that people are aware that it might impact their mental health, there’s less awareness about possible physical health damage that may ensue after long-term adversities like this.” Knowing the severe and insidious impact of child abuse on not only mental but also physical health, perhaps it is time that we as a medical community take the lead in defeating the stigma.

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QMR Cover Art Contest Winners

First Place: Adam Mosa



These photos were taken in the Serengeti National Park, Tanzania, in 2013. Being in the Serengeti felt like returning to a familiar environment. Witnessing the ubiquity of large mammals and abundant vegetation in this awe-inspiring setting was more akin to recollection than a genuinely novel experience.



Runner-Up: Genevieve Rochon-Terry

The “Othering” of people in developing countries, in poor neighbourhoods, or who are suffering from disease is something that is easy to do. It’s simple to say, “this is happening to someone else and it’s not my responsibility” -- until you look into someone’s eyes and take the chance to learn their story. Likewise, in global health and in medicine generally, it’s critical to take the time to know those that you want to help so that you don’t act based on your assumptions. The kid in this piece could be looking back at you from any setting, but his eyes make me want to go beyond his “Otherness” and find out about him.

Runner-Up: Alyssa Lip

The idea behind this piece revolves around the concept of global health. It was inspired in part by the Greek myth of Atlas, who was forced to hold the Earth on his shoulders. In creating this piece, I recognized that the global health is a shared responsibility that belongs to all of us as future health professionals.



und the burden of global health. It
h of the titan Atlas, who was charged
contrast, more and more now, it's rec-
red endeavour and is a responsibility
h professionals.

Runner-Up: *Meghan Bhatia*



*“Won’t you wear the world around your neck,
To tell the world, by heck
Let them know you love it so
And let them know by the world around your neck”*

*- Inspired by Elvis’s song, and the impeccable love our students have
for our global community.*

FUTURE ISSUES:

Issue 8.2 - The Art of Medicine the slated to arrive in March, 2015.

We are looking for submissions of written articles, artwork, photography, and poetry!

