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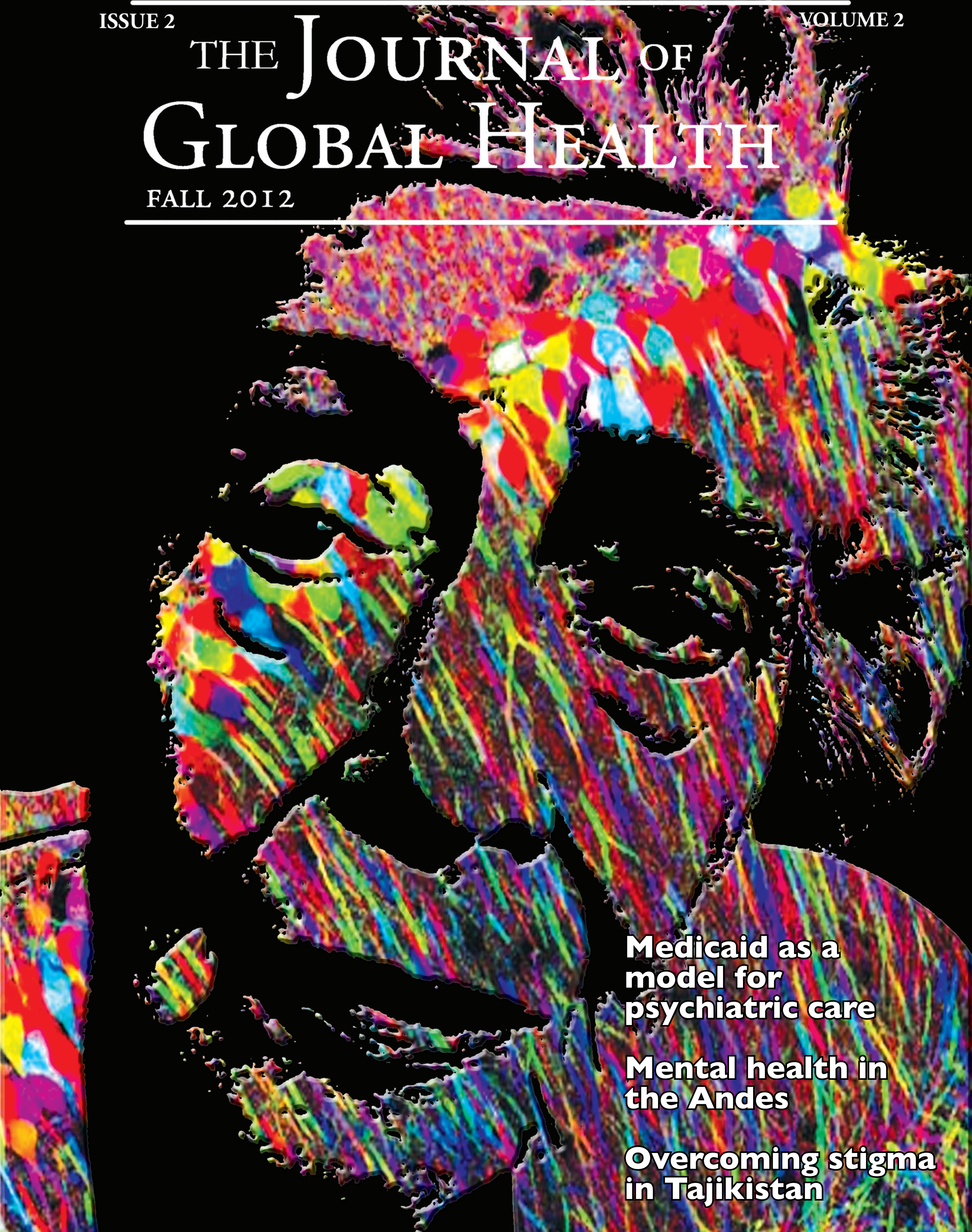


Medicaid as a model for psychiatric care

Mental health in the Andes

Overcoming stigma in Tajikistan

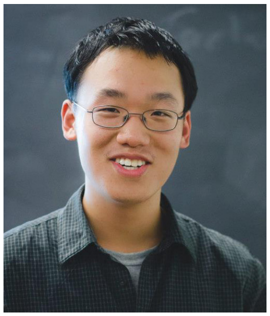
Rethinking Mental Health

> "The origin of every science we find in two different desires of the human mind—to arrange systematically the phenomena seen by the observer…[and] the personal feeling of man towards the world…."
>
> -Franz Boas, "The Study of Geography," *Science*, 1887

It is not uncommon for a new field of study like global health to find itself caught between two distinct habits of mind that shape the development of disciplines. As noted by geophysicist-turned-ethnographer Franz Boas, one is the tendency of the human mind to "put confused impressions into order" and to rationalize perceptual experience with explanatory principles. The other habit is a sentient one, one less interested in reducing nature to the abstractions of the intellect and more interested in finding beauty, wonder and emotional satisfaction in the nuances of perceptual experience.

Boas writes "The Study of Geography" to address the challenge of integrating, in a single scientific discipline, the human mind's rational capacity with its sensitive, visceral and wonder-seeking tendencies. Consider the case of anthropology, a cross-curricular discipline pioneered by Boas that, like many social sciences, has struggled mightily to find a balance between humanism and the rationalist tendencies of the natural sciences. A century after Boas' article, the challenge of striking such a balance remains relevant to burgeoning, interdisciplinary fields like global health. Caught between the phenomenological and the rational tendencies of the human mind, where does the equilibrium currently lie for global health?

This issue of the Journal spotlights the challenges facing contemporary mental health care and how global health's multifarious nature can empower us to better understand and address mental health issues. How do we translate the abstractions of brain science into psychiatric care, especially where diverse sociocultural institutions and customs often complicate the recognition of mental health conditions? Why is it that, despite enormous recent progress in neurobiology research, the treatment of mental illness remains such a stigmatized and under-prioritized facet of clinical medicine globally? We ask you to consider how global health's interdisciplinary nature—straddling the divide between the natural sciences and the humanities—can be utilized to translate contemporary advances in cognitive science into a more effective and informed approach to mental health issues worldwide.



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From Breastfeeding to Bottles

Nestlé Infant Formula Debate and its Aftermath

Cally Guasti
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Introduction

Prior to the early twentieth century, women had only two choices for how to feed their infants: they could breastfeed their infants themselves, or they could seek out a "wet nurse." In the 1920s, a third option was introduced in developed nations—infant formula, a manufactured alternative to breast milk. Depending on its audience, this alternative was seen as a lifesaving option, a modern way to feed a child or a shameful health risk.

The differing reactions to infant formula are an excellent illustration of the conflicting ways in which people view infant health. Societal and cultural beliefs about sickness, or "meaning-centered beliefs," inform the way people react to health and disease. For example, Anne Fadiman's book *The Spirit Catches You and You Fall Down* relates a Hmong cultural belief that when someone has a seizure, it represents the soul leaving the body.[1] Meaning-centered beliefs influence every country and every culture. Moreover, they hold persuasive marketing power, a fact that Nestlé, a transnational corporation based in Vevey, Switzerland, demonstrated when it introduced infant formula to the Western world.

The Health Benefits of Breastfeeding

Nearly 100 years after infant formula was first introduced, research now suggests that the health benefits of breast milk are numerous. Breastfeeding decreases the risk of infants developing allergies, diarrhea, ear infections, cancer, obesity and diabetes.[2] This understanding of breast milk as the healthiest choice for infants is relatively new. There were no such studies available in the 1920s, when infant formula was first introduced to women in developed nations.

Breast milk acts as a catalyst for brain and neurological development and improves hearing.[3] Additionally, breast milk contains whey and casein, proteins with which infants are not born but that are known to prevent intestinal infections, to which infants are especially vulnerable; intestinal infections are the leading cause of death among infants in developing nations.[4,5]

Infant formula is manufactured as a substitute for breast milk, but it differs biochemically from human milk. The proteins that formula contains can produce allergic reactions including rashes, vomiting and diarrhea, even when the formula is distributed correctly and mixed with a clean water source. Furthermore, although manufacturers of infant formula have become adept at matching the ingredients and proportions of many of the proteins and mineral levels in breast milk, infant formula cannot perfectly emulate the health advantages that breast milk provides. One such advantage of breast milk is that it contains antibodies that cross from the mother's immune system into the baby. Dr. Mark Groeshek, a pediatrician at Kaiser Permanente in Centennial, Colorado, stated, "I don't think anybody has figured out how to pull antibodies into formula."[6] "For us to think that in 40 years we can duplicate what has happened in four million years of human development is very arrogant," says Dr. Gerald Gaull, a pediatrics professor at Mt. Sinai School of Medicine in New York.[5] It has been proven again and again that the proportions of each carbohydrate, protein and nutrient in breast milk are more easily digestible than those in infant formula.[4] Even as scientists become more adept at synthesizing infant formula, manufactured milk simply will not measure up to the health benefits of breast milk.

Authoritative sources such as the World Health Organization (WHO) and the American Academy of Pediatrics (AAP) have recommended breastfeeding as the best feeding option for infants. The WHO recommends that mothers should exclusively breastfeed for the first six months of life, at which point they can partner breast milk with formula if they so choose.[7] The AAP suggests mothers breastfeed for a period of two years.[3] It is generally agreed by authoritative sources that healthy women can and should exclusively breastfeed their infants for at least the first four to six months of the infant's life.[5]

The Market Shift From Developed Countries to Developing Countries

In the 1920s, 90% of women breastfed their children. After the introduction of infant formula, this statistic changed; by 1946, only 38% of women were breastfeeding. After World War II, the number of infants increased during the post-war "Baby Boom," as did the number of women using formula in developed countries. This rise in the use of infant formula can be attributed both to the legitimacy gained by infant formula


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as a safe alternative to breast milk and to the increasing number of women in the work force who needed easier methods to feed their children. With the end of the "Baby Boom" at the beginning of the 1960s, however, sales of formula began to decline in industrialized nations because of declining birth rates. As a result, manufacturers of baby formula began to promote their products in less developed countries with untapped markets and increasing population growth.[8] In this strategy, Nestlé was the poster child of the infant formula industry: it is estimated that Nestlé alone marketed and produced up to 50% of infant formula worldwide.[9] Currently, Nestlé shares the industry with three other leading formula brands—Abbott Laboratories, Mead Johnson, and Danone—which produce 20% of the infant formula worldwide but hold 57.6% of the market share.[9]

Marketing Strategies: Tapping into and/or Forming Meaning-Centered Beliefs

Infant formula gained a foothold in developed nations because of marketing schemes that portrayed breastfeeding as modern. Several factors, such as a cultural shift, accompanying language, sexual taboos and science-as-new-religion gave Nestlé and other infant formula manufacturers precisely the right climate in which to grow.

Research suggests that the shift from breastfeeding to bottle-feeding, especially in the 1930s, demonstrated a larger cultural trend in U.S. society.[10] This shift took place during a period when mothers and health practitioners alike saw infant formula as a clean, quick and convenient solution to the "problem" of breastfeeding. Also, aggressive advertising by formula industries at the time undoubtedly contributed to the decline in numbers of women breastfeeding.[10]

There are tightly held Western cultural taboos about breastfeeding in public that stem from the idea that because the female breast is an erogenous area, it cannot serve a dual purpose as a sexual object and as a means to nourish an infant—at least not a means that can be viewed publicly. Van Esterik rightly points out that it is far more controversial to take out a breast in public than a bottle.[11] There may be a shared belief that breasts, because of their sexual nature, are something to be ashamed of, whereas a bottle does not carry this sexual label.

> As good as scientists get at synthesizing infant formula, manufactured milk simply does not measure up to the health benefits of breastfeeding.

Another commonality among the people of many industrialized nations is strong faith in the power of science. A 1938 article in *Parents Magazine* stated, "Doctors, teachers, nutritionists and research workers are daily proving that not mother love alone, but mother love in combination with the best that science has to offer in all fields of childcare is needed." Alongside this article were advertisements from Nestlé and other infant formula companies, illustrating how these companies were using the appeal of scientific research to promote infant formula.[3]

Many of Nestlé's and other infant formula companies' marketing strategies have included meaning-centered approaches to promote infant formula in both developing and developed nations. In medical anthropology, meaning-centered approaches are the ways in which people interpret their health and well-being based on their cultural framework. As a result, there were areas where Nestlé's marketing was less successful because their Western meaning-centered approach to why formula was useful was at odds with the native culture's customs. For example, part of Nestlé's argument for infant formula was that it would be vital for women who needed to go back to work after having babies and could not breastfeed their babies at work. This was not the case in Mali, where breastfeeding babies in public is not a cultural taboo. Katherine Dettwyler, a professor at the Department of Anthropology at Texas A&M University, discusses breastfeeding practices in her ethnographic research paper entitled, "More Than Nutrition: Breastfeeding in Urban Mali." She notes that it is quite common in Mali to breastfeed in the work place, whether a woman sells goods at the market, is a schoolteacher or is even a nurse.[12] Therefore, the presupposition that women needed to switch to formula when maternity leave ended was not valid in Mali, and Nestlé was not as successful there. From 1982-1983, an ethnographic study of 136 infants was conducted in Farimabougou, Mali. Results of that study showed that 89% of infants breastfed exclusively for the first six months of life. The remaining 11% used formula as a supplement to breast milk. According to Dettweyler, this is an unusually high rate of breast feeding for developing nations. In Niger, a country that borders Mali, only 1% of infants exclusively breastfeed for the first six months of life.[13] Dettweyler argues that regardless of economic factors, Mali is a unique country whose cultural values were the largest influence on women's choice to breastfeed.[12]

Economic issues have also undoubtedly played a role in women's decision to breastfeed in Mali, especially considering that for most families in Mali, formula costs a third of the family's monthly income. In Farimabougou, even for families who could afford it, infant formula was not considered an important expense and people would rather spend their extra money on clothing, school or medical fees.[12]

The third and perhaps most potent reason why substituting infant formula for breast milk may be difficult is the view that breastfeeding is a process, or a series of actions, rather than a product. Van Esterik underscores this approach by arguing that it would be much more difficult to sell alternatives to breast milk in places that view breastfeeding as a process, because a product would be incomparable to the process of breastfeeding.[11] Dettwyler comments that breastfeeding not only deeply bonds a mother and her child, but the very act of breastfeeding creates community among women, a shared activity that connects them. She claims, "Only breastfeeding creates maternal kinship."[12]

There are other strong cultural ties to breastfeeding in Mali, including beliefs that breast milk is healthier for the baby, will make the baby stronger and will create a bond between the person who is breastfeeding and the breastfed infant. This tie exists even if the person breastfeeding is not the biological mother of the baby, and stems from the belief that blood is passed through breast milk. This belief of shared blood creates the belief that a child and the breast feeder become related once breast milk has been shared.[14] Dettwyler concludes that although government promotion of breastfeeding and financial reasons contribute to breastfeeding being the overwhelmingly dominant practice in urban Mali, these are not the primary motivators. Stronger than both of these factors are the traditional beliefs about the nutritional and cultural significance of breastfeeding. "A woman in Farimabougou who decides not to breastfeed is, in effect, deciding not to be related to her children."[14] This case study illustrates why Nestlé's marketing was unsuccessful in Mali—because of the power of a strongly held belief.

In other developing nations, however, Nestlé was able to take advantage of people's cultural beliefs about breast milk. Populations in northeast Brazil, east Bhutan and Zimbabwe all accept the idea that breastfeeding while pregnant could damage the infant and that engaging in intercourse during the months a mother is breastfeeding produces dirty milk.[11] In these regions, Nestlé didn't have to convince anybody or use marketing schemes. Instead, Nestlé and other companies benefited from those existing societal beliefs by providing an alternative—a classic example of how a meaning-centered approach to understanding cultural values helped the infant formula market.

The Ecological Argument

The ecological argument of the infant formula controversy contends that practices in the United States cannot be applied to Third World countries, where resources and contexts are invariably different.[3] In the early 1970s, health officials voiced such an argument about the use of infant formula in Third World nations.

The argument was startlingly simple: infant formula requires the use of water. The water supply in many cities, towns and villages of Third World nations was polluted. Therefore, mothers were feeding their infants contaminated formula. To compound the problem, mothers had to use the same polluted water to wash out the baby bottles. The health ramifications were serious and widespread: polluted water caused intestinal problems and diarrhea in infants, which led to dehydration and death. Bad bottle hygiene caused diarrheal diseases and gastroenteritis.[15] Another factor that made infant formula harmful in Third World countries was over-dilution. Many mothers chose to feed their babies infant formula exclusively instead of breastfeeding. However, the mothers were illiterate and unable to read the package directions to determine the correct amount of water to add to the formula. As a result, the mothers diluted the formula so much that infants did not receive the nutrients they needed to thrive. Additionally, because infant formula was expensive, some mothers tried to "stretch" the formula to make it last longer—effectively diluting it more and unintentionally depriving infants of nutrients. These two factors led to widespread infant malnutrition throughout developing nations.[8]

Also, the physical climate of a region affects the type of bacteria found in formulas. Bacteria become more virulent in tropical climates and are much more likely to contaminate formula than in cooler climates.[3] Formula contaminated with shigella, salmonella and staphylococcus bacteria caused high rates of diarrhea and other diseases in infants throughout the Third World.[16]

> Nestlé had no right to promote a product in places where it would be impossible or unlikely to prepare it correctly.

The resulting statistics are heartbreaking. According to the August 2009 World Health Organization Factsheet, diarrheal diseases kill 1.5 million children per year.[17] Although steps have been taken to reduce the prevalence of infant formula in developing nations, it is clear that bad practices with formula, such as preparing it with contaminated water, can lead to serious health consequences. The report states that the risk of mortality increases for infants who are either partially breastfed or who are not breastfed at all. Furthermore, the WHO directly states that exclusive breastfeeding practices "could save annually the lives of 1.5 million children under five years of age."[18]

Nestlé's Argument and Actions

These negative effects of formula surfaced when the report The Baby Killer was released in 1974, written by Mike Muller and a nonprofit London activist organization called "War on Want." The article discussed many controversial practices of Nestlé, including promoting infant formulas in communities with high rates of illiteracy and unclean drinking water. It also accused Nestlé of deceiving people by having its employees dress in white suits, as if they were health professionals.[9]

Following the release of The Baby Killer report, Nestlé filed a libel suit against the publisher. Although Nestlé's intended result was to stop the battle from the beginning, the lawsuit ended up having the opposite effect. It increased publicity and media attention for an article that was not popularized until the lawsuit brought it into the spotlight. Although Nestlé won the lawsuit, the company was stigmatized and became the focal point of much controversy.

Directly following the lawsuit, in 1977, Infant Formula Action Committee (INFACT) organized a boycott of Nestlé products in the United States, and it then spread to Europe, Canada, Australia and New Zealand. The boycott and debates inspired the creation of the International Code for the Marketing of Breast-Milk Substitutes,[10] which was adopted by the World Health Assembly in 1981. This code included a written statement, to be distributed with formula, with information about the benefits of breastfeeding, the difficulty of re-starting breastfeeding once it is stopped and the disadvantages of using even partial bottle-feeding. In addition, there was a directive to supply infant formula only to local physicians, rather than to mothers.[17] Three years later, in 1984, Nestlé began to comply with the International Code.[3]

The ramifications of this debate changed some practices in Third World countries. These changes included a tighter grip on the distribution of infant formula samples to health professionals, halting advertising if not approved by local health officials and the disruption of direct contact between company representatives and mothers, which was seen as aggressive advertising.[15] Nestlé's marketing changes in developing nations have been significant due to the International Code, but the International Baby Food Action Network began to monitor compliance with the code and in 1997 issued a report titled "Cracking the Code," which stated that Nestlé, along with other infant formula companies, continued to break the rules and find loop-holes.[3]

Joanna Moorhead discusses one of these loopholes in her 2007 article in *The Guardian* about infant formulas and the issues they have caused in Bangladesh, both in the economy and in community health. She writes, "According to Save the Children's report, infant mortality in Bangladesh alone could be cut by almost a third—saving the lives of 314 children every day—if breastfeeding rates were improved."[19] According to Moorhead, this lack of breastfeeding is due to the efforts of Nestlé and other formula companies to promote their products by not directly selling to mothers, but rather to health officials, having marketers show up every couple of weeks with brochures and notepads that contain instructions on using infant formulas. This type of behavior is not in direct compliance with the WHO code, yet the strategy continues.

The Aftermath of Nestlé: Where They Are Now

Nestlé states that it has lowered the cost of formula to better serve developing countries. It believes that it has implemented more responsible policies and has learned from the inappropriate marketing conducted in the 1970s.[20] Worldwide, Nestlé's infant formula sales declined by 40% in 1981 and then fell another 27% in 1992.[20] In recent years, however, the company purchased both the Gerber baby food brand in 2007 and the Pfizer's infant nutrition business in 2012.[21] Their message over the last few decades has changed tremendously, and now many Nestlé workers or executives refer to themselves as almost charity "do-gooders," with the slogan 'Good Food, Good Life.'

The infant formula battle has not ended on either side. Action groups such as Baby Milk Action are still concerned about the infant formula industry's distribution of free samples, which seems to be in strict violation of the World Health Assembly code. Although less discussed, the Nestlé Boycott still continues today. Furthermore, activists want the power to monitor infant formula's influences in developing nations more carefully, particularly the distribution of infant formula samples to clinics and mothers. Baby Milk Action cites that Nestlé has continued to break the International Code of Marketing Breast-Milk Substitutes time and time again with no repercussions.[22]

Although Nestlé arguably faced problems in terms of marketing products in aggressive ways and imposing or delegitimizing cultural beliefs, these were relatively minor—and surmountable—compared to the backlash they later faced because of the ecological argument. Nestlé had no right to promote a product in places where it would be impossible or unlikely to prepare it correctly. Infant formula, although relatively safe when all the right steps are followed, should not be promoted so heavily in regions where adequate resources are not available. Van Esterik states the Nestlé controversy unveiled a larger issue at hand—how the globalization of products may have unknown and undesirable effects. Poverty raises the risk factor of infant formula being used improperly, as women in developing nations may not necessarily have access to clean water, unlike their counterparts in developed nations.[19] This is a perfect example of the globalization of a product gone awry.

Nestlé's mass marketing of infant formula is just one example of the harmful effects of globalization. Moreover, these global issues illustrate why one cannot apply an "industrial" model of marketing and distribution to Third World countries. Even if meaning-centered beliefs were parallel among all nations, the lack of resources and ecological differences are too deep to be healed with the band-aid of lowering the price of formula so that it is more affordable, especially in developing nations. Responsible corporate policy should strive not only to understand the way a client thinks, but also to appreciate social, political and environmental factors that surround clients and the potential risks that globalization could cause in a world filled with social and environmental inequality.

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Challenges of Building Health Impact Assessment Capacity in Developing Countries: a Review

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Abstract

The published and grey literatures, including online technical reports and guidelines, about Health Impact Assessment (HIA) capacity building and training are reviewed. The review aims to compare country-specific HIA environments and different training materials and to identify appropriate training material for HIA in low- and middle-income (LMIC) settings, such as Mongolia. The few publications about HIA and capacity building found in scientific databases either describe the potential benefits of HIA training or discuss methodological issues. There is, however, a large body of grey literature, mostly institutional, available online. In assessing the HIA training literature, three key points arise: knowing the audiences' roles when determining training design and content, being culturally sensitive and recognizing traditional knowledge in training and promoting elements of "system-wide capacity building" for HIA. There remains a need to increase the available literature and web content on HIA training and capacity building specifically designed for LMICs. Decisions will have to be made about what to translate and how to translate training materials into languages other than English.

Introduction

Although the term health impact assessment (HIA) first appeared in international literature in 1995,[1] HIA is still a developing field. Most broadly, it is a process for identifying and considering the potential and sometimes actual health impacts of a proposal or policy on a population. The primary output of most HIAs is a set of evidence-based recommendations geared towards informing the decision-making process. These recommendations are often practical ways to enhance the positive aspects of a proposal and to remove or minimize any negative impacts on health, well-being and health inequalities that may arise or already exist.[2] In the past, formal evaluations that assessed the impact of a proposal or policy were for economic, environmental, political and social reasons, with health only being a recent addition.

The necessity of conducting HIAs as well as addressing whether or not HIAs are worthwhile cannot be explained by simply providing quantitative data since HIAs' benefits and impacts are largely qualitative and may differ from case to case. Economic analysis seeks to quantify the costs and benefits of HIAs in order to ensure that the resources involved in an HIA are effectively deployed to achieve maximum health benefits. Such analyses allow HIAs to be compared with other interventions that are also aimed at improving health to ensure the best use of available resources. However, there are many challenges in quantifying the benefits of an HIA because many of the impacts identified may be difficult to measure, such as improved relationships.[3] Alternatively, cost–utility analysis could be used to quantify the benefits of HIA, whereby the benefits can be identified without having to be translated into monetary terms.[4] Potential challenges arise because resources for HIA are often drawn from existing budgets rather than being specifically allocated. These challenges and limitations in quantifying HIA benefits are reflected in the practical world, too. For instance, only 15 out of 158 HIAs that were conducted throughout Europe in 2006 contained cost information.[3] Predicting important impacts may often involve weaker and more speculative evidence,[5] but this information can still inform the decision-making process and serve as a foundation for many later quantitative evidence analyses.

International experience suggests that there exist six key factors necessary for the successful application of HIAs.[6] These include:

1. Intersectoral communication and collaboration
2. Comprehensive stakeholder participation
3. Scientific and conditional scoping
4. Use of a holistic concept of health for HIA practitioners
5. Emphasis on both positive and negative outcomes
6. Adequate HIA process training

The most common reasons for the absence or low quality of HIAs include lack of expertise, resources, available baseline data, time, coordination and standardized methodology. Of all of these, the lack of expert level capacity to carry out an HIA is thought to be the primary cause of HIA failure.[7] Therefore, building capacity to properly carry out HIAs should be the first priority in order to minimize the failure of HIA practices. Capacity building is a broad, lengthy and continuous process that affects those who order, conduct, monitor and implement HIAs differently depending on the desired competency. It largely starts with increasing awareness of HIAs' importance, thereby building knowledge and skills before introducing the possible complexity of real life examples. Capacity building efforts should continue with a focus on ways to maintain built capacity in order to keep HIAs sustainable. While HIAs' capacity for multisectoral stakeholders is of prime concern, some authors indicate that building public health professionals' capacity first, or even concurrently, is more essential since they would have prerequisite knowledge allowing them to learn HIAs' aspects successfully.[8] The lack of HIA-trained professionals is a major barrier for the implementation of HIAs.[9] Training a group of public health practitioners in HIA methodology in the initial stage has been shown to help provide leadership to others as they undertake the implementation of HIA projects.[8]

Methodology

A systematic literature search was conducted by using three major health research databases, namely Elsevier, PubMed and Science Direct. "HIA" or "health impact assessment" was searched along with the following key words: capacity building, training, module, manual and competency. "HIA in countries" was searched specifically to capture documents that may pertain to HIA use in different countries. After scanning titles, abstracts and at times full articles, we collected all examples of HIA training materials as well as documents written about HIA training or capacity building. This review incorporates both peer-reviewed and grey literature. Despite growing interest in HIAs in peer-reviewed papers, it seems that most of the HIA literature is non-standard, grey literature, including various online reports created primarily in response to emerging practical needs and interactive training purposes. A Google search for "health impact assessment capacity building" in October 2011 resulted in 5,350 hits in the English language. HIA-gateway websites that belonged to the World Health Organization's HIA collaborating centers and other institutions that focus on HIA capacity building were searched and analyzed.

The database generated 104 HIA documents. Reference lists for all included documents were scanned for related articles, and 52 additional documents were collected using this snowballing technique. In addition, other papers were identified through communications with experts or researchers in the field. The total amassed literature includes 156 documents, out of which 112 are grey, 45 are peer-reviewed articles and only three articles discuss HIAs in LMICs contexts. A total of 39 peer-reviewed articles and 12 grey materials were chosen to be included in this review paper as their contents were most relevant to the objective of the review.

Findings

Global HIA Capacity Building Efforts

Although HIA has been encouraged in most areas of the world,[10] it is only standard or mandatory in New Zealand, Thailand, South Korea and the European Union.[11] Countries such as Canada, the United Kingdom (UK), Australia and the United States of America (USA) are gaining ground in terms of building systems that refine HIA methodology, support capacity building and promote informed decision making without a mandated legislative requirement at the national level. Countries vary in how capacity is monitored, and many rely on expert and independent reviews to ensure that HIAs are being conducted according to international standards. The literature was summarized and divided into issues and examples from select high-income country settings and select LMIC settings given the differences in HIA capacities and resources to carry out HIAs between the two contexts.

The empowerment of local communities, capacity building and the promotion of cross-cultural understanding could be an essential part of health services.

Countries such as Canada, the UK and Australia were selected as illustrative examples of how HIAs can be successfully promoted by academic and professional institutions without government mandates. Conversely, the HIA experience in Thailand is discussed as the best practice that successfully streamlined HIA-related regulations into all respective laws and acts with strict enforcement by the national government. Mongolia's ambitious efforts to adopt an HIA system that combines both legalization and institutionalization aspects is also discussed. In addition to the rationale of why specific countries were chosen, the majority of the literature that discusses HIA theory, methodology and practices were either conducted in the abovementioned countries or written by authors from these countries. In general, literature pertaining to HIA and HIA capacity building within LMICs is very limited. The current systems used in LMICs are primarily focused on the physical, environmental determinants of health and hence are limited in their assessment of the breadth of population health determinants.

Canada: Within Canada, a minister at the provincial or territorial level makes decisions about whether or not a project, program or policy proceeds upon the completion of Environmental Impact Assessment (EIA) or HIA. The province of British Columbia, one of the early innovators in HIA, largely abandoned its efforts to institutionalize assessments following a change in government in the late 1990s. In contrast, HIA seems to be well incorporated in government decision making and planning in Quebec.[12] As shown in this province, the empowerment of local communities, capacity building and the promotion of cross-cultural understanding could be an essential part of health services.[13] There is a need to further explore how the health and educational needs of Aboriginal people in Canada might be met more comprehensively.[14]

United Kingdom: The value of HIA has increasingly been recognized in the UK over the last decade. In the past six years, both regional and national initiatives have encouraged HIA as part of planning and policymaking.[15] At a national level, despite the fact that there is no statutory requirement to undertake HIA, there is recognition within the United Kingdom of the value of HIA as a resource to support efforts to improve health and, particularly, to address health inequalities. The government has clearly signaled its acknowledgement of the importance of the wider determinants of health and its commitment to promoting HIA at a policy level. A number of specialist centers are emerging in the United Kingdom to support the growing interest in HIA.[15]

Australia: Since the early 1990s, HIA activity in Australia has increased and diversified in application and practice. At the same time, Australia has become a world leader in considering equity within HIA. The states of Tasmania and Victoria have incorporated and legislated HIA into EIA. In the rest of the states and territories, HIA is being increasingly recognized and accepted by policy makers, private industry and other sectors as a tool to ensure that new initiatives protect and sustain health and well-being whilst ensuring economic development and prosperity. Perhaps the largest lesson from current HIA practices in Australia is that HIA will only flourish in terms of methodological depth and its ability to influence proposal development when it is supported by systems with the capacity to undertake HIA effectively.[16]

Thailand: Institutionalization and capacity building for HIA in Thailand can be seen as an international best practice within LMICs. The provision concerning HIA is stated in two laws, namely the Constitution of the Royal Kingdom of Thailand B.E.2550 and the National Health Act B.E.2550, both of which require mandatory HIA prior to launch of every mining project. Moreover, any project or activity that may cause severe impacts on a community is required to perform HIA before it can proceed. The Department of Health instituted HIA as part of the department's development strategies between 2008 and 2011 with three objectives: 1) developing an HIA system, 2) building the capacity of local communities for HIA implementation and 3) setting up a community-based environmental and health surveillance system. Countries that support the idea of making HIA mandatory strive to adopt Thailand's example since the regulatory framework in Thailand explicitly lays out the ways to implement, enforce and monitor HIAs.

Mongolia: Mongolia's growing economy and emerging mining industry require the country to be better prepared for the potential negative social impacts they could bring. According to the World Bank, Mongolia became the country with the world's fastest growing economy in 2011 with a 17.3% growth rate.[17,18] Insurgence of the mining industry and increased need for HIAs coincide in Mongolia. Although HIA is still a fairly new and developing approach in Mongolia, there is evidence of variable but increasing HIA activity at both the regional and local levels. Following the recommendation of the East Asian Ministerial Conference in 2010, a multisectoral working group for HIA was created with the joint consultation of the Ministry of Health and the Ministry of Nature and Environment in February 2011. The need to build and maintain the HIA capacity was identified as a top priority item in this ongoing strategy development process. The latest improvement in the HIA advocacy effort was the inclusion of health concepts in the amendment of environmental impact assessment law and the signing of a Memoranda of Understanding (MoU) between the Ministries of Health and Environment.

HIA Training Materials

One of the aims of this review is to identify and compare different HIA training materials with the specific aim of identifying appropriate training materials for HIA in LMIC settings. The limited number of institutionalized training courses and their commercial purpose make it very challenging to obtain such material free of charge. However, of the few available training manuals and modules, University of California at Los Angeles (UCLA)'s HIA Clearinghouse, University of Birmingham's HIA training center and Health Scotland's e-learning course materials seemed most useful. WHO HIA collaborating centers such as University of Birmingham, University of Liverpool's IMPACT and UCLA HIA training centers are proven leaders in HIA training and regularly offer well-established HIA training. These training manuals were identified as examples of the best international practices. There are several different forms of HIA training, which include short courses, workshops, university level training and e-learning courses. These can all be taught at introductory or advanced levels. HIA competency can vary depending on the position, intention and involvement of particular players. Although HIA requires all stakeholders' participation throughout its stages, the roles, capacity level and involvement of parties differ depending on whether a person is a beneficiary or a benefactor. For this reason, the oil and gas company Shell has developed a model that distinguishes different levels of capacity. In the Shell model, there are four levels of competency defined as "awareness," "knowledge," "skilled" and "mastery."[19] This knowledge hierarchy model may be helpful in deciding different parties' roles and responsibilities in HIA, satisfactory levels of competency and the specific training content. However, it is still not clear how to evaluate one's level of competency.

> Although HIA has been encouraged in most areas of the world, it still has not become standard or mandatory anywhere except New Zealand, Thailand, South Korea and the European Union.

Discussion

HIA still has not become standard or mandatory in most areas of the world, with the exceptions of New Zealand, Thailand, South Korea and the European Union.[11] Only a few countries—Canada, the USA, the UK and Australia—seem to be succeeding in building a strong supportive environment, building international and national HIA capacity and strengthening HIA methodology, even though HIA is not mandatory in these countries.[10] So far, HIA has largely been undertaken by enthusiasts with varying levels of experience usually working in public health departments or local authorities,[7] or in other words, those who have found the necessary resources from within their own organizations to advocate for and undertake HIA. Clearly, this is not a sustainable pattern.

Currently there are two types of HIA capacity building: the social determinants/health oriented training aimed primarily at environmental impact consultants and the methodological training designed largely for public health professionals. Capacity in the evaluation of HIA activities is required in addition to capacities in conducting assessments. Greater efforts to assist in training and capacity building of health professionals in LMICs are necessary in order to reduce the reliance on outside HIA/EIA experts and consultants.[7] Building local capacity and an institutionalized training system could bring necessary country ownership in HIA. Country ownership could increase acceptance, transparency, literacy and efficiency of HIA at national levels. HIA training is not meant for experts only. Everybody, including decision makers, policy planners, executives, media representatives, local government officials and community representatives can benefit from effective HIA training. It is believed that planners and decision makers would be more likely to request and use HIA processes if trained to understand their value. Strengthening the capacity of countries in HIA will likely take place in the context of already existing frameworks of environmental impact assessment.[20] Capacity building efforts for HIA must be comprehensive, addressing a number of essential elements at different levels in a coordinated manner. Some of the suggested initiatives include the creation of a supportive policy environment, the establishment of a strategic alliance between environment and health ministries, the development of skills in intersectoral negotiation and decision-making and the strengthening of the Ministry of Health's capacity to adequately respond to the needs of other development sectors.[19] Out of these, MoU is likely the most effective element as it could establish strategic alliances between environmental and health ministries. In Mongolia's case, MoU also serves as a tool to implement HIA policy more sustainably.

Limitations

When considering the implications of this review, a number of limitations must be acknowledged. We have found very few peer reviewed articles on HIA capacity building, and, although numerous, the grey literature related to HIA capacity building has not necessarily undergone critical assessment. We did not include environmental or social impact assessment in our searches. There may be overlap related to capacity development in some areas between HIA and EIA or SIA. Finally, our communications with expert sources was limited, and we assume that over time more resources and articles will become evident to us in a wider process of referral.

Recommendations

This review has important implications for LMICs. We have identified the following key recommendations for those wishing to explore possibilities for HIA capacity building, specifically in LMICs:

1. HIA developers should consider the value of "cultural sensitivity" and the Canadian Indigenous community's best practice when developing training content in settings with aboriginal, minority or other vulnerable, affected populations. Multisectoral working groups need to identify and reach consensus on "contextually appropriate" training content for LMICs.

2. There is a need to build a "supportive system," which could be carried out by implementing the following three elements: a) developing strong political and governmental support for HIA, b) having validated instruments and c) equipping the workforce with the skills and knowledge for HIAs.

3. Overall, there is a need to institutionalize HIA training in order for it to be sustainable. High-income countries could assist in the training and capacity building of health professionals within LMICs, but this should be done with appropriate partnership and leadership from the LMIC partner in order to break any cycle of dependency that might result on outside HIA/EIA experts or consultants.

Conclusion

This review examined peer-reviewed and grey literature available on HIA capacity building and training. The review aimed to compare country-specific environments and different HIA training materials as well as to identify appropriate training material for HIA that can be employed in LMIC settings. Searches of scientific databases resulted in few items about HIA and capacity building specifically. What was found either described the potential benefits of HIA training or discussed methodological issues. A number of key HIA training materials that cover the basics of HIA methods have been identified and could be revised to incorporate examples from local contexts to make them contextually appropriate and useable in the LMIC contexts. In addition, there are many training materials and modules that are not accessible to interested parties due to the commercial purpose of highly regarded HIA training agencies. Currently, there is no obvious example of a best practice document or approach for HIA capacity building in these settings, although Thailand has provided some leadership in this regard.

There are underlying questions that remain: How will we increase adequate literature and web content on HIA training and capacity building specifically designed for LMICs? And, in the long term, how and what parts of the materials identified in this review could be adopted and translated for use in these settings?

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Perspectives

A New Era of Global Disease Emergence

The International Response to Nipah Encephalitis Virus

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Abstract

Since the culmination of SARS in 2003, the world has been awakened to the surreptitious and often fatal reality of viral emergence on a global scale. The WHO, as the leading governing body in global public health, has recognized the need for heightened surveillance of emerging pathogens. The Nipah Encephalitis virus, a lethal zoonotic paramyxovirus, has been identified as a source of potential pandemic disease and thus a threat to the health security of the international community as a whole. An interdisciplinary, multi-lateral approach is needed to understand the changing nature of this deadly pathogen from a microbiological to societal level, and in concert, prepare for a possible public health emergency of international concern.

Introduction

SARS (severe acute respiratory syndrome), the first emerging and readily transmissible disease of the 21st century, rocked the global community and the international public health infrastructure by setting off several deadly and unexpected outbreaks beginning in November of 2002.1 While the area categorized by the World Health Organization (WHO) as the Western Pacific Region fell victim to the greatest number of these attacks, the world watched in fear as the unidentified viral pneumonia left China's Guangdong province and began its deadly spread throughout the mainland and around the world. On July 5, 2003, the WHO declared that all known human-to-human transmission had ceased, but not before the epidemic claimed nearly 800 lives. What followed the culmination of SARS in 2003 was not a feeling of success but rather one of fear—fear of the realized ineptitude of the international community to respond to novel disease emergence.[1] Since then, the international health care field has been awakened to the surreptitious and often fatal reality of viral emergence on a global scale. Furthermore, the WHO, as the leading governing body in global public health, has recognized the need for heightened surveillance of emerging pathogens.[2] Nipah Encephalitis virus, a lethal zoonotic paramyxovirus, has been identified as an exemplary source of potential pandemic disease spread and thus a threat to the health security of the entire international community.[3] Given the renewed emphasis on disease surveillance following the unexpected SARS outbreak in 2003, the international community must embrace the lessons learned from managing the SARS outbreak and apply an interdisciplinary, multi-lateral approach to effectively understand and respond to the rapidly changing nature of this novel pathogen.

Understanding the Pathogen

Nipah virus (NiV), initially misdiagnosed as Japanese Encephalitis virus, was first recognized in 1999 during an outbreak of encephalitis (inflammation of the brain) at pig farms and slaughterhouses in Malaysia and Singapore.[4] It has since claimed over 100 human lives, and Nipah virus has been confirmed as the etiologic agent of several additional small-scale outbreaks in South Asia with case-fatality rates exceeding 75% (See Table 1).[5] NiV infection manifests as severe illness, characterized by encephalitis, respiratory illness and death (See Table 2).[6] Pathologic studies from recent outbreaks identify endothelial cells and neurons as major cellular targets of NiV.[7] These studies reveal that infection is most prominent in the central nervous system, where diffuse vasculitis is noted in the cerebral cortex and the brain stem of humans.[8] In addition, pathologic examination of pigs has shown extensive involvement of both the upper and lower respiratory tract, suggesting that respiratory secretions from infected pigs are likely to be a rich source of the infectious virus.[9] Evidence of NiV infection has also been found in several other animal species, including dogs, cats and horses.[10] Given that there is currently no vaccine or treatment option available for NiV infection, scientists are eager to understand the mechanisms of its viral pathogenicity and immune evasion.

The virus' utilization of an intermediary pig vector has varied between regional outbreaks, indicating a bimodal nature of NiV transmission.[11] The initial encephalitis outbreak in Malaysia was confined to a cluster of patients associated with pig farming. During this outbreak, humans were infected through direct contact with infected fluids of pigs such as urine, saliva, pharyngeal or bronchial secretions; however, no secondary human-to-human transmission was confirmed.[12] The outbreak subsequently spread to various regions of Malaysia and Singapore due to the movement of infected pigs.[13] Fruit bats of the Pteropid species were initially identified as the natural host reservoir and, given their close proximity to pigsties, it has been suggested that contamination of food and water supply by bat urine is the most likely mode of bat to pig transmission.[13] While use of a pig vector was characteristic of the 1999 Malaysia/Singapore outbreak, all subsequent outbreaks in Bangladesh and India have been associated with direct infection from bats to humans, with significant human-to-human transmission as well. The bimodal nature of viral transmission suggests either a mutating virus or a changing global ecology that facilitates viral access to human populations. Further research is needed to understand the exact determinants of viral host jumps.

Understanding the Response

In order for the international community to front a comprehensive and effective response to an emerging zoonotic disease of this severity, there must first be an examination of human behaviors and practices that have changed patterns of animal-human interactions. Once scientists understand the biological pathways affecting Nipah emergence, they must then explore the viral/host constructs that facilitate transmission from human-to-human, in order to model the potential extent of the impact and spread. This information will allow decision-makers to more confidently allocate resources to prevent outbreaks, and in the instance of an outbreak, such data will prompt effective response measures of containment and control.[14]

Immunopathology reports suggest that bats can harbor NiV without detrimental consequence to their own well-being; thus, it can be assumed that bats in the South Asian region may have carried this virus for years, and only when they interacted with humans or domesticated animals did the virus jump species. Many disease ecologists point to agricultural intensification and specific agricultural practices for possibly increasing the frequency of pathogen emergence from wildlife to human populations.[15] To understand the ecological determinants of Nipah viral host-jumps, it is essential to examine the spatial and temporal patterns of agricultural production in peninsular Malaysia prior to and at the time of the initial outbreak.[15] Juliet Pulliam, an expert in ecological modeling of outbreaks, found that between the early 1970s and the late 1990s the correlation of expansion of large-scale pig farming and mango production in peninsular Malaysia allowed for a unique opportunity for pigs and fruit bats to come into intimate contact.[13,15] The pig farm where Nipah first emerged contained over 30,000 pigs, with fruit trees surrounding the perimeter of the pen.[16] Mangoes, jackfruit and durian were grown on the index farm, while other farms in the area grew primarily pomelos, which are not eaten by the Pteropus species of fruit bats. The close proximity of pigsties to fruit bat feeding sites facilitated this cross-species transmission of NiV from bats to pigs.[13] Pigs are commonly referred to as the "virus mixing bowl" because they contain viral receptors that bind to viruses native to multiple different species. Thus, pigs can often be infected with a virus from one species, help it undergo viral reassortment, and then subsequently act as amplifier hosts, enabling infection of humans through direct contact with infected fluids (such as urine, saliva, pharyngeal and nasal secretions).[17] The circumstances of the 1999 Malaysian outbreak indicate that the virus demands a large pig population to maintain itself for several months, with several possible viral introductions, before spreading to human populations (See Map 1).[24] After the initial outbreak, the movement of infected pigs spread the disease to various regions of the country and to Singapore.[13]

Table 1: ***Chronology of NiV Outbreaks***[3]

Year	*Country*	*State*	*Cases*	*Deaths*	*CFR*
1999	Malaysia	Multiple	265	105	40%
1999	Singapore	Singapore	11	1	9%
2001	India	West Bengal	66	49	74%
2001	Bangladesh	Meherpur	13	9	69%
2003	Bangladesh	Naogaon	12	8	67%
2004	Bangladesh	Rajbari	29	22	76%
2004	Bangladesh	Faridpur	36	27	75%
2005	Bangladesh	Tangali	12	11	92%
2007	Bangladesh	Thakurgaon	7	3	43%
2007	Bangladesh	Kushtia	8	5	63%
2007	India	West Bengal	5	5	100%
2008	Bangladesh	Manikgonj	3	3	100%
2008	Bangladesh	Rajbari	8	3	38%
2010	Bangladesh	Faridpur	17	15	88%
2011	Bangladesh	Rangpur	35	8	38%
2012	Bangladesh	Joypurhat	17	17	100%

Pertinent ecological information obtained from the initial outbreak of Nipah in Malaysia and Singapore must prompt policy and public health interventions focused on controlling disease amplifiers, namely agricultural intensification, movement into previously uninhabited areas, human/animal interchange and climatologic and other environmental factors that influence viral shedding of the host. In order to prevent future outbreaks of NiV, the WHO must implement fruit bat surveillance initiatives to monitor the flying ranges of these species. According to the Institute of Medicine's expert committee on emerging disease surveillance, improved surveillance is particularly important when the risk of outbreaks in humans is largely determined by the epidemiology of infection in the host reservoir.[14] In regions prone to viral introduction, environmental surfaces believed to have high risk of contamination with Nipah virus, such as pigsties, date palm sap collection pots and fruits that may have been in contact with Pteropid bats, must be selected for viral sampling. Human resources and field capacity are essential in order to conduct surveillance of zoonotic pathogens in animal reservoirs that may be difficult to reach. Improvement and development of such field capacity will greatly improve the ability to predict where the next zoonotic disease will emerge.[14]

In addition to understanding the context of viral introduction into human populations, researchers must consider viral/host constructs, such as patient care practices, host susceptibility factors and strain variation to understand the mechanisms of human-to-human spread.[18] Stephen Luby and colleagues from the International Center for Diarrheal Disease Research in Bangladesh propose that three factors are likely to contribute to higher frequencies of person-to-person transmission in Bangladeshi outbreaks. First, respiratory disease associated with Nipah infection was both more common and more severe in Bangladesh than that of Malaysia and Singapore, offering more opportunities for transmission via respiratory droplets. Second, the personal care typically provided to ill and dying relatives in Bangladesh is characterized by close physical interaction, increasing contact with the patient's saliva. Third, all Nipah viral strains from human cases in Malaysia and Singapore were genetically similar, whereas strains in Bangladesh were quite diverse; thus, these strains could possess characteristics that facilitate human-to-human transmission.[19]

Given the emergence of new strains of Nipah virus, proposed to be highly capable of human-to-human transmission, the WHO must encourage the constant collaboration of expert virologists, microbiologists, pathologists, immunologists and physiologists to decipher the rapidly changing constructs of the virus. Luckily, new technologies such as advanced polymerase chain reactions and high-throughput sequencing have enabled the scientific community to identify novel pathogenic strains and increase the rate and frequency of mutation detection.[14] It is then crucial that the WHO act as a liaison between the scientific and public health communities in order to relay all pertinent information regarding new discoveries.[20]

The New Era of Global Disease Emergence

Nipah virus is just one of over 40 new diseases that have emerged since the 1970s, including Ebola, Hantavirus Pulmonary Syndrome, Venezuelan equine encephalitis, Hendra virus and Avian influenza. Three quarters of all emerging infectious diseases are a result of zoonosis—a microbial jump from an animal reservoir to a human population.[16] The majority of recent discoveries of new human pathogens are viruses associated with other mammalian hosts; a few are associated with birds, and only rarely are they associated with other classes of vertebrates.[21] The rate of emergence of these wildlife-origin zoonotic diseases also appears to have increased significantly over the past six decades, with pathogens of wildlife origin representing the majority of all emerging pathogens since the 1990s.[22] As the ecology of the world changes and people begin to move into formerly uninhabited areas, their domesticated animals increasingly come into contact with local pathogens and subsequently act as vehicles for transmission to human populations.[23] Preventing and controlling emerging zoonoses requires identification of processes that drive cross-species pathogen transmission.[24] Broad, interdisciplinary approaches focused on data from specific emergence events are crucial for early identification of fatal epidemics and can illuminate emergent processes that may be applied to other emerging pathogens.[25]

Table 2: *Clinical Manifestations of NiV*[6]

Species Affected	***Characteristics***
Humans	· Fever · Migraine · Vomiting · Emphysema · Encephalitis may relapse after recovery · Meningitis · Disorientation · Neurologic Deficits may persist after recovery · Coma · Death
Pigs	· Coughing sounds as if pig is barking · Open-mouthed breathing · Abnormal posturing · Convulsions

Given the commonality of many conditions surrounding novel disease emergence, it is imperative to draw themes from such events and to identify lessons learned from the management of these crises. In the wake of SARS, Nipah Virus and other significant novel pathogen outbreaks, public health officials point to four managerial factors that play a significant role in the effectiveness of control operations. These four critical disease response and control tactics are 1) early detection and communication of accurate, complete and timely information by affected governments and international administrative bodies; 2) rapid contact tracing, quarantine and isolation of infectious patients to prevent "super-spreading" events; 3) international partnerships to manage a localized outbreak and prevent development of a global pandemic; and 4) clearly reasoned, well-planned and effectively managed response plans that take into account national economic consequences for affected countries.

The WHO Global Outbreak Alert & Response Network (GOARN) points to the critical importance of early outbreak detection to ensure that the most appropriate experts reach the field in the least possible time to carry out effective outbreak control activities.[26] While GOARN and other bio-surveillance institutions work to identify indicators of an unexpected biological event, countries prone to emerging infectious disease must also have the diagnostic capability to identify in-country pathogen emergence.[27] The Committee on International Science, Engineering and Technology Policy recommends the installation of sophisticated laboratory capabilities in high-risk settings in order to upgrade local capacity to identify and respond to infectious disease emergence. The integration of modern technologies (such as electronic medical records, advanced BSL laboratories, secure sample transport systems, rapid tests/diagnostics and proper telecommunication systems) into an outbreak preparedness framework for countries at risk would drastically improve the ability to report real-time data to health governing bodies. While installation of such technologies is a costly endeavor, it should be considered an investment in health security and a necessary asset to prevent even greater human and economic losses. If in-country capacity is reached, then the WHO and member states should hold countries accountable for failures in conveying straightforward, reliable information in a time of crisis.[1] In China, for example, SARS was allowed to spread unreported for at least three months before the national government acknowledged the situation developing in the southern Guangdong province. Given limited time, major city centers such as Hong Kong and Beijing were unprepared for the influx of sick patients and therefore were unable to adequately treat and save lives. However, once SARS was reported, and the WHO Regional Office in Manila was appointed to coordinate response efforts in the region, electronic communication allowed the Regional Office to constantly update information and synchronize reporting and recommendations.[1]

Given the multitude of unknown variables in situations of emerging infectious disease, scientists and public health officials have acknowledged the importance of learning quickly from the available data. Often times this data comes in the form of epidemiological or biostatistical records. It is essential that this data be used immediately to create epidemiological links and identify at-risk areas or highly infectious individuals who may be infecting others at alarming rates. Data from epidemiological investigations into the Nipah virus outbreak in Siliguri, India in 2001 suggest that 45 of 60 case-patients (75%) were health care workers with a history of hospital exposure to patients infected with Nipah virus.[11] Such alarming incidences of nosocomial spread pose major threats

Map 1:
Surveillance Locations for Nipah Virus in Peninsular Malaysia

to health care workers and public health infrastructure.[18] In addition, during the 2005 Bangladeshi NiV outbreak, scientists from the International Center for Diarrheal Diseases in Bangladesh reported that 33 of 36 case-patients became ill after close contact with an infected person, 22 of whom were directly infected after contact with "patient F," a proposed "super-spreader" of NiV.[11] "Patient F," a local religious leader, became ill after he returned to his village in March of 2004, and subsequently transmitted NiV to 22 of his family members and followers during the course of his illness. The "super-spreading event" of Patient F is very similar to the one seen in SARS in 2003 when a 33-year-old infected male entered Amoy Gardens, a large seven-block apartment complex, and subsequently infected an astounding 329 residents.[1] Such an event is likely derived from the classical explanatory triad of host, agent and environment, in which an agent primarily causes disease, but its distribution, signs and severity are highly influenced by host and environmental factors. Both the "super-spreading events" of SARS and that of the Bangladeshi outbreak in 2004 are indicative of a lack of early diagnosis and infection control. It is thus essential to conduct contact-tracing early on, in order to identify highly infectious individuals quickly, and efficiently implement appropriate protocols of isolation in order to curtail further infection.

The WHO has asserted that emerging infectious diseases of the 21st century "represent a global threat that will require a coordinated global response."[28] David Fidler, an expert in global health law and infectious disease research, notes that "the threat [of emerging infectious disease] is global because a disease can emerge anywhere on the planet and spread quickly to other regions through trade and travel… Experts grappling with these diseases no longer consider that the pursuit of a strictly national public health policy is adequate."[29] Particularly in impoverished, densely populated regions of the world, a lethal virus with capacity for person-to-person transmission could rapidly spread before public health authorities can implement effective control measures. Larry Gostin, a public health law scholar, states, "Such a spread would provide a seed for a substantial regional, even global, public health emergency. While certain countries may be prone to the propagation of disease, rarely does disease remain contained in the country in which it originated."[30] It is essential, then, that the WHO take the lead in mediating the response efforts on behalf of the international community. Upon notice of an event, a WHO-selected international team must be deployed to the site, where the team can integrate and coordinate all activities in support of the affected nation and the existing public health infrastructure.[26] In addition, it is the responsibility of member states to collaborate as well as provide technical and financial support. Within countries, the ministries of health should take the lead as the country's primary reference point and work with higher levels of government and other ministries to update their respective administrations of all information coming in from the WHO. In the case of SARS, an impressive amount of goodwill surfaced during the outbreak, and government agencies generally set aside differences to ensure cooperation. The Director of the US Centers for Disease Control and Prevention announced several times that her organization would yield all decision-making to the WHO and would work in collaboration with other countries to assist in their response plans.[1] In anticipation of future outbreaks, the multi-national collaborative effort demonstrated in the case of SARS should be seen as an example of how the international community should coordinate response activities. The WHO should draw up a resolution that codifies this model, which can then be used as a directive for future outbreaks.

While the perception of risk drives multi-country support for aggressive action to contain disease spread, this same motive can facilitate an overly aggressive response with potentially devastating economic repercussions for affected countries. Upon the initial outbreak of Nipah Virus in 1999, Singapore banned the import of pigs from Malaysia, and the international community pressured the Malaysian government to take swift action to prohibit the exportation of the virus to other countries. In response, the Malaysian pig industry was decimated with the culling of more than one million Malaysian pigs and the destruction of 1,004 pig farms. While some may consider the response successful in prohibiting a potential pandemic, it came at the cost of 36,000 jobs and $120 million in lost export revenue.[16] Similarly, during the outbreak of SARS that infected some 10,000 individuals, the health impact was infinitesimal compared to the economic impact suffered by many of the countries in the South Asian region. In addition, the social disruption and economic losses caused by SARS traveled well beyond the outbreak sites. According to the WHO, "news about the disease jolted stock markets. Economic growth projections had to be lowered. Commerce suffered in distant countries that depended on Asian goods and manufacturing capacity. Travel to affected areas plummeted, causing losses of about US$10 billion to airlines with Asian routes."[1] The disproportionate scale and nature of this impact has caused concern that outbreaks of more serious diseases could deal devastating blows to the global economy.[31] While priority should be given to the containment of disease, effective response plans should take into consideration the national and global economic consequences before strategies are implemented.

In today's globalized world, the flying range of fruit bats or their proximity to pig farms does not sufficiently forecast where and when this human-to-human transmissible pathogen will appear. Pathogens alone do not have the capacity to jump species, infect thousands and spread to far regions of the world. Pandemics are in fact social phenomena whereby pathogens utilize settings and systems put in place by humans, commonly known as disease factories, to evolve and invade previously uninhabited terrain.[32] Given that diseases will inexorably spread to neighboring countries, regions and even continents, states should work in concert to protect the global community from emerging threats that affect the security of all nations.[30] Sustained, long-term surveillance at both the local and regional levels is required for rapid detection of and response to potential outbreaks. In the case of Nipah virus, further research is needed to understand the geographic range of the animal reservoir, as well as mechanisms of animal-animal, animal-human and human-human transmission. Efforts to develop effective strategies for containment and prevention of this and other viruses are needed, and guidelines must be distributed to all high-risk settings in the region and around the world.

Dr. Shigeru Omi, regional director of WHO's Western Pacific Region, states, "in looking back, I believe that one of the lessons that SARS taught us is that public health around the world has entered an era where it will need to be on constant guard against threats of emerging infectious disease."[1] While many would say that the interconnectedness of global societies is a trademark of a highly advanced and developed world, this system also renders the global population extremely vulnerable to the spread of infectious disease across populations and boundaries.[30] In 1999 the Nipah virus was regarded as a scary yet containable virus, and a communicable disease unique to Malaysia and Singapore. However, after repeated outbreaks indicative of a rapidly changing pathogen, public health authorities are beginning to recognize the seriousness of Nipah viral emergence and are prioritizing targeted global surveillance.[32,33] Public health and research entities from around the world have taken on the challenge of understanding the drivers of newly emerging infectious disease as well as the context in which they arise. Interdisciplinary approaches are needed in order to understand the dynamics of Nipah virus from a microbiological to societal level in order to prepare for the future of NiV infections and their implications for the global public health community.

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Food-Related Advertising Targeting Children

A Proposal to Reduce Obesity in Mexico

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Abstract

While technological advances are credited with decreasing Mexico's rate of under-nutrition, they have contributed to a rapid increase in childhood obesity nationwide. About one quarter of Mexican youth are overweight or obese, leading to serious medical conditions in adulthood, including Type 2 diabetes, cancer and cardiovascular disease. The aim of this paper is three-fold: (1) identify the dietary habits of Mexican children, (2) assess the role of marketing in Mexico's childhood obesity epidemic and (3) illustrate a proposal for eliminating irresponsible food marketing to young people in Mexico. Studies reveal that Mexican children are eating excessive quantities of energy-dense snack foods and sodas, while fruit and vegetable intake is low. Higher levels of overall food intake have been linked to greater television screen time, suggesting the influence of marketing on the childhood obesity epidemic. Mexican children are more exposed than adults to food advertisements, particularly for energy-dense foods. Children's exposure to food marketing has also been found to affect their food preferences and thus their parents' food purchasing behaviors. This indicates the need for restrictions on food advertising to children in Mexico. Examples from other countries suggest that self-regulatory initiatives within the food industry are insufficient to adequately address the issue. Thus, strict government policies are proposed, outlining nutritional standards on all food items advertised to children in Mexico.

Introduction

Obesity is no longer just a problem of wealthy industrialized nations. It is now on the rise in developing countries, crossing urban and rural areas, affecting adults and children alike. Over the past two decades, obesity has become a major global health issue in part because of its devastating and costly health ramifications but also because of its prevalence. A top priority of the World Health Organization (WHO), obesity is defined by a body mass index (BMI) of 30 or greater. According to the WHO, a precursor to obesity is overweight, a condition characterized by a body mass index (BMI) between 25 and 30. As of 2010, approximately 43 million children under five years of age were overweight or obese worldwide, and more than 80% of these children live in developing countries.[1]

This paper explores the growing concern over childhood obesity in Mexico, a country that is currently shifting away from issues that have historically affected the developing world, such as under-nutrition. The nation is now experiencing obesity and other related health issues that once only affected wealthy nations. Adjacent to the United States' southwestern border, Mexico is particularly affected by American dietary influences. While technological advances have vastly improved food availability in Mexico, they have also increased media access and food processing, which play important roles in the obesity epidemic. Mexican children are now growing up in an obesogenic environment characterized by physical inactivity and a high-calorie, nutrient-poor diet. One Mexican study illustrates this, finding that mean purchases of soda have risen by 37% while fruit and vegetable purchases have dropped by 29% since 1984.[2]

According to the 2006 Mexican National Health and Nutrition Survey, 24.3% of children and adolescents, ages two through 18, were classified as overweight or obese. One study found that the combined prevalence of overweight and obesity reached 26.1% in school age children and 30.1% in adolescents.[3] This is a serious problem, as the negative health effects of childhood obesity extend well into adulthood. Non-communicable diseases related to obesity—Type 2 diabetes mellitus, cancer and cardiovascular disease—will remain on the rise in Mexico until behavioral changes are promoted and enacted on a national scale.[2] Thus, the aim of this paper is to (1) identify the dietary habits of Mexican children, (2) assess the role of marketing in Mexico's childhood obesity epidemic and (3) illustrate a proposal for eliminating irresponsible food marketing to young people in Mexico.

Dietary Habits and Sedentary Behaviors in Mexican Children

Multiple influences have contributed to the worldwide increase in childhood obesity. Environmental factors on local, national and international levels strongly influence food trends, food consumption and food availability. On the individual level, diet and physical activity are associated with overweight and obesity. The following studies highlight the current dietary habits and sedentary behaviors of children and adolescents in Mexico.

Perichart-Perera et al. investigated food intake in a sample of 228 nine to 13 year-old urban school children in Mexico.[4] The majority of participants failed to meet daily dietary recommendations. Specifically, 77.8% consumed less than the recommended three cups of low-fat dairy per day, 57.9% consumed less than three servings of fruit per day and 54.4% consumed less than two servings of vegetables per day. Instead, the majority of participants' calorie intake came from high-fat dairy products and refined carbohydrates, with about 70% of children reporting daily soft drink consumption. In this study, as much as 25% of the children were overweight, and 29.8% were obese.[4]

Further research agrees that Mexican children are consuming excess amounts of high-energy foods and beverages. In a survey conducted by Ayala et al. (2007), 167 children and teens living on the Mexico-United States border reported an average consumption of nearly three servings of packaged snack foods per day. They also consumed over two servings of candy and nearly three 12-ounce soda beverages per day on average.[5]

Evidence also suggests there is a gender difference in food consumption. For example, Perez-Lizaur, Kaufer-Horwitz and Plazas reported a statistically significant difference in fruit and vegetable intake between girls and boys. Specifically, in a sample of 327 urban school children living in Mexico City, 15.2% of girls consumed at least three fruits or vegetables per day, compared to only 6.7% of boys. In the same study, 63.6% of boys were overweight or obese, while 51.5% of girls were overweight or obese. Moreover, a gender difference in sedentary behaviors was observed in that 48.5% of boys reported watching television or playing video games for four or more hours per day, compared to only 33.5% of girls.[6]

Jimenez-Aguilar, Flores and Shamah-Levy (2009) found a positive correlation between consumption of sugar-sweetened beverages and body mass index in Mexican adolescents, particularly so in males. For each portion of soda consumed per day, a 0.17 increase in body mass index was observed in boys. Furthermore, sugar-sweetened beverage consumption was also positively correlated with television screen time in this same group. In fact, those who watched less than seven hours of television per week consumed smaller amounts of sugar-sweetened beverages. Although 30% of all ten to 19 year-old adolescents in this study were overweight or obese, results were only statistically significant for males.[7] In the 2006 Mexican National Health and Nutrition Survey, Morales-Ruan et al. (2009) further reported that high levels of screen time were associated with overweight and obesity among 10 to 19 year old adolescents. In this survey, 24,921 respondents reported on physical activity levels and screen time, including television viewing and computer gaming. After adjusting for gender, urban versus rural setting, indigenous ethnicity, enrollment in school, tobacco use, alcohol use and physical activity, those who reported at least seven hours of screen time per week were 20% more likely to be overweight or obese than those with a screen time of less than seven hours per week. Participants who reported 21 hours or more of screen time per week were 30% more likely to be overweight or obese.[8]

Advertising to Children of Mexico

The heavy consumption of high-energy snack foods and sugar-sweetened beverages described above is likely the result of numerous factors, including family dietary practices, local food availability and media influences. The findings on the association between television screen time and food consumption suggest that food-related advertisements may play an important role in Mexico's struggle with obesity.

Recent evidence suggests that children in Mexico have a higher exposure to food-related advertising than adults. Perez-Salgado, Nutr, Rivera-Marquez and Ortiz-Hernandez reported in an observational study that 25.8% of television commercials during children's programming were food-related, compared to only 15.4% of those during general audience programming. The types of food items more frequently marketed to children were sweetened beverages, candy and sugar-sweetened cereals. Foods advertised during children's television were also found to be significantly higher in calories, sugar and fat content compared to those marketed during general programming. Interestingly, the most utilized food marketing strategy during children's programming was the offering of a gift or prize with the purchase of a particular product. This occurred in 56.1% of all food commercials during children's television, as opposed to in only 22.2% during general audience programs.[9]

> Obesity is now on the rise in developing countries, crossing urban and rural areas, affecting adults and children alike.

Ramirez-Ley et al. agree that Mexican children are more exposed than adults to advertisements for energy-dense foods. In this study, researchers recorded television programming and advertisements on five channels—two local and three national—for a seven-day period during hours in which viewing by children was likely. They found that of the 8,299 advertisements captured in 235 hours, 22% were food-related. Approximately 50% of all food-related advertisements contained images or contexts oriented to children such as pets, animation, fictional characters or children themselves. Sweetened beverages, candies, and sweetened cereals were frequently the topics of these commercials geared toward children. Furthermore, nearly all advertisements for potato chips and desserts were child-oriented—97.2% and 88.9%, respectively.[10]

Further research done at the United States-Mexico border explores the correlation between food advertisements and food consumption in children ranging from eight- to 18- years old. Ayala et al. found that over 75% of children in the study recalled advertisements for soft drinks, hamburgers, cereal and pizza. On the other hand, less than 40% of children reported seeing fruit and vegetable advertisements. Parental food purchasing behaviors were correlated with children's levels of exposure to food advertising. This is problematic as children whose parents were more likely to purchase food items seen on television commercials reported higher levels of snack food and fat consumption. These families also reported a higher likelihood of eating fast food more than once a week. Conversely, youth who reported less exposure to food advertisements on television also reported higher fiber intake. In addition, this article suggested that family interventions could promote a healthier diet and would help mediate food consumption, as children reported eating more fiber and less snack foods if their parents were more supportive of healthy eating by offering and encouraging more nutritious foods.[5]

The Effects of Food Marketing on Children Worldwide

Further research on food-related advertisements geared toward children in other countries illustrates the harmful consequences of these advertisements on food preferences and consumption. For example, Boyland et al. (2011) conducted an experimental study on a sample of 281 children aged six to 13 years in England. Compared to the control group watching toy commercials, participants exposed to food advertising selected significantly higher amounts of carbohydrate and fat products, both branded and non-branded. Those with high rates of television-viewing generally were more likely to choose advertised foods than those who watched television less frequently. Finally, viewing television for more than 21 hours weekly correlated with higher preferences for all food items, particularly branded foods.[11]

Advertisements not only influence preferences for energy-dense, nutrient-poor foods but may also affect what children are actually eating. Andreyeva, Kelly and Harris (2011) demonstrated that television exposure to advertisements for sugar-sweetened beverages and fast food was associated with an increase in children's consumption of these products. Through a spot market analysis of advertising to a representative sample of children in the United States, these researchers studied the relationship between fast food and soft drink advertisement exposure to consumption among elementary school children. For every 100 commercials viewed over a three-year period, there was a 9.4% rise in consumption of sugar-sweetened beverages. The same exposure to fast food advertising was associated with a 1.1% increase in consumption of fast food.[12]

Food choices, however, are not only influenced by commercial advertising on television. In an Australian experimental study, Jones and Kervin (2010) showed that food advertisements found in print media also affected food choices. Among five to 12 year-old participants, those who read child-targeted magazines with "unhealthy" food advertisements tended to select more non-nutritious food items compared to the control group.[13] The food industry also markets to children and adolescents through product placements appearing in television programming. According to Speers, Harris and Schwartz

(2011), young audiences are frequent targets of this type of marketing, especially during prime-time television. Coca Cola products, for example, accounted for 70% of brand appearances viewed by children during prime-time programming of popular shows in the United States.[14]

The persuasive techniques of marketing are particularly influential on children, and thus can have a great effect on their long-term eating behaviors. In a multi-national study conducted by Goris, Petersen, Stamatakis and Veerman (2009), the effect of television food advertising was quantified and compared to the prevalence of overweight and obesity in children six to 11 years old. They found that the rate of exposure to food advertisements was positively associated with the rate of obesity. The United States had the highest rates of exposure as well as overweight and obesity in children, with an average daily marketing exposure time of 11.5 minutes and a combined overweight plus obesity prevalence of 32.2% among boys and 34.0% among girls. Conversely, the Netherlands had a daily advertising exposure of 1.8 minutes and combined overweight plus obesity rates of 14.5% amongst boys and 15.9% amongst girls.[15]

> The heavy consumption of high-energy snack foods and sugar-sweetened beverages… is likely the result of numerous factors, including family dietary practices, local food availability and media influences.

Food-related advertising to children is associated with an increase in consumption of energy-dense, nutrient-poor foods, which suggests that a decrease in food-related advertising may decrease the intake of such products. In fact, evidence shows that restricting the marketing of unhealthy foods reduces their consumption. Dhar and Baylis (2011) examined the effectiveness of a ban on fast food advertising to children in the Canadian province of Quebec. Results showed that while the ban was in effect, consumer spending on fast food was 13% lower per week in Quebec than in similar households in Ontario, a neighboring Canadian region where the ban was not in place. The estimated decrease in Quebec's fast food expenditures was $88 million per year. Such evidence supports the effectiveness of marketing regulations on the consumption of energy-dense, nutrient-poor foods.[16]

A Look at Industry Initiatives Worldwide

Regulations initiated by companies themselves have had little influence on reducing marketing to children. The Canadian Children's Food and Beverage Advertising Initiative (CAI), for example, is a self-regulatory advertising initiative in which companies pledge to limit advertisements directed toward children. Still, research shows that the corporations within the CAI actually broadcast more television promotions than other companies within the food and beverage industry. According to a Canadian study conducted by Kent, Dubois and Wanless (2011), in an 87.5-hour sample of children's preferred television, the 17 companies that comprise the CAI were responsible for 67% of food and beverage commercials. The remaining 33% of commercials in this time frame consisted of 35 companies not participating in the CAI. Interestingly, when analyzing promotions that used characters from popular media geared toward children, only 45% of non-CAI commercials advertised foods or beverages deemed unhealthy. CAI companies, however, were significantly more likely to advertise unhealthy foods, with 92% of advertisements with media characters promoting such foods. They marketed items that were high in fat, sugar, sodium and caloric density.[17]

Hebden, King, Grunseit, Kelly and Chapman (2011) showed similar results in Australia. In 2009, the seven quick-service companies that joined the Australian Quick Service Restaurant Industry Initiative for Responsible Advertising and Marketing to Children agreed to advertise only healthier choices or lifestyles in television commercials geared toward children under the age of 14. Overall fast-food advertising, however, continued to increase despite such voluntary regulations.[18] Participating companies including KFC and McDonald's agreed that their advertising and marketing to children would "[r]epresent healthier choices … and/or … represent a healthy lifestyle."[19] Instead, eight months after the initiative began, the average frequency of commercials for unhealthy fast food items remained the same at 1.3 per hour.[18]

Alexander, Yach and Mensah (2011) explored the impact that food and beverage companies could have on public health based on market share data. Some major international food and beverage companies have made pledges to "improve the nutrition quality of products and restrict advertising to children" by entering the International Food and Beverage Alliance (IFBA). The major firms within the alliance are Ferrero, General Mills, Grupo Bimbo, Kellogg's, Kraft Foods, Mars, Nestle, PepsiCo, Coca-Cola Company and Unilever. The Coca-Cola Company and PepsiCo, Inc., both participants in the IFBA, together represent 62.8% of the soft drink market in Mexico. Still, the authors of this article concluded that the impact of the IFBA will remain limited unless these multinational corporations are joined by the smaller companies that make up the rest of the market share.[20]

Alexander, et al. (2011) further illustrated that while soft drink companies within the IFBA represent the majority of the market share worldwide and in Mexico, the packaged food companies represent a very small portion. Of the packaged food companies with the top ten market shares in Mexico, only five are participants in the IFBA. However, these top ten only represent 32.4% of the Mexican market, leaving a large majority of the market unrepresented. Grupo Bimbo, a Mexican-based company, holds the largest share at 8.8% of the packaged food sales in Mexico and is the largest baked goods company in the world. In 2003, they launched an initiative titled "Committed to Your Health." The initiative had only modest success within the vast shared market. To further facilitate positive health changes, such as a decrease in obesity, participation in health initiatives by all companies in the packaged food industry is necessary.[20]

A Proposal for Mexican Policy

Due to the limited effects of food industry self-regulations, enforceable governmental restrictions on food-related advertising to young people must be pursued. This would ensure that companies are marketing their products responsibly in light of the obesity epidemic. The goals of this policy should be two-fold: (a) set nutritional standards to help distinguish between healthy and less nutritious foods and beverages, and (b) ban the marketing of unhealthy food and beverage items to children and adolescents.

The current dietary guidelines issued by Mexico's Secretary of Health in 2000 provide a basic overview of a healthy lifestyle with regard to eating, drinking, and physical activity. El Plato del Bien Comer, or "Plate of Good Eating", divides food items into three main groups: (1) fruits and vegetables, (2) cereals and grains and (3) animal proteins. According to these guidelines, consumers are encouraged to eat "high" amounts of fruits and vegetables, "sufficient" amounts of cereals and grains, and "low" amounts of animal proteins.[21] Designed for the lay Mexican population, El Plato del Bien Comer is made simple for both the literate and illiterate. National guidelines pertaining to the food industry, however, are nonexistent. Furthermore, no nutritional standards for food advertising, let alone for food advertising to children, have been devised to date.

The need for specific nutritional standards on food and beverage products allowed to be advertised to children is of prime importance in Mexico. The lack of mandatory criteria warrants great concern as companies continue to produce and advertise food items that are detrimental to childhood health. More specifically, the Mexican Secretary of Health should outline explicit parameters on nutrients found in food products marketed toward children. By first establishing clear standards for the food and beverage industry, the Mexican government can then begin setting limits on food-related advertising toward children.

Since voluntary marketing restrictions have been largely unsuccessful in other countries.[17,18] Mexico must instead implement national restrictions on food advertising to children, which include advertisements that appear during children's television programming as well as advertisements that consist of child-oriented themes. Because other media influences apart from television have been shown to affect food choices, print media and radio advertisements geared toward children should also be restricted. Companies would be subject to specific nutritional standards in order to market food and beverage items to minors under age 18, the legal age of adulthood in Mexico. A legal policy, enforced by the Secretary of Health, would ensure that children are only receiving healthful food messages through responsible marketing. It would also encourage the food and beverage industry to produce food items that meet nutritional standards.

Moreover, a ban on advertising unhealthy foods to children allows for all companies in the food and beverage industry to be participants in the fight against childhood obesity. As Alexander et al. (2011) explained, the proportion of companies joining voluntary pacts is too small to have a significant impact.[20] In contrast to voluntary or partial bans, a policy that simply prohibits all unhealthy food advertising is more feasible for a developing nation like Mexico, as fewer resources would be needed to monitor companies' compliance with policy. Establishing a system of monetary fines for companies that deviate from this policy would further increase its feasibility. Furthermore, strict requirements would be most effective at yielding reductions in advertisements that are significant enough to evoke improvements in eating behaviors that have long-term health effects. Thus, mandatory regulations imposed by the Mexican government are a key step to promoting behavioral change and improving the unhealthful eating associated with childhood obesity.

Recommendations for Future Research

To further support the importance of policy changes in Mexico, more research is needed. The following are recommendations for future research on child-targeted food marketing in Mexico. A major limitation in the current body of evidence is the reliance on cross-sectional data alone to draw conclusions on the association between television advertisement exposure and children's dietary habits in Mexico. As a result, causality is difficult to determine. While the results from the studies mentioned in this article imply direct relationships between food-related advertisements and altered food preferences and consumption, longitudinal studies would be helpful in measuring true causality.

Additionally, the studies discussed in this paper are predominantly observational, rather than experimental. Again, causation is difficult to determine through this kind of design. Because obesity is a multi-factorial disease, controlling for potential confounding variables is essential. For example, children that exhibit sedentary behaviors may be more likely to watch television, and thus more exposed to food-related advertisements. It is then difficult to estimate the true cause of poor diet and obesity, unless there is a control for activity levels. Large cohort studies and ethically-designed randomized control trials would, therefore, be beneficial additions to the current literature.

Furthermore, the information known today on this subject has largely been collected through self-reports of television exposure and dietary habits. Thus, bias may potentially compromise the internal validity of the available research. Self-reported data is subject to inaccuracy as respondents are asked to recall details and report objectively. Prospective longitudinal designs would allow participants to document or investigators to observe marketing exposure and food intake through the course of the study, and may provide stronger evidence.

Finally, the aforementioned articles depict mere snapshots of children's exposure to food and beverage marketing in Mexico. The sample populations represent television exposure in select geographic regions including Mexico City, Baja California, and the Mexico-United States border. Although results are consistent with the literature that food-related advertising impacts children's food consumption, generalization to other Mexican regions is limited. To reinforce future policies on food-related advertising to children in Mexico, more regionally dispersed studies on the effects of marketing on childhood obesity are needed.

Conclusion

Childhood obesity is rapidly on the rise in Mexico. One of the many reasons for this is that children are living in an obesogenic environment that supports a sedentary lifestyle and promotes unhealthy eating. Mexican children are highly exposed to media influences such as food-related advertisements for energy-dense nutrient-poor foods and beverages. Exposure to marketing through television commercials, product placements and magazine advertisements has been shown to sway children's food preferences and eating habits. Enforceable interventions that limit marketing to children may therefore have a positive influence on children's diets. A government-imposed ban on unhealthy food advertising to children is a necessary component in the fight against childhood obesity.

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Human Papillomavirus

A Canadian Investigation into the Global Vaccination Controversy

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Background

Human papillomavirus (HPV) is one of the most prevalent sexually transmitted infections throughout the world. It is estimated that "as many as 75% of sexually active men and women will have at least one HPV infection in their lifetime."[1] HPV is a viral sexually transmitted infection (STI) primarily spread through sexual contact. Unfortunately, there is no medical cure for HPV, so it cannot be treated post-infection.[2] Ho et al. (1998) discovered that HPV takes about eight months to be cured naturally by the immune system of a university-aged female. During the infected period, however, both males and females can transmit HPV to their sexual partners through skin to skin contact.[3,4]

Physical symptoms of HPV include "cauliflower-like warts appearing on the genitals…typically three to eight months after intercourse with an infected person." However, the majority of infected individuals are often unaware that they have been infected because the infection is frequently asymptomatic. In a study by Peyton et al. (2001), the researchers found that within their female participants, 39.2% of HPV infections were asymptomatic.[5] Therefore, it is advisable for one to take precautions during sexual activity such as using condoms.[4] HPV has been linked to cervical, penile and anal cancers, among others.[6] Specifically, it has been shown to "[cause] approximately 70% of cervical cancers worldwide."[7,8]

In the context of public health, HPV remained an untreatable ailment until the recent development of HPV vaccines, notably Gardasil and Cervarix. These vaccinations can prevent infection with HPV if an individual is vaccinated prior to being exposed to the virus.[9]

Since their discovery, these vaccinations have been widely championed by public health organizations such as the World Health Organization, Public Health Association of Canada and American Center for Disease Control and Prevention as highly effective means for preventing HPV and its related cancers. Nonetheless, the vaccinations have become controversial in Canada because of the new vaccination campaign implemented by Health Canada. In July of 2006, Health Canada, the national body responsible for public health surveillance and interventions in Canada, approved the use of Gardasil, a vaccine that protects against HPV types 6, 11, 16 and 18, in females aged nine to 26.[6] By September 2008 all provinces and territories had implemented school-based vaccination campaigns which targeted females as young as nine years old. These campaigns have provoked controversy among conservative political groups and religious organizations that oppose this alleged sexualization of young girls. However, medical professionals argue that vaccinating females early—prior to their sexual debut—increases the effectiveness of the vaccine. The vaccine is 16.9% more efficacious in preventing HPV (types 16 and 18) in females aged 16 to 26 than in those aged 24 to 45.[6]

Some physicians, who oppose the HPV vaccination, believe that regular Papanicolaou tests, also known as Pap smears, are an effective means of detecting HPV and thereby preventing cervical cancer.[10] Detecting HPV is important in reducing its spread throughout the population, but given that HPV is untreatable, post-infection treatment is not a viable solution to preventing cervical cancer. These physicians have also suggested that the school-implemented, government-sponsored vaccination campaign is merely the result of lobbying by pharmaceutical companies that produce the vaccine.[10]

Although this vaccine has been available in Canada for more than five years, its administration to youth (ages nine to 26) remains a controversial topic. Opponents of the vaccine criticize it for allegedly encouraging early sexual debut and risky sexual practices. In addition, this vaccine and its campaign raise many issues regarding the public perception of sexuality, such as the stigma regarding STIs and sexual activity among youth populations. The long-term effects of this vaccine and the level of protection that is actually established once it is administered are also matters of contention.

Effectiveness of the HPV Vaccines

Many groups who oppose the HPV vaccination hold disparate concerns over its application. Those opposed to the large scale vaccination program implemented by Health Canada have cited "concerns… regarding vaccine safety and long-term efficacy."[11] During large, multinational clinical trials, vaccination has been proven safe in males and females aged nine to 26 for the short-term; however, long-term issues have yet to be investigated.[6,11] Despite this, concern has arisen due to the dissemination of inaccurate statements by the media and certain social groups as well as a general lack of open dialogue regarding sexual matters.

Groups that endorse the implementation of this vaccine argue that its effectiveness in reducing HPV incidence, precancerous lesions and cervical cancer rates outweighs any possible long-term side effects.[11] Clinical trials of the HPV vaccine Gardasil show that individuals who receive the vaccine have an approximately 99% decreased relative risk of developing pre-cancerous cells caused by HPV compared to those who declined the vaccine. In a sample of 10,000 females, the incidence of HPV-based genital warts in the vaccinated population was zero, while it was 251 in the unvaccinated population. Additionally, a lower incidence of cervical cancer has been found in vaccinated individuals. In one study the HPV vaccination was 100% effective at preventing cervical cancer precursors. No discrepancies have been found between control groups, groups who did not receive the vaccine and vaccinated groups with regards to serious side effects from the vaccine.[9,12]

In 2011, 390 women in Canada died of cervical cancer.[13] Estimates have shown that vaccination may prevent 70% of such deaths. Therefore, the HPV vaccine appears to be a cost-effective intervention in preventing cervical cancer and HPV infections. Experts have stated that the vaccines "produced a cost per quality-adjusted life year ratio below the traditionally used cut-off of [$50,000 USD] per [quality-adjusted life year]."[14] These vaccines are arguably one of the largest breakthroughs in cancer prevention in the last decade.

Public Perception of the HPV Vaccines

The controversy surrounding these vaccines stems from the stigmatization of STI-infected individuals as "promiscuous, unfaithful, and shameful."[15] This can often be a barrier to the dissemination of information as well as the prevention, screening and treatment of these infections. As a result of stigma, pathogenically-positive individuals conceal their infections, further impeding honest discussion about the prevention of STIs. For example, some individuals report that they have not received or do not seek to receive the HPV vaccine because they fear it will make their partner, family or community at large view them as promiscuous.[15]

Religious organizations and conservative political organizations often hold conservative view towards these topics and have questioned the national HPV immunization campaign. In 2012, the Calgary Catholic School Board implemented a policy banning vaccination clinics in their school after Bishop Henry expressed concern that the HPV vaccines encouraged promiscuity among youth.[16] Yet, studies have shown that the fear of earlier sexual debut and increased frequency of sexual activity is unfounded as there is a "lack of association between receipt of HPV vaccine and initiation or increased frequency of sexual behaviors."[17] Rosenthal et al. (2008) noted that participants who received physician counseling had a more positive outlook regarding the vaccine and a better understanding of the need to vaccinate their children at a young age prior to sexual initiation.[18] This may suggest that proper counseling with a healthcare professional may help parents recognize the need for vaccination.

Kahan et al. (2010) found that "disagreements about the risks and benefits of HPV vaccination are shaped by cultural values, which exert their influence through the biased assimilation of information."[19] This finding largely illustrates the reason for the apprehension and skepticism of some conservatives towards accepting the HPV vaccination.

The claim that the HPV vaccine will promote unsafe sexual practices is largely unsupported. Opponents of the HPV vaccines have argued that "vaccinating adolescents against a sexually transmitted infection is tantamount to encouraging them to become sexually active."[11] The public perception that an adult choosing to have their child vaccinated, or an adult themselves becoming vaccinated, is condoning high-risk sexual behavior is unsubstantiated. Liddon et al. (2012) found no association between unsafe sexual behavior and administration of the HPV vaccine.[17] When considering public health interventions related to youth sexuality it has been demonstrated that providing more information and alternatives to youth leads to higher utilization rates of the respective public health intervention; indeed, if youth are ignorant to the reason behind a preventative measure they are unlikely to utilize it.[20] This is illustrated by the relative inefficacy of abstinence-only education programs compared to more comprehensive methods of sexual education.[11,20] Santelli et al. (2006) noted that "while abstinence is theoretically 100% effective in typical use, the effectiveness of abstinence may approach zero".[21]

While controversy surrounding the HPV vaccination will remain, it is imperative that we, as a country and as public health professionals, vaccinate as many individuals as possible.

During her campaign for the 2012 Republican Party Presidential nomination, Michelle Bachmann, a United States Republican Party Congresswoman, made unsubstantiated claims that the HPV vaccine caused mental retardation in a recipient and that parents should thus avoid vaccinating their children.[22] This statement dramatically raised public concerns over the safety of HPV vaccines. Groups, conservative or otherwise, that oppose the HPV vaccine and publically propagate misinformation regarding a vaccine, may create a negative public opinion regarding the vaccine. One high-profile case of this phenomenon is that of British researcher and physician Andrew Wakefield's false statements regarding the measles, mumps and rubella (MMR) vaccine in the UK that led to a dramatic decline in MMR vaccination rates.[23] This decline in vaccination rates due to misinformation resulted in at least four preventable deaths. One physician labeled the incident "the most damaging medical hoax in the last 100 years."[23]

Researchers have found that sex-fearing individuals are less likely to be proactive in utilizing preventative measures to reduce their risk of sexual health issues. An individual's attitudes and beliefs about sexuality can be measured on a scale ranging from erotophilic, or sex-loving, to erotophobic, or sex-fearing. Erotophobic individuals "score higher on authoritarianism and need for achievement, have more traditional sex roles, experience more sex guilt, and have more negative reactions to masturbation and homosexuality than erotophiles" who typically "masturbate and fantasize more frequently, think about sex more often, have sexual intercourse for the first time at an earlier age, have more past sexual experiences and have a greater number of intercourse partners."[24] It is important to recognize that this continuum is neither a predictor nor a diagnostic tool for sexual dysfunction and that no position on this continuum is more desired than any other position. However, this scale can act as a predictor of one's personality traits and whether or not an individual will utilize a sexual intervention.[25] Erotophobic individuals are considerably less likely than erotophilic individuals to "engage in certain preventative behaviors in respect to sexually transmitted [infections]."[24] This knowledge could explain the opposition to the vaccine in Canadian and American populations.

Public health professionals must address the discrepancies between proven medical information and the beliefs of the general public. Efforts should be made to bridge the information gap by providing accurate medical knowledge and scientific facts regarding the vaccine to household media outlets and public health authorities through either Health Canada or the Public Health Agency of Canada. The enactment of campaigns to reduce social stigma regarding sexually transmitted infections may also be an apt intervention.

Effect of Controversy on Immunization Rates

Though seemingly proactive compared to nations with privatized healthcare, due to the controversy surrounding the HPV vaccine, Canada is far behind other nations with socialized healthcare systems in implementing the vaccine.[26]

Australia, with a similar GDP, healthcare system and HPV program to Canada, is a suitable country with which to contrast the Canadian vaccination program. In the period between April 2007 and December 2009, Australia's national-level school vaccination program (which in that phase vaccinated females aged 12 and 13) exhibited an 83% coverage rate for first doses and a 73% coverage rate for the third/final dose of the HPV vaccine.[27] In the same period the Australian school catch-up program (which targets females aged 14 to 15) exhibited 84% and 72% coverage rates, respectively, for first and third/final doses of the HPV vaccine.[27] Australia has even begun vaccine campaigns for boys to further prevent the spread of HPV.[26]

While national statistics on Canadian vaccine rates have not yet been reported, statistics from the initial vaccination efforts among school age children in the Canadian province of Ontario (where females in Grade Eight, aged 13 to 14, were offered the vaccine) showed that only 53% of those who were eligible received their government-subsidized vaccine in 2007.[26] Statistics from the United States are more concerning: at the end of 2008, after 2.5 years of HPV vaccination availability "only 37.2% of 13–17 year old girls had initiated the 3-dose series…and far fewer, only 17.9%, had completed it."[28]

While controversy surrounding the HPV vaccination will remain, it is imperative that we, as a country and as public health professionals, vaccinate as many individuals as possible. If we are able to vaccinate a majority of the population, then we may be able to provide herd immunity, a practice in which a significant proportion of the population is vaccinated. Due to a lower likelihood that unvaccinated individuals will come into contact with an infected individual, herd immunity would provide unvaccinated individuals with a level of protection.[29] This method is similar to the strategy used by the World Health Organization in eradicating polio in the late 1980s and early 1990s.[30]

Although it is not an identical disease to HPV, the Hepatitis B vaccine has been compared to the HPV vaccine. Since 1986, children in Canada have been vaccinated against the B strain of Hepatitis in three doses administered at birth, one month after birth and six months after birth.[6] Hepatitis B is commonly transmitted through sexual contact and yet there has been little to no controversy surrounding the sexual facet of this vaccine perhaps due to the extremely young age of the infants being vaccinated.[31] The controversy that once surrounded this vaccine was over the safety of the vaccine in children and did not include any concerns about effects upon the individual's sexual behavior.[32] While it is arguable that sexual initiation is a remote notion for the children receiving the Hepatitis B vaccine, it is important to remember that sexual initiation is likely to also be markedly distant for those who receive the HPV vaccine at age nine given that according to data from the National Longitudinal Survey of Children and Youth and the 2003 Canadian Community Health Survey the "average age of first sexual intercourse [is] 16.5" for Canadian males and females.[33] While the Hepatitis B vaccine was once controversial, it has more recently become widely accepted by both the medical community and the general population, a trend that could, perhaps, be replicated by the HPV vaccine.

Conclusion

The controversy surrounding the HPV vaccines, in Canada and abroad, is characterized by persistent opposition from those who oppose the vaccination of young girls, as well as varying opposition from select academics. Although this vaccine has repeatedly been proven safe and cost-effective through experimental trials as a means of preventing both HPV and cervical cancer, opposing individuals argue that these vaccines will increase rates of unsafe sex and decrease the age of sexual debut for youth. While this argument has been unsubstantiated, it has been widely spread through the media and must still be taken into account when considering interventions to increase vaccination rate.

Individuals who support the implementation of Health Canada's vaccination campaign recognize the efficacy of Gardasil and Cervarix in reducing the burden of disease caused by HPV and related cancers, particularly cervical cancer. Canada's HPV vaccination program is behind in comparison to other countries with socialized healthcare systems. Further expansion of the vaccination campaign to include males is needed given that the vaccination has been approved for use in this population and this would further the extent of herd immunity within the population. With proper utilization of the HPV vaccination, it may be possible to eradicate HPV altogether and also significantly reduce the incidence of cervical cancer.

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Multifaceted Adolescent Reproductive Health Education Strategies in Panama

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Abstract

Advances in adolescent healthcare have the potential to greatly impact worldwide public health and well-being. Reproductive health education relates directly to the United Nations Millennium Development Goals (UN MDGs) 1, 3, 5, 6 and 8, which concern poverty, gender equality, maternal health, combating HIV/AIDS and global partnership, respectively. However, current research comparing education strategies is limited.[1] Research in the area of reproductive health education must take into account cultural factors and societal norms in addition to political pressures and infrastructural constraints.

In this paper, three methods of adolescent reproductive education in Panama are compared through the lens of the UN MDGs. This analysis reveals that formal education sector initiatives in public schools, non-governmental organizations' participation in schools and grassroots advocacy all have distinct strengths and uniquely address various MDGs. These methods, when used in conjunction, can provide a starting point from which to guide the development of an adolescent reproductive health education program in Panama.

A Comparative Analysis of HIV/AIDS Education Programs in Panama

The need for preventive reproductive care and health education is widely acknowledged in international medical and public health communities. Specifically, the need for high-impact adolescent sexual and reproductive healthcare programs has become a primary concern for global health organizations such as the World Health Organization (WHO) and the United Nations.[2] Sexual education is related to many other markers of health and well-being, including maternal and child health, extreme poverty and gender equality. Therefore, it has become the focus of many youth health advocacy programs. Efforts in Panama to address this concern by government and non-government entities alike provide scenarios in which diverse methods of addressing public health needs can undergo comparative analyses and serve as indicators of area-wide changes. The development of multiple targeted programs in Panama may be a useful model for other countries with similar circumstances, namely limited resources, infrastructure challenges and highly diverse populations.[3]

However, Panama does have certain unique healthcare characteristics that distinguish it from similar countries. Regarding HIV/AIDS prevalence, the country is at a critical point in which the situation can either drastically improve or deteriorate, depending on how it is addressed.[4] As a result, the government has chosen to support a variety of programs that address adolescent sexual health in efforts to decrease the prevalence of HIV/AIDS. Government entities disburse discretionary funds to programs, and the National Assembly has passed legislation promoting youth rights, in order to improve adolescent health. Non-governmental organizations (NGOs), both international and Panama-based, have increased their involvement in the country. Programs by three NGOs – Aid for AIDS, APLAFA and PROBIDSIDA – are attempting to create HIV/AIDS and reproductive health education opportunities within formal and informal education sectors.

The Greater Impact of Reproductive Health Education

Adolescent reproductive health is a widespread global concern. Sexually transmitted infection (STI) incidence rates are the highest in individuals younger than 25 years of age. It is estimated that 20% to 50% of the annual 340 million curable infections of syphilis, gonorrhea, chlamydia and trichomoniasis occur in this age group, but incidence is underreported due to a lack of routine reproductive health services.[5] Worldwide, an estimated 6000 young people aged 15 to 24 are newly infected with HIV every day. In 2008, 45% of new global HIV infections were found in individuals from this age group.[4,6] In Panama, 22% of new HIV infections have been diagnosed in individuals that are 10 to 29 years of age.[11]

Sexual behavior as a whole should be viewed within its sociocultural context.[2] Generalizing motivations for sexual activity is misleading, as factors including socioeconomic status, gender, cultural norms and the media play notable roles in shaping individuals' sexual behavior. These contexts vary not only between populations, but also in sub-demographics within populations. Linda Bearinger, who studied sexual education programs, advocates a system of clinical services, education and youth empowerment programs to counter and adapt to these variable influences.[5] The WHO acknowledges the need for context and specificity with its statement that "no general approach to sexual-health promotion will work everywhere, and no single-component intervention will work anywhere."[2]

Unfortunately, studies advocating tailored methods often combine data from disparate settings and contexts, counter-intuitively offering generalized recommendations for public health providers and workers. For example, Wellings et al. (2006) used research based in Sub-Saharan Africa and Southern Asia and extrapolated recommendations for Latin America.[3] This cultural translation homogenizes different groups and ignores the importance of specific cultural, political and regional contexts. In Latin America, within-population and between-population variations are significant due to immigration and the large number of indigenous groups. Therefore, underestimating diversity undermines the development of custom programs.

The Lens of the UN Millennium Development Goals

In September 2000, the United Nations (UN) approved what are now known as the Millennium Development Goals (MDGs).[1] These eight areas for improvement were built around the realization that public and individual well-being are influenced by a number of social, cultural and political factors. These goals are: 1) to eradicate extreme poverty and hunger; 2) to achieve universal primary education; 3) to promote gender equality and empower women; 4) to reduce child mortality; 5) to improve maternal health; 6) to combat HIV/AIDS, malaria and other diseases; 7) to ensure environmental sustainability; and 8) to develop a global partnership for development.

The UN recognizes that these goals are interrelated and inter-dependent, reflecting the belief that progress toward one goal renders the other goals more attainable. The web that connects HIV/AIDS to reproductive and sexual health also includes maternal health (MDG 5), gender equality and women's empowerment (MDG 3), extreme poverty (MDG 1) and global cooperation (MDG 8). Reproductive education programs, including those focusing on HIV/AIDS, therefore, have a purpose beyond eradicating a disease. These programs further numerous MDGs that improve both the individual's quality of life and the community's overall health. In-depth analysis focusing on maximizing impact with limited resources can help optimize a single nation's reproductive health education programs as well as provide opportunities for progress towards an overall higher standard of health and well-being.

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Reproductive Health in Panama: Local Context and Framework for Analysis

As stated by the 2002 WHO World Health Report, "[u]nderstanding the contribution of the different [education intervention] components would be very useful in deciding on the appropriate overall strategy" for reproductive education.[7] In-depth consideration of the strengths and weaknesses of each method and their impact as a whole facilitates this process. As such, attempts have been made to provide as comprehensive an evaluation as possible. The analysis will be tripartite, examining political context, statistical data and cultural impact.

The Republic of Panama's National Constitution Article 106 assigns primary responsibility for developing prevention and health education strategies to the state. The Ministry of Health dictates resource allocation and implementation strategies as approved by the executive branch. Article 76 of 2001's Ministry of Health Law 119 explicitly outlines that the Ministry of Health will coordinate education and prevention campaigns with all government and autonomous (non-government) entities in the public and private sector.[8]

The cultural diversity of Panama must be taken into account when analyzing the efficacy of health education programs. In addition to mestizo and immigrant populations, the country is home to seven indigenous groups. To protect the rights of these tribes, three indigenous regions and two indigenous sub-regions (or comarcas) have been established in addition to the nine provinces that subdivide Panama. The comarcas are given substantial administrative autonomy by the state, and the laws of its people are established within its boundaries. Legislative policies are usually developed by national branches in cooperation with the local governing body as opposed to unilaterally by the state (UNDP Panama). As these groups have unique characteristics with respect to public health, they must be looked at individually, rather than subsuming them within the larger population. Although 75% of Panamanians live in urban areas (with that proportion increasing 2.3% per year), socioeconomic conditions in cities are highly variable.[9,10] These differences in living conditions and cultural heritage illustrate the need for nuanced approaches to public health and education in Panama.

In such a heterogeneous population, it must be considered how each type of education program addresses changing cultural factors such as youth rights and political status, legal and social discrimination against homosexuality, interpersonal violence, sex-negative media (portrayals of sex as dirty or taboo) and traditional gender roles. Incorporating such context-specific influences is vital to developing well-designed reproductive health education programs. Discussion of these social pressures and their influence on sexual behavior and quality of life denotes the broader significance of these education programs. The ways by which each strategy does so will serve as the final criteria for comparative study of HIV/AIDS prevention efforts.

Using the perspectives of political support, statistical data and cultural context, three types of HIV/AIDS and reproductive health education programs will be analyzed: "formal" education efforts in public Panamanian school systems with a "top-down" structure, NGO-led "informal" sector approach using peer community agents in a "grassroots" dissemination strategy and the "mixed" approach using peer community agents in coordination with school infrastructure. Source data includes first-hand materials the author collected during the summer of 2011 through an internship with Universidad Latina Panama and several NGOs.

Formal Sector Youth Reproductive Health Education: Schools and Public Health Centers

Despite helping to pass the UN MDGs, the 1994 UN International Conference on Population & Development (ICPD) Cairo resolutions and the International AIDS Society 2008 conference declaration—all of which promote comprehensive sexual or reproductive education for adolescents—the Panamanian government has neglected to legislate any such programs within its own country.[11,12] As recently as 2011, political efforts to pass comprehensive sex education programs in public schools (the formal sector) have failed, defeated by legislative delays, opposition by the Ministry of Education and pressure from religious groups.[10,13]

The Ministry of Education actively forbids NGO-representative activities within public schools and also prevents free discussion by teachers on the subjects of sexual education and human rights. Reform efforts by the leading comprehensive sexual education advocacy organization, La Coalicíon Panameña por la Educación Integral en Sexualidad (Cpeis), have been ignored by the Ministry with no alternative education program offered.[14] This holding pattern is limited to the formal education sector. The hostile legislative environment has created a functional absence of academic research on sexual education within public schools. In a vicious cycle of stagnation, political and religious leaders state the need for precisely such studies in order to consider changes.[10]

Statistical health data in Panama, though limited, indicates certain trends of risky sexual behaviors. For example, 19.8% of Panamanian women aged 15 to 19 are mothers, and 333,896 live births by mothers ages 11 to 19 were recorded from 2005 to 2009. In 2008, 96.6% of those adolescent mothers had attended public schools.[11] The disproportionate pregnancy rate for public school students cannot be causally linked, but it does indicate a comparative failure to engage with reproductive health issues when compared to the smaller number of pregnant private school students. Though factors such as under-reporting by private schools may skew the data, the raw number of pregnancies indicates that the phenomenon is more widespread in public schools. Adolescent pregnancies are associated with higher health risks to the mother and child, negatively impacting MDGs 3 and 5: gender equality and maternal health. In addition, adolescent pregnancies alone indicate unsafe sexual practices stemming from improper or nonexistent contraception usage, putting MDG 6 (combating HIV/AIDS) at risk.

Culturally, the formal sector struggles to combat discrimination. The National Assembly passed non-discriminatory legislation guaranteeing the right of pregnant adolescents to continued education within the public school system. However, only 1.36% of teen mothers between 2004 and 2009 continued or returned to schools after giving birth.[10] Professionals and students alike recognize that discrimination and expulsion of pregnant students by school officials perpetuate stigma against the acceptance of sexual and reproductive health, though incomplete records make such causalities impossible to prove.[10] Public health centers, as established by the state, are mandated to provide care to adolescents without guardian consent or involvement, and efforts are made to train public health professionals about the importance of respecting adolescents' rights to healthcare.[15] Unfortunately, as stated by NGO and healthcare professionals with whom I worked, centers are known to turn young people away under the false premise that a guardian must be present. This creates another barrier to the protection and empowerment of adolescents and further stigmatizes reproductive health. These violations of human rights indicate the formal sector's failure to address cultural norms affecting youth reproductive health. Such practices negatively impact UN MDGs 3 and 5 (gender equality, women's empowerment and maternal health).

Further, the formal sector does not reach all targeted youth. Infrastructure is especially poor in the comarcas, where only 37% of the population finishes secondary school. A lack of higher education opportunities forces adolescents either to leave their homes for areas with schools or to give up higher education goals.[19] Public schools are attended mostly by students of lower socioeconomic status, as private schools are highly preferred by families who can afford them. Public health centers are often the only resource for individuals in low socioeconomic urban neighborhoods and rural areas. Thus, restrictive educational and political policies disproportionately affect adolescents who are already exposed to high reproductive health risk factors. This relationship indicates the inter-relatedness of sociocultural factors as recognized by the UN in the Millennium Development Goals and underscores the importance of context in initiatives such as HIV/AIDS prevention and reproductive health education.

However, public schools undoubtedly play a role in public education overall and involve a significant number of Panamanian youth. Current political opposition and cultural stigma challenge the efficacy of the formal sector as a forum for reproductive education, but the extensive potential impacts of using this system give reason for such initiatives to be pursued. This would require legislative or administrative changes and a dramatic shift from current policies; thus, resistance to such changes represents a significant limitation of this strategy. Public health centers, as key resources with an established infrastructure, could be instrumental in reaching out to adolescents while destigmatizing their needs. The potential benefits of reaching numerous individuals and challenging social stigma from within the public sector system are significant, particularly with respect to high-risk adolescents. This avenue should therefore be part of a multifaceted approach. The formal education sector alone does not reach all youth and is therefore insufficient in addressing the nation's problems. One alternate education method utilizes the cooperation of NGO education workshops with existing school infrastructures.

"Mixed" Sector Youth Reproductive Education: Peer Advocates in the School System

This strategy utilizes a hybrid approach of informal sector peer educators supervised via the formal sector. Although the Ministry of Education has prohibited NGO involvement in public schools, private schools have more liberties regarding curriculum development. With regards to adolescent reproductive health, private schools recently have begun working with local NGOs. This relationship incorporates comprehensive sexual education with minimal labor and finance costs while side-stepping political challenges, creating a 'mixed' sector of NGO-led peer education within a formal education infrastructure.

The dominant NGO in these partnerships is Fundación pro Bienestar y Dignidad de las Personas Afectadas por el VIH/SIDA (PROBIDSIDA), an advocate of HIV/AIDS awareness, testing and carrier rights. PROBIDSIDA is credited with influencing the passed legislation that covers payment for first-line HIV/AIDS medications while creating a fund for free and low-cost HIV testing. It holds education and testing events throughout Panama City and is also involved with the Panama City Children's Hospital. The NGO is considered an authority on HIV/AIDS policies and is supported financially by the Office of the President and First Lady.[16] Political support for the organization is significant, which facilitates program development and outreach.

PROBIDSIDA Juventud (PROBIDSIDA Youth) workshops invite small teams of students (accompanied by a teacher) to a retreat with teams from other schools. Afterward, students hold teacher-supervised discussions in their classes and communities using materials obtained during the workshop and report results back to PROBIDSIDA. The volunteer students enable schools to develop reproductive health programs at no cost, and circumvent administrative policies for teacher training by having students make presentations. When individuals hold discussions in their communities, they utilize a "bottom-up" strategy, while operating within a "top-down" infrastructure. From 2007 to 2010, 236 adolescents were trained as peer educators throughout the country. Through their efforts, 54,271 individuals were reached during 2008-2010.[17] However, the "top-down" infrastructure of private schools poses significant challenges to the program's impact. Private schools, as the basis for message dissemination, limit the reach of the program by excluding public school students. In addition, it seems that the workshop program's presence is absent in the comarcas. This demographic has high need, and its exclusion represents a significant weakness in this strategy.

Additionally, PROBIDSIDA Juventud does not explicitly focus on youth empowerment. I was involved with preparations, execution and participation in one PROBIDSIDA workshop. As noted during that process, program leaders were not youth themselves and tended to interact more with the teachers than the students. This had serious potential consequences: the visible dichotomy between the "adult" leaders and the "youth" workers revealed the biases of the adult leaders by furthering the hierarchy of authority. This facilitated judgment and avoidance, thus undermining a major strength of peer education programs.

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Furthermore, the involvement of poorly educated teachers often counteracted the goal of education. In an observed workshop, teachers often supplied responses that were scientifically false or ran counter to human rights messages. PROBIDSIDA workshop organizers allowed and contributed to factual errors and resisted alternative explanations offered by students. As these adults control the flow of information after the workshop has concluded, their misinterpretation of facts and messages calls into question the quality of replicated lessons. Teachers often denigrated homosexuality and sexual activity or disregarded students' questions. These issues run counter to MDGs 3 and 6 (concerning gender equality and combating HIV/AIDS) and perpetuate harmful cultural norms. As other departments of PROBIDSIDA emphasize human rights, tolerance and safe sexual practices, this observation was perplexing.[18]

It is undeniable that PROBIDSIDA has a strong influence in the politics of HIV/AIDS and reproductive health. The organization's cooperation with private schools is highly efficient, circumventing political hurdles to reach adolescents in otherwise hostile environments. The number of individuals reached is several times higher than in the informal sector, but quality indicators are also lacking. Not all Panamanian youth are reached through this program, notably those in indigenous and lower socioeconomic status communities. Extending the reach of this strategy towards these demographics is not currently possible, representing a major limitation of the mixed sector approach. Furthermore, factual errors and a perpetuation of cultural stigmas during the PROBIDSIDA retreats may seriously compromise student led lessons and increase the spread of misinformation. The lack of emphasis on youth empowerment and continuation of a hierarchical educational structure divides the students from their authority-bearing supervisors and may be detrimental to youth advocacy initiatives and MDG 3 (promoting gender equality and women's empowerment).

Informal Sector Youth Reproductive Education: Community Leaders and Peer Advocates

The informal method of reproductive education consists of NGOs' initiatives in which youth leaders disseminate information to their peers in lectures and meetings. Two noteworthy examples of NGO operations active in Panama are the Aid for AIDS's "¿Cuánto sabes del VIH/Sida?" workshops and the "Juventudes con opciones" program of the Asociación Panameña para el Planeamiento de la Familia (APLAFA). Both efforts share political support and work to change similar cultural norms using comparable methodology of grassroots peer education. A discussion of Aid for AIDS workshops serves as a representative example for both organizations.

The informal method of educational outreach among adolescents enjoys national and international political support as part of NGO-led initiatives. The Office of the President and First Lady use discretionary funds to support Aid for AIDS, while the government-owned National Lottery sponsors APLAFA.[15] The United Nations Population Fund (UNFPA) and UNAIDS assist in planning and funding outreach programs, furthering MDG 8 and advocating global partnerships for development. Aid for AIDS enjoys significant community support due to its tutoring and counseling programs at the Panama City Children's Hospital HIV department and its program that provides free (antiretroviral medications (ARVs) for HIV-positive individuals with resistant HIV. APLAFA was founded in 1965 by its parent organization, the International Planned Parenthood Federation (IPPF), and is well established in Panama. The NGO's facility in the San Miguelito neighborhood of Panama City offers comprehensive services, including medical exams, counseling and health education. APLAFA employees advise government policy and community outreach initiatives, hold human rights counseling programs for youth offender rehabilitation and organize public health events across the country. This level of community involvement and service indicates the political and social support for these NGOs and their goals to improve sexual health and education.

The informal sector programs recruit adolescents who are already active in their communities. They then develop their leadership skills during peer health educator trainings. Aid for AIDS workshops bring together volunteer youths in established organizations including Red Cross Panamá, Scouts International, Aldeas SOS (an international foster home organization), Fundación del Movimiento del Liderazgo Juvenil Panameño (FUMOLIJUP) and indigenous groups. Over a three-day retreat, participants learn proper HIV terminology, the mode of transmission of HIV and the stages of AIDS, comprehensive training on safe sexual practices, reproductive anatomy, youth and human rights, gender construction, methods of destigmatization, presentation techniques and options for continued youth advocacy involvement. Participants return home with sexual health and HIV/AIDS informational materials to distribute to their peers. As youths are responsible for planning and leading their sessions, this is a definite "bottom-up" grassroots approach. Retreats are held three or four times per year across the country, training youth in all provinces and indigenous areas. Students reunite at a year-end retreat to have their earlier training reinforced. At APLAFA, peer educator programs work with high-risk socioeconomic youth in the San Miguelito neighborhood, and the organization partners with UNFPA and the Youth Kuna Movement organization to reach indigenous groups.

Statistically, this grassroots-based method is highly efficient. Preliminary data collection showed that although only 99 peer advocates were trained by the central Aid for AIDS team in 2011, 8159 youth were reached by peer educators from May through November 2011, indicating the vast impact of each peer advocate. This is especially impressive considering that Aid for AIDS' outreach education program itself only had resources to educate 1647 individuals.[19] Quality control of peer education efforts remains a concern, as data only report the number of youth reached, not the information they obtained. Efforts to implement quality control surveys, as I helped design during my internship, have not yet produced applicable results. This does represent a significant limitation of this strategy.

Culturally, this retreat format is highly effective in destigmatizing reproductive health. The workshop leaders are youth who create an accepting atmosphere, facilitating open discussion. The youth participants include homosexuals who have disclosed their sexual orientation, indigenous community members and high-risk socioeconomic group members. Team-building activities are designed to broaden attendees' outlooks and make individuals feel more accepting of others and responsible for their well-being. Program reviews and responses by participants stated that having such discussions was not possible in school or with family members because they concern taboo subjects. It is conceivable that similar improvements fostering tolerance could occur in the community replications. The workshop's emphasis on teaching strategies also provides opportunities for personal empowerment for youth leaders and peers by stressing the importance of personal responsibility and involvement. This furthers MDGs 3 and 6 towards gender equality, women's empowerment and combating HIV/AIDS.

Grassroots strategies also allow for customization to a sub-population's needs. This is particularly relevant with respect to indigenous groups, who are at increased risk for STI and HIV/AIDS.[20,21] These populations suffer from a lack of educational infrastructure, and few health centers are located in comarcas. Financial and labor resource management in comarcas remains poor despite the Ministry of Health's efforts. In a representative Kuna indigenous population survey, 43% reported never being offered STI education or informational materials at public health centers.[18] These groups reject direct intervention by both governmental and non-governmental entities. However, youth peer educators provide an alternative education dissemination strategy as they can navigate language barriers and adapt to their specific cultural context. Additionally, employing young women as peer educators could provide an avenue for empowerment. These opportunities for progress in public health and MDGs 3, 6 and 8 (gender equality and women's empowerment, combating HIV/AIDS and establishing a global partnership for development) are a significant and unique strength of informal grassroots programs.

Public health centers, as key resources with an established infrastructure, could be instrumental in reaching out to adolescents while destigmatizing their needs.

In summary, the informal sector approach enjoys political support while providing a highly cost and labor-efficient program that reaches a large number of individuals via peer education. These programs notably target underserved demographics. Culturally, this strategy destigmatizes reproductive health by fostering accepting environments and promoting gender equality with messages of human rights and acceptance. By involving women, particularly from indigenous and low socioeconomic communities, grassroots efforts also support female empowerment. Gender inequality creates vulnerability to HIV/AIDS for women, and efforts to counter such cultural norms are explicitly advocated by the WHO.[22]

As noted previously, quality control and consistency of information are problematic in these grassroots approaches. Furthermore, resource and infrastructure limitations pose challenges to the scope of impact and may limit the potential extent and growth opportunities of this strategy. While further investigation into the efficacy of grassroots approaches is necessary, this method has definite strengths and is therefore valuable as part of a composite plan.

Comparative Consideration of 'Formal,' 'Informal,' and 'Mixed' Education Strategies

The three main categories of adolescent public health education strategies are: the "top-down" formal sector consisting of public schools and health centers, the "mixed" sector involving NGOs and private school collaboration and the informal sector "bottom-up" organization led by NGO programs. Each system's unique political influences, public health indicators and cultural contexts help adjust its focus and priorities to best address certain goals and messages. Statistical information on the effectiveness of these programs is highly variable. Cultural messages such as gender equality and discrimination, youth empowerment and attitudes towards acceptance of sexual activity also differ significantly.

The formal sector is the most controlled of the three categories, subject to political and religious pressures. It has the least comprehensive reproductive health education program. Public schools show high teen pregnancy and low matriculation rates, which compound with the demographic's pre-existing high-risk factors. Discrimination in schools and public health centers persists despite legislative efforts, creating barriers to education and care. However, the formal sector is often the only recourse for rural and lower socioeconomic status subpopulations. Therefore, improvement of reproductive education in public schools could potentially have a great impact. Developments in this forum are vital to reach those most in need and must be considered as part of any comprehensive strategy to address the issue. In so doing, MDGs 1, 3, 5, and 6 (those related to extreme poverty, gender inequality and women's empowerment, maternal health and combating HIV/AIDS) can be directly addressed.

The mixed sector approach blends NGO involvement with private schools, preserving the "top-down" organization of the formal sector while involving adolescents in the teaching process. This is a highly efficient method, minimizing financial and labor investment for both the NGO and schools while reaching a remarkable number of individuals. It neglects certain demographics, such as indigenous communities, and does not focus on greater youth rights and advocacy. The hierarchical organization may be detrimental to open discussion and to empowerment and may perpetuate popular health myths. This method does support adolescent reproductive health education, however, and its strategy also works towards MDGs 5 and 6, those concerning maternal health and combating HIV/AIDS.

The informal sector trains young people as peer educators on reproductive health concepts in their own communities. The NGOs enjoy political support and financial assistance, working with numerous other organizations. It emphasizes youth empowerment and leadership through a "bottom-up" organizational style by giving peer educators independent agency and further advocacy opportunities. In this way, the strategy addresses globally recognized human rights concerns.[23] This approach also facilitates education in diverse areas, including indigenous communities, allowing for messages tailored to demographic contexts. The impact of the informal sector is limited by lack of resources and quality control, but the informal sector approach has distinct advantages and should be involved in the larger strategy to improve youth reproductive health in Panama, directly addressing MDGs 3, 5, 6 and 8. These MDGs translate to progress in gender equality and women's empowerment, maternal health, combating HIV/AIDS and global partnerships for development.

It should be noted that this study had certain limitations. Longitudinal data on the impact of reproductive health education programs in Panama is not available and quality control metrics of peer educators are admittedly lacking. Observation and data collection in public schools would be immensely helpful for conceptualizing that method, and larger data sets using additional NGOs and education programs would provide more nuanced and comprehensive information. Further investigation addressing these concerns is highly recommended.

To conclude, each approach has unique advantages that should be used as part of a larger strategy. The formal strategy is key for high-risk demographics and could theoretically incorporate reproductive health into the existing infrastructure. The informal sector grassroots programs reach underdeveloped areas and are highly customizable to individual contexts while empowering and motivating young people.

The mixed approach is very successful at using an established infrastructure with efficient resources. These advantages, and the programs that embody them, are not in competition with one another. Rather, they can and should be implemented together. The specific aspects that lead to each program's success can be combined to improve the overall impact.

This investigation shows that diverse combinations of clinical services, sex education and youth development services provide opportunities to customize efforts to be context-specific. Similar to what was advocated by Bearinger,[4] varied implementations in the Panamanian context are key to maximizing their effectiveness. The particular needs of subpopulations must be determined and analyzed on a case-by-case basis as seen in the discussion of diverse cultural contexts in Panama. The three methods discussed and their aggregate effectiveness will not only provide a guide for Panama's development towards improved adolescent reproductive health care and the MDGs, but also outline a framework for analyzing public health initiatives in other contexts with limited resources and diverse subpopulations.

In the published Fall 2012 issue of the journal, the JGH production team mistakenly omitted the names of two of the article's authors, Rhonda Buchanan and Whitney Nash. The JGH production team and editorial review board regret this error and take responsibility for the omission.

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Table 1

Overview of Compared Reproductive Health and HIV/AIDS Education Methods in Panama

	Method 1: ***Formal*** ***Sector:*** **Public Schools and Public Health Centers**	**Method 2:** ***Mixed*** ***Sector:*** **NGO and Private School Partnerships**	**Method 3:** ***Informal*** ***Sector:*** **NGO-Guided Peer Educators**
Key (Unique) Demographic	High-risk socioeconomic groups; public school students	Private school students and peers	Youths in indigenous groups as well as rural and urban areas
Program Structure	Nonexistent/Unknown	Youth training workshop for peer education supervised by teachers	Youth training workshop for independant peer education
Key Weaknesses	Political Stagnation; religous opposition	Limited scope (only in private schools); accuracy of message	Limited resources; accuracy of message
Key Strengths	Established infrastructure; captive high-need demographic may lead to high impact	Political and social support; established infrastructure of schools improves organization	Political and social support; diverse participants increase scope

Medicaid as a Model for Mental Health Service Delivery

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Introduction

Medicaid, the publicly funded insurance provider for low-income individuals, is the "single largest payer for mental health services" in the United States.[1] In 2010, Medicaid financed 28% of all mental health services, spending over $31 billion, but accounted for only 17% of total health care outlays; these statistics demonstrate the program's comparatively significant commitment to funding mental health treatments.[2] Medicaid has expanded rapidly over the past quarter century: in 1986, the program accounted for only 16.1% of mental health service payments, or $7.5 billion.[3] As Medicaid plays an increasingly significant role in financing mental health services, policymakers need to understand its payment mechanisms as well as eligibility requirements, and to address both the efficiencies and inefficiencies in the system.

Jointly administered by the state and federal governments, Medicaid consists of numerous programs and incentive schemes aimed at financing mental health treatments. Three of the most prominent programs include home- and community-based services (HCBS), health homes and targeted case management (TCM). An evaluation of these programs indicates that their efficiency, measured by both cost-effectiveness and patient outcomes, varies significantly across states depending on the specific implementation techniques adopted by state officials. This paper analyzes the methods that states employ to provide insurance through Medicaid, examining the factors that have enabled some administrators to see significant declines in costs and increases in quality of care. Specifically, states that prioritize mental health services, provide for early-onset disease intervention and focus on holistic community-based care see the most efficient outcomes in treatment of mental health patients. This paper also aims to assess mental health pilot programs and promote implementation rationales based on clinical outcomes and cost effectiveness criteria. The analysis in this paper offers evidence that, when applied to the framework of mental health management, programs designed to integrate holistic care models offer greater potential than fragmented care systems to offset long-term spending and improve health outcomes.

Mental Health Services in the United States

The Substance Abuse and Mental Health Services Administration (SAMHSA) defines a serious mental illness (SMI) as a "diagnosable mental, behavioral, or emotional disorder…that results in serious functional impairment." According to data gathered by SAMHSA, nearly 11 million adults in the United States (age 18 or older) had some form of SMI in 2009, and approximately one in eight adults received treatment for a mental health-related medical problem during the same year.[4]

The American medical system faces a formidable scope of mental health problems, and many Medicaid programs focus on alleviating the burden of expenses. However, Medicaid primarily funds patients with low income levels as well as those with disabilities, defined as "long-standing, severe physical or mental impairment[s]." These eligibility requirements ensure that Medicaid targets a specific portion of the population, focusing on those who are particularly vulnerable to medical crises (due to their lack of access to preventive care) and those who lack the ability to pay for health services.[3,5]

Medicaid is distinct from private insurance in the way it finances mental health services. First, Medicaid has always offered coverage for preexisting conditions, unlike many private insurers prior to the passage of the Affordable Care Act of 2010. Second, Medicaid focuses its coverage on community-based services, which are offered in a patient's home or workplace rather than in a hospital or other clinical institution. Private insurers often deny coverage for these programs. Finally, Medicaid does not impose the kinds of spending limitations that private insurers frequently implement, such as lifetime caps.[3]

Home and Community-Based Services

Medicaid is structured to promote state-level innovation in the provision of mental health care. Under HCBS, states apply to the federal government for waivers, which enable accessible health care in a patient's home, school or workplace rather than in an institutional setting. The objective is to provide patients with "individualized, person-centered care" while simultaneously reducing costs because community-based care is typically less expensive than care administered in a full-time nursing home or institutional setting.[6,7,8] As originally enacted, the HCBS waiver program included four mechanisms for minimizing costs: (1) it required states to demonstrate that community-based care would be cost-neutral compared to care in an institutional setting; (2) it required states to limit the number of patients eligible for community-based care under each waiver; (3) it allowed states to implement spending caps; and (4) it allowed states to tailor specific eligibility criteria based on income level, medical condition or place of residence.[9] Under the cost neutrality requirements, individuals who were ineligible for institutional care were typically ineligible for community-based care as well because there was no way to develop cost-neutral treatments for patients receiving no state-provided care in the first place. However, the Deficit Reduction Act of 2005 eliminated the waiver requirement, allowing states to provide certain services in community-based settings without demonstrating cost-neutrality. Therefore, some patients could receive care in their home or workplace even if they would not otherwise have been eligible for institutional care.[10]

States have adopted vastly divergent methods for providing home and community-based services to their patients. Despite the belief that HCBS would improve medical outcomes by providing individualized care, it has proven difficult to systematically gather data about health care quality under HCBS. In 2005, Marek et al. provided limited evidence that HCBS improved health outcomes compared to nursing home care. For example, patients receiving HCBS demonstrated improved cognition, lower rates of depression and greater levels of daily activity than patients treated in full-time nursing home facilities.[11] However, the challenge of monitoring HCBS care and the absence of comparative studies have made it difficult to gather reliable data about patient outcomes.[12] Improving standardization of data sets through innovative collection methods, such as using electronic health records or coordinating care under an integrated health unit, could serve as a potential way to ameliorate existing challenges in data collection.

One of the major justifications for HCBS is that it leads to higher levels of patient satisfaction with their medical care than do patients in institutional settings. Studies of numerous states have validated this justification. For example, a 2006 study investigated patient satisfaction with HCBS in seven states—Alabama, Indiana, Kentucky, Maryland, Michigan, Washington and Wisconsin. The study found high levels of satisfaction among patients receiving HCBS, noting that physically disabled patients under 65 years old were substantially more satisfied with their medical care when they received services at home rather than in institutional settings. 77% of HCBS patients stated that they were "very happy" with their home- and community-based services, while another 19% described themselves as "somewhat happy." Only 10% of individuals claimed that they had had problems with the provision of HCBS services in the past, and 99% of patients stated that they related "well" or "very well" to their caregivers.[13] Other studies have produced similar findings, indicating that patients may be responding positively to the personalized care provided under HCBS. In particular, individuals are more likely to classify their medical providers as "helpful, well-trained and respectful," and few beneficiaries have serious complaints—such as inefficient, unfriendly or uncommunicative healthcare providers—while receiving HCBS.[14,15]

Despite the abundance of positive feedback about HCBS, states have differed significantly in their ability to provide HCBS for Medicaid beneficiaries. In Minnesota for example, policymakers have shifted large amounts of funding from nursing homes to HCBS. They have also offered home- and community-based services under Medicaid plans overseen by managed care organizations, which allow private insurers to finance medical services in return for capitation payments from the state. Similar spending shifts have occurred in Idaho, which eliminated its waiting list for HCBS. This ensured that beneficiaries did not have to spend any time in nursing homes and could immediately begin receiving care at home. In contrast, Georgia devotes a significant portion of Medicaid funds to nursing homes, which are some of the primary facilities, along with hospitals, that provide institutional care in the United States. In Georgia, approximately 67% of Medicaid beneficiaries requiring long-term care are first treated in nursing homes; the comparable values for Idaho and Minnesota are 33% and 17%, respectively.[16]

> The objective is to provide patients with "individualized, person-centered care" while simultaneously reducing costs.

These cases suggest that states can promote HCBS by adopting a series of relatively simple reforms, especially by shifting funds to HCBS and eliminating waiting lists. Some states have hesitated to engage in these reforms because they fear the economic consequences of devoting funds to home- and community-based care. Certainly, evidence on the cost-effectiveness of HCBS is ambiguous. Some studies indicate that HCBS increases long-term costs, since state funds devoted to HCBS are not always offset by reductions in financing for nursing homes or other institutional settings.[17,18,12] However, HCBS has generally been associated with greater cost efficiency when states adopt one or more of the following reforms: (1) limiting eligibility for HCBS to those who require nursing home-level care; (2) adopting spending controls or caps; and/or (3) implementing cost-neutral measures that offset any increases in HCBS care with decreases in funding for nursing home facilities.[12]

A 2001 study of Florida's HCBS program, known as the Diversion project found considerable cost-per-patient savings. Only beneficiaries who required nursing home-level care could qualify for the program.[19] A 2000 study indicated that Michigan's HCBS program was less "resource intensive" than nursing home programs in neighboring Ohio, since HCBS patients were better able to perform activities of daily life and self-care without medical assistance. The study indicated that Michigan's success may have emerged from its ability to restrict HCBS care to those patients who required nursing-home-level services.[20] Finally, in October 2005, Vermont adopted the Choices for Care (CFC) program, which aimed to expand HCBS while limiting the use of nursing home facilities. The program offered access to HCBS only for individuals with the "highest need," including those who required "extensive or total assistance" with toileting, decision-making and/or eating. The statute did not even extend eligibility to all patients who required nursing home care. In addition, Vermont imposed a total limit on spending for long-term care under Medicaid. The results were staggering: between October 2005 and January 2009, enrollment in nursing care facilities decreased by 9%, while use of HCBS increased by 155%. At the same time, Vermont met the needs of its citizens at less than half of the total projected cost.[21,22] The experiences encountered by the states of Florida, Michigan and Vermont demonstrate the possibility of designing cost-effective Medicaid HCBS programs.

The quality and efficiency of HCBS programs varies significantly across the United States, but certain techniques have enabled states to employ these programs with substantial success. Shifting funds from nursing homes to HCBS programs, eliminating waiting lists and establishing efficient eligibility criteria can offset increases in HCBS costs with decreases in nursing home expenditures. These measures ensure cost effectiveness without sacrificing quality of care. The programs implemented by several states serve as models for these reforms, and they deserve emulation by healthcare administrators across the nation.

However, there are also potential downsides to widespread implementation of HCBS programs. There is little affirmative evidence that HCBS treatments improve patient outcomes, and further research is required to determine whether these treatments possess clinical or medical benefits compared to institutional alternatives.[12,10] In addition, the implementation of HCBS programs would inevitably require tradeoffs. If states were to reallocate funds from institutional care centers to community-based treatment, the quality of care for patients in hospitals and nursing homes might decline. This raises particularly compelling concerns, since patients in institutional settings typically require more care and attention than individuals treated in their homes or workplaces.[12,20] Finally, inequities in HCBS expenditures across states would result in disparate levels of care across the country. Increasing horizontal equity across state lines might necessitate increased federal government intervention, which may face political opposition and result in the expansion of an already bloated federal health care bureaucracy.[10] These potential drawbacks deserve further investigation, and they must be balanced against the possible benefits of expanding HCBS programs in the United States.

Medicaid Health Homes

In addition to providing quality HCBS, Medicaid is committed to delivering essential mental health services to the elderly and chronically ill. The needs of these population subsets are costly and largely underserved, given the health and demographic profile of these subsets. Three recent studies have shown that only 50% of individuals with chronic mental illness receive adequate community-based mental health treatment; of this group, only 7% receive services derived from evidence-based practices.[23,24,25] In a 2001 study, Kessler et al. investigated instances of mental-health patients whose illnesses went untreated. The authors found that less than 40% of patients with SMI received "stable treatment," and young adults and those living in rural areas were particularly likely to receive inadequate or inconsistent treatment.[24] Moreover, most individuals with chronic mental health conditions suffer from multiple comorbid conditions and are non-compliant on medication. As a result, they demonstrate "emergency room recidivism, high rates of psychiatric hospitalization, homelessness, incarceration and increased healthcare costs."[23] For chronically ill patients, access to patient-centered primary care is crucial. For example, prescriptions must be carefully overseen to reduce harmful side effects and interactions, especially when mental health patients are taking additional medications for other diseases. Moreover, compliance must be monitored to ensure proper adherence to medication. Studies have suggested that improving compliance alone could result in annual savings of $100 million for Medicaid. These savings could be achieved by implementing coordinated care among specialists, replacing fragmented systems that limit accountability and transparency.[23,26]

To effectively coordinate care for the chronically ill, Medicaid health homes were introduced as an optional state benefit in Section 2703 of the Affordable Care Act of 2010 (ACA), to integrate all "primary, acute, behavioral health, and long-term services and supports to treat the whole person."[27] To effectively address these overarching goals, the program aims to ensure care coordination, health promotion, comprehensive translational care, patient and family support as well as referral to community and social support services. Individuals are eligible for home health services if they have two or more chronic conditions, including asthma, diabetes, heart disease, mental health problems, substance abuse and obesity; have one chronic condition and are at risk for a second; or have one "serious and persistent mental health condition."[27]

To provide integrated, primary-centered care management, this innovative delivery model relies on unique "health home provider arrangements" to deliver care. Beneficiaries can enroll in flexible provider arrangements. Under these arrangements, patients can receive continued medical support from a general practitioner or they can be assigned a "health team" of interdisciplinary medical specialists, social workers, licensed complementary and alternative medicine practitioners, behavioral health providers and pharmacists. In this model, patients are granted freedom to elect team personnel while the primary care physician coordinates care and ensures that a given patient's needs are met in an integrated manner.[6] This holistic, patient-centered model combines medical and behavioral health care for individuals with chronic illnesses and ultimately seeks to improve "clinical outcomes as well as the patient care experience, while also reducing per capita costs through more cost-effective care."[28]

If it were not enough that patients prefer health homes to existing treatment methods and that health homes frequently produce superior clinical outcomes, the program also holds the potential to provide immense savings for state Medicaid budgets. It is designed to cost far less—in both the short term and the long term—than alternative care models. Strategies aimed at containing Medicaid costs typically focus on offsetting long-term per patient cost (unlike many strategies employed by commercial insurers). Medicaid policy makers adopt this mindset largely due to Medicaid's patient demographic. A disproportionate amount of Medicaid funds is spent on the top 10% of beneficiaries, who have the greatest health and long-term care needs. These individuals, typically covered by both Medicare and Medicaid and known as "dual eligibles," are often elderly and highly disabled. As a result, they frequently require long-term and chronic care support services. In 2008, dual eligibles constituted 15% of Medicaid enrollees and incurred 39% of total Medicaid expenditures. The vast majority of Medicaid expenditures on dual eligibles—over $89.1 billion—was spent on long-term care services, while acute care accounted for less than 5% of total spending, and prescription drugs less than 1.5%. These figures highlight the nature of per-patient spending in Medicaid, which is highly skewed toward consumers requiring chronic support. Unsurprisingly, spending within the dual eligible channel follows overall cost patterns, since patients in the top 10% of dual eligible spending accounted for more than 60% of total dual eligible spending.[29]

Medicaid aims to aggressively target mental health intervention among individuals before they become critical, potentially leading to aversion of health crises and hospitalization.

Studies have suggested that average health spending for people with mental illnesses is as much as 32% higher than spending for non-mental health patients. The vast majority of total mental health spending—over 75%—is not for treatment of mental complications, but rather for management of comorbidities such as substance abuse, dementia and delirium that arise as a result of mental illness.[30] Additionally, results of a 2011 report demonstrate that the seven-day hospital readmission rate of mental health beneficiaries is markedly higher than that for non-mental health beneficiaries.[31,30] Efforts targeting prevention and early-stage disease management are therefore highly prioritized by Medicaid programs, which seek to reduce spending for emergency visits and chronic long-term care services.

For state Medicaid programs, implementing health homes could result in significant health care savings in the short term, especially if states take advantage of the low-barrier financing options made possible by the federal government. The ACA authorizes a temporary 90% federal medical assistance package for health home services and gives states the flexibility to design their payment methodologies and propose alternatives.[27] Several states with expanding Medicaid populations have initiated efforts to implement health home pilot programs and to improve clinical outcomes and contain costs.[32] As a result of loosened Medicaid eligibility requirements stipulated by the ACA, the Centers for Medicare and Medicare Services (CMS) project that by 2014 Medicaid enrollment will increase by 19.5 million people, and spending will grow 20.3%. These expansions will mandate development of more effective management practices for a burgeoning behavioral health population.[33]

For Illinois, which estimates 700,000 new Medicaid enrollments by 2014, expanding health homes among the Medicaid population is advantageous from both clinical and health economics perspectives. The state, which is deeply entrenched in budget deficits, is facing a $74 million (31%) decrease in community mental health grants.[34] Despite requirements to make upfront investments in the implementation of health homes, state experts are aggressively expanding the program. A comparison of price benchmarks indicates that the program has the potential to offset its costs; where average cost to provide health home care was $150 per day, the same services applied in a nursing home or hospital would average $209 per day or $1500 per day, respectively. Studies further demonstrate that states that invested in health homes saw decreases in long-term care services by 7.9% and institutional spending by 16.3%. In contrast, states that did not invest in health homes saw long-term care services rise by 8.8%, which suggests that the increased state spending on home care is associated with decreased spending on more costly long-term care and hospitalization.[35]

Among patients with chronic mental illnesses, the community-based health home model offers the potential to provide integrated, cost-effective, longitudinal services and support to bridge the physical and behavioral health gap. This unique service delivery model, which aims to improve overall care by reducing emergency room visits, hospital admissions and reliance on long-term care facilities, may serve as a critical support system for the chronically ill to achieve enhanced clinical outcomes. As most states have begun early stage implementation of health homes, proper evaluation of these programs is crucial to measure the ability of these programs to meet their intended goals. Currently, CMS mandates a core set of guidelines, which includes quality measures that "assess individual-level clinical outcomes, experience of care outcomes, and quality of care outcomes."[6] States instituting health home pilot plans have drafted assessment criteria to evaluate clinical outcomes and program cost-effectiveness. Thus far, evaluation guidelines include: obtaining and holding annual evaluations of baseline measures for annual cost of care per patient; monitoring hospital admissions; tracking longitudinal patient admission data; and developing qualitative and quantitative tools to measure patient satisfaction.[3,5,6] These evaluation tools must be implemented, standardized and analyzed to provide concrete economic evidence for the effectiveness of Medicaid programs.

The shift towards primary care-centered management highlights Medicaid's commitment to providing coordinated, patient-centered options for effective disease management, a practice considered key to ensuring the long-term well-being of individuals with chronic mental illnesses. Implementation of the health home model, if successful, should simultaneously satisfy the CMS's three goals to improve healthcare: "improving the experience of care; improving the health of populations; and reducing per capita costs of health care without any harm whatsoever to individuals, families, or communities."[6]

Medicaid financed 28% of all mental health services in 2010, expending over $31 billion, but accounted for only 17% of total health care outlays.

Targeted Case Management

HCBS has proven particularly effective at treating children and those in the early stages of mental illness, while Medicaid health homes focus on the elderly and chronically ill.[36,27] Targeted case management (TCM) is a program that yields benefits for individuals at all stages of life and at all points in the disease management process. Case management aims to direct patients to the health care providers best suited to their needs. Its objective is not to provide services directly to patients, but simply to help them access efficient health care providers. Targeted case management applies these services to specific segments of the population. For example, TCM services might focus on populations with a particular disease, such as tuberculosis, or groups in a particular geographic area.[37] Many state governments have employed TCM as a tool to target mental health patients, connecting them with medical services that can effectively treat their conditions. For example, South Carolina offers TCM services for all "non-institutionalized patients with mental retardation and related disabilities."[38]

Studies of TCM are mixed in their assessments of the program's cost effectiveness and patient outcomes. Between 1999 and 2005, total TCM expenditures grew from $1.41 billion to $2.90 billion—a 105.7% increase. In contrast, total Medicaid expenditures grew by 87%. In addition, per person TCM costs rose by 26.9% from $834 to $1,058.37 A 2001 study indicated that the cost effectiveness of TCM programs varies widely depending on the specific implementation models adopted by states. Nonetheless, the author suggested that certain techniques could ensure cost savings or improvements in patient outcomes.[39] Grandinetti and Slomski found similar results in a 1998 article, arguing that TCM could ensure cost reductions and improve efficiency.[40]

Few analyses have engaged in extensive case studies to identify the techniques that lead to the successful utilization of TCMTCS in some states but not in others. Additionally, legislative and administrative changes in federal TCM guidelines over the years have resulted in corresponding changes in the states, requiring state legislatures to develop new programs for assessing quality of care, improving clinical outcomes and reducing costs. These changes have made it difficult to study implementation techniques over an extended period of time. Nonetheless, several states have developed innovative approaches that hold significant potential for cost effectiveness and improved patient outcomes. New Jersey's Real Life Choices program, for example, has seen high levels of consumer satisfaction by empowering patients to make crucial health financing decisions. The program provides patients with a sum of money and offers guidance to help them allocate the money efficiently. Wyoming and Wisconsin have implemented similar programs aimed at providing consumers with a greater level of discretion in allocating their health care funds. At the same time, New Jersey has kept costs under control by implementing a tiered TCM system for patients with developmental disabilities. After a comprehensive review of the program, state officials recognized that some individuals did not need the extensive services offered under TCM. Instead, these patients simply required "information, education, referral, and a source of connection to the system when there were problems." To serve these patients' needs, New Jersey created a more limited TCM system known as "Resource Case Management" or "Connections." Officials maintain phone contact with beneficiaries of this system at least once a year, providing the services they need at minimal cost.[41]

The United States' experience with targeted care management demonstrates the states' potential for innovation in providing mental health services through Medicaid. New Jersey's adoption of consumer-oriented programs and tiered service systems demonstrates a possible means of guaranteeing patient satisfaction while reducing costs. In light of growing expenditures on TCM over the past decade, these reforms represent a way forward for states struggling to balance their constituents' needs with overburdened budgets. Nonetheless, New Jersey's approach also illustrates the limitations of the TCM model. Targeted care management can be a potentially costly mechanism for providing care. Although New Jersey was able to overcome cost concerns by developing a tiered-system, this system might become more complicated by requiring administrators to apply different levels of assistance to various groups. Other states have had less success in developing cost effective means of implementing TCM.[39] In addition, although TCM can be used as a tool to empower patients, its emphasis on their independence might also jeopardize the quality of care. Unless TCM administrators provide efficient and effective guidance, patients will be unable to locate the health services that are best equipped to serve them. As a result, agencies might have to adopt a more active role to ensure that the benefits of patient empowerment are balanced against the risks of allowing patients to make their own medical choices. TCM is still an untested system with varying results from state to state, and the effectiveness of its implementation over the next several decades will determine its ultimate staying power.

Final Conclusions and Recommendations

Politicians and administrators often present Medicaid as an example of waste, fraud and inefficiency in the healthcare system. A June 2012 article in the Washington Post declared that growing Medicaid costs have left "most [state] governments in dire fiscal straits," and the federal government spent $208 million identifying fraudulent payments in 2011.[42,43] Yet Medicaid's approach to managing mental health is unique since it seeks to improve health care delivery through its simultaneous pursuit of three goals: prioritization of mental health as a key budget item, emphasis on community-based mental health care and targeted promotion of preventative, early-stage disease intervention. As a result, Medicaid coverage of services for the behavioral health population is often deemed more generous than alternatives offered by private health insurance plans. By providing community-based services across a continuum of care, Medicaid is committed to serving beneficiaries of diverse backgrounds and health needs, especially among the traditionally underserved behavioral health population. Medicaid's commitment to provide comprehensive mental health services is evidenced by the range and quality of programs offered. Through HCBS and targeted case management, Medicaid aggressively targets mental health intervention among individuals before they become critical, potentially averting health crises and hospitalization. For the chronically ill, Medicaid seeks to provide innovative models of patient-centered care through the provision of health homes designed to integrate physical and behavioral models of disease management.

Mental health stands at a unique, integrated forefront of social, behavioral and physical care—a distinct intersection that raises unique questions and presents significant opportunities for innovation. As a result, developing solutions for treatment requires reassessing key assumptions as well as adopting interdisciplinary management framework models. The approaches Medicaid applies to tackling mental health challenges, while initially costly, have delivered superior clinical outcomes and continue to promise cost-effective, holistic models of care. By prioritizing mental health, relying on community-based care and adopting early-onset disease management tactics, Medicaid policy makers can fulfill this promise in the coming decades.

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Field Notes

Cancer in Nepal

The Necessity of a Multi-Targeted Approach

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The auditorium was bursting with color. Women in vibrant saris and glistening jewelry bustled about, greeting newcomers with a namaste while intermittently catching up with old acquaintances. In juxtaposition to this rich rainbow of color, I was dressed in black pants and a plain white shirt. Mental note to self: next time, spice it up a little. I looked like I was going to a funeral amongst a group of men and women who seemed to be on their way to the biggest party of the year. Yet the occasion was neither festive nor mournful—we were at an obstetrics and gynecology conference in Bharatpur, Nepal. As I sat down to listen to a presentation on cervical cancer, one of the physicians made an interesting observation: young women with cervical cancer are less likely to undergo treatment than older women. This seemed strange. Shouldn't younger women be more educated and thus more proactive when seeking medical care?

Although there is no formal data, it is universally understood that younger, more sexually active women are often abandoned by their husbands at the time of diagnosis based on the assumption that these women will no longer be able to bear children. As a result, these 15- to 40-year-olds do not have the financial and/or psychological support to start or finish treatment, which usually consists of some combination of surgery, radiation and chemotherapy. However, older women in their fifties and above are often brought to places of medical treatment by their children and grandchildren, who not only ensure that treatment is completed but also demand the most aggressive course of treatment. Such barriers to health care represent a significant hurdle in a country where cervical cancer is not only the predominant form of cancer in women but also has the highest age-specific mortality rate.[1] When I asked a radiation oncologist what policies were in place to address the social and cultural barriers to treatment, he looked at me, shrugged and said, "This is Nepal."

The cancer burden in developing countries is rapidly rising; however, it is difficult to accurately quantify this increase because there is a shockingly limited amount of data. In 2006, population-based cancer registries covered only 8% of Asia's population and 11% of Africa's population. To provide some context, in North America, cancer registries cover 99% of the population. Although data regarding cancer incidence and mortality rates in developing countries has become more widely available in recent years, it is inadvisable to compare rates from one point in time to another because methods of estimation vary greatly.[3,4] However, when comparing data points within a single cancer registry, one can appreciate the magnitude of the cancer burden. In Thailand, for example, the incidence of breast cancer has doubled over a period of 20 years. Similar trends can be seen in India, China and Brazil.[5] Nepal does not have a national population-based cancer registry, but it does have a hospital-based registry, established in 2005, which pools data from seven major hospitals. To date, only one analysis set from this database has been published.[6]

Numbers by themselves can be misleading unless the cause of this change is understood. According to the most recent estimates from the International Agency for Research on Cancer (2008), approximately half of cancer cases and two-thirds of cancer deaths occur in low- and medium-income countries. Increases in tobacco use, lack of cancer screening measures and the aging of a growing population, secondary to improvements in life expectancy, are contributing factors. By 2030, low- and middle-income countries will experience a 30 percent increase in population, which is approximately seven- to eight-fold greater than that of high-income countries. Furthermore, the proportion of the population over 65 years, typically the more cancer-prone population, is expected to rise by five to 10 percent in low- and middle- income countries.[7] From this data, one can reasonably expect the cancer burden in developing counties to become a grave public health challenge.

Compared to cancers in the West, cancers in developing countries are more likely to be related to infectious disease, which explains the relatively higher incidence of liver cancer (Hepatitis B virus), stomach cancer (H. Pylori bacteria) and cervical cancer (Human Papilloma Virus). Of the 500,000 new cervical cancer cases annually, 85 percent affect women from the ages of 15 to 45 in developing countries.[8] In Nepal, there are over 3,500 cases annually, representing 21 percent of all cancers in women.[6] However, there has also recently been an increase in non-infectious disease-related cancers, such as those of the breast and colon, in areas where they have historically been absent.[9] Breast cancer is now the second most common cancer among Nepalese women.[6]

Despite these grim estimates, the international response to the global cancer burden has been lackluster at best. Although Millennium Development Goal 6 (MDG 6) emphasizes the importance of addressing infectious diseases such as HIV/AIDS, TB and malaria, it lacks a similarly vigorous campaign against the rise of non-communicable diseases such as cancer. From 2009 to 2010, more than 50 percent of all development assistance for health in 48 countries was allocated to MDG 6. In 78 countries, MDG 6 represented the largest health aid disbursement. This is in marked contrast to funding for cancer prevention and treatment in developing countries, which represents such a small portion of the development assistance pie that it is not even listed in the World Health Organization's report for international development assistance.[10] Thus, it is not entirely surprising that cost-effective screening measures for cancer, such as acetic acid visualization to detect cervical cancer, are available to only 32 percent of the population in low income countries (WHO 2012).[11] Although combating infectious diseases in the developing world is of utmost importance, there is also a need to anticipate and address the challenge of cancer prevention and treatment.

Medicine is complex, and oncology epitomizes such complexity. It requires an orchestra of physicians from various specialties playing the same melody, a melody that is always changing as the array of chemotherapeutic agents, radiation modalities and treatment protocols evolve. Many countries have already invested in cancer hospitals designed to provide multidisciplinary cancer care involving medical oncologists, pathologists, radiologists, surgeons and radiation oncologists, all of whom play a part in treatment.[12] Getting these centers to deliver the best value care at the lowest cost will not only require financial support and medical expertise but also the ability to overcome social, cultural and logistical barriers to health care. Examples of such barriers include poor health literacy, lack of women's empowerment, uncoordinated treatment efforts between medical specialists and lack of effective communication between health care workers and between patients and health staff.

When Deepa, a middle-class woman in her fifties, presented to BP Koirala Memorial Cancer Hospital (BPKMCH) in Nepal, she had already been diagnosed with breast cancer and treated with a lumpectomy followed by chemotherapy at an outside hospital. She wanted to know if radiation would provide any further benefit. According to Deepa's pathology report, the disease was localized to her left breast without any evidence of metastasis to lymph nodes; however, the size of the tumor was unclear as two conflicting measurements were reported. This poses a problem because breast cancer is staged according to the greatest dimension of the tumor; a larger tumor would upstage a patient and potentially require a different treatment. Furthermore, a larger tumor dimension translates into a smaller tumor-free surgical resection margin. Multiple studies have shown that margin status and pathologic tumor size, among other factors such as age, hormone receptor status and lymph node status, are prognostic for recurrence.[13,14,15] The risk of recurrence must be carefully weighed against the side effects of radiation and/or chemotherapy in order to effectively battle cancer and still maintain an acceptable quality of life. This is especially important in resource-poor settings where most patients do not have access to routine screening measures that can detect recurrences at an early stage or genetic profiling assays, such as Oncotype DX, to individualize recurrence risks. Hence, obtaining an initial accurate pathologic diagnosis and formulating an appropriate risk-benefit ratio, keeping in mind that recurrences will likely be fatal, is of the utmost importance to a patient's survival and quality of life.

Great improvements in patient outcomes can be achieved by focusing on cooperation, health literacy and women's rights.

Facilitating inter-specialist and inter-hospital communication would be one way to avoid the blunder in Deepa's case. Pathology reports are of varying quality, some providing insufficient or ambiguous information, and it is almost impossible to have the pathology specimen forwarded to the next hospital for a second look. Furthermore, although Deepa had brought all of the necessary records with her, not all patients provide such a wealth of information. Sometimes post-operative patients show up without an operative report or imaging, making it difficult to know what was surgically removed, how extensive the disease was or even if the disease represented a first cancer diagnosis or a cancer recurrence. BPKMCH has a telemedicine center with video conferencing ability that could be used to communicate with major referral centers and clarify ambiguities. Alternative communication routes include Skype, Google Talk or even a simple landline.

Just as essential to patient care as communication between health professionals is communication between patients and physicians. There is generally a health literacy gap between patients and physicians, and this is even more pronounced in countries such as Nepal, where the adult literacy rate is 59 percent.[16] As a result, patients require extensive instruction, not only about the disease process and treatment options, but also concerning logistics—where to go for treatment, what paperwork to bring and what to expect. More often than not, this is overlooked and patients are left wandering halls, frightened and confused. Only those bold and persistent enough to seek out this information can master the system. Aastha was one of them. Her story exemplifies how easily patients can get lost amidst the chaos of the hospital even when they belong to the 59 percent of the population that is literate.

It was late morning when I first noticed Aastha. It wasn't her appearance that struck me, but rather her perseverant character. I was with a group of physicians in one of the treatment planning rooms when she walked in. Like so many patients I had seen before, her soft brown eyes expressed both confusion and anxiety, but she spoke with confidence, clearly articulating her words and making direct eye contact, something I soon learned only comes with education. "I need to have this signed," she stated, handing a sheet of paper to one of the physicians. She was told that she had the wrong form and was asked to leave. Instead of being shooed away, she stood there adamantly, waiting for further instructions. She wasn't afraid to ask questions, even though the responses were curt. Once she gathered all the information she needed, she left. I ran after her.

From her demeanor, I could tell Aastha was at least a high school graduate. She happened to be a pharmacy student at a college nearby. She had come with her father, Ramesh, who had noticed a change in his voice months ago and subsequently developed difficulty swallowing rice. After a course of antibiotics and multiple biopsies, he was eventually diagnosed with cancer of the larynx. When I asked both father and daughter what the greatest challenge had been so far, their responses were uniform: navigating the system. They often received conflicting instructions from different doctors and were reprimanded for not bringing certain files or for bringing the wrong files. When there is no system to organize the flow of information or to assist patients with paperwork, things get lost, miscommunications occur and mistakes happen. More often than not, it is the patient who bears the consequences.

Both Deepa and Aastha exemplify the diverse barriers to appropriate cancer care, ranging from medical inaccuracies to communication and logistical challenges to issues relating to health literacy. Yet, there is an additional barrier, often unaddressed but persistent throughout all socioeconomic classes of Nepal—the marginalized status of women in society. Marginalized women are less likely to receive appropriate medical attention, especially when long-term follow-up care is required. The issue of women's rights is inseparable from that of health care, and the status of women in society will inevitably affect cancer treatment and prevention efforts. How? Take Srijana's story, for example.

Srijana was a 16-year-old girl from a village in the terai, the southern plains of Nepal, and had only a fifth-grade education. I met her somewhat unexpectedly. I was on my way to the cafeteria for lunch when one of the doctors called out to a girl standing by the entrance of the inpatient ward. "Hey, why did you leave in the middle of treatment?" he asked. She smiled, pulled her shawl over part of her face, looked at her feet and mumbled something inaudible. Srijana had been diagnosed with cancer of the vagina months ago, and after starting treatment, she disappeared. This is not uncommon, especially for young girls who have gynecologic cancers. In a conservative, patriarchal society, these girls are embarrassed by their disease and often abandoned by their families. Although Srijana had returned months later to resume treatment, her disease had progressed, and the chance for cure was thus reduced.

Great improvements in patient outcomes can be achieved by focusing on cooperation, health literacy and women's rights; however, financial constraints can be frustrating when it comes to maintaining and upgrading technology. Last month, when BPKMCH was in the process of upgrading to intensity modulated radiation therapy (IMRT), physicians were overwhelmed with the task of troubleshooting the new system. One physician explained, "I am the radiation oncologist, the engineer, the physicist and the electrician." Most physicians do not have formal training in engineering or physics, and learning how to do things on the job means working late nights with little progress. Although an engineering team from Palo Alto-based Varian Medical Systems visited the center last month to perform the upgrade, the service was expensive and short-lived. More sustainable solutions are needed—for example, a virtual help desk connecting engineers in cancer centers throughout South Asia. The initial challenge to such a solution would be to identify cancer centers with similar equipment, as there may be very few centers with IMRT technology, and they may all struggle with limited expertise.

Deepa, Srijana, Aastha and the physicians at BPKMCH all exemplify how various, seemingly unrelated social, cultural, logistical, medical and financial barriers intertwine to affect cancer care. As developing nations such as Nepal strive to meet the needs of a growing cancer burden, they will require much more than financial assistance and medical/technical expertise—they will require a restructuring of the concept of medicine from one that focuses solely on the physician to one that is multi-targeted and addresses the non-medical barriers to health care, including deficiencies in health literacy, women's rights, coordination between medical specialties and communication. Each component represents an essential spoke in the wheel that must keep turning to catch up with the already overwhelming cancer burden. Let us not fall too far behind.

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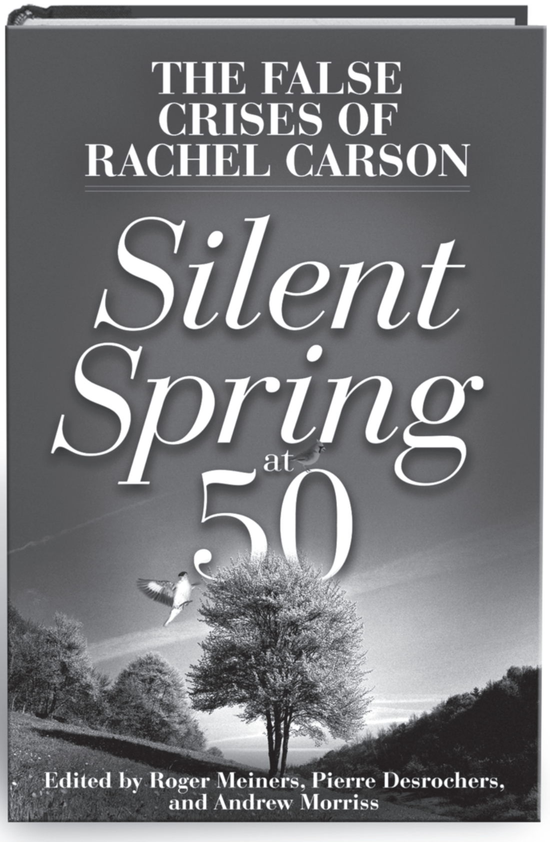

On the Path to Mental Health in the Andes

Reflections from a Psychiatry Elective in Urban and Rural Peru

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Arrival in Peru and Overview of Comisión de Salud Mental de Ayacucho (COSMA)

I arrived in Ayacucho, Peru on a Monday morning in January 2012 shortly after completing a three-week general medicine elective in a small clinic in southern Ecuador. I was set to begin a six-week psychiatry elective, observing and participating in patient encounters in mental health clinics and hospitals in both the Andean city of Ayacucho and Lima, Peru's capital. Providing supervised medical care to patients in Ecuador had exposed me to some of the health issues commonly faced by a rural Andean population of farmers or campesinos, as well as the challenges of working in low-resource settings. Patients largely reported ailments related to a lifetime of hard physical labor, such as back and joint pain, and were also treated for a range of common medical conditions, including hypertension and acid reflux. Occasionally, my supervising doctor commented that he suspected some patients' physical symptoms reflected elements of "somatization," the embodiment of mental distress. Having studied medical anthropology prior to medical school, I was familiar with this phenomenon and other "local idioms of distress," or the "particular ways in which members of sociocultural groups convey affliction."[1] However, in this busy medical clinic, there was rarely time to meaningfully explore the etiologies of such complaints with patients.

Deeply interested in further exploring how health and experience are shaped by complex interactions between social, cultural, political and economic factors, I sensed the unique nature of the opportunity to work in Ayacucho, a city that simultaneously epitomizes the beauty of the Andes and embodies the region's darker history of political violence and economic oppression. Strongly considering a career in global mental health, I was curious to learn about the models of mental health care being employed in the clinics and hospitals I would encounter and the ways they were addressing the astonishing treatment gap that characterizes this field. Currently, more than three-quarters of individuals with serious cases of mental illness in less developed countries do not receive adequate treatment.[2] The great challenge for the field of global mental health is to address this "moral failure of humanity" in contextually appropriate ways that promote human rights and avoid detrimentally imposing Western systems of diagnosis and treatment.[3]

Jordan Sloshower

The existence of the Comisión de Salud Mental de Ayacucho (COSMA), the region's only functioning mental health clinic, is predicated on Ayacucho being not only "an impoverished area with no available psychiatric care" but also "the cradle of the Shining Path terrorist movement in the 1980s and 90s [that] had suffered massive trauma from the terrorists and government counter-insurgency."[4] Briefly, Ayacucho had been the birthplace of the Sendero Luminoso (Shining Path), a Maoist revolutionary "terrorist" organization that sought to dismantle the country's political establishment through guerilla warfare. This uprising sparked a violent civil war that resulted in the deaths and disappearances of approximately 70,000 people, mostly innocent rural campesinos.[5] Displaced persons numbered 430,075, the majority of whom were from Ayacucho.[6] Being the unfortunate epicenter of the violence, Ayacucho is an ideal location to study the effects of political violence and poverty on health and wellbeing.

This history is firmly reflected in COSMA's mission statement, which is currently translated as follows:

> "We are a nonprofit Civil Association serving the mental health needs of the people, with priority given to the most vulnerable people in the region of Ayacucho, especially those affected by sociopolitical violence that has resulted in physical, psychological and emotional sequelae. We seek active participation of the individual, family and community to contribute to social development, with full respect for human rights and maintenance of a culture of peace."

While this commitment to addressing the health and psychosocial consequences of political violence in the region has been present since COSMA's inception, almost all other facets of the clinic have changed over time. Since Sister Anne Carbon, a Filipina nun and trained psychiatric nurse, started the clinic in 2003 "with minimal supplies, volunteer nursing staff, and a volunteer psychiatrist" from Lima,[4] the staff of nurses and psychologists has gradually grown, and more psychiatrists and psychiatric residents from Lima now visit the clinic each month. Although the clinic remains without any permanent psychiatrists on staff, this expansion of personnel represents a great improvement over the situation in 2004, when the entire Ayacucho department had only one psychologist and no psychiatrists.[6] This dearth of mental health care is part of a general lack of public health infrastructure in the Ayacucho region, characterized by "limited access to medicines, emergency health care and other health care services.”[6]

Approximately five years ago, COSMA moved to its current location, discreetly situated amongst residential complexes and local eateries on an inconspicuous street at the bottom of a hill in southern Ayacucho. Passing through the clinic’s unmarked wooden door reveals a bright, open-air complex with clean tiled floors and walls painted with mountain scenery and complex designs of traditional Andean tapestries. The multi-level clinic contains treatment areas, offices, a pharmacy, an occupational therapy room with looms and an apartment where I lived with Brother Jimi, the clinic director.

Interestingly, the clinic’s directorship was transferred in January 2011 to the Brothers of Charity, “an organization with Christian values, whose vision is to provide services which support people’s individuality, choice, rights and dreams.”[7] Under the Brothers of Charity, the clinic has remained non-sectarian, attempted to adopt a more community-based model of care, increased the number of trained psychologists and social workers on staff and designated specific clinical personnel to address substance abuse problems. The volunteer psychiatrists that visited the clinic during my stay agreed that COSMA’s increased provider recruitment and shift toward community-based care represented positive steps for addressing the “high rates of mental health problems …among the highland Quechua populations exposed to violence-related stressors.”[8]

> Presumably, ongoing socioeconomic hardship and suffering caused by the destruction of families continue to reverberate through the population, manifesting in a tendency to self-medicate with drugs and alcohol – anesthetics available to the masses.

Clinical services at COSMA are currently provided through three main departments. The clinical department, consisting of psychologists, nurses, a social worker, a pharmacist and visiting psychiatrists, is tasked with treating patients with a variety of mental health disorders in the clinic and in their homes. Medications are made available to patients through a tiered pricing system, in which the cost to the patient is determined in consultation with a social worker. In response to my concern that this policy may deter utilization by the poorest of the poor, Brother Jimi reassured me that treatment is routinely provided for free to those unable to contribute. In fact, he stated that income from patients only covers 8% of the clinic’s operating costs and that the shift away from providing universal free care reflects the Brothers of Charity’s desire to make their clinical programs more sustainable. The only negative impact of this policy I could detect was some confusion amongst the visiting psychiatrists about whether and to what degree cost considerations needed to be factored into their prescribing practices. Frequently, we would walk over to the in-house pharmacy to discuss price differences between medicines and creative strategies to lower costs, such as crushing pills and encapsulating the medicines in personalized doses.

The second clinical service at COSMA is a rehabilitation department that runs a day program for patients with chronic schizophrenia, who seemed to compose a large proportion of the clinic’s long-term patients. The program, which complements their psychiatric care, involves three steps: functional rehabilitation (cognitive rehabilitation, physical rehabilitation and basic skill building) to give patients control of their lives; psychosocial rehabilitation to integrate patients back into their families and local communities; and occupational rehabilitation, through which patients learn income-generating skills, such as how to produce a range of handicrafts. Finally, there is a half-day program for children, adolescents and adults with mental disabilities. This program focuses on behavior modification, developing learning abilities and alternative communication. Overall, it was clear that the clinic had made significant strides since 2003 and was now better able to provide multi-faceted treatment programs to meet patients’ often-complex needs.

My Experience at COSMA

I spent my first half-day at the clinic working with the triage nurse, who performs initial interviews with new patients and decides which departments and providers the patient will see. Generally, patients are assigned to either psychiatry or psychology, and almost all patients are referred to the social worker to discuss the cost of service and medicine, as well as other potential barriers to care. Observing this intake process provided a useful overview of patient flow at COSMA, into which I was thrust the next day upon the arrival of two American psychiatrists affiliated with the Peruvian-American Medical Society (PAMS).

During our orientation meeting with Brother Jimi, a clinic nurse suddenly entered the room and requested that one of the visiting American psychiatrists attend to a young girl in distress. I joined the doctor and evaluated my first psychiatric patient in Peru: a 12-year-old girl with shiny black hair and deep, distant brown eyes. Her father reported that for weeks she had remained in isolation, crying and “hearing voices” that frightened her. Strikingly, the girl told us that she did not feel like herself anymore. The doctor and I suspected an early psychotic break and started her on a low dose of the antipsychotic medication olanzapine. The following morning, we visited the patient in her home to monitor her response to treatment. She reported having slept fairly well and some nondescript symptom improvement but commented disconcertingly that the medicine made her feel even less like herself. Given the absence of overt medication side effects, we reassured the girl’s parents, explained the plan to slowly increase her dose to therapeutic levels and returned to the clinic.

Although I knew my time in Peru would hold numerous surprises, this introduction to the elective felt unexpected and unsettling. I wondered how many young people with psychotic disorders there were in Ayacucho and whether the benefits of treating a young girl with powerful antipsychotic medications would outweigh the adverse effects of sedation, metabolic disturbances and movement disorders. I was also uncertain of how starting her on this treatment at such an early age would impact her developmental trajectory and what more could be done at family, community and societal levels to achieve a positive long-term outcome. Having had such a striking initial patient encounter, I was highly intrigued to meet more patients and discover what other mental forms of mental illness I would encounter in this picturesque but poverty-ridden mountain city.

During the five days that followed, I worked primarily with a visiting psychiatrist from Lima who completed his residency in New York City and a fellowship in addiction psychiatry at Yale. Together, we spent a half-day working at the local asilo de ancianos (nursing home) and saw follow-up patients at COSMA. Working at the nursing home was a unique opportunity that presented a number of interesting challenges related to providing mental health care in a low-resource setting. The psychiatrist and I saw a large number of elderly patients, many of whom maintained a traditional Andean style of dress, in a short amount of time. Little background information was known about a number of patients, who had either been dropped off by their families or had come in off the street. Moreover, translation difficulties and patients’ physical and mental disabilities made it difficult to gather new information. This lack of a complete clinical picture was complicated by the practice of keeping psychiatric and medical records separate, as is done in many psychiatric facilities around the world. I often found myself wishing I could see what medical diagnoses and treatments patients had received.

Given those limitations, our evaluations primarily entailed adjusting patients' medications based on what we could observe and what the sisters working at the asilo reported about their recent behavior and function. Other challenges we encountered resulted from the reality that the nursing home relies on the donated services of various psychiatrists who come from Lima each month. It was often not entirely clear why certain medications had been started or why dosages had been adjusted, thereby making it difficult to follow the effects of a given prescription. This lack of a detailed diagnostic record tends to deter discontinuing or decreasing medications, which could in theory lead to "polypharmacy," or overmedication. Although I found myself wishing we could perform more in-depth evaluations and learn more about these patients' lives and medical histories, I left feeling reassured that the visiting clinicians were doing the best they could under very difficult circumstances. By helping regulate patients' sleep and appetites, avoiding the need for physical restraints in patients with agitation and generally maximizing patients' ability to perform activities of daily living, psychiatric care was helping the asilo residents live the remainder of their days with dignity.

In the more traditional clinic setting at COSMA, circumstances were rather different. Patients had more thoroughly documented medical histories, and we were able to conduct interviews in the presence of family members as well as psychiatric nurses capable of translating Quechua in order to fill in gaps of information. The psychiatrists and I primarily saw patients who had been diagnosed with psychotic disorders, mood disorders and substance use disorders. A striking but perhaps unsurprising feature of COSMA's patient population, given Ayacucho's history of violence and ongoing poverty, was the relatively large numbers of patients suffering from the last. The majority of these patients were abusing alcohol, marijuana and/or pasta básica de cocaína (PBC), a cheaper, more addictive form of cocaine. Increased rates of alcohol and substance abuse are known to occur in the wake of political violence, and villagers from Ayacucho have reported a rise in alcoholism, mostly among men, and increased alcohol abuse during fiestas since the civil war.[6] The relationship between exposure to political violence and mental health is also reflected in the results of a 2008 epidemiologic survey from the rural Sierra regions of Peru that found an annual prevalence of harmful or dependent alcohol use of 3.6% in those who lost a family member during the war versus 1.3% in those who did not.[9] More generally, 44.6% of the affected population had a psychiatric disorder in their lifetime versus 25.1% in those without a family member loss. Presumably, ongoing socioeconomic hardship and suffering caused by the destruction of families continue to reverberate through the population, manifesting in a tendency to self-medicate with drugs and alcohol—anesthetics available to the masses.

Patient Home Visits

After interviewing patients with the visiting psychiatrists for one week, I stayed in Ayacucho for five more days primarily to accompany the clinic nurses, psychologists and rehabilitation team on visits to patients' homes. While working in the clinic had been a memorable and fruitful learning experience, I found conducting patient home visits particularly compelling. Not only are home visits convenient and free of cost for patients, they also provide a mechanism for the clinic to follow-up on patients who either could not make it to the clinic or had missed their scheduled appointments. Moreover, these visits afford clinicians valuable insight into patients' lives, how and where they spend time and how family dynamics operate—critical information for constructing a feasible, appropriate and effective treatment plan. For instance, each visit I participated in informed me about how remote the patient's home was, whether they lived with extended family and their relative degree of poverty.

Some visits were particularly useful from a clinical standpoint, as we were able to observe how patients were functioning in real life. Upon arriving at the gate of one patient's home, the team and I encountered his mother who was hesitant in allowing us to meet with the patient. After waiting several minutes outside, we were finally invited inside and spoke with the patient in his garden. It turned out that for several weeks he had been too paranoid to work at the family bakery and was even reluctant to leave his house. We were able to arrange for him to see a psychiatrist much sooner than he would have otherwise. Another patient we visited with chronic schizophrenia was maintaining a job in construction but reported experiencing increased bothersome auditory hallucinations. Upon further questioning, we discovered that he was taking far less antipsychotic medication than his prescribed dosage due to confusion brought about by having two formulations of the same medication.

After participating in these home visits for a couple of days, I was convinced that they were an essential part of COSMA's model of providing quality mental health care to the rural poor of Ayacucho. Similar to how the use of community health workers has proven essential to HIV and tuberculosis treatment programs in developing countries,[10] the therapeutic importance of incorporating community outreach into mental health services in remote, low-resource settings seems clear. This strategy not only builds strong rapport with the patient and patient's family, but also helps mitigate contextual or cultural misunderstandings between the psychiatrists from Lima and their rural campesino patients. By bridging the gap between the clinic and patients' everyday realities, conducting home visits engenders a more holistic understanding of patients, which in turn facilitates the tailoring of treatment plans to individual life circumstances. This ability, in addition to enhanced monitoring of medication adherence and gathering of collateral information from family members, should presumably result in better outcomes.

More broadly, community-based models of mental health care represent vehicles for providing evidence-based therapies to patients despite severe shortages in human resources. They also hold the potential of affecting change at the level of families and communities as well as making care more culturally sensitive and participatory in nature.[11] In so doing, community-based care may also be a tool for improving public mental health if programs can successfully incorporate "interventions that encompass the social, economic, political, biological and cultural determinants of mental illness."[12] Discovering and implementing strategies to fully realize the range of potential benefits described above in a variety of contexts is a critical challenge facing the rising cadre of global mental health researchers, practitioners and project sites, such as COSMA.

Hospital Nacional Cayetano Heredia, Lima

Just a day and a half after leaving Ayacucho, I began a two-week rotation with Cayetano Heredia general hospital's psychiatry department in Lima. Cayetano Heredia is an academic hospital affiliated with the University Peruana Cayetano Heredia (UPCH) School of Medicine. My rotation entailed working with the consult liaison team during the mornings and with the general outpatient psychiatrists in the afternoons, with a few half days of pediatric psychiatry interspersed.

The first week at Cayetano provided me with an introduction to the psychiatric services offered at the hospital. I was able to observe four different psychiatrists in the outpatient consultorios and see a wide variety of patients and parts of the hospital with the consult liaison service. Throughout this week, I was struck by the diversity of people, pathology and emotion one can encounter walking around a public hospital, like Cayetano, in the developing world. In the emergency room, the distal half of a man's left foot was dangling by some skin and soft tissue after a traumatic accident, while next door rows of patients with various ailments were in different stages of treatment or decline. In the tropical disease unit, room after room of patients with HIV—most not on antiretroviral treatment and many co-infected with tuberculosis or multi-drug-resistant tuberculosis—were in various stages of wasting away. Walking into the outpatient wing, I passed through two rows of happy, talkative, pregnant or postpartum breastfeeding women; this area then opened into an extremely large central waiting room teeming with people patiently awaiting their turn in one of the many booth-like consult rooms that fill the ground floor of the hospital.

During my two weeks at Cayetano, I finished seeing patients with the consult service by lunchtime, thereby leaving my afternoons open to see patients with the attending psychiatrists and UPCH medical students in the bustling outpatient consultorios. This busy, if not over-burdened, service sees both new and follow-up patients for pharmacologic treatment and psychotherapy at intervals determined partly by patient need and largely by clinician availability. Like at the asilo de ancianos in Ayacucho, I was struck by the way the psychiatrists strived to meet the needs of their patients under less than ideal circumstances. The psychiatry consultorio at Cayetano is an awkward, small construction in the middle of the ground floor hospital hallway, subdivided into three cramped consult rooms. These consult rooms were hot and noisy; there were fans whirling at full speed, and ambient noise entered unimpeded through the rooms' ventilation cracks in the walls. For me, this noise exacerbated the language barrier that I was constantly struggling to overcome, and I imagined that for both patients and providers, these rooms were not ideal "therapeutic environments." That said, the psychiatrists seemed to have developed excellent rapport with the majority of patients, most of whom seemed to genuinely appreciate the care they were receiving.

One other disturbance I experienced in the consultorios was the strong presence of pharmaceutical representatives. In between patients, they often entered the room one after another giving free samples of their branded medications to the doctors. While certainly these free samples benefit a number of patients in the short term, I suspected that, like in North America, this practice would skew physician prescribing practices and unnecessarily promote brand name medications,[13] thereby inflating drug prices.[14] Moreover, the representatives' presence—evidence of pharmaceutical companies' desire to increase sales in emerging markets like Peru—reminded me of how the rise of psychopharmacologic treatment has reshaped how people conceive of and cope with everyday suffering in other parts of the world, such as Japan.[15] I wondered if a similar process was underway in Peru.

Contributing to this suspicion was my observation that the psychiatrists at Cayetano generally practice a Western style of psychiatry similar to what I have seen in New Haven, in which patient visits are focused on asking questions pertaining to specific diagnostic criteria and assessing patients' treatment regimes. Although used loosely to guide treatment decisions, diagnoses were made according to the two widely used disease classification systems developed in Western contexts—the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD). Amidst a broader debate regarding the universality of mental illness, the use of these classification systems in non-Western settings has led to grave concerns about their diagnostic validity.

Similarities in treatment patterns also seemed to exist despite UPCH's theoretical espousal of a more psychopathological approach based on the work of Cayetano's own Honorio Delgado, after whom the neighboring national mental health institute is named. While this emphasis on psychopathology was certainly evident during weekly academic case discussions, most of the patient visits I observed were "med checks" that entailed briefly inquiring about the patient's condition and well-being and then adjusting their treatment regimen. Like in the US, psychopharmacological agents were prescribed liberally, especially antipsychotics and benzodiazepines, and psychotherapy seemed to play a minimal role in treatment. Unfortunately, it seemed that referral to outside psychologists, social workers or rehabilitation services was beyond the means of most patients.

Given my level of training, I suspect a fair amount of analytic complexity was occurring in the minds of the psychiatrists that I was unaware of. In Ayacucho, one of the Lima psychiatrists had explained to me how the psychiatric interview is like a spiral that twists around itself, as opposed to the more linear, deductive type of interview used in other fields of medicine. In other words, a good psychiatrist generally does not move chronologically through the various parts of a patient's history but rather combines elements from different sections in relevant ways, creating a holistic picture of the patient's life situation. For instance, symptoms described as part of the "history of present illness" must be contextualized within a patient's past medical or psychiatric history and social history. Moreover, allowing patients to tell their illness narratives, which are generally nonlinear, and asking pertinent questions along the way is a difficult but crucial skill for a psychiatrist to master. Nonetheless, it is necessary for understanding how people view their illness and developing good rapport, while simultaneously obtaining the necessary information for a complete psychiatric evaluation. These points would become increasingly clear as I observed more in-depth interviews in the inpatient wards of the national mental health institute.

Jordan Sloshower

Instituto Nacional de Salud Mental Honorio Delgado – Hideyo Noguchi

My final two weeks in Lima were spent at the Instituto Nacional de Salud Mental Honorio Delgado—Hideyo Noguchi (commonly called "Noguchi") working in hospitalización (the inpatient ward) and addiciónes (addictions). At Noguchi, the inpatient ward is split into men and women's units, which are further subdivided into acute and chronic wings. Patients first enter the acute wing, and if they are not discharged within approximately three weeks, they are transferred to the chronic wing, where they can potentially stay for years. The majority of patients in the ward carry a diagnosis of chronic schizophrenia, but there are also a number of patients, mainly female, with major depressive disorder, bipolar disorder or borderline personality disorder. Because of the higher diversity of pathology amongst the female patients, I spent most of the first week in the women's unit.

Each morning, I observed psychiatrists in different wings interview patients and then discussed the evaluations with them. I generally focused my efforts toward understanding a patient's diagnosis and the rationale for their medication regimen. There were a few select patients that I found particularly intriguing, so I took the initiative to review their charts and chat with them informally in the common area. This actually proved to be one of the most rewarding experiences of the whole elective, as I felt I achieved a deeper understanding of these cases and formed therapeutic relationships with these patients. The slower pace of inpatient care allowed me to perform follow-up interviews and have more in-depth conversations with the attending psychiatrist about their cases.

One patient that captivated my attention was a young woman diagnosed with chronic paranoid schizophrenia and possible schizoaffective disorder, bipolar type. During my interactions with her, she enthusiastically described to me how she had ended up in the hospital and recounted recent supernatural experiences. She told me about energies she felt from television screens and fears she had, as well as some messages she had intuitively received from a variety of sources. She also elaborated on her passion for learning and career ambitions. What intrigued me about this patient was that she struck me as being exceptionally "normal;" she did not appear disheveled or have the distant, medicated look of many schizophrenic patients I had encountered. Moreover, she was interesting to talk to, and the things she said were not overtly "crazy" or implausible. Perhaps, if we had been in Ayacucho or a cultural context where speaking of spirits and witchcraft was more commonplace, such remarks would not have evoked suspicion of psychosis. While in Lima, her accounts of the supernatural struck the local psychiatrist as fairly bizarre; they did not constitute the basis of her diagnosis. Rather, it was persistent instances of delusional, illogical thinking exhibited by the patient during lengthy discussions and nuanced questioning that justified her diagnosis. For me, this case exemplified the idea of schizophrenia existing on a spectrum of severity and the need to avoid ethnocentrically applying diagnostic labels on superficial bases that could be explained by differences in worldview. The subtle nature of the patient's psychotic symptoms also underscored the reality that most people with schizophrenia live their lives in the community without treatment.

To provide a contrasting experience to the inpatient wards, I spent most of my afternoons while at Noguchi working in the psychiatric emergency department, which afforded me the opportunity to observe more acute presentations of mental illness. One gentleman, clearly in the throws of a manic episode, dramatized his arrival at the hospital by claiming to be God and shouting, "Heil Hitler!" A young female patient brought in by her mother was relapsing with catatonic schizophrenia after a month-long period of improvement following electroconvulsive therapy. Another striking case was that of an unidentified Quechua-speaking man who had been found disheveled and confused in the street. Nothing was known about the patient's history, and he was given a preliminary diagnosis of paranoid schizophrenia.

While in the emergency department, I also saw a number of seemingly routine follow-up consults, which initially struck me as strange. It turned out that a number of patients without regular psychiatric care have no other option but to visit the emergency department when they run out of medication or have worsening symptoms. This widening crack in Lima's mental health system reflects the lack of space for new patients in Cayetano's public outpatient clinic, Noguchi's reluctance to see outpatients as it strives to become primarily a research institution and the largely unaffordable cost of private psychiatric services in Lima. Despite the demand for outpatient services, there were paradoxically numerous empty inpatient beds at Noguchi, one of only three mental health hospitals in a city of eight million people. One of the psychiatrists I worked with there reasoned that this phenomenon was due in large part to patient preference to seek help at the general hospital instead of the instituto de salud mental, which is not a "normal" thing to do. Thus, although not immediately apparent, a culture of stigma still appears to surround mental health in Lima, as it does in most parts of the world.[16,17]

> Patients without regular psychiatric care have no other option but to present to the emergency department when they run out of medication or have worsening symptoms.

Overall, the clinical diversity and depth of patient interaction I was afforded during this first week at Noguchi made for an extremely rewarding experience. In my view, the inpatient setting allowed for better treatment planning, more teaching time and a greater ability to develop relationships with and understanding of patients compared to Cayetano's outpatient service. In fact, having observed similar trends in psychiatric and medical clinics and hospitals in Connecticut has led me to develop a personal preference for hospital-based medicine over outpatient care.

The Addictions Unit at Noguchi

My final week of the elective was spent rotating on the addictions floor at Noguchi. This unit consists of about 25 beds (20 men, two women and three adolescents) and employs an extremely interesting model of care. It was designed and implemented by one of the unit's own psychiatrists and can be described as a holistic, family-centered approach to addictions treatment. This model envisions addiction as a family disease and patients as spiritual beings in need of humanistic development. While interned, patients engage in a full-day program of humanistic or secular spiritual development, which involves writing a "thesis" that outlines in great detail (sometimes in hundreds of pages) the aspects of their lives that have contributed to the development of their current situation and addiction. The program also requires patients to partake in a range of other therapeutic modalities, such as art therapy, daily journaling and reading a curriculum of "humanistic" books. Aside from listening to calming music while engaging in some of these activities and watching a biweekly film, an atmosphere of silence is maintained in order to foster introspection. Moreover, patients are prohibited from conversing amongst one another, except during supervised sessions with one of the psychiatrists.

The program's creator explained to me that the aim is to increase patients' insight into their illness because, according to his theory, all types of addicts (drug addicts, gambling addicts and "cyber" or internet addicts) are not aware of their disease and lack the ability to self-reflect, feel emotions and empathize with others. As a result, they live almost exclusively in the external world, seeking to satisfy their addictive impulses. The resulting tendency to manipulate others in order to satisfy the addiction almost always strongly affects the patient's family. Moreover, a patient's family situation is theorized to potentially contribute to the generation and maintenance of the addiction.

The ramification of this familial association is that the patient's family also must undergo therapy. Initially, patients' families come to the hospital for half-day sessions with the nurses and doctors to learn about addictions and engage in a range of therapeutic modules themselves, such as hugging therapy, meditation and humor therapy. These all aim to increase the family's ability to love and understand the situation of the patient. After an indefinite amount of time, once the patient has made sufficient progress and gained some insight into their disease, the families are gradually allowed increased contact with the patient. The large degree to which a patient's family is considered during evaluation and included in therapy differs from the more individualistic mode of Western thinking but is in line with the cultural value of familismo, "the strong emphasis Hispanic individuals place on the importance of the family as the center of one's experience."[18]

Overall, I found certain aspects of this model quite inspiring and others somewhat problematic. Perhaps the most inspirational facet is the emphasis on therapy rather than medication and the link made between psychotherapy and spiritual development. There is a fundamental respect for each human life that underlies the humanistic program of activities, which seeks to strengthen the individual's mind and spirit to the point where they can free themselves from being enslaved by their addiction. Through this form of self-empowerment, the doctors claim to be able to "cure" patients of their addictions, rather than merely help them maintain abstinence. In theory, the multifaceted, lengthy therapy results in a rewiring of the brain in a manner that defuses the circuits responsible for the patient's addiction.

The most controversial aspect of this treatment model is its extreme length and intensity; the program ideally lasts several years, but patients can only remain hospitalized at Noguchi for a couple months at a time. According to the program's creator, most patients are unable to comply with the demands of the program after discharge from the hospital and, upon relapsing, patients must restart the program from the beginning, including rewriting their thesis. On one hand, the long duration of therapy employed in this model acknowledges the severity and insidiousness of addictions; it is an affliction that involves all aspects of a patient's life and therefore is unlikely to be treated in a short amount of time. In fact, several long-term patients I met at the head psychiatrist's private clinic where patients live, often for years at a time, stated that it took them about a year to accept the reality of their illness and truly begin to engage the treatment program. Up until that point, they admitted to being fixated on getting out of treatment and resuming their addictive behavior. Fascinatingly, I was able to witness the highly emotional family reunion of a patient who had recently made such a breakthrough after over a year of being interned at the facility.

While certainly such an intense treatment program benefits some patients, especially those with more severe, long-term addictions, it is problematic in that it is employed as a one-size-fits-all program. All patients admitted to the ward engage in the full program regardless of their age, type of addiction, personality or personal preferences. In other words, there is very little tailoring of treatment to the individual patient and little utilization of other treatment modalities, such as cognitive-behavioral therapy or motivational interviewing, which are more commonly used in the United States. Several residents and other psychiatrists also viewed the treatment program as overbearing and unnecessarily strong-handed. One can even make the argument that it is akin to a form of imprisonment, considering that patients' families can legally admit them for treatment against their will.[19] While this infringement of patient liberty could be justified through the lens of familismo as the prioritization of the collective good over individual needs, the head Noguchi addictions psychiatrist emphasized his notion that patients with addictions are not aware of their disease and are enslaved by the addiction, thereby robbing them of the ability to meaningfully exert agency.

Even considering the objections stated above, I still believe this model of care makes a useful contribution to the field of addiction therapy and in some ways instills a much needed dose of humanism into the "med-check" model of modern biological psychiatry. However, the program would be more effective and widely applicable if the hospital and head psychiatrist were more flexible in customizing the program to the needs and characteristics of individual patients and incorporating aspects of other therapeutic modalities.

Final Reflections and Future Directions in Global Mental Health

Over the course of my six-week psychiatry elective in Peru, I was exposed to a wide variety of mental health care settings and providers, types of patients, styles of psychiatric interviewing and treatment regimens. Rather than focusing on learning the nuts and bolts of the field of psychiatry, the rotation afforded a broad exposure to mental health services in the Peruvian context, thereby providing increased familiarity with models of mental health care and new examples with which I could engage the problems of global mental health.

At the outset of the elective, I had been interested in seeing how cultural differences affect mental health care. Specifically, I was curious whether mental illness manifests itself differently in foreign settings and how the Western system of psychiatric diagnosis is appropriately or inappropriately utilized in settings that differ socially, culturally, politically and economically. From studying medical anthropology, I was aware that "different societies and communities have differing norms, values and traditions, a range of causal attributions and understandings and…different ways of expressing emotions, distress and suffering."[8] As a result, the expression of symptoms is rooted in culture and social context, leading to the more accurate term "local idioms of distress."[20]

This is highly relevant in Ayacucho, where qualitative research has elucidated such idioms[21] and found that there are "no equivalent words to 'trauma' and 'stress' among the Quechua-speaking peoples in the Ayacucho highlands."[8] While this does not mean that there are no trauma- or stress-related conditions in this group, it does exemplify the risk of inappropriately applying diagnostic labels that are based on the presence or absence of particular symptoms and behaviors grounded in Western epistemologies. Moreover, Western psychiatric diagnostic schemes and treatment approaches reflect an individualist context that may be inappropriate for collectivist societies. For example, villagers in Ayacucho generally emphasize the social effects of political violence, such as widowhood and orphanhood, rather than individual symptoms of trauma.[6]

Implementing medical interventions in settings affected by socioeconomic problems, such as extreme poverty and political violence, also carries the additional risk of "medicalizing experience," using ideas about disease and illness to make sense of conditions with social and cultural roots."[22] A large body of social science scholarship has criticized the way in which "trauma" and post-traumatic stress disorder (PTSD) have become pathological entities found inside a person, or "between the ears," and a main focus of humanitarian interventions.[23,22,8,6,24,25] This literature has used ethnography to demonstrate how psychiatric services, knowledge and resources can be severely inadequate to address problems rooted in social suffering and can even undermine local healing practices and resilience-promoting processes.

It is with these concerns in mind that I entered the clinic in Ayacucho. Initially, I was somewhat surprised to find that the style of the Lima psychiatrists appeared to be very similar to that of American practitioners—deductively eliciting symptoms, applying diagnostic categories and treating. While in theory, this situation placed COSMA at risk of committing many of the pitfalls discussed above, in practice I felt the clinic's model contained several mechanisms to mitigate this risk. First, the presence of family members at almost all patient visits and the high demand for our services made it clear that patients were visiting the clinic of their own accord, in search of help for very real problems that were not otherwise being addressed adequately. This observation is consistent with ethnographic research from the region in the aftermath of the violence that revealed the community's perceived need and desire for trained psychologists and psychiatrists as well as general psychosocial support.[6] Second, it was difficult to assess whether cultural barriers were specifically impeding the provision of appropriate care. While people in Ayacucho looked and dressed differently, spoke a different language and frequently reported what were considered to be psychosomatic complaints, I did not feel that psychiatrists applied inappropriate diagnostic labels to patients. This was achieved by utilizing DSM diagnostic criteria in a loose, flexible manner—an important and common observation I have found in all psychiatric settings I have been exposed to—and careful contextualization of a patient's problems within their family and community setting. The latter was largely accomplished by including one of the psychiatric nurses or social workers in the psychiatric interviews. Their knowledge of the patients and families from the community and fluency in Quechua helped attenuate cultural differences between the psychiatrists from Lima and their campesino patients.

While I have little doubt that the comprehensive nature of mental health services offered at COSMA represents a promising model for providing community-based mental health care in low resource settings, I do wonder what true excellence in this field would look like. Perhaps the care provided by the clinic could be made more culturally sensitive if psychiatrists learned to evaluate patients' local idioms of distress and employed local illness categories to help differentiate normal from pathological. In addition, efforts could be made to integrate local therapeutic modalities, such as herbal remedies, ritual offerings (pagapu) to the mother Earth (pacchamama), or rituals of restitution (shunqo) and restoration of lost balance into mental health care.[21] Developing guidelines for doing so and evaluating their effectiveness represents an important area for future global mental health research.

In Lima, a more westernized urban center, there are fewer obvious cultural differences and seemingly less risk of "imposing" western psychiatric diagnoses on people from a different culture. Although difficult to comment on as an outsider, one cultural value that did seem to affect patients was machismo. Numerous women invoked this term during clinical interviews while describing emotional disturbances related to relationship problems. The term generally expressed discontent with gender inequalities that were perceived to enable the interpersonal violence or infidelity that led to their psychiatric presentation. The widespread use of such culturally embedded terms, and the knowledge that people living in Lima hail from all corners of Peru and beyond, argue for paying closer attention to idioms of distress and sociocultural factors affecting patients' presentations in urban mental health centers as well those in rural areas.

While cultural factors clearly provide challenges to the provision of appropriate and effective mental health care, I would argue that socioeconomic, political and historical forces are even more salient determinants of Peru’s mental health problems and care. This was reflected in the mental health epidemiology in Ayacucho, the dearth of mental health programs throughout rural Peru and the inaccessibility of psychiatric care for many in Lima. As a result, it is critical to embed culturally appropriate, evidence-based clinical care within broader efforts to improve public mental health by addressing the social, political and economic drivers of mental illness in these contexts.

There are some promising signs that this is taking place. For instance, as the social and economic impacts of the massive burden of mental illness become better elucidated, international health and humanitarian organizations are beginning to adopt “resilience” informed approaches to intervention, which prioritize local understandings of illness and wellbeing and seek to promote dignity rather than merely avoid pathology.[26] In addition, by analyzing multiple levels of influence ranging from the structural through the community to the individual and building upon existing health-promoting resources, structures and processes throughout the “social ecology,” such efforts hold the potential to both increase cultural specificity and promote social justice.[26,27]

Overall, my exposure to the mental health care system in Peru has expanded my vision of what mental health care is and what it can be. The field of psychiatry is, for better or worse, still in its formative stages; it is in the process of revamping its diagnostic classification systems and discovering the biological and social bases of mental illnesses. As these changes take place, so too will models of mental health care. Despite these limitations inherent in modern psychiatry, there is an epidemiological and ethical imperative to expand access to basic community mental health services that provide evidence-based therapies for a range of common mental illnesses. Fortunately, the field of global mental health is growing to meet this need. However, as it does so, it is critical that its practitioners develop and implement innovative, interdisciplinary, inter-sectoral approaches to care that are responsive to constructive criticism from the social sciences and local communties. My time in Peru has powerfully inspired me to be part of this monumental effort in the hope of alleviating the individual and collective suffering that results from the vicious, circular relationship between mental illness and unrelenting political violence, poverty and gender inequality that plagues communities around the globe.

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Bridging the Gap

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The 'Friendship Bridge' between Khorog (Gorno-Badakshan, Tajikistan) and the village of Shugnan (Afghan Badakshan, Afghanistan) stands over the clear rushing water of the Pyanj River, tucked between the snow-capped mountains at the heart of Central Asia. Since its opening in 2004, the bridge has helped foster plurality and enabled exchange and understanding by opening up local markets and stimulating regional trade. However, it has also served as a medium for the exchange of illicit goods, including narcotics and arms. More specifically, opium drugs are supplied readily from Afghanistan in the form of processed heroin, a derivative of opioid, and sold across the bridge in Tajikistan. This consequence is evidenced by the fact that the number of injected opioid drug users (IDUs) in Central Asia has increased exponentially over the past decade, making opioid overdose a substantial hurdle to an improved standard of living. In 2009, it was estimated that in Tajikistan alone the number of IDUs neared 25,000 in a population of approximately 7.4 million.

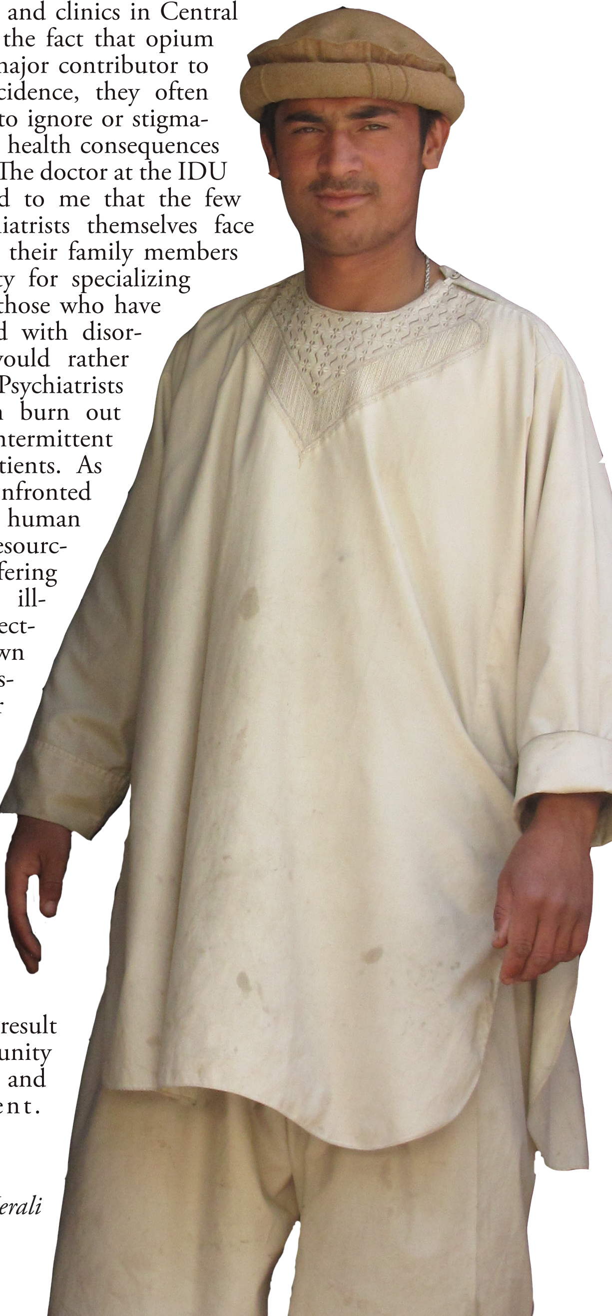
Having lived in Tajikistan for six years, I was drawn to get involved with Columbia University's Global Health Research Center of Central Asia and was assigned to a team of five different non-governmental organizations (NGOs) in the field to create a database that would help us better understand drug use in the region. Our findings shed light on the complicated web that intertwines drug use and mental health issues, the latter being particularly taboo in the region.

In Khorog's only drop-in clinic for IDUs, I met a 19-year-old girl, Nargis (all names in this article were changed), who suffered from a heroin addiction. With the help of a translator, she told me how she and a group of friends had once shared a needle. Soon after, she was diagnosed with HIV. "I am healthier now," she said, "but my parents will still not speak to me and the owner of the shop I used to work at told me to leave my job." Her doctor later told me that she had developed signs of depression as a result of her experiences but refused to see a psychologist for fear of further alienation. Sitting with Nargis, we discussed ways that she could better communicate with those who are unaware of what she may be going through and set up a time for her parents to come to the clinic and meet with consultants. Despite our efforts, her hesitant and somewhat unfazed expression told me that it was unlikely to happen.

The following day at the clinic I met Firoz, a 26-year-old man who owned a fruit stall at the local market. He had been diagnosed with mild schizophrenia as a child. Soon after Firoz was refused entrance to high school. He then became depressed, developed a heroin addiction and attempted suicide. He was turned away by his father, and for a long time could not build up the courage to seek help, dreading more rejection. Firoz had heard about the clinic from a friend who had been an IDU and is now slowly learning how to move past drug use. But Firoz, having been ostracized by his school and friends, still finds it difficult to see the world in a positive way.

Though Nargis and Firoz recalled their personally devastating experiences, to which many other locals could closely relate, the long-term impact of addictive drugs extends beyond the primary drug users, affecting the development and security of the local community and region. When these drugs are acquired in areas such as Khorog, which lacks sufficient educational opportunities, it feeds a cycle of elevated stress, depression and consumption of opioid drugs and alcohol. The doctor at the IDU clinic also highlighted the fact that opioids themselves have adverse psychological effects such as anxiety and depression, making drugs both a cause and catalyst of psychological distress. Mental illness and drug use have always resulted in high comorbidity, even in developed nations, but when this cycle occurs in an impoverished population that lacks an adequate knowledge of the mental health situation, there is little motivation for the government or society to remedy poor mental health. Those who have been labeled as having a psychiatric disorder are set aside as incompetent and helpless, further weakening an already fragile infrastructure.

The absence of motivation for remedying the mental health situation only scratches the surface of a problem that is much more deeply rooted. Although health professionals in hospitals and clinics in Central Asia recognize the fact that opium injection is a major contributor to HIV/AIDS incidence, they often forget, choose to ignore or stigmatize the mental health consequences of opium use. The doctor at the IDU clinic explained to me that the few working psychiatrists themselves face prejudice from their family members and community for specializing in the care of those who have been diagnosed with disorders people would rather forget exist. Psychiatrists therefore often burn out following intermittent visits from patients. As clinics are confronted with decreased human and material resources, those suffering from mental illnesses are neglected by their own healthcare system. Even after IDUs have recovered from the physical side effects of drug use, they are mentally scarred by the drastic social and economic changes that result from community estrangement and unemployment.



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This further plunge in mental health can undermine one's sense of wellbeing and quality of life, negatively affect societal interactions and lead to increased suicide rates.

Despite such grave consequences, psychiatric care and mental health still remain very low priorities compared to other sectors of health care in Central Asia. In most regions, mental health does not hold legislative urgency and a minimal number of community-based services are available. In 2008, it was reported that the number of recorded patients with mental health disorders was 59,010, although the total number is estimated to be much higher. In Tajikistan, as of 2009, the percentage of the Government Health Department expenditure put towards mental health was merely 1%. Of that 1%, the majority (84%) was directed towards mental health hospitals leaving only three community-based inpatient facilities in operation. Moreover, only 14 hospitals out of the approximately 500 hospitals in Tajikistan were reported to administer mental health treatment and the number of psychiatrists per 100,000 people was 1.8. As of today, Tajikistan's Ministry of Health still does not have a department of mental health, and the nation's primary health care staff do not receive training in mental health treatment.[4]

Tajikistan already faces unyielding corruption and poverty, limited local access to education and the perpetual problem of brain drain; the medical school in Khorog continues to attract students but graduate retention remains a problem as health workers seek the prospect of higher wages abroad. So how does one convince the country that mental health care is a worthy investment? Currently, one of the biggest hurdles in overcoming the lack of attention paid to mental health care is the prejudice against and stigmatization of those suffering from psychiatric disorders. Not only do patients receive insufficient care, but their illnesses are also inadequately recognized, which only exacerbates the problem. Because people refuse to see doctors or therapists, the data that is collected misrepresents the true nature of the situation. In reality, the number of mental health patients that is recorded is insignificant in comparison to the number of people who suffer from these disorders and do not receive treatment. Subsequently, national information on the mental health system is not readily available, and reports that do exist are often outdated or have substantial gaps and inconsistencies. Before attempting to obtain reliable and systematic data, efforts are first needed to raise awareness and lift the veil that prevents people from coming forward about mental health issues—an effort that applies equally to doctors and patients. Governmental and health authorities also need to be reminded that mental health and the well being of the population go hand-in-hand with the economic health and development of their country. Only then do countries like Tajikistan stand a chance of implementing effective mental health legislation.

Currently, one of the biggest hurdles in overcoming the lack of attention paid to mental health care is the prejudices and stigmatization of those suffering from psychiatric disorders.

Although financial barriers play a part in deterring the advancement of the mental health system in Tajikistan, they are secondary compared to the role local people have in addressing the subject. Governments have a higher chance of responding to mental health if the issue at hand matters to their people. While in the long run, the implementation of a strong foundation in mental health professionals and facilities would be the preferable course of action, in the short-term, addressing the social barriers that exist for those who need treatment is just as important. If traditional attitudes and practices are first overcome by individuals, forward thinking can be utilized as a contagious force to slowly spread awareness and tolerance throughout communities.

There is a preliminary need for those suffering from mental illness to gain self-confidence before being able to effectively communicate with those who may initially be ignorant of their condition. People diagnosed with mental health illnesses in Tajikistan perceive themselves as inept because society has decreased expectations for them. If a person has been rejected in a community for being "unable," he or she first needs to realize the potential in him- or herself before others can do the same. One of the main reasons people do not speak up against the stigma associated with mental health issues is that they fear that no one will be able to grasp or relate to their side of the story. This segregation can be eliminated if an opportunity is given to meet others in similar circumstances. Existing IDU clinics and community-based services can implement phone helplines and hold frequent group therapy sessions for people to share familiarities and opinions as well as to discuss ways to approach those who may not comprehend the subject. Through these sessions, patients can gain insight into the prevalence of the situation in their community and build self-confidence to express their experiences openly, knowing that people are there to listen and understand.

A challenging, but particularly crucial, step in combatting stigma is better informing those who have rejected people who needed psychiatric care and helping them to understand that the words "disorder" and "illness" are not synonymous with incapability. Society is partially responsible for the decline in the wellbeing of those who have experienced discrimination. This sequence of events comes to a halt once individuals see themselves as having self-worth; it

opens the door to their family's acceptance and allows employers to give them another chance to prove their competency. Treating people who have experienced a downfall in their mental health as full members of society, with equal privileges and responsibilities, is essential in order for a community to accept that the state of one's mental health is a shared liability and not the fault of an individual.

Undoubtedly, solutions should include preventative measures in addition to treatment. Education lies at the heart of motivating society to eliminate gaps in the mental health system and preventing further ignorance. This strategy includes implementing training centers for local volunteers who can then hold mandatory mental health information sessions at schools for teachers, parents and children. Such teaching would explain how to recognize signs of depression and emphasize that mental health issues are not the fault of the person who experiences them but instead due to their genes and environment. In classes, students can be given scenarios depicting people with mental health disorders and then be asked how they would respond. This will ease young kids into talking openly about such subjects and prepare them to respond positively and knowledgably to similar issues in the future. For those who do not attend school, volunteers can also make presentations in community or religious centers. At the macro level of this educational process, once volunteers have received sufficient training, they can serve as community health promoters and train others to do the same. Such educators must be local people if the effect of minimizing stigma is to be long-term. As for teachers in further education, psychology and mental health should be incorporated into the medical school curriculum. Education, both at a micro and macro level, will not only empower people and enable them to speak about mental health with confidence and openness but also enable them to approach treatment with better understanding.

Thwarting the various causes of poor mental health may be difficult when it necessitates additional financial growth and human resources, yet there are actions that should be taken in the near future. Drug trafficking can be more vigilantly monitored, and an underage alcohol intake law can be implemented. Projects that focus on mental health-related issues, such as drug abuse prevention, need to take on a more community-centered approach. Using advertising to make services publicly known, rather than relying predominately on word of mouth as the clinic in Khorog did, would mark a big step in combatting stigmatization. For example, making presentations and holding open discussions on fundamentals of mental health and available support in schools and hospitals will relieve the anxiety of those who feel like they face the overwhelming effects of psychological troubles alone without the availability of treatment. In urban areas where recognition of mental health may have already occurred, the pace of reform will accelerate when prejudices surrounding the topic are lifted.

Mental health issues manifest and evolve differently in different cultures over time, but the negative reactions provoked by Tajik communities have remained ingrained in habit for far too long. This issue requires immediate attention, as it not only undermines healthcare, economics and development, but also human rights. In his address to the government of Tajikistan, United Nations Special Rapporteur Mr. Anand Grover stated, "The right to be free from discrimination based on one's health status is a core component of the right to health." Thus, any future advancements and strategies should be centered on equality and non-discrimination in addition to the medical aspect of mental health. Tajikistan needs to see its people invest in what is still a foreign concept. It is essential to stimulate the willpower to cross into uncharted territories, much in the same way that the Friendship Bridge unites two different entities through a common thread of dialogue and understanding.

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