



Improving Maternal Health Outcomes in Haiti by Expanding Access to Safe Surgery

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Case Document**



<http://modernizeaid.net/2011/01/opportunity-in-haiti-one-year-on/>

“Without surgery, sustainable economic development is a fairy tale, a laughable fiction.”

**-Gavin Yamey,
Professor of the Practice of Global Health, Duke Global Health Institute**

“Surgery is an indivisible, indispensable part of healthcare... [it] can help millions of people lead healthier, more productive lives”

-Jim Kim, President of the World Bank



<http://www.pih.org/priority-programs/surgery>

Introduction

Joulie winces as her hand slips onto the hot stove where she cooks *riz et pois rouges*, a staple dish of rice and red beans for her and many impoverished Haitians.²⁶ This is not the first time she has found herself lost in thought while cooking, remembering the days when her mother was still alive. At eleven years old, Julie was forced to drop out of school and care for her four younger siblings.

It was only three years ago that everyone in their Central Plateau village rejoiced at the announcement that her mother, Angeline, was pregnant once again. This joy was short lived, however, when the child was stillborn and her mother began suffering debilitating abdominal pain. Joulie's father scraped together what little savings he could and rushed Angeline by foot to the nearest clinic seven miles away. There, clinicians determined Angeline's need for emergency surgery only to discover the sole surgeon in the Central Plateau is too busy with other surgeries to take on any more patients. Staff scrambled for vehicles to transport Angeline the four hours to the capital, Port-au-Prince, to be operated on by the nearest available surgeon. With roads either undeveloped or in constant disrepair and at the mercy of conditions such as landslides, this trip was known to be treacherous and rife with delay. Angeline did not survive the trip and passed away before reaching the capital.

Ever since, Joulie's life has been dedicated to cooking, cleaning, and bathing her four little brothers and sisters. She once enjoyed school and even aspired to one day become the local school teacher, but has since been forced to abandon that dream to care for her family.^{1*}

Joulie's plight and her mother's death due to lack of surgical care and resources is not uncommon in the island nation of Haiti. Each year, thousands of women die or suffer debilitating conditions when surgery is delayed or halted. Families, children and communities are affected in this surgical burden of disease.

Haiti at a Glance

Haiti is located on the Western third of the island of Hispaniola, which it shares with the Dominican Republic, in the Caribbean Sea.⁹ It remains the poorest country in the Western Hemisphere as 80% of the population lives below the poverty line, 54% are considered in abject poverty, and the total population literacy rate is 61%.⁹ In comparison, only 15% of the population in the United States lives below the poverty line and the total population literacy rate is 98%.^{27,28} Economic challenges include a lack of solid infrastructure and education as well as widespread pervasive corruption, excessive foreign involvement, and susceptibility to natural disasters.⁹

It is estimated that 95% of Haiti's population is comprised of racially black ethnic groups, while the remaining 5% is of mixed black-caucasian descent.⁹ The official languages are French and Haitian Creole.⁹ The religion affiliation composition in Haiti is not agreed upon due to lack of statistics collection. The major religion practiced is Roman Catholic and Protestant.^{9,32} In addition, Voodoo has traditionally been practiced concurrent to Christianity and was made an official Haitian religion in 2003.⁹

The Republic of Haiti was founded in 1804 as the result of a successful slave rebellion

led by Toussaint L'Ouverture against French colonists who had used slave power to become one of the most lucrative powers in the Caribbean.²⁴ Since this fragile beginning, the nation has unfortunately remained politically unstable for most of its history.

Haiti also has a history of economic turmoil dating back to its independence. Shortly after its independence, France enforced international pressures on the nation causing it to be isolated from the international community and resulting in a deteriorated economy and infrastructure.¹⁰ In 1825, the United States and France agreed to officially recognize

Haiti's statehood on the condition that it pay for France's losses as a result of its independence.¹⁰ Haiti was forced to accept the terms, which stipulated a payment of 150 million French francs (21 billion USD today) - a debt which took 80 years to pay.¹⁰



The election of François Duvalier (“Papa Doc”) as president in 1957 marked a new level of political corruption within Haiti. Duvalier abolished the democratic constitution and instituted a ruthless dictatorship enforced by his military force dubbed the “*tonton makouts*.”¹² It is estimated that 30,000 Haitians were put to death under François’ reign, which was continued in 1971 through his son, Jean-Claude Duvalier (“Baby Doc”).¹² Acute poverty, mismanagement of national funds, neglect for public services, and the rise of HIV/AIDS and African Swine Fever (ASF) in the late 1970s and 80s contributed to public dissent and the eventual decline of the Duvalier era in 1986, as well as a continued state of poor health conditions and outcomes.¹²

In January 2010, Haiti was struck by a 7.0 magnitude earthquake with the epicenter 25 km from the densely populated capital, Port-au-Prince.¹³ Considered among the most deadly natural disasters in the past century, the earthquake devastated the already-weak Haitian governmental and health-care systems. With the Haitian government unable to dictate and adequately address its country’s needs, other international military and nonmilitary entities, primarily American, filled these humanitarian leadership and response spaces.¹³ Since 2010, Haiti has been inundated with nonprofit and health organizations eager to help but without a true commitment to staying in Haiti.³³ International aid that often bypasses the Haitian government also greatly undermines the country’s opportunities to develop capacity.³³ The huge flow of people outside from Haiti also brought in unintended consequences and diseases, for example, UN workers are claimed to be responsible for the cholera outbreak after the earthquake.³⁴

Years of debt and political corruption, coupled with a susceptibility to natural disasters has left Haiti as the most impoverished country and with some of the poorest health indicators in

the Western Hemisphere.

The Surgical Burden of Disease

According to recent publications by the World Bank and The Lancet Commissions, surgery is shown to be a cost-effective health intervention in many contexts.^{24,4} Surgical care has also been cited as contributing to countries achieving Millennium Development Goals 4, 5, and 6.²⁵ Quality surgical care has therefore been linked to greater social and economic prosperity as well as essential to achieving health goals in areas including cardiovascular, cancer, reproductive, and maternal health.¹⁴ The definition of surgical disease is one that describes “any disease state requiring the expertise of a surgically trained provider, which may or may not eventually require anesthesia, for incision, excision, and suture,” and also includes pre-operative and post-operative care.¹⁵ This definition provides a framework for addressing barriers providers and patients encounter in the context of surgical care globally. It is estimated that approximately 11% of premature death or disability in the world could have been prevented with surgical care, measured through Disability-Adjusted Life Years (DALYs), the preferred metric used by the World Health Organization (WHO) for assessing the contribution of a disease category to the overall burden of disease.^{16,17} These preventable outcomes and associated cases include, but are not limited to, surgically treatable infections/debridements, the acute abdomen, obstructed labor, and trauma, with an estimated 2 million lives having the potential to be saved by providing surgical care in this trauma setting. Patients with the lowest income in low- and middle-income countries (LMICs) generally lack access to surgery and undergo only 3.5% of all surgical procedures.¹⁷

With the global burden of disease shifting from infectious diseases to chronic and non-communicable diseases (the latter of which includes surgery), surgery has emerged as an unprecedented necessity within global health priorities.² Access to surgery is an area of growing disparity between LMICs and developed nations.³ In 2010, the lack of access to surgical care claimed more lives worldwide than HIV/AIDS, Tuberculosis, and Malaria combined.⁴ Limited access to surgical care in LMICs has several important socioeconomic implications. These discrepancies in resources compared to developed countries result in chronic disability, thus higher unemployment rates and

Some people think Surgery...	In reality...
Addresses only a small part of the global burden of disease	11% of the global burden of disease can be treated with surgery
Is not cost-effective	Surgical care in Africa is comparable to measles immunization (USD 32.78 vs. 30 per DALY* adverted) (Gosselin, et al.)
Can only be delivered by surgeons	Midwives in Mozambique perform most obstetric operations with good outcomes (Pereira, at al.)
Cannot scale	Rural, resource-poor surgical programs in Haiti and Mongolia have bene successfully scaled-up (Ivers, et al.)
Is too complicated to set up and provide (need high-tech equipment)	Simple surgical procedures like circumcision to protect against HIV and casting to correct clubfoot have been done on a large scale
Can only be introduced after health systems have been strengthened	Building surgical services, infrastructure, and workforce CAN strengthen health systems

*Disability-adjusted life years (equal to one year of healthy life lost)

increased burden on the patient's family and community. It is also associated with lack of preventive care, resulting in competition for limited resources, as well as an overall misconception that surgical care is costly, despite evidence demonstrating that it is indeed cost-effective and compare favorably to most non-invasive interventions. These findings and implications illustrate the need to strategically develop and improve access to surgical care services, alongside efforts to establish a preventive care framework in order to reduce morbidity and mortality in LMICs.

Haiti's Surgical Burden of Disease

There are various settings of surgical care provision in Haiti⁷:

1. Private hospitals
 - a. Pure private: typically located in urban areas that charge high fees, which are not affordable for the majority of Haitians (payment by cash or by insurance)
example: Hopital Canape Vert
 - b. Mixed private: private institution sponsored or financed by a non-governmental organization (NGO) and has low cost to patients for services
examples: Hopital Bernard Mews, Hopital Petit Freres et Soeurs
2. Public hospitals
 - a. Pure public: charge fewer fees but depend on patients purchasing supplies from private hospitals or facilities before operations
example: Haiti State University Hospital (HUEH, Hopital la Paix)
 - b. Mixed public: public institution managed by a NGO
example: Hopital Université de Mirebalais (HUM, managed by Partners in Health)
3. Charitable organizations and NGOs
 - a. No cost to patients for service
example: Medecins Sans Frontieres (Doctors Without Borders) (MSF)
 - b. Small cost to patients for service

People most in need of surgical care are may be excluded from all three types of services because even a small fee can be prohibitively affordable to the poor.⁷ Few organizations are able to provide surgical care at completely no cost to the patients (such as HUM and MSF).²⁰

Haiti is the only country in the Western Hemisphere to be classified as “low human development” on the Human Development Index (HDI), ranking just above Rwanda and Sudan.³⁵ Ongoing political corruption and limited access to health care and preventive services contributed to poor health outcomes (see Table 1).⁷ These findings have led to discourse within the global health community to address and reexamine the role of surgical services in Haiti in order to alleviate the burden of surgical disease—in particular, its high neonatal and maternal mortality rates.

Haiti has the highest neonatal, child and maternal mortality rates within the Western Hemisphere.⁷ In Haiti:

- 6% of deliveries are performed via Caesarian section, varying from 10% in urban areas to 3% in rural areas, and from 1% in the poorest quintile to 16% in the richest quintile.¹⁸ To put this into context on a global scale, the recommended minimum C-section rate to prevent maternal morbidity and mortality ranges from 1-5% with recommendations increasing to 5-10% to improve neonatal outcomes.²⁹
- Only 36% of births occur in a hospital or clinic, varying from 57% in urban areas to 24% in rural areas, and from 9% in the poorest quintile to 76% in the richest quintile.^{18, 19}
- Only 40% of all births are assisted by skilled birth attendants.¹⁸
- There are only 25 physicians per 100,000 Haitians and many serve only the upper class.³⁰ This may be suggestive of a rural shortage of physicians, as well as a brain drain phenomenon, in which over 80% of physicians trained in Haiti leave within five years of graduation to practice abroad.³¹
- Skilled birth attendants are present for just 26% of all deliveries.²¹

Haiti's health indicators consistently trail those of other nations in the Western Hemisphere. The earthquake of 2010 devastated the country's already poor healthcare infrastructure. Haiti has the worst maternal mortality ratio in the Western Hemisphere, with a maternal mortality rate of 359 per 100,000 live births in 2015.⁵ Such rates are comparable to those war-torn nations, like Afghanistan, and various areas in Sub-saharan Africa.⁶ According to the World Bank, Haiti's lack of infrastructure and political stability are contributing factors to high maternal mortality.⁷ The United Nations Millennium Development Goals, which were created to address and assess extreme poverty and human rights, demonstrated that as of 2013, Haiti has not been able to meet the goal of reducing maternal mortality by three quarters.⁸

Barriers to health care across the spectrum may be more specifically categorized as financial, geographic, governmental and educational.

1. Financial barriers to health care result in limited accessibility to affordable hospitals, malnutrition, and difficulty following up on post-operative care. A survey conducted by *Reproductive Health Matters* demonstrated that nutrition is the most commonly cited health challenge for Haitian women, with at least 14 of 38 participants surveyed attesting to having insufficient amounts of food.²¹ It is also challenging for Haitian women to find available and affordable hospitals – existing hospitals are too expensive and those that are affordable have an overflow of patients and a shortage of physicians.²¹ As one woman surveyed noted:

“One of my friends had a problem that needed a caesarean. They sent her to Petit Goave. When she arrived there, they asked her for US\$125 to do her delivery, but she only had US\$37 in her purse and she was obliged to return to Port au Prince, so that means if she were going to die, she would have died travelling.”²¹

A lack of affordable health care is a tremendous hurdle for many Haitian women, such as the one above. Additionally, lack of affordable and accessible health insurance is also an added challenge.²¹

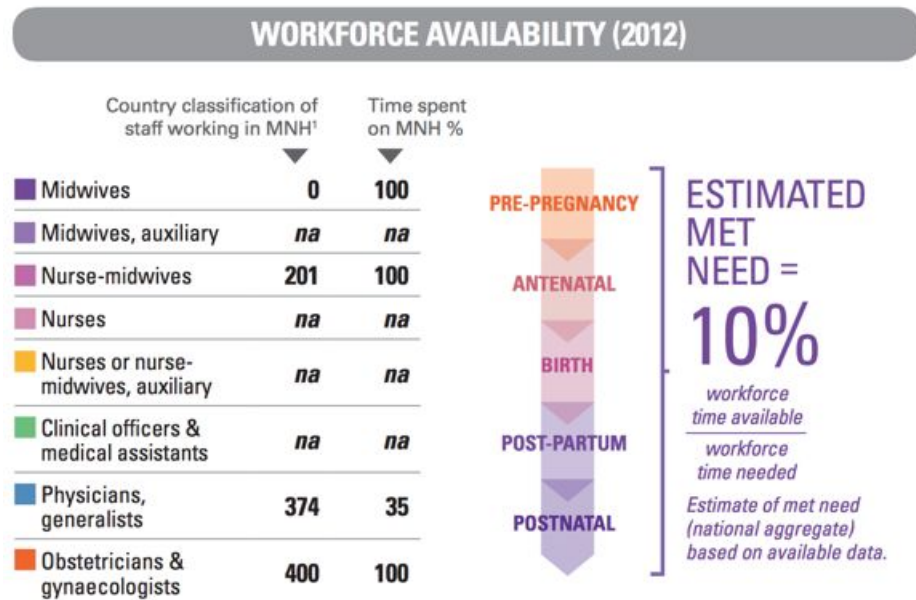
2. Geographic barriers are equally taxing for Haitian women. The distance between an

individual's community and a hospital are often hours away, with transportation greatly lacking and fuel costs high.²¹ Women living in areas linked to the nearest urban center with unpaved roads are less likely to partake in prenatal visits, compared with those with access to paved roads connected to urban areas. Distance to the nearest hospital also affects the likelihood of women getting services or giving births at health facilities.²² Additionally, the cost of transportation, along with the lack of suitable vehicles and inadequate roads all add to the difficulty in getting aid to those women who need it most during childbirth.

3. While the Haitian government has rebuilt a number of health centers and hospitals since the earthquake, much of the essential infrastructure has not been reconstructed, including Haiti's only public teaching hospital, l'Hôpital Université d'Etat d'Haïti. Additionally, public hospitals are routinely affected by healthcare workers on strike protesting low salaries for government employees.³⁶
4. This underdeveloped health care system lacks sufficient numbers of trained health workers and health professionals, including those related to surgery such as anesthesiologists, surgeons, specialists, and nurses, who are all necessary to promote the health of the community.²¹ In 2005, there were less than 2,000 doctors in Haiti, or about 3 doctors and 1 nurse per 10,000 Haitians. This ratio is significantly lower than the WHO's target of 23 health professionals per 10,000 persons.²³

The lack of surgical health professionals, low government commitment to healthcare, and the high cost of medical care for Haitians contribute to the urgent need to address this country's burden of surgical disease. There is also a great need for more education about how to take care of common ailments

and identify the serious ailments. Traditional healers are often serve as birth attendants, which sometimes affects the outcome of deliveries when modern methods of health care are needed. Without action, many Haitians continue to be at risk of death and disability due to lack of surgical resources and care.



(The State of the World's Midwifery, 2014)

Country Facts and Statistics

Indicators	Haiti	USA
Total population (millions) (in 2016)	10.7	322
Median age (years) (2016)	22.6	37.9
Population of woman (millions) (2016; calculated based on gender ratio)	5.5	168.5
Mean age at first birth	22.7 (2012)	25.6 (2011)
Total fertility rate (per woman) (2016)	2.8	1.9
Population of children under 5 (millions)	1.2 (2014)	19.9 (2015)
Adolescent birth rate per thousand women aged 15-19 years old (2014)	39.7	24.2
Maternal mortality (per 100,000 live births) (2015)	359	14
Birth rate (2016)	23.3 births/1,000 population	12.5 births/1,000 population
Death rate (2016)	7.7 deaths/1,000 population	8.2 deaths/1,000 population
Life expectancy (years) (2014)	62.7	78.9
GDP (current US \$) (billions) (2015)	8.88	17947
GDP per capita (current US \$) (2015)	1800	55,800
Urbanization (percent) (2016)	58.6	81.6
World Bank income classification	Low	High

Sources: World Bank, WHO, United Nations, UNICEF, CIA

Task Description and Problem Summary

*The Bill and Melinda Gates Foundation:
Request for Proposals (RFP) to
Improve Maternal Health Outcomes in Haiti by Expanding Access to Safe Surgery**

SEATTLE (January 15, 2017) -- Our foundation's recent review of our Maternal, New, and Child Health programs have resulted in new evidence suggesting the need for restructuring and a shift in priorities. This review has shown that Haiti's health markers within the Western Hemisphere have arisen as a pressing issue. Among these, maternal health has proven a particularly concerning issue. In response, we have partnered with The World Health Organization's Global Initiative for Emergency and Essential Surgical Care and are proud to **announce a request for proposals (RFP) aimed at improving maternal health outcomes by expanding access to safe surgery in Haiti**. Proposals are to be for pilot initiatives carried out over a **three-year period** and with funding for **\$500,000 USD per year**. The goal of this RFP is to curb maternal mortality by **seven percent in five years**. Proposals should provide a detailed outline how the project will curb maternal mortality during the first two years, with a plan to scale up and continue curbing this rate into the next three years and thereafter. The most effective and innovative initiatives will be chosen to be funded.*

*Introductory scenario and case proposal circumstance are fictitious.

Your team's task is to **devise a strategy to reduce maternal mortality rates in Haiti by increasing access to surgical care**. In addition to Haiti's health system, this model should take into account the nation's **economic, political, cultural, and educational systems**. Your solution should reflect a consideration of its effects on these areas. Also vital to achieving this goal is a commitment to the long-term and sustainable development within Haiti. Successful proposals will take into account structural and historical issues that have prevented access to such care thus far.

Judging Rubric

Category	Possible Points
<p>Justification (data and evidence) Proposed intervention...</p> <ul style="list-style-type: none"> ● Accounts for education, economic, political, and cultural factors ● Is evidence-based ● Includes relevant data to support project ● Analyzed strengths, weaknesses, opportunities, and threats/challenges (SWOT analysis) 	20
<p>Creativity and Innovation Proposed intervention...</p> <ul style="list-style-type: none"> ● Integrates multiple disciplines ● Uses resources creatively ● Reflects “outside-the-box” thinking ● Is culturally acceptable ● Is feasible with regard to financial, human resource, and time constraints ● Has potential for expansion and growth 	25
<p>Clarity and Organization Proposed intervention has...</p> <ul style="list-style-type: none"> ● Clear definition of problem ● Outcomes are specific, measurable, achievable, realistic, and time-bound (SMART objectives) ● Plan for assessment and evaluation of goals and outcomes ● Logical implementation of activities 	20
<p>Case Specific Information Proposal addresses ...</p> <ul style="list-style-type: none"> ● How it will alleviate the critical global health issue ● How it will impact education, economics, politics, and culture of Haiti ● Feasibility of implementation in Haiti ● Sustainability beyond funding period ● Cultural acceptability and involvement of local communities and leaders 	25
<p>Delivery (voice, body, eye contact) Presenters...</p> <ul style="list-style-type: none"> ● Effectively use visual aids (PowerPoint, Prezi, etc.) ● Have a clear voice, appropriate use of body language, make eye contact with audience ● Demonstrate knowledge and command during Q & A session 	10
Total possible points	100

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