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“I am concerned and I call on everyone to be concerned that many more women will die today and tomorrow from highly preventable and treatable conditions while we continue to pay lip service.”

**-Dr. Christine Kaseba-Sata, First Lady of Zambia
2013 GBCHealth Frontline Hero Award Winner**

OVERVIEW

- **500,000** new cases of cervical cancer are diagnosed every year
- Cervical cancer is the **second** leading cause of cancer deaths among women
- **275,000** women die from cervical cancer every year; **85 percent** of these deaths occur in low- and middle-income countries
- Cervical cancer is **preventable** and highly treatable when detected early, yet only **5 percent** of women in developing countries have been screened for cervical cancer
- The vaccine to protect against the virus that causes cervical cancer is **19 times less expensive** than treating cervical cancer
- Cervical cancer prevention, diagnosis and treatment can be **incorporated into existing** vaccination and wellness programs
- Companies such as **Merck, BMS, Qiagen, GSK, IBM, and BD** are already taking action

OPPORTUNITIES FOR BUSINESS

- Educate workers, their families and communities about human papillomavirus (HPV)- the virus that causes cervical cancer- and about screening, vaccination and treatment for cervical cancer
- Integrate cervical cancer prevention and treatment into existing programs and facilities that provide HIV, non-communicable disease (NCD) and wellness screening
- Provide access to affordable voluntary medical male circumcision to workers and their families; studies show that it reduces transmission of HPV to women by 35 percent
- Ban smoking, a risk factor for cancer, in the workplace
- Leverage core competencies to combat cervical cancer:
 - Provide marketing expertise to assist with public education and messaging, encourage vaccination and promote screening
 - Assist with supply chain development for vaccines, HPV DNA tests, cryotherapy units (to freeze off pre-cancerous lesions) and other commodities
 - Improve laboratory infrastructure and build the capacity of health care providers in cytology, which is one method used to detect cancerous cells
- Provide subsidized or donated vaccines and drugs for cervical cancer prevention and treatment
- Advocate for governments to educate, vaccinate, screen and treat. Encourage governments to prioritize cervical cancer in their national health and vaccination strategies, policies, programs and budget allocations

CERVICAL CANCER: A GROWING THREAT IN DEVELOPING COUNTRIES

Cervical cancer is one of the few cancers that can be both effectively prevented and treated when caught early. We have the knowledge and tools to educate, vaccinate, screen and treat for the disease. Yet 500,000 new cases of cervical cancer cases are diagnosed every year¹ and millions of women are still unable to access life-saving information, services and treatment due to inadequate infrastructure, facilities, equipment, medication, screening and trained healthcare providers.

As a result, each year more than 275,000 women die from the disease, 85 percent of whom live in low- and middle-

income countries (LMICs).¹ Women in Latin America, the Caribbean, sub-Saharan Africa and South Asia suffer from the world's highest rates of cervical cancer, and the World Health Organization (WHO) predicts that this proportion will grow to 98 percent by 2030.² The high prevalence and mortality in LMICs can be attributed to the limited availability of early screening tests, which allow for the detection and removal of precancerous lesions. While the incidence of cervical cancer is decreasing in high-income countries due to vaccinations for HPV and regular screening, cancer deaths will continue if action is not taken.

Most cases of cervical cancer are caused by infection with human papillomavirus (HPV), the most common sexually transmitted virus. While most HPV infections do

1 PREVENTION

■ HPV Vaccination

- Two vaccines are available: Gardasil (Merck Co.) and Cervarix (Glaxo SmithKline)

■ Behavioral Prevention

- Condom promotion (which decreases but does not eliminate the risk)
- Reproductive health education and information dissemination
- Delayed first intercourse and fewer sexual partners
- Smoking cessation: women who smoke and are also infected with HPV are more than 14 times more likely to develop cervical cancer³
- Voluntary medical male circumcision of male sexual partners and male children. VMMC reduces HPV transmission to female sexual partners by 35 percent⁴

2 EARLY DETECTION & SCREENING

■ Routine Pap Smears

- A small scraping of cells from the cervix is collected and observed under a microscope to detect abnormal cells
- Further diagnostic tests are performed if abnormal cells are detected
- Pap smears are often performed with a DNA-based molecular diagnostic HPV test (highly uncommon in LMICs)

■ Visual Inspection with Acetic Acid (VIA, conducted using white vinegar)

- A low-cost procedure done with minimal and portable equipment
- A swab with household vinegar turns precancerous cells visibly white to the naked eye

■ Biopsy of precancerous lesions

■ Cryotherapy or Cauterization

- Precancerous cells detected by VIA can be treated by freezing; one can also use chemicals, lasers or an electric current
- Cryotherapy is an outpatient procedure, which is effective in resource-poor settings

3 TREATMENT

■ Radiation and Surgery

- For invasive cervical cancer
- Radiation therapy, chemotherapy and pelvic surgery including hysterectomy
- Limited resources and trained professionals can affect the availability of these treatments in LMICs

not cause symptoms, some can create precancerous lesions on the cervix. A simple screening through regular Pap smears can catch these lesions before they turn into cervical cancer, the second most common cause of cancer death in women. Lesions can be frozen off through cryotherapy, or burned off through cauterization. Yet very few women in LMICs have access to regular Pap smears, cryotherapy or advanced cervical cancer surgery.

Women living with HIV are 4-5 times more likely to develop cancerous lesions on their cervix and experience the debilitating symptoms of cervical cancer a decade or more earlier (in their forties) than women who are HIV negative (in their fifties and sixties).⁵ These are often the years of life during which a woman is most productive and plays a pivotal role in her family and community.

Symptoms of advanced cervical cancer are severe and contribute to physical, social and financial stress for women and their families. Late-stage cervical cancer can have painful symptoms including back and pelvic pain, vaginal bleeding, bone fractures, fatigue and incontinence. These debilitating symptoms cause millions of women to miss work and school and interfere with their ability to care for their families. Advanced cervical cancer is lethal, not to mention difficult and expensive to treat.

IMPACT ON BUSINESS

HPV is the most common sexually transmitted virus, and can be carried by healthy men and women. Without any outward signs or symptoms, workers, their families and members of their communities can all be a source of transmission.

Women 35-50, who are still of working age, and often the caretaker for either relatives or children, are considered high-risk and identified as a key age group for effective early detection programs.⁶ The loss of a woman's work also affects the health and productivity of a community; for example, in developing countries 75 percent of food production each year is directly dependent on women.¹⁰

PREVENTION IS POSSIBLE

There are currently two vaccines against cancerous HPV strains: GBCHealth member Merck Co.'s Gardasil® and Glaxo SmithKline's Cervarix®. When all three doses are properly administered to girls and boys before they become sexually active, the vaccines are 95 percent effective in preventing persistent HPV infection. In the US, even though only a third of young women were vaccinated, HPV rates fell by a full 50 percent in women ages 15-49 in the four years after the HPV vaccine was introduced.⁷ This dramatic success illustrates the tremendous potential of the vaccine to significantly reduce cervical cancer prevalence.

Widespread vaccination has the potential to reduce the

number of cases of cervical cancer by half over the next 50 years and reduce deaths by at least two-thirds.⁸ Since 2006, the HPV vaccines have been licensed in over 100 countries. Recent data indicates that 37 countries, both developed and developing, around the world provide the vaccine in national public programs, and 24 more are in the process of rolling out widespread vaccination.

GBCHealth member PATH conducted vaccination programs in four LMICs and found vaccine acceptance rates through schools and health centers to be approximately 92 percent.⁸ National efforts could benefit tremendously from private sector support in vaccine procurement, distribution, education and incorporation into workplace vaccination programs. In addition, an early screening and treatment program could dramatically decrease the rate of cervical cancer.



SCREENING SAVES LIVES

When detected at an early stage, cervical cancer has one of the highest cancer survival rates: in the U.S., the five-year survival rate is 91 percent. However, in many LMICs there are too few trained providers, equipment and laboratories to ensure access to regular Pap smears and other screening methods. If the cancer is detected in its late stages, the rate of survival drops to only 16 percent.⁹ Only 5 percent of women in LMICs have been screened for cervical cancer with a Pap smear, drastically reducing their chances of survival if diagnosed.¹⁰ By the time they seek treatment, there is little that can be done to treat their cancer, especially in resource-limited settings. Moreover, in many LMICs there are too few trained providers, equipment and laboratories to ensure access to regular Pap smears.

Visual inspection with acetic acid (VIA) is a low-cost alternative to Pap smears that requires minimal and portable equipment and is recommended for LMICs. A swab of

acetic acid (household vinegar) on the cervix turns pre-cancerous cells visibly white to the naked eye. Nurses and midwives can be easily trained to perform VIA, which can significantly increase the number of healthcare providers for cervical cancer prevention.

Educational materials on VIA from organizations such as PATH and Jhpiego have already been translated into multiple languages.¹¹ According to the WHO guidelines on VIAs, the procedure was shown to be well-tolerated by women in six sub-Saharan African countries and almost all of the women in the study said they would recommend the procedure for other women.¹² Despite their life-saving potential, VIA programs are under-utilized and need financial support and political will to be taken to scale.

PATH worked with a major diagnostics company to develop a new, highly sensitive test that can be used in places with very basic laboratory facilities and in high temperatures. The test can be used with a vaginal sample that women can collect themselves, which can increase the likelihood that women will get screened in places where Pap smears are rare.



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BEST PRACTICE EXAMPLES

MERCK & CO. PAVING THE WAY IN LMICs

GBCHealth member Merck donated nearly 3 million doses of Gardasil to low-income countries for small-scale HPV vaccination projects. In addition, Merck's price for Gardasil has decreased from \$120 per dose to a unique public offer of \$4.50 per dose in 2013 for GAVI-eligible countries.

In collaboration with the Ministries of Health in Peru, Uganda, Thailand, Vietnam and Rwanda and with the orga-

nizations GAVI, PATH, Jhpiego and IARC, Merck has helped establish HPV vaccine programs in the following LMICs:

- **Uganda:** a vaccination program rolled-out nationally
- **Peru:** a vaccination program rolled out nationally and continuing education program for the local medical and nursing community
- **Thailand and the Philippines:** the "Mother-Daughter Initiative" encourages mothers screened for HIV to get their daughters vaccinated
- **Vietnam:** a vaccine demonstration project and clinical study
- **Rwanda:** the first African cervical cancer prevention program; strengthened primary sector health and women's programs; also developed a population-based cancer registry with the help of IARC.

THE RWANDAN GOVERNMENT'S SUCCESS STORY

Through the unwavering commitment of Rwanda's Minister of Health, Dr. Agnes Binagwaho, Rwanda has been able to vaccinate over 90 percent of young women ages 11-14, before most are sexually active, with the HPV vaccine through a school-based program. This program is Africa's first nation-wide comprehensive cervical cancer prevention program. Merck will donate Gardasil for three years, and the German company Qiagen will supply the DNA screening test for HPV to test all Rwandan women between the ages of 35 and 45. The government is also training doctors in radiotherapy and advanced cervical cancer surgery.^{12, 13}

THE PINK RIBBON RED RIBBON ALLIANCE (PRRR)

PRRR is an innovative partnership directed at reducing the burden of cervical and breast cancer in sub-Saharan Africa and Latin America. Only 3 percent of Kenyan women of reproductive age request cervical cancer screenings, and patient records are insufficiently standardized, shared or managed.¹⁴ Through PRRR, the technology company IBM is assisting the Kenyan government with the implementation of electronic health information management systems. They are strengthening disease surveillance and data management and building on pre-existing Kenyan HIV/AIDS initiatives for cervical cancer referrals and testing.

The medical device company BD committed to PRRR and provided discounted pricing on cervical cancer diagnostic tests in developing and emerging countries. Approximately 10 million dollars will be saved for every one million women that are screened.

In addition, Bristol Myers-Squibb, Merck, IBM, Qiagen, GSK, The Caris Foundation and other private and public entities have donated to and partnered with the George W. Bush Institute, PEPFAR, Susan G. Komen for the Cure and UNAIDS to launch PRRR. They have pledged \$85 million.

LEARN MORE

- [GAVI Alliance video on Rwanda's HPV Vaccination and Cervical Cancer Prevention Program](#)
- [Center for Strategic & International Studies video on First Lady of Zambia's Cervical Cancer Initiative](#)
- [Pink Ribbon Red Ribbon, a public-private partnership to tackle breast and cervical cancer](#)
- [Online information resource for health program managers and decision makers](#)



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ABOUT GBCHEALTH

GBCHealth is a global coalition of 200 private sector companies and top NGOs leading the business fight for improved global health. GBCHealth supports members by developing comprehensive workplace policies; supporting community programs; leveraging core competencies; facilitating leadership and advocacy by business leaders; and brokering partnerships. GBCHealth also manages the private sector delegation to the Global Fund to Fight AIDS, Tuberculosis and Malaria, serving as an entry-point for corporate collaboration and engagement with the Fund and its recipients worldwide.