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Richard Daniels and Kate Newns assemble a scope developed by Dr. David Walmer of Duke University. The device can spot lesions that lead to cervical cancer, which often goes undiagnosed among women in poor countries.

Jason Arthurs, Staff photos by Jason Arthurs



The colposcope developed by Dr. David Walmer uses parts that are cheap and commonly available -- binoculars, reading glasses and pieces from a hard hat.

Jason Arthurs, Staff photo by Jason Arthurs

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Cheap scope can spot cancer

BY SARAH AVERY, Staff Writer

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Practicing medicine in a developing country is often an exercise in the art of jerry-rigging, but Dr. David Walmer is taking the challenge to a new level.

Walmer, a reproductive endocrinologist at Duke University who has done extensive work in Haiti, is leading development of a new diagnostic tool that is the ultimate in MacGyver-esque resourcefulness.

Using parts poached from common, inexpensive items -- cheap binoculars, dime-store reading glasses, the plastic innards of a hard hat -- Warner and a team of engineers are building a scope that doctors in low-income countries can use to detect cervical cancer.

"One in 20 women in Haiti has untreated advanced cervical cancer," Walmer said. "It's uncommon in the U.S., but screening is why. It is one of the cancers that screening effectively prevents."

The colposcope, an optical tool, enables doctors to view the cervix and detect pre-cancerous tissue that can be easily and inexpensively treated before it grows into invasive tumors. The device -- basically binoculars and a light mounted on a stand -- is not widely available in low-income countries, because it costs thousands of dollars and is not portable.

As a founder of Family Health Ministries, a Christian organization that works to improve women's

and children's health in Haiti, Walmer found that the desperately poor residents of the island country had limited access to medical care. Women die of cervical cancer because they so seldom get to a doctor's office where the early lesions could easily be detected.

More than a decade ago, he decided to come up with an inexpensive scope that doctors could use anywhere -- in clinics or remote villages. He felt that if doctors could afford the tools and carry them to patients, more women could be diagnosed and treated.

So in 1997, he built his first portable colposcope -- a battery-powered, head-mounted binocular fashioned from surgical glasses, a bicycle halogen head light and a green camera filter.

A second generation improved the lighting but wasn't well received by doctors in the field.

"It was heavy on the nose and uncomfortable," Walmer said.

So, he tried again.

This time, he had help from Duke engineering students who took up the project as part of the CURES design contest. Their version was lighter, more durable and the lenses had greater magnification.

The students won the competition and the \$100,000 prize, which enabled them to hire a design firm to build prototypes and start a business plan to sell the CerviScopes around the world for less than \$300.

Now, Walmer is working with engineers at Applied Technologies Inc., a small firm in Cary that has designed a variety of industrial and medical products. Richard Daniels, the project engineer, has been tinkering with the basic model and is now assembling 10 prototype scopes with items the team has gathered from ordinary sources.

To keep costs low, they use \$10 binoculars mounted onto the plastic headgear stripped from \$16 hard hats. The optics are altered with lenses cut from \$2 reading glasses. Daniels and students at N.C. State University, working for community service credit, solder the wiring to a battery pack that is mounted on the side of the head gear.

Walmer hopes the prototypes will spur enough interest so he can gear up production to make hundreds, perhaps thousands that could be shipped to doctors in Haiti and other low-income countries.

In addition, Family Health Ministries is working to raise money for a medical center in Haiti where women will be able to get regular cervical cancer screenings. A fundraising event will be held tonight at 6 at the Fuqua School of Business on the Duke University campus.

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Today's fundraiser

Today's fundraiser

SPONSOR: Family Health Ministries

WHAT: Celebrate Haiti event, with Haitian food, art and music, to raise money for a new health center in Leogane, Haiti

WHERE: Fuqua School of Business, Duke University

WHEN: Today at 6 p.m.

HOW MUCH: \$40 at the door

MORE INFO: familyhm.org

About Cervical Cancer

The Pap smear has significantly cut cervical cancer rates in the United States since it was introduced 40 years ago.

The test is uncommon in developing countries, where only 5 percent of women have been screened in the past five years.

In parts of Latin America and the Caribbean, more women die of cervical cancer than of childbirth complications.

SOURCE: Journal of the American Medical Association

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