

A Change of Heart Disease

A persistent—yet preventable—condition finally gets some attention. BY ELIE DOLGIN

Nine years ago, Bongani Mayosi was performing ultrasound scans of children's hearts at the Groote Schuur Hospital in Cape Town, South Africa, when he noticed that every second or third patient he saw had an inflammatory disease called rheumatic fever (RF). The prevalence of the disease "shocked me to no end and led me to believe that we ought to do something about it," says Mayosi, now a professor at the University of Cape Town.

In children between the ages of five and 15, RF begins with a sore throat caused by the *Streptococcus* bacterium. If untreated with penicillin or other antibiotics, these children become susceptible to recurrent heart damage and weakened heart valves, and go on to develop a lifelong syndrome known as rheumatic heart disease (RHD), which often requires repeated surgeries to replace faulty valves.

It's an entirely preventable disease that has been effectively eradicated in developed countries, but RF/RHD continues to afflict more than 15 million people worldwide, causing an estimated 350,000 deaths each year, mostly in youngsters. "It's really a dis-

ease of poverty," says Salim Yusuf, a cardiologist at McMaster University in Hamilton, Canada, who studies RF/RHD in India.

In 2005, together with colleagues across Africa, Mayosi organized a new initiative aimed at eradicating the disease—the Awareness Surveillance Advocacy Prevention (ASAP) program. Most of the nine African countries involved are starting by simply registering all documented cases of RF/RHD in order to make sure that afflicted patients continue to receive monthly injections of penicillin.

Mayosi's South African team, however, is taking further steps. Backed by a \$100,000 grant from Medtronic,

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the world's largest medical technology company, based in Minneapolis, Minnesota, Mayosi and his colleagues have developed a campaign to raise awareness among school children, teaching them how sore throats can damage their hearts.

To tackle the second part of the ASAP mnemonic, Mayosi and Mark Engel, an epidemiologist at the University of Cape Town, converted a 2007 Mercedes Benz Sprinter 416 camper van into a mobile surveillance unit, complete with two clinic rooms, a separate sleeping area, a generator, air conditioning and echocardiography equipment. "We now go to a school anywhere, park our vehicle, pull out our awnings and we can screen the children," says Engel. "We basically took our nurse and clinic to the schools."

With funding from the Lifehealthcare Foundation, Medical Research Council, and the World Heart Federation, the researchers have so far screened more than 1,500 school children at a site just outside of Cape Town, and found that around 2% of those tested showed signs of RF/RHD such as heart valve damage. These results dovetail with the 2% incidence

seen in Cambodia in 2002 and 3% rate observed in Mozambique in 2005.

"To think that some of these kids could fall sick, get a sore throat, develop rheumatic fever, have long term cardiac problems, and then only live into their 20s or 30s—it's so tragic," says David Watkins, a recent graduate of Duke University medical school in Durham, North Carolina, who spent a year working with the ASAP team in Cape Town.

Mayosi advocates that any child displaying clinical symptoms of acute RF should immediately be placed on a prophylactic regimen of penicillin until the age of 25 or for life, if the heart valve damage is severe. This contro-

versial recommendation goes against the advice of most Western physicians who worry that such prolonged drug usage will lead to widespread antibiotic resistance. But "those guidelines are wrong for people living in poor neighborhoods," Mayosi says. "In poor neighborhoods, you give penicillin if in doubt, whereas in neighborhoods where rheumatic fever is no longer a problem you don't."

And what about the cost of such an aggressive strategy? "Penicillin is cheaper than water," Mayosi says. "It's utterly and completely cost-effective for countries to do this."

Just the fact that Mayosi and his team are setting their sights on this long-neglected disease deserves recognition, notes Andrew Steer, a pediatrician at the Royal Children's Hospital in Melbourne, Australia, who has been involved in similar efforts in the Pacific islands of Fiji, Tonga and Samoa. "The most exciting thing is that they're actually trying to do something about it, which is kind of novel," he says. "They're the first group really to try and get a coordinated pan-African program going, which I think is really exciting and very ambitious." ❁

Bongani Mayosi

