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The number of individuals who were living with rheumatic heart disease has not declined, either.

The study, [*Global, Regional, and National Burden of Rheumatic Heart Disease, 1990-2015*](#), estimated 347,500 deaths from rheumatic heart disease in 1990 and 319,400 deaths in 2015, an 8% decrease. The global age-standardised death rate, decreased from 9.2 per 100,000 in 1990 to 4.8 per 100,000 in 2015, a reduction of 48%. The countries with the highest estimated numbers of deaths were India, China, Pakistan, Indonesia, and the Democratic Republic of the Congo. These five nations accounted for 73% of deaths globally. The highest estimated death rates were in Pakistan, India, the Central African Republic, Lesotho, and several Pacific Island nations.

Social factors

Rheumatic heart disease is a long-term consequence of untreated strep throat, which can be highly contagious, especially for children living in overcrowded and unsanitary settings.

In susceptible individuals, untreated strep throat leads to rheumatic fever that damages heart valves over time. The symptoms of the heart condition can appear up to 10 or 20 years after the original infection and can disable or kill individuals during their prime working years. Pregnant women are also at very high risk. In most countries, progress – or lack of progress – in addressing social factors such as education, income, and access to healthcare has tracked closely with rheumatic heart disease.

“Children living in informal settlements and impoverished communities with poor access to health care are therefore most at risk,” says University of Cape Town, Professor Bongani Mayosi, an author on the study, “yet it can be easily treated with penicillin.”

Penicillin successfully treats bacterial infections, such as strep throat, yet it is not accessible to those who most need it.

“We have very cost-effective interventions that treat strep throat and prevent rheumatic fever and rheumatic heart disease from getting worse, but these children often don’t have access to the care they need,” says lead author on the study, Dr David Watkins from the University of Washington School of Medicine and honorary staff member at the University of Cape Town.

About 1% of school age children in endemic countries have evidence of rheumatic heart disease. As a result, their heart condition usually gets worse with age and leads to premature death.

“Many of these individuals could be saved by open-heart surgery to repair or replace the damaged valves, but unfortunately in these countries access to advanced cardiology and cardiac surgery care is very low,” says Watkins.

“The persistence of rheumatic fever and rheumatic heart disease reflects the challenges many countries face in attempting to improve the social, environmental, and economic conditions that lead to the disease.” said Dr Gregory A Roth, senior author on the study, and assistant professor at the University of Washington. “It is a tragedy that rheumatic fever remains a serious health concern for so many people.”

First long-term study

The global study, the first of its kind to track rheumatic heart disease over a 25-year period, highlighted the need for better data on rheumatic heart disease prevalence and mortality.

“To track progress and devote adequate resources to prevention and early treatment, countries where rheumatic heart disease is endemic need stronger national surveillance systems and more studies on the prevalence of rheumatic heart disease, especially among adults,” says Roth.

The paper is based on the annual Global Burden of Disease Study (GBD), the world’s largest health science enterprise, examining 400 diseases, injuries, and risk factors among all age groups in 195 countries. The GBD is convened by IHME and includes more than 2,500 scientists in 130 countries.

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