

## **Research Symposium Proposal**

**Title** – Rheumatic Heart Disease in the Twenty First Century

**Program of Study** – Public and Community Health, Health Promotion: Clinical concentration

**Presentation Type** – PowerPoint (or Print Poster)

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**Category** – Experimental (Theoretical)

### **Abstract**

Rheumatic heart disease (RHD) is a chronic, non-communicable disease presently found in developing countries throughout the world. Many different social, cultural, and physical conditions affect the locations of RHD case occurrence. It was a leading cause of death in the United States among 5-20 year olds in the early twentieth century. By the 1960s, the rate dropped to just above 0%. However, rheumatic heart disease continues to be a major health issue worldwide. 233,000 individuals die from RHD each year and there are 15-30 million cases currently among children and young adults. This disease is characterized by cardiac inflammation and mitral valve stenosis, a disorder in which the mitral valve does not fully open. Rheumatic heart disease is a direct result of an onset of rheumatic fever caused by untreated strep throat. Children and adolescents are susceptible to rheumatic fever after contracting pharyngitis with group A beta-hemolytic streptococcus bacteria. Rheumatic fever results from an autoimmune reaction with the group A streptococci approximately 1-3 weeks after the initial onset of pharyngitis resulting in cardiac inflammation. The innate and adaptive immune responses in the body cause the streptococcal proteins to display molecular mimicry in the form of bacterial M-proteins. Research has shown that Th17 cell-associated cytokines might play an important role in the pathophysiology of the development of rheumatic heart disease (Luiza

Guilherme et al., 2004). Emerging therapies are being developed that are aimed toward preventing the onset rheumatic heart disease. Antibiotics and other medications can be distributed to these patients but certain factors complicate the management of this treatment option. There are surgical options available for the treatment of RHD, however some countries do not have access to this form of treatment and often times patients end up needing additional operations.

In the twenty first-century, the most significant barriers that health professionals and public health officers face regarding the prevalence of rheumatic heart disease in developing countries are limited access to health care, under-diagnosis of early stages of infection, no vaccination against group A streptococcus bacteria, and a lack of reproductive resources for pregnant women with rheumatic heart disease. RHD occurs predominantly in females and it can be passed down genetically. These countries need adequate prophylaxis distribution and management options, therapies for treatment with monitoring and proper control, opportunities for surgical interventions when necessary, reproductive resources for women with RHD, and additional measures for prevention of RHD in children and adolescents. The future research that will be discussed in this thesis will cover what can be done to reduce the prevalence of RHD in developing countries.

The research presented in this thesis will outline the current management of rheumatic heart disease in light of worldwide occurrences of the disease. I have recommended six key interventions that aim to monitor, control, prevent, educate health professionals, and conduct further research for the eradication of rheumatic heart disease in the twenty first century. All recommendations will be based upon previously published literature and global studies.

## **Christian Worldview Integration**

My research design is a literature review with theoretical recommendations based on primary sources of research and literature. Rheumatic heart disease is an eye-opening condition because it clearly displays the health disparities that these poorer countries face compared to the developed world. Matthew 28:19-20 says, “Therefore go and make disciples of all nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit, and teaching them to obey everything I have commanded you. And surely I am with you always, to the very end of the age.” In the same way that Christians should deliver the Gospel to the ends of the Earth, health professionals should take the technology and advancements in medicine that we have in the Western world to these developing countries to save many of their lives.

In John 9, the disciples are walking with Jesus and they see a man who was born blind. They asked Jesus if God punished this man with blindness because of a terrible sin he committed or perhaps because of a sin committed by his parents. Jesus tells them that neither is the case. In fact, He tells them that the man was born blind so that God’s glory could be shown to the world. Jesus then heals the man and restores his sight. He goes and tells all of his neighbors what Jesus has done for Him. This story is my inspiration for pursuing a career in medicine. God’s glory is revealed when someone is healed from a disease that could have taken their life. The people in developing countries need medical treatment and the good news of the salvation that they can have through Jesus Christ.

This research is impactful for students, Christians, and health professionals who can be involved in providing care both physically and spiritually for those who are suffering from medical conditions such as rheumatic heart disease in developing countries.