

Rheumatic Fever/Rheumatic Heart Disease: Major Determinants, Barriers and Constraints. Actions to Overcome Barriers

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INTRODUCTION

Rheumatic Fever/Rheumatic Heart Disease (RF/RHD) is both a biological and a social problem. Its public health importance is not only a direct result of its high occurrence rates (mortality, prevalence and incidence), but also the population affected (children and young adults) and its economic consequences, both in health care related costs and in indirect costs to society (often resulting in premature death or disability).

It is an inflammatory, non-suppurative sequel of group A streptococcal upper respiratory tract infections with a marked tendency to recurrence. Environmental and socio-economic factors linked to low income, poverty, overcrowding, poor housing conditions and inadequate health services have a very important influence in its occurrence and severity.

To date, we can assume a conservative estimate of 12 million people affected by RF/RHD, with more than 2 million requiring repeated hospitalization and 1 million requiring heart surgery in the next 5 to 20 years. There are 400,000 deaths annually, and hundreds of thousands of people disabled, mainly children and young adults, who have no access to the expensive medical and surgical care that RHD demands. ([Figure I](#)). It is a major public health problem in most developing countries.

RF/RHD GLOBAL SITUATION AS AT 1998

- An estimated 12 million people are affected
- More than 2 million require repeated hospitalization
- At least 1 million will require heart surgery within the next 20 years
- 400 000 deaths, due to RF/RHD, occur annually
- Thousands of people are disabled
- A majority of patients are children and young adults
- Most patients are from developing and least developed countries
- Severe RHD occurs at an early age in developing countries
- More than 50% of cases in developing countries are unaware of their disease and do not receive secondary prophylaxis.



Figure I

MAJOR DETERMINANTS

It is well known that socio-economic and environmental factors affecting the host - agent (Streptococcus) interaction play an indirect, but important role in the magnitude and severity of RF/RHD. These factors remain present in most developing countries (low income, poverty, overcrowding, poor housing conditions and inadequate health services). Health system related determinants also remain, mainly lack of epidemiological information, expertise and training in health provider, low level of health education in the population and in general shortage of resources for health care, particularly, for RF/RHD prevention and control. Although the epidemiology and pathogenesis of RF/RHD are still incomplete, proven methods for safe, feasible and cost-effective prevention and control are available, people need adequate medical and public health approaches ([Figure II](#)).

Major determinants influencing the RF/RHD problem

Socio-economic, cultural and environmental determinants remain present in most developing countries:

- low income, poverty, overcrowding, poor housing conditions and inadequate health services
- Health system related determinants:
- Lack of epidemiological information, expertise and training, low level of health education and shortage of resources for RF/RHD prevention and control
- In addition:
- The epidemiology and pathogenesis of RF/RHD are still incomplete
 - An effective antistreptococcal vaccine will be not available for mass immunisation in the near future. However, proven methods for safe and cost-effective prevention and control of severe consequences of RF/RHD are available.
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Figure II

Socio-economic implications should be seen in three aspects: the direct cost of medical and surgical care of RF/RHD that diverts the scarce family and societal resources; the indirect cost with loss of production by patients and relatives; and the intangible costs that produce premature death and disability as well as loss of educational opportunities. This has a great repercussion not only on the patient and family, but also on the general community and society of the country, particularly in developing countries (Figure III).

RF/RHD Socio-economic implications

- **Direct cost: Diverts the scarce family and societal resources.**
Hospital and outpatient care; diagnostic and medical procedures; drugs & rehabilitation. (The estimated cost of medical and surgical care for one RHD patient is between 3 500 and 38 000 US dollars)
 - **Indirect cost: Adverse effect on family and community income.**
Frequent outpatient visits and hospitalization, as well as production lost by patients and relatives
 - **Family and community implications: Adverse effects on socio-economic development of the family and society.**
Premature death and disability, as well as loss of educational opportunities.
- 

Figure III

CONSTRAINTS

In addition to the shortage of resources in developing countries, there are a group of internal barriers that interfere/hampers in taking action for the prevention and control of RF/RHD, mainly a limited recognition of the magnitude of the problem and of its possible cost-effective solution, education of health professionals is basically curative and primary care professionals are not appropriately trained to deal with the RF/RHD and streptococcal infection problem (Figure IV).

Constraints: Why are we failing to take action?

- Limited recognition of the magnitude of the problem and of its possible cost-effective solution
- Lack of reliable data.
- Low priority for prevention within the agenda of International Health Agencies.
- Lack of commitment at national level - prevention not taken seriously.
- The education of health professionals is basically curative. Lack of basic diagnosis equipment.
- Failure to influence policies of other government departments.
- RF/RHD are considered diseases strictly for the "specialist". Primary care professionals are not appropriately trained to deal with the RF/RHD and streptococcal infection problem.
- Health care needs are not addressed by existing health systems. Costs are rising and resources are limited.
- Inadequate attention to cost-effectiveness.



Figure IV

The small outbreaks of RF which occurred in the mid-1980s in middle class people of some cities of the USA and other countries, demonstrated that streptococcal infections and their sequelae cannot be considered as a disease which will disappear only with improved living standards and better access to health facilities. RF/RHD needs major efforts from the scientific community for improving the knowledge of its epidemiology and pathogenesis, and developing an effective antistreptococcal vaccine.

ACTIONS TO OVERCOME BARRIERS

Immense opportunities exist for the prevention and management, as well as for action to control RF/RHD as part of the normal structure of health of each country, at every level, global and regional to country and local communities. Main actions are: to establish at least one local/regional centre implementing RF/RHD prevention strategy, as initial stage for further provincial and nationwide coverage, upgrade the role of primary care and paediatric services in prevention and control of RF/RHD and streptococcal infection, develop feasible surveillance methods to assess the pattern and trends of RF/RHD and develop effective inter-country, interregional and global networks and partnerships. The main goal is a permanent reduction in the occurrence and severity of Group A streptococcal infection and its complications, decrease in the number of acute RF and recurrence attacks, an improvement in case finding and secondary prophylaxis compliance ([Figure V](#)).

Actions to Overcome Barriers

- To reduce the occurrence and severity of Group A streptococcal infection and its suppurative and non-suppurative complications.
- To establish at least one local/regional centre implementing RF/RHD prevention strategy, as initial stage for nationwide coverage, in all countries where RF/RHD is a problem.
- Upgrade the role of primary care and paediatric services in prevention and control of RF/RHD and streptococcal infection.
- Develop feasible surveillance methods to assess the pattern and trends of RF/RHD.
- Develop effective inter-country, interregional and global networks and partnerships.
- Link RF/RHD prevention and control initiatives with the Global strategy for prevention and control of Noncommunicable diseases.



Figure V

The strategy and actions are based on primary and secondary prevention of RF/RHD approaches, with emphasis in personnel training, medical information, health education, community participation, epidemiological surveillance and evaluation ([Figure VI](#)).

STRATEGY AND ACTIONS

Key components:

Primary prevention activities:(Whenever feasible)

Secondary prevention activities: As part of the comprehensive and permanent case management of patients with RF/RHD

Technical procedures: Personnel training, medical information, health education, community participation, epidemiological surveillance and evaluation

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Figure VI

PREVENTION OF SEVERE CONSEQUENCES OF RF/RHD IS ACHIEVABLE AND COST-EFFECTIVE

Indeed, of all serious chronic conditions, rheumatic heart disease is one of the most readily preventable.

Countries need:

- Supportive policy decisions
- Integration of adequate medical and public health approaches
- Health education and school system involvement
- Community participation
- Media involvement

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