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Rheumatic heart disease

Rheumatic heart disease (RHD) is a cardiovascular disease that initially arises from a throat infection, which in some cases progresses to cause permanent heart damage. The incidence of RHD in the Pacific is among the highest in the world. The World Health Assembly will consider RHD in 2018.

RHD is entirely preventable and early intervention is very cost effective, while late treatment is burdensome to both the patient and the health system. Effective prevention of RHD requires strong primary-health-care-based approaches, combined with improvements in environmental conditions. For those already affected, lifelong chronic care is required to effectively manage the condition. Opportunities exist to control RHD in all Pacific island countries and areas (PICs), but require strong coordination and integration into existing programmes. Initiatives in a number of PICs highlight opportunities for health gains across the Pacific.

Ministers may consider ensuring that prevention and management of RHD is integrated within relevant national programmes, is financed and is effectively monitored. Ministers may also consider actively participating in discussions on RHD at the World Health Assembly in 2018 and in contributing to the development of the draft resolution.

1. BACKGROUND

Acute rheumatic fever (ARF) and RHD are preventable diseases that place heavy burdens on the populations and economies of PICs.

ARF is an inflammatory disease that arises as a complication of group A streptococcal bacteria (GAS) infections, most commonly pharyngitis. It generally occurs in children. RHD is a complication of ARF. The risk of developing RHD is particularly high when a child has had more than one episode of ARF. RHD is a permanent condition involving damage to the heart valves, increasing the risk of heart failure and other complications. This limits the capacity of those with the condition to be fully productive members of society. It requires expensive and complex surgical treatment, and may result in premature death.

ARF and RHD are rare in most developed countries, but rates are among the highest in the world in the Pacific,[1] ranging from 5.6 RHD cases per 1000 in Kiribati to 19.5 per 1000 in Tuvalu (ages 5–15 years).[2] Progression from ARF to RHD is also high in some PICs. A progression rate of 67% was found in Wallis Island, for example.[3] There are also significant gaps in current surveillance for ARF and RHD, so it is likely that the true disease burden is even higher.

There are three main intervention opportunities to reduce ARF/RHD: avoiding infection with GAS by improvements in socioeconomic environmental conditions (e.g. household overcrowding), rapid treatment of GAS before it progresses to ARF, and regular administration of secondary antibiotic prevention (SAP) for those at high risk of RHD. While SAP is very cost-effective, this approach is most effective with established case registration and active follow up of those requiring monthly antibiotics throughout the years-long prophylaxis period.[4,5]

The 141st session of the WHO Executive Board adopted a resolution on ARF and RHD and recommended that the 71st World Health Assembly consider adopting the draft resolution in 2018.

2. PROGRESS AND ACHIEVEMENTS

Efforts to combat and control RHD have been in place in some PICs for more than a decade, although many have been implemented through vertical approaches. Some fundamental aspects of national comprehensive programmes are in use in some PICs, but gaps remain. The focus has generally been

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[1] Colquhoun S, Nasi T, Mwareow G et al. Insights from the Pacific Rheumatic Heart Disease Prevention and Control Programme. Global Heart. 2014;9-1, Supplement: e331–e332.
[2] Colquhoun S, Johnson T, Wyber R. Integrative Control of Rheumatic Heart Disease in the Pacific Islands [Draft].
[3] Beaudoin A, Edison L, Introcaso CE et al. Acute Rheumatic Fever and Rheumatic Heart Disease Among Children − American Samoa, 2011–2012. In: Morbidity and Mortality Weekly Report [website]. Atlanta: Centers for Disease Control; 29 May 2015;64-20, 555–558 (https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6420a5.htm, accessed 25 July 2017
[4] Rheumatic Heart Disease, Report by the Secretariat. In: WHO headquarters [website]. Geneva: WHO Executive Board Secretariat; 1 May 2017 (http://apps.who.int/gb/ebwha/pdf_files/EB141/B141_4-en.pdf, accessed 25 July 2017
[5] ibid.

on management after a child has been diagnosed with either ARF or RHD, rather than on prevention of the first episode of ARF.

Monitoring and tracking patients with RHD, or who have had ARF, are critical to ensuring that patients adhere to the monthly SAP required to prevent RHD or further complications. Some PICs such as Kiribati have integrated ARF and RHD registries into national health information systems. The national RHD Coordinator is able to use the register to identify and follow up with any non-compliant patients. In Fiji, the RHD Technical Advisory Committee succeeded in integrating RHD monitoring into the clinical patient information system, and the Health Information Unit has incorporated RHD into regular reporting requirements. A similar system is in place in Cook Islands. New Caledonia has a web-based ARF/RHD registration and monitoring system that incorporates data from public sector facilities.

Alongside effective monitoring to ensure patient follow up and adherence to SAP, community understanding of how to prevent and manage RHD is important. Community health workers in Fiji are trained using a formal RHD prevention training module while community understanding has been strengthened by the sub-divisional school health teams. The teams visit schools at least annually to do various health checks, which now include basic RHD screening. A school-based approach has also been successful in Tonga. With support from international aid programmes, cardiology experts make regular visits to provide echocardiography screening. Children are then entered into a national registry for follow-up care. In Kiribati, SAP delivery has been decentralized to primary health care (PHC) facilities to allow greater uptake of the service.

RHD technical advisory committees have been established in some PICs. The Committee in Fiji assisted in the creation of a National RHD Policy. Samoa adopted a National ARF Primary Prevention Policy in 2003. Furthermore, Fiji has included RHD control in its National Strategic Plan, Noncommunicable Disease Strategic Plan, National Adolescent Health Strategy and National Child Health Strategy; capitalizing on the cross-disciplinary nature of ARF/RHD. Cook Islands has included RHD as a key results area in its National Health Strategic Plan.

3. CHALLENGES

Long-term efforts to remove social and environmental conditions that increase the risk of ARF (e.g. overcrowding and poor housing quality) and improving access to PHC for the management of children with sore throats are crucial. Data registered by the ARF/RHD programme in one PIC revealed that most RHD cases were presenting without diagnosed ARF, which indicates a potentially severe gap in the management of GAS and ARF.

Shorter-term responses – such as effective staff training, availability and accessibility of medicines for treatment of GAS as well as for secondary prophylaxis, availability of technologies for screening, and timely and reliable monitoring for regular follow up – are essential for preventing and managing RHD.

To be effective, there are also a number of challenges in implementing SAP. For example, children would ideally receive this follow up immediately after their first episode of ARF (rather than later when they are diagnosed with RHD), but ARF is a complex clinical diagnosis, meaning health professionals need to be alert to this and able to recognize possible cases. SAP also requires ensuring

children consistently receive monthly antibiotic injections for many years, and adherence to the intensive SAP schedule is a major challenge to RHD programmes in PICs. On the island of Lifou in New Caledonia 54% of patients receiving prophylaxis for ARF/RHD had an adherence rate at least 80%.[6] Research in Fiji showed that only 6.7% of patients had an adherence rate at least 80%, according to clinic records,[7] while compliance in Cook Islands has been reported by the Ministry of Health to be as high as 95%. The main predictors of high SAP adherence are urban residence; while increasing age and a longer time since diagnosis are correlated with lower SAP adherence.[11]

Insufficient access to services to prevent and treat GAS, ARF and RHD at the PHC level is due to multiple factors that are not specific to the conditions, as well as broader issues relevant to universal health care access. These include transport and geography, service delivery locations and health system barriers. Geographical remoteness and poor access to PHC are common obstacles to the diagnosis and treatment of GAS and ARF, as well as adherence to SAP, to prevent RHD. Solomon Islands, Tuvalu and Vanuatu reported that less than 50% of public sector health facilities had SAP for ARF/RHD prevention available. Integrating RHD control into existing health service delivery pathways such as school health programmes, community/village health worker programmes, Package of Essential Noncommunicable (PEN) Disease Interventions for Primary Health Care in Low-Resource Settings or Integrated Management of Childhood Illnesses (IMCI) programmes may provide an efficient pathway to improve service delivery.

Some PICs have received funding support to provide accelerated training and some equipment for RHD control activities, particularly related to screening, through short-term projects and activities. However, such vertical programmes have had limited integration into national public health programmes and budgets to-date. Screening programmes will only provide a public health benefit where an effective system is in place to ensure comprehensive follow up of all identified cases.

4. FUTURE DIRECTIONS

4.1 Recommendations for governments

Governments may consider:

- Ensuring that ARF/RHD is considered in service planning and integrated into other relevant national programmes, especially through PHC services such as PEN and IMCI, and into relevant cross-sectoral approaches to improve UHC.
- Integrating ARF/RHD monitoring into national health information systems to ensure timely and reliable data on the RHD burden, and enabling effective case follow up and monitoring adherence to treatment for all identified cases.

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[6] Gasse B, Baroux N, Rouchon B et al. Determinants of poor adherence to secondary antibiotic prophylaxis for rheumatic fever recurrence on Lifou, New Caledonia: a retrospective cohort study. In: BMC Public Health [website]. London: BioMed Central Public Health; 2013;13-131 (https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-13-131, accessed 25 July 2017).

[7] Engelman D, Mataika RL, Kado JH et al. Adherence to secondary antibiotic prophylaxis for patients with rheumatic heart disease diagnosed through screening in Fiji. In: Tropical Medicine and International Health [website]. London: London School of Hygiene and Tropical Medicine; December 2016;21-12;1583-91 (http://onlinelibrary.wiley.com/doi/10.1111/tmi.12796/full, accessed 25 July 2017).

- Making full use of available domestic and international resources to ensure they are consistently available for ARF/RHD prevention and management programmes.
- Including ARF/RHD in national NCD and child health action plans and/or national health strategic plans.
- Adopting national clinical guidelines for the effective prevention and management of ARF/RHD.
- Providing continuous training and making access to updated ARF/RHD information available to all members of the health service delivery workforce, especially PHC workers.
- Actively participating in the World Health Assembly discussions on RHD in 2018 and in the development of the draft resolution.

4.2 Recommendation for development partners

Development partners may consider:

- Ensuring coordination with PIC governments and third-party aid missions to ensure that short-term programmes contribute towards integrating RHD prevention and management into national health systems.
- Supporting socio-economic approaches that can tackle some of the risk factors for infections, integrated with broader efforts to address social determinants of health.
- Supporting individual PICs to better understand their ARF/RHD burden and providing options to address the issue.
- Collecting information from PICs on their ARF/RHD burden and on national initiatives to prevent and manage ARF/RHD, and collating and sharing this information with PICs.