Mapping RHD in Tanzania
July 2015 – March 2016

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Rheumatic fever & Rheumatic Heart Disease: neglected diseases

Eliminated decades ago in the world’s wealthy countries, rheumatic heart disease needlessly kills growing numbers of the world’s poorest and most vulnerable children and young adults.
INTRODUCTION

• Rheumatic heart disease (RHD) represents an interesting intersection of NCDs, infectious disease, and child health

• Although rheumatic fever and RHD are chronic and non-communicable conditions, they are a consequence of untreated infection by Strep-A bacteria, which usually occurs in childhood (ages 5-13)
ETIOLOGICAL FACTORS IN RHEUMATIC HEART DISEASE

- Group A streptococci
- Streptococcal pharyngitis
- T cells activated by streptococcal antigens
- B cells produce antistreptococcal antibodies
- Antibodies and T cells cross react with antigens of cardiac sarcolemma and valvular glycopeptides

- Myocardial cell
- MYOCARDITIS; VALVULITIS
  - ? Repeated antigenic exposure
  - CHRONIC RHEUMATIC HEART DISEASE
    - TRICUSPID VALVE
    - AORTIC VALVE
    - MITRAL VALVE
    - BACTERIAL ENDOCARDITIS
    - CHRONIC VALVULITIS
      - with STENOSIS and/or INSUFFICIENCY
      - Mitral valve
      - Aortic Valve
      - Tricuspid Valve

- PERICARDITIS
Epidemiology

- RHD remains a major public health problem in developing countries, leading to 233,000 deaths/year
- The incidence of RHD in the world is at least 15.6 million cases and the highest documented prevalence of the disease among children from developing countries is 5.7 per 1,000 in sub-Saharan Africa
- Epidemiological data from many developing countries are still of poor quality, and the numbers of RHD cases are surely higher than those known

*Carapetis, McDonald et al 2005; Carapetis, Steer et al 2005*.
Risk factors

- Overcrowding, poor sanitation, poverty and poor access to basic medical services
- 95% of rheumatic fever occurs in developing countries
Risk factor

• One ongoing challenge in treating RHD is

  • raising awareness among teachers, parents, and clinicians to make the connection of how a seemingly commonplace upper-respiratory tract infection like Strep-A can later lead to a chronic heart condition requiring surgery
WHY MAPPING

• Disease mapping has a long history in epidemiology, and may be defined as the estimation and presentation of summary measures of health outcomes. The aims of disease mapping include
  – simple description,
  – hypothesis generation,
  – allocation of health care resources, assessment of inequalities,
  – estimation of background variability in underlying risk in order to place epidemiological studies in context
SCREENING AND MAPPING IN TANZANIA

BIENMOYO
A Non-profit Foundation for Health

RHD Action
United to End Rheumatic Heart Disease

RHD Action Alliance is:

- WORLD HEART FOUNDATION
- RHHEACHT (REACH CHARTER)
- Medtronic

RHD Action Tanzania is a collaboration of Touch Foundation Tanzania with several Tanzanian partners – National Medical Research Institute (NMRI), Catholic University of Health and Allied Sciences and Bugando Medical Center. Other affiliated partners include PRINMAT – Private Nurse Midwives Association of Tanzania and Sengerema Designated District Hospital. The program aims to leverage an existing education and referral network that includes a Maternal Health Program in targeted areas. By improving RHD identification and referral for treatment, we will strengthen the health system’s capacity to provide basic cardiovascular services in rural Tanzania as well as to strengthen basic antenatal and postnatal care in the public and private sector. A baseline needs assessment done by NMRI will inform interventions to be performed.
RHD Action Partner Countries

• The RHD Action Countries are a cohort of countries where government and partner institutions are actively engaged in achieving specific RHD targets within their geographies, while also strengthening their health systems.

• Strategies and tactics on the ground vary amongst countries and are dependent on existing resources and infrastructure. Aligned with national health plans, these country projects contribute to the global hub of knowledge about best practices to prevent, control and treat RHD.
DATA FROM JKCI (n=142) July 2015-March 2016

• From patients awaiting for valve replacement
• Recording the following variables
  – DOB
  – Sex
  – Residence
  – Contact (mobile phone No)
  – Diagnosis
  – Proposed surgical plan
Demographics

• Age Mean 29.7 (±13.2), 12yrs - 63yrs
Demographics...

Male 38%

Female 62%
• Tanzania has been divided into 8 health zones for easier coordination of health services

1. Eastern-Dar es Salaam, Pwani, Morogoro
2. Northern- Kilimanjaro, Tanga, Arusha, Manyara
3. Central- Dodoma, Singida
4. Southern- Lindi, Mtwara, Ruvuma
5. Western- Tabora, Shinyanga, Kigoma
6. Lake- Kagera, Mwanza, Mara
7. Southern Highlands- Mbeya, Iringa, Rukwa
8. Zanzibar- Unguja N, Unguja S, Town west, Pemba N, & Pemba S
Demographics...
Frequency of Affected Valves

0%  |  30%  |  60%  |  90%

mitral | tricuspid | aortic
Way forward together with other African countries

• In February 2015, the Social Cluster of the Africa Union Commission (AUC) hosted a consultation with RHD experts convened by PASCAR in Addis Ababa, Ethiopia
  – to develop a 'roadmap' of key actions that need to be taken by governments to eliminate ARF and eradicate RHD in Africa
  – Seven priority areas for action were adopted
Way forward together with other African countries

- Create prospective disease registers at sentinel sites in affected countries to measure disease burden and track progress towards the reduction of mortality by 25% by the year 2025
- Ensure an adequate supply of high-quality benzathine penicillin for the primary and secondary prevention of ARF/RHD
- Improve access to reproductive health services for women with RHD and other NCD
Way forward together with other African countries

- Decentralize technical expertise and technology for diagnosing and managing ARF and RHD (including ultrasound of the heart)
- Establish national and regional centres of excellence for essential cardiac surgery for the treatment of affected patients and training of cardiovascular practitioners of the future
- Initiate national multi-sectoral RHD programmes within NCD control programmes of affected countries
- Foster international partnerships with multinational organisations for resource mobilization, monitoring and evaluation of the programme to end RHD in Africa.
This Addis Ababa communiqué has since been endorsed by African Union heads of state, and plans are underway to implement the roadmap in order to end ARF and RHD in Africa in our lifetime.
Seven key actions to eradicate rheumatic heart disease in Africa: the Addis Ababa communiqué

RHD can be PREVENTED