

# WORLD CONGRESS ON RHEUMATIC HEART DISEASE

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**Title:** Prevalence of Rheumatic Heart Disease in Bali, Indonesia: A School-based Echocardiographic Screening

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**Background & Aims:** Rheumatic Heart Disease (RHD) remains a significant health problem in developing countries. Early recognition of clinically silent RHD is essential for secondary prophylaxis to prevent the progression of RHD. Portable ultrasound machines with spectral Doppler capabilities have extended the reach of echocardiographic screening for RHD into more rural and lesser resourced setting. Recent studies reported local prevalence of RHD in some parts of Indonesia, but there are no data on its prevalence in Bali or nationwide. The purpose of this study is to investigate the prevalence of RHD in Bali, Indonesia.

**Methods:** This was a cross-sectional study involving students aged 12-18 years old in Bali, Indonesia with multi-stage random sampling. One city and two districts in Bali were selected using simple random sampling. Six schools in Denpasar city and three schools in each district were selected with stratified random sampling. Both stages used random number generator application. Students randomly selected in each school received focused physical exam and echocardiographic screening for RHD according to World Health Federation (WHF) guidelines. This includes pathological mitral regurgitation (MR) and aortic regurgitation (AR), mitral stenosis (MS), rheumatic features of mitral and aortic valves, along with evaluation of left ventricle function and thickness. Portable ultrasound machines (Terason T3200, Terason 3300 [Massachusetts, USA], GE Vivid iQ [USA]) were used to to acquire and interpret grayscale images and color and spectral Doppler.

**Results:** We screened 701 children for RHD (mean age of  $14.9 \pm 1.8$  years old; 57% female) in 12 schools in Bali. History of rheumatic fever was found in three children (0.43%) and recurrent pharyngitis was found in ten children (1.43%). Only one child (0.14%) had heart murmur. Three children met WHF criteria for definite RHD (two MR and one MS cases) and 7 for borderline RHD (four pathological MR and three pathological AR without rheumatic features of both valves). Prevalence for definite RHD for this interim data is 4.3 per 1,000 (95% confidence interval 0.9 to 12.5 per 1,000).

**Conclusions:** This is the first study evaluating RHD prevalence in Bali, Indonesia. It is lower than the prevalence in Asian data pool (28 per 1,000 people) which did not include data in Indonesia. This pilot epidemiological study will help the development of nationwide RHD screening program in Indonesia. The use of portable ultrasound devices are feasible and appropriate for RHD screening in rural and urban areas.