

# **ECHOCARDIOGRAPHIC NORMALS FOR THE JAMAICAN**

## **POPULATION**

### **Background and Rationale for Study**

Echocardiography is a safe and reliable modality for the evaluation of cardiovascular anatomy and function in health and disease.<sup>1-3</sup> Many studies have been published, reporting reference values for normal cardiac dimensions.<sup>4-8</sup> Most of these earlier studies relied solely on M-mode measurements and were conducted prior to the availability of 2-D measurements.<sup>7-8</sup> Additionally, many of these studies have very limited sample sizes and were conducted in predominantly male Caucasian population, thus discounting or ignoring the confounding influences of ethnicity, gender and body types.<sup>4-9</sup>

There have been no published reports of reference values for normal cardiac chambers by echocardiography in Caribbean subjects.

The reference values or so called “normal” values for echocardiographic measurements available in the medical literature are variable, heterogeneous and inconsistent because they are derived from diverse and unique population samples and can vary widely.<sup>10-13</sup> For example the Aortic root ranges from 33-44 mm, left atrium 36-47mm, left ventricular end-diastolic diameter 30-40 mm, and left ventricular hypertrophy 11-13mm.<sup>9</sup>

The values that are used for declaring a finding as abnormal has important implications for the patient as reference values are used to determine whether or not pathological changes have occurred, the point at which intervention is necessary and the risk of future adverse events. For instance left atrial enlargement may be an early marker for

hypertensive heart disease or underlying supraventricular dysrhythmia, increased left ventricular end-diastolic diameter is associated with adverse cardiac prognosis, enlarging aortic root size may suggest potential risk of future aortic rupture and left ventricular hypertrophy, particularly as measured by an increase on left ventricular mass, has been shown to be an independent predictor of major clinical outcomes including major cardiovascular events, mortality, total mortality and sudden death.<sup>14-16</sup>

It is imperative that normal or reference values for echocardiographic measurements for a population be derived from a random sample of “healthy” individuals within that population. The choice of cut-off points for determining reference values for echocardiography on an ordinal scale should be based on the distribution of these observations relative to reference limits in a randomly selected sample of non-institutionalised healthy subjects within that population. Such a classification would be more reliable for description, prognostication, surveillance and treatment of cardiovascular disease.<sup>4</sup>

No such study has been done in the Caribbean using representative samples of adults free of cardiovascular disease. The purpose of this cross sectional study is to document for the first time, in a careful and methodical manner the reference values or “normal” values for echocardiographic measurements among Caribbean patients to more reliably guide surveillance, detection and treatment of cardiovascular diseases as well as prognostication in the region.

## **Objectives**

1. To determine normal values for echocardiographic dimensions of the left and right atria, left and right ventricles, aortic root and pulmonary artery.
2. To determine the mean left ventricular mass in a sample of healthy adults born in the Caribbean

## **Eligibility Criteria**

1. 18 to 39 years old
2. Registered at the University of the West Indies or the University of Technology.
3. Born in the Caribbean
4. Blood pressure < 135/85 or less
5. Free of clinically apparent heart disease
6. Free of intercurrent illness / fever

## References

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