

# Reduction in mortality in readily treatable congenital heart disease not clearly related to timing of diagnosis

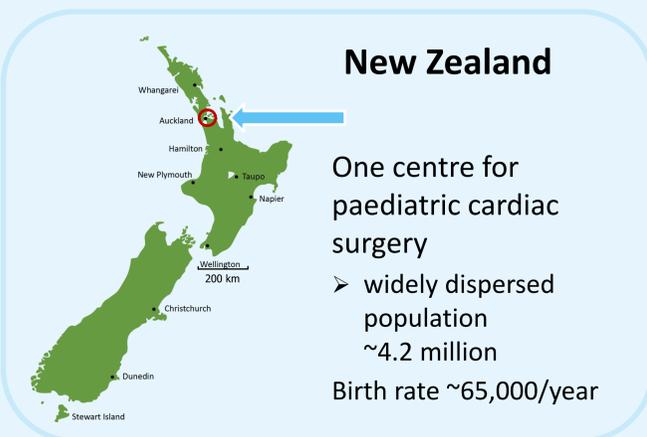
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## Introduction

- Late diagnosis of critical congenital heart disease (CHD) is associated with increased risk
- We have reported significant preoperative mortality in d-transposition of the great arteries (d-TGA) and critical LV outflow obstruction with two ventricles (LVOTO) in New Zealand infants born 2006 to 2010.<sup>1,2</sup>
- Information related to changes in patterns of diagnosis and outcome over time may assist the development of strategies to reduce mortality and morbidity



- All newborns are issued with a unique health ID; the National Health Index number (NHI)
- Notification of infant and child death to statutory review committees is a legal requirement

## Aims

Compare the outcome of infants born with d-TGA and LVOTO from 2006-10 with those from 2011-14 in relation to mortality risk and timing of diagnosis.

## Methods

**A population-based retrospective review of critical CHD throughout New Zealand**

- Births with d-TGA and LVOTO from 2006-14

Variables recorded:

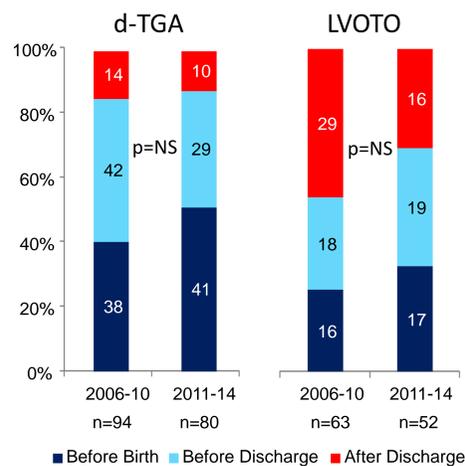
- timing of diagnosis
- comorbidities
- intervention
- survival to 12 months of age

Case ascertainment:

- National fetal cardiology database
- Cardiac surgical database
- Governmental mortality review committee databases

Data were matched using the NHI as a unique ID

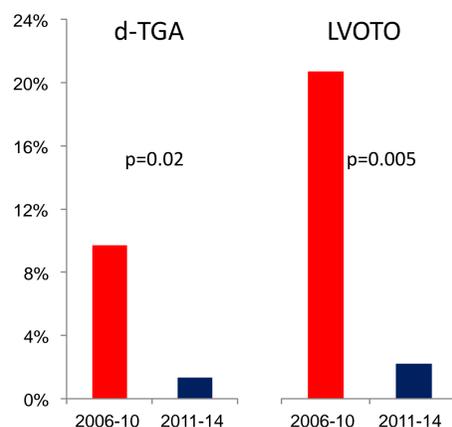
**Figure 1. Timing of Diagnosis**



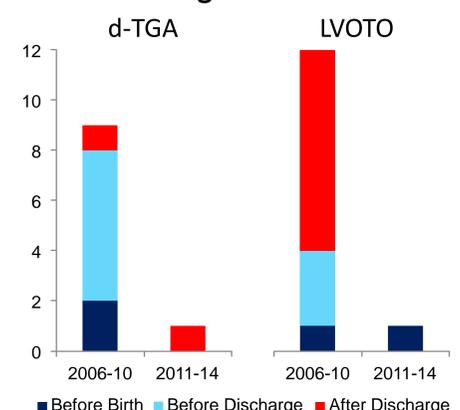
## Results

- There was no significant change in the timing of diagnosis over the two time periods although there was a slight increase in prenatal diagnosis of d-TGA and there were fewer infants discharged with critical LVOTO (Figure 1).
- There was a substantial decrease in 1-year mortality for both d-TGA and LVOTO (Figure 2).
- Postoperative mortality was low, occurred late after surgery and was a consequence of unrelated comorbidity (Figure 3).
- In 2006-10 mortality in d-TGA occurred most often in infants diagnosed after birth, and in LVOTO in those diagnosed after hospital discharge. This was not the case in 2011-14 (Figure 4).

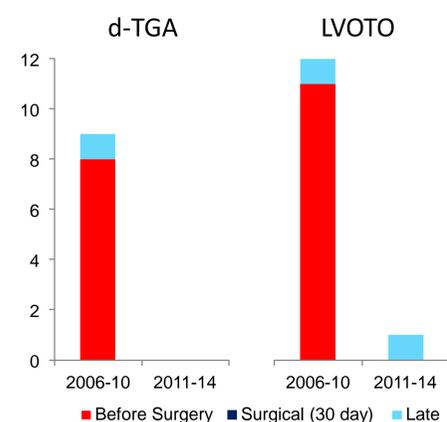
**Figure 2. Mortality at One Year**



**Figure 4. Mortality and Timing of Diagnosis**



**Figure 3. Mortality and Intervention**



## Conclusions

- There has been a dramatic reduction in mortality for D-TGA and LVOTO
- In D-TGA, lower mortality is likely related to an emphasis on delivery at a cardiac centre and rapid identification, stabilisation and transfer of those born elsewhere. Sporadic uptake of oximetry screening may have also contributed
- In LVOTO the cause for the lower mortality is less clear, and may be the result of a reduction in the small number of cases diagnosed after hospital discharge, and improved community awareness

## References

1. Eckersley L, Sadler L, Parry E, Finucane K, Gentles TL. Timing of diagnosis affects mortality in critical congenital heart disease. Arch Dis Child 2016;101:516-20.
2. Gentles TL, Eckersley L, Sadler L, Cloete E, Finucane AK, Parry E. Timing of diagnosis and outcome in readily treatable critical congenital heart disease. Cardiol Young 2015;25:S74.

