

# Fetal Cardiac Screening

Ultrasound for cardiac outflow tracts

Mike Wyldes

# 4 Chamber View

- Situs
- Equal sized ventricles HLHS / PA
- Crux of heart – AVSD / Big VSD
- Offset of tricuspid valve – Ebstein's anomaly
- Morphological appearance of right and left -
- Pulmonary view into LA – TAPVD
- Appearance of physiological ASD -

# Further views

- Cross-over of LVOT & RVOT – TGA
- 3 vessel view – Does Aorta come from LV
  - VSD, Fallot's, DORV
- Does PA come from RV
  - Fallot's DORV
- Current teaching is for 5 transverse views of the fetal heart
- <http://www.echocharity.org.uk/sonog5vprotocol.html>

# RCOG Working Party 2002

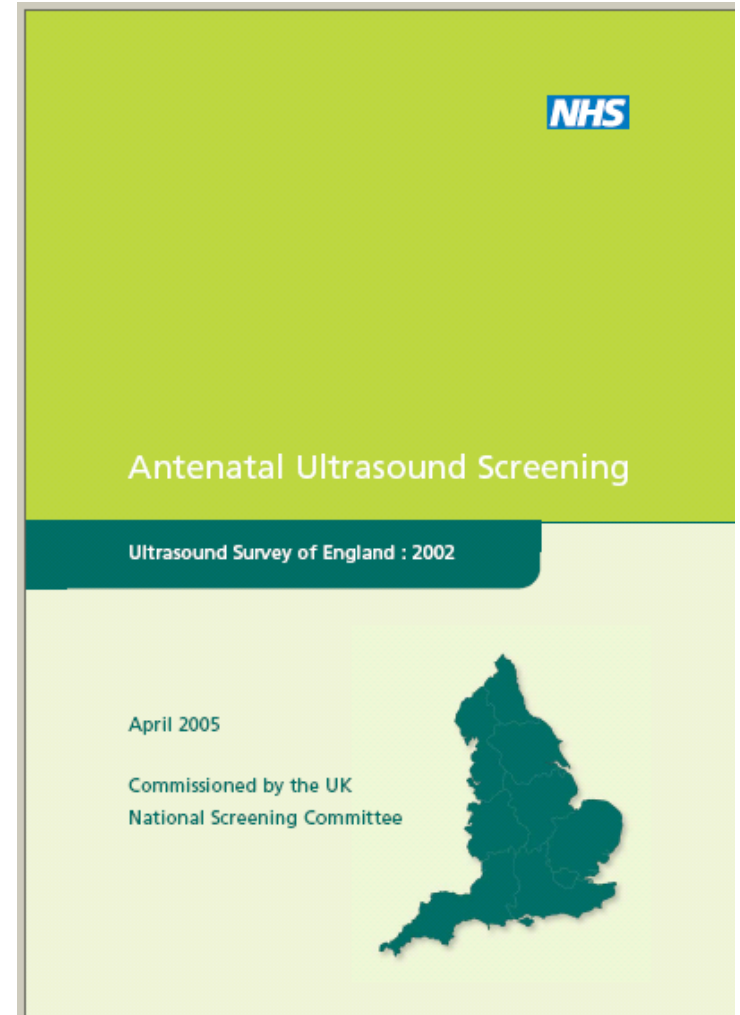
- **3.6.1** The minimum standard for a "20 week" anomaly scan.
  - Head shape + internal structures
  - Spine: longitudinal and transverse
  - Abdominal shape and content at level of stomach
  - Abdominal shape and content at level of kidneys and umbilicus
  - Renal pelvis
  - Longitudinal axis - abdominal-thoracic appearance
  - Thorax at level of 4 chamber cardiac view
  - Arms - three bones and hand (not counting fingers)
  - Legs - three bones and foot (not counting toes)
- **3.6.2** The optimal standard for the "20 week" anomaly scan If resources allow, the following could be added to the features in 3.6.1:
  - Cardiac outflow tracts
  - Face and lips

# NICE Guidelines 2008

- 1.7.1.5 *New* Fetal echocardiography involving the four-chamber view of the fetal heart and outflow tracts is recommended as part of the routine anomaly scan.
- *Evidence summary*
- There was low-level evidence that showed babies with antenatally diagnosed TGA had reduced mortality compared with those diagnosed after birth.

# West Midlands Practice

- NSC Ultrasound Survey 2002
  - Cardiac outflow tracts, measured in:
    - *57% of units – England*
    - *25% of units – West Midlands (4/20)*
      - Revised info 2008 15% units (3/20)
- West Midlands
  - Routine anomaly scan offered in all units
  - RCOG baseline anatomy survey – 14/19 units  $\leq$  20 mins
  - Other issues
    - Training in echocardiography





# Spare Slides



# NICE Guidelines 2008

- The reported sensitivity of fetal echocardiography is widely ranged by centre and condition, although reported specificity was generally high.
- With baseline results, the four chamber view is the cheapest strategy for screening for cardiac malformations owing to the higher cost of the four chamber plus outflow tracts view.
- However, the higher sensitivity of the four chamber plus outflow tracts view results in 0.334 more live births per 1,000 pregnancies with antenatally detected cardiac malformations . A proportion of these (36% at baseline) would be TGA and given the baseline assumption about lower mortality for TGA with an antenatal diagnosis, this leads to a concomitant 1.8 neonatal deaths averted per 100,000 pregnancies .