

The Fetal Anomaly Screening Programme.

Data Collection and Improvement Methodology to raise standards.

A Case Study.

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Background and Purpose.

A cleft lip is a gap in the top lip of a fetus. It is a congenital defect where the face did not join together sufficiently during development and it affects one in every seven hundred babies¹. National guidelines by the Fetal Anomaly Screening Programme (FASP) state that detection rates should be at least 75% for cleft lips during the anomaly scan performed at 18-20+6 weeks gestation². We have undertaken annual audits since 2010 to assess adherence to FASP detection standards.

Prenatal detection of cleft lips rates shows significant year on year variability within our unit and we are not consistently meeting the target every year. In 2017, we decided to reduce the variation in detection rates of cleft lips by working to improve standards in this area of fetal anomaly ultrasound. This triggered a Plan-Do-Study-Act (PDSA) cycle with the intention of making improvements.



Ultrasound appearance of a cleft lip



A new born with a cleft lip

Year	Total cleft lips born	Total detected	% detection rate
2010	8	7	87.5%
2011	5	3	60%
2012	7	5	71%
2013	6	5	83%
2014	3	2	67%
2015	4	4	100%
2016	5	4	80%
2017	2	1	50%

Table 1. Yearly detection rates for cleft lip. University Hospitals Plymouth NHS Trust.

PLAN. Data collection.

- Robust data is essential when planning improvements, so that areas of weaker performance can be identified and the effects of any interventions assessed.
- We undertake yearly audit of all conditions assessed by the fetal anomaly screening program, including prenatal detection of cleft lips.
- Data on both antenatally detected and non-detected fetal abnormalities are collected in a number of ways.
- Record keeping by the ultrasound department for all fetal abnormalities detected.
- Regular MDT discussion between sonographers, fetal medicine specialists, neonatologists and geneticists to include any abnormalities not detected at the anomaly scan.
- Review of the South West Regional Anomaly Database which collects data on both pre and post-natally detected abnormalities.
- Established feedback mechanisms between the neonatal and ultrasound teams to disseminate information on unexpected abnormalities.
- The year on year results for the pre-natal detection of cleft lips are given in Table 1.
- Analysis of audit results demonstrated that the majority of 'missed' cleft lips were those who had scans performed by more junior sonographers.
- Following data analysis, better education and training in ultrasound of the fetal face and lips was decided upon.

DO. Awareness and Education.

Awareness of sonographic staff.

- Presentation of audit results to all sonographic staff involved in anomaly screening with general agreement to try and improve detection rates and consistency of detection of cleft lips.
- Promotion of a non-threatening environment where discussions around service improvement can be openly discussed.
- Anonymisation of all cases prior to review and discussion to ensure that individual sonographers could not be identified, particularly in cases of "missed" cleft lips.

Education

- Team review of imaging for both detected and 'missed' cleft lips.
- Creation of an image quiz to reinforce the standards required for assessment of the fetal lips and the ultrasound appearances of facial clefts.
- Creation of a poster in each of the 3 ultrasound rooms where anomaly scans take place to serve as an aide-memoire to staff.
- Greater focus on examining the fetal face for trainee sonographers.
- Encourage sonographers to ask for second opinions from peers in cases of uncertainty.

ACT

- Our plan to reduce variation in detection and improve detection rates of cleft lips has been very successful, with no cases missed over a 2 year period
- Key to this improvement is robust audit and data collection, creation of a non-punitive atmosphere in which areas of weakness can be openly discussed, staff engagement and education.
- The action from this study is to continue with all of these themes to ensure that detection rates for cleft lips (and other fetal abnormalities) can be maintained.

STUDY

- Subsequent audit over 2 years has demonstrated improvement in detection rates.
- Our unit has detected 12 cases of cleft lip over the past two years with no missed cases to our knowledge.
- Detection rates in 2018 and 2019 are given below in table 2.

Year	Total cleft lips born	Total detected	% detection rate
2018	7	7	100%
2019	5	5	100%

Table 2. prenatal detection rates of cleft lips by ultrasound in 2018 and 2019.



Conclusion:

Robust collection of outcome data is central to ensuring quality of service in relation to screening for fetal abnormalities. A clear strategy for improving areas of practice which fall below national standards is important. This use of audit and PDSA methodology enabled demonstrable improvement in the pre-natal detection of cleft lips within our institution.