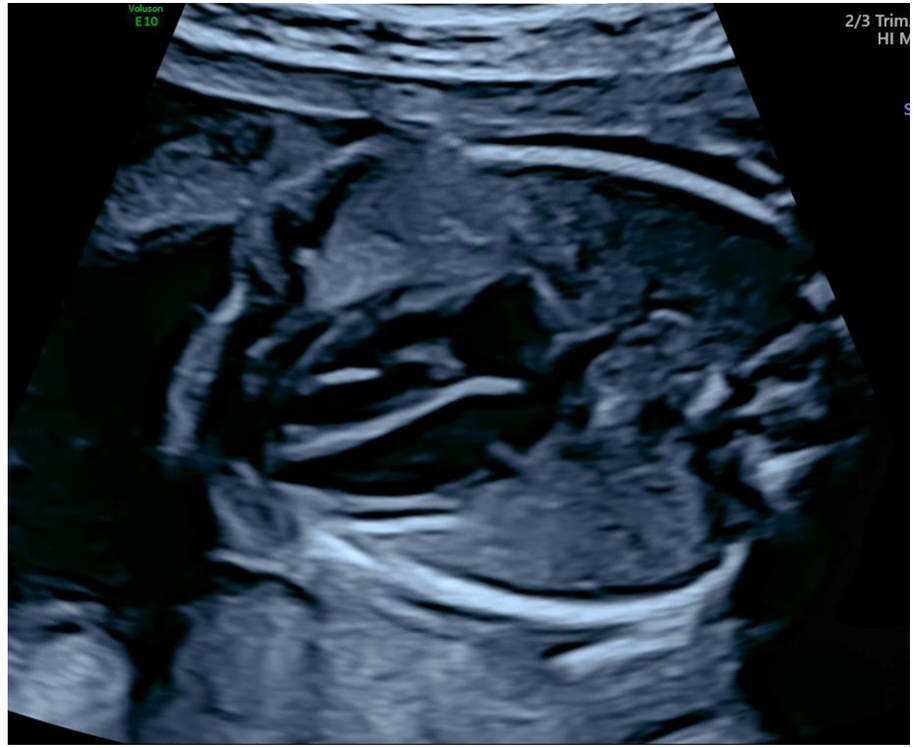
BMUS

# Echoes of the Future: The archiving of fetal cardiac views

Presented by: Anne Rhodes




tiny tickers

a better start for tiny hearts

# Anne Rhodes

**Head of Health Professional Services and Deputy CEO**

**Tiny Tickers**

# Disclaimer

**This presentation is based on research conducted to the best of the presenter's abilities, acknowledging inherent uncertainties and limitations. The findings may be influenced by factors such as data quality, methodology, and interpretation, and do not guarantee real-world accuracy.**

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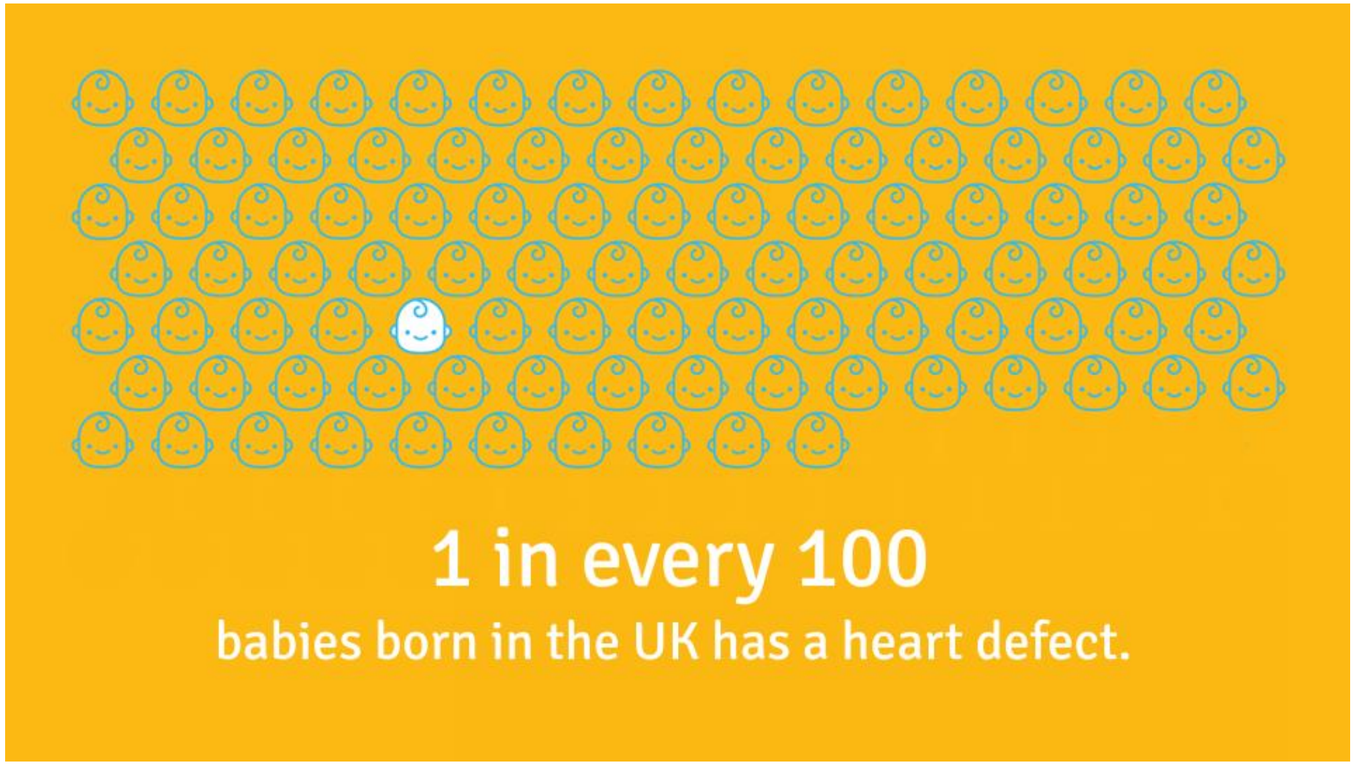
# Overview

- About CHD
- Professional Guidance
- The Trusts position
- The Legal Stuff
- The Sonographers voice

# Congenital Heart Disease

- The most common congenital anomaly
- Antenatal diagnosis significantly improves outcomes for babies with CHD

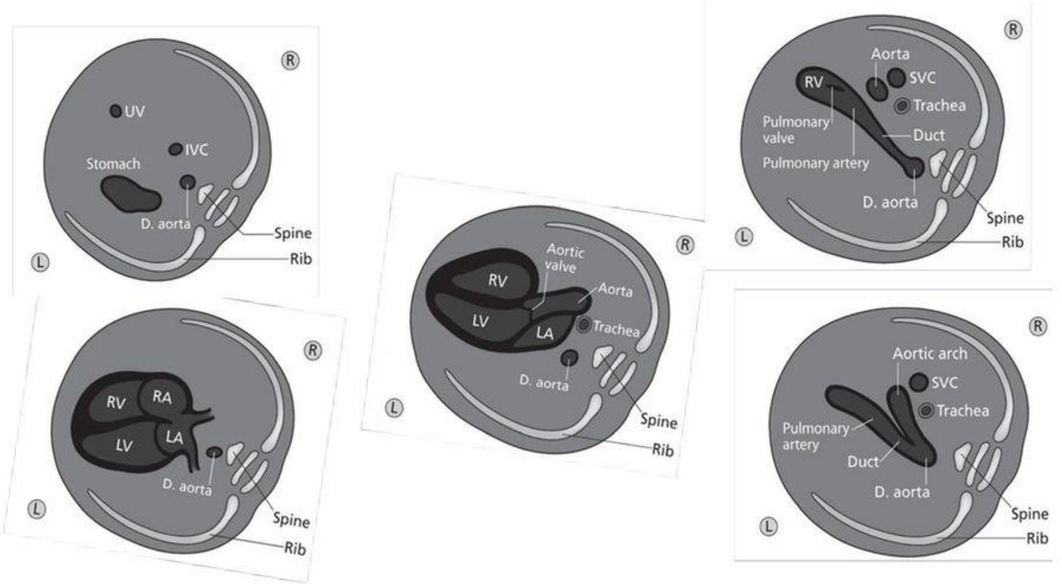



Source: Binocor, Congenital Anomaly Statistics 2012, published December 2014.

# Professional Guidance

- Situs/Laterality
- 4-Chamber view
- Aortic/Left outflow Tract
- Pulmonary/Right Outflow Tract or 3Vessel View
- 3 Vessels and Trachea (3VT)

## FASP Fetal Cardiac Protocol




13 FASP UK Fetal cardiac training project 2015-2017

But….. *‘there is no requirement to archive images of the fetal cardiac protocol views’ FASP 2024*

SourceGuidance: 20-week screening scan, updated 16th December 2024 www.gov.uk accessed 6/1/2025.:

# Professional Guidance

- The National Institute for Cardiovascular Outcomes Research (NICOR)
- ‘detection rates for CHD vary between 24% and 72% depending upon the geographical area the patient lives in. The overall detection rate nationally for CHD is just over 50%’
- NICOR carried out a CHD audit in 2023 and suggested that to reduce regional variation *‘several steps should be considered: storage of specific cardiac views to allow internal and external review to encourage a learning process and standardised pathways of feedback’* .

**This advice appears to be directly contradicting the guidelines issued by FASP**

# Hospital Trusts

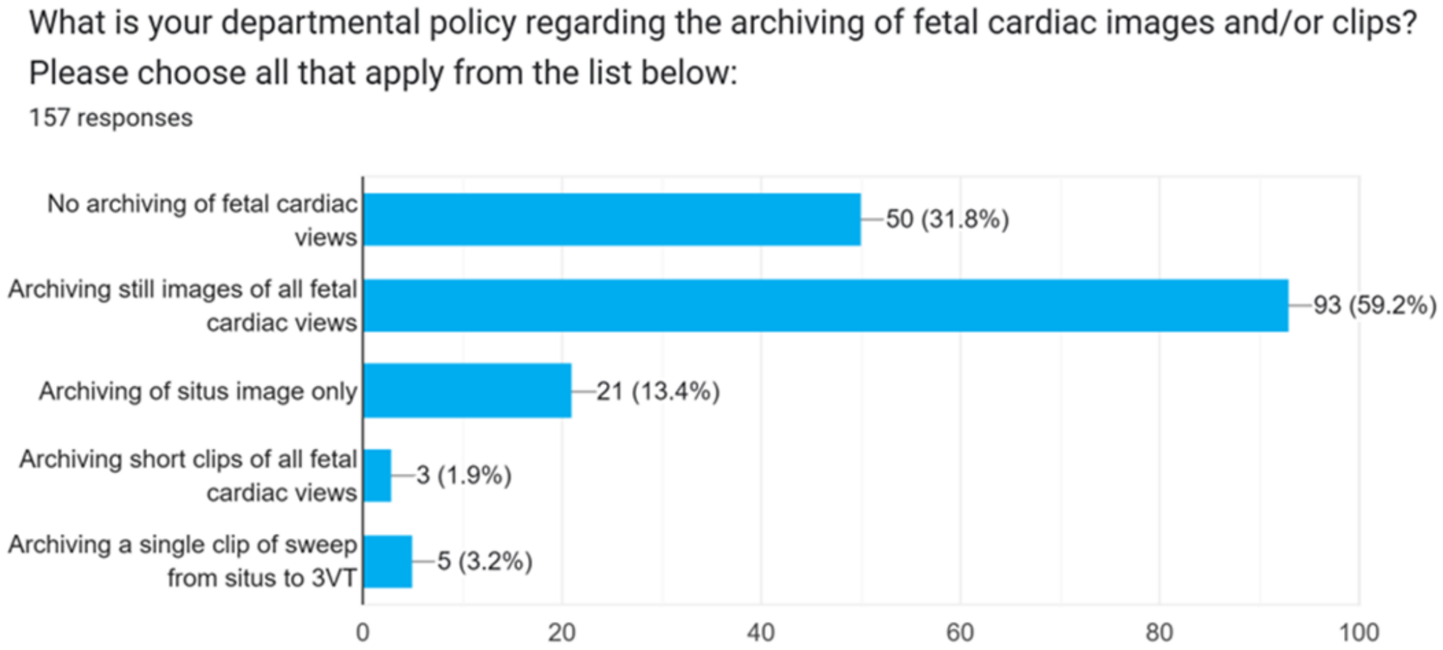
Freedom of Information request to all NHS Trust in England

44% **NOT** storing fetal cardiac views at the anatomy scan

56% Storing fetal cardiac views at the anatomy scan

# Disparity in Practice

- Range from situs still image only to images of all views or a single sweep from situs to 3VT




- This inconsistency has led to a patient perception of a postcode lottery and an impression that they have had a lower quality scan if no fetal heart images have been stored
- This variance in practice led to a Change.org appeal by parents to standardise practice

# The Legal Stuff

## Civil Litigation

- CPR Part 1.1 - Overriding objective in civil disputes is that cases are conducted justly, cost effectively and efficiently
- Practice of not storing images may prevent justice for both the patient and the Trust/sonographer
- Claimant only has to prove their case 51% (balance of probabilities) to win.

# The Legal Stuff

## Medical Negligence

- There was damage or loss
- The patient was owed a duty of care
- The duty of care was breached
- The breach of duty caused the damage or loss

The Bolam Test

Bolam (Bolam v Friern Hospital Management Committee [1957] 1 WLR 583)

Universal test for professional negligence

# The Legal Stuff

## Bolitho Test

- Bolitho v City and Hackney Health Authority [1998] HoL AC232
- The body of responsible opinion that the defendant was relying upon, would have to be capable of withstanding scrutiny and must be safe, logical and reasonable

# The Legal Stuff

## 2-Stage Bolam and Bolitho Test

Did the healthcare professional act in accordance with a responsible body of medical opinion? (Bolam).

Is the medical opinion reasonable and logical and can it withstand scrutiny? (Bolitho).

If yes to both questions, the healthcare professional has not been negligent .

# The Legal Stuff

## How does this relate to fetal heart imaging?

- The benefit of both Bolam and Bolitho are lost if no images are stored of the fetal heart
- It is not possible for a peer to look at images and say they too would have thought that the heart was normal at the 20-week scan if there are no images to demonstrate what the sonographer who carried out the scan saw
- 20% of abnormal fetal hearts will appear normal at 20-weeks (Van Nisselrooij, AEL et al, 2020).
- Important for departments not to assume a sonographer has ‘missed’ an abnormality if no images are stored

# The Legal Stuff

Arguments **against** storing fetal heart images

- Attempting to obtain ‘perfect image’ may detract from evaluation of moving 3-D structure
- Abnormal heart can be made to look normal on static image and vice-versa
- More time consuming to store images
- Defensive practice – no image easier to defend than poor quality image

# Sonographers Voice

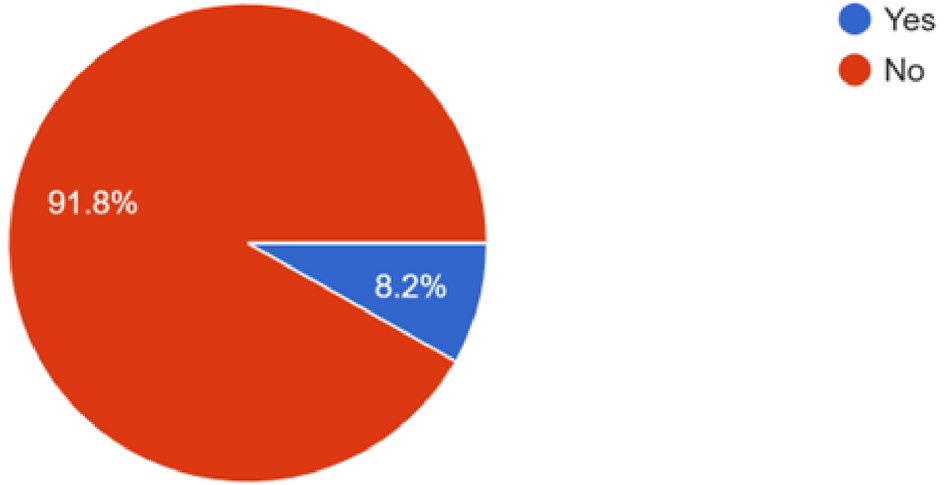
- 158 responses
- Obstetric Ultrasound Experience – 60.5% > 10 ye
- 24.2% had from 5 - 10 years experience
- 96.8% of respondents provide anatomy scans for the NHS
- 85.4 % have received Tiny Tickers training

# Sonographers Voice

## Storage

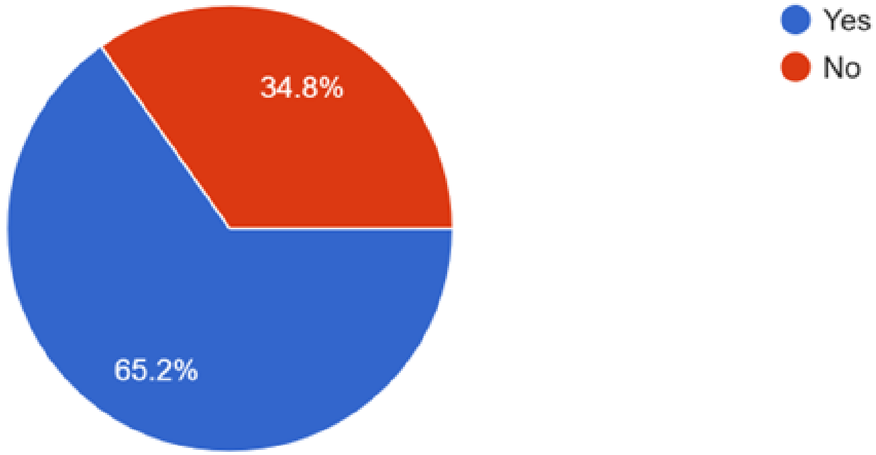
Do you save and store clips of the fetal cardiac views?

158 responses




Do you routinely archive fetal cardiac still images during the 20-week anatomy scan?

158 responses

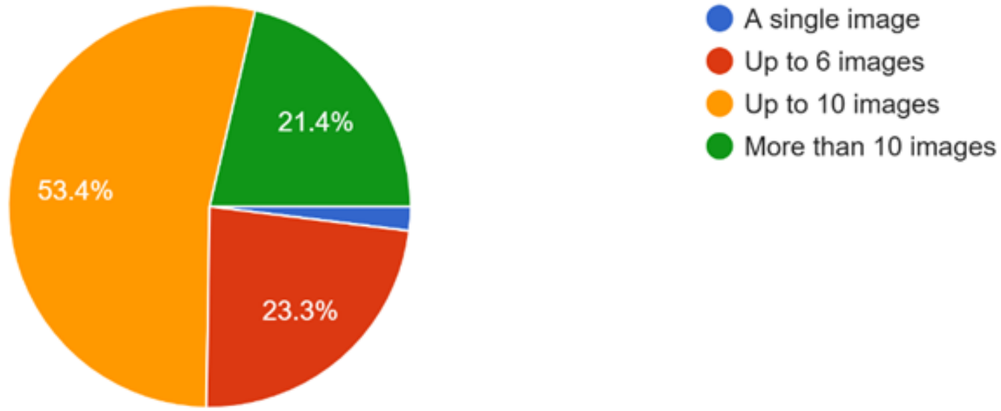



# Sonographers Voice

## Storage

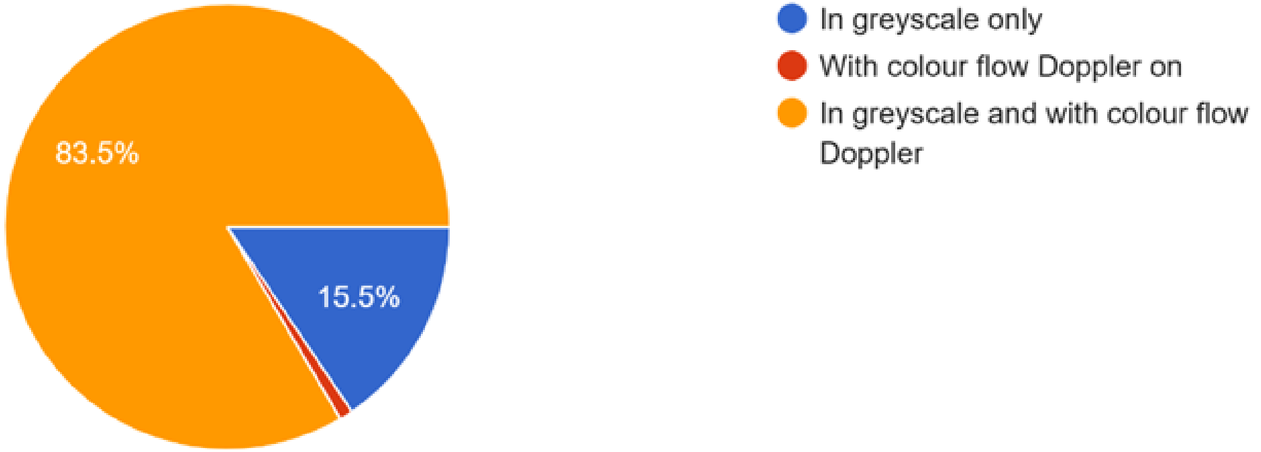
Approximately how many cardiac still images do you typically archive per 20 week anatomy scan?

103 responses




How do you save these images?

103 responses




# Sonographers Voice

**Challenges** of archiving cardiac images and clips

- May increase scan times
- Departments understaffed and under pressure
- Pressures set to increase with a significant proportion of sonographers set to retire from the profession in the next few years
- Fetal heart imaging should not put onerous pressure on sonographers

It adds unnecessary scan time to an already stretched service. Imaging the moving fetal heart can be a challenge and obtaining still images that aren't going to implicate you in something you can't then defend adds additional time that we just don't have.

Difficult to produce representative images of a dynamic structure. Examination will be prolonged to provide these images and an increase in repeat examination rates.

# Sonographers Voice

Challenges of archiving
25 written responses

**Storage Issues**

Clip storage not supported in PACS set up

Unable to save still images and Trust states it is due to lack of storage.

Storage space

Get told by IT that clips take up too much storage and only save when needed

PACs block cine loops/clips

# Sonographers Voice

Challenges of archiving

25 written responses

**Software Issues**

Play back of clips on PACS is a very slow frame rate therefore time consuming when peer reviewing

Difficulty following system upgrades or downtime

Clips often do not transfer from USS machine to the patient record

Data doesn’t transfer across

# Sonographers Voice

Challenges of archiving
25 written responses

**Image Quality**

Sometimes hard to demonstrate a view as a still, multiple cineloops would be better but not currently hospital policy

Sometimes multiple images needed to achieve the required views especially in pts with larger BMI or fetuses in a poor position

poor ultrasound equipment with reduced image quality

Poor image quality due to patient obesity of limited diagnostic value

Still image not always shows what you see

# Sonographers Voice

**Benefits** of archiving fetal cardiac images and clips

- Learning from incidents
- Wide range of recent stored images essential for education
- Creates an archive of normal and abnormal appearances
- Useful for future use of AI
- Demonstrates when a scan has been difficult
- Image audit to guide training
- Psychological benefits to sonographers where the heart appeared normal at 20-week scan

I think having no stored images causes additional upset to parents and Sonographers when a heart defect is not detected at ultrasound. Stored images provide reassurance to all that the heart was checked at scan.

# Sonographers Voice

Cost/capacity

Cost implications – costs will vary depending on multiple factors

- There is a cost associated with storing the huge dynamic files on PACS
- Cost of additional PACS storage is approx. £2000 per terabyte = approx. 86 patients,
- £2,000 divided by 86 = £23.25/patient
- This has cost implications for units delivering obstetric care to patients per year
  - Small unit 1000 patients a year - £23,250
  - A medium sized unit 3000 patients a year - £69,750
  - A large regional unit 9000 patients a year - £209,250

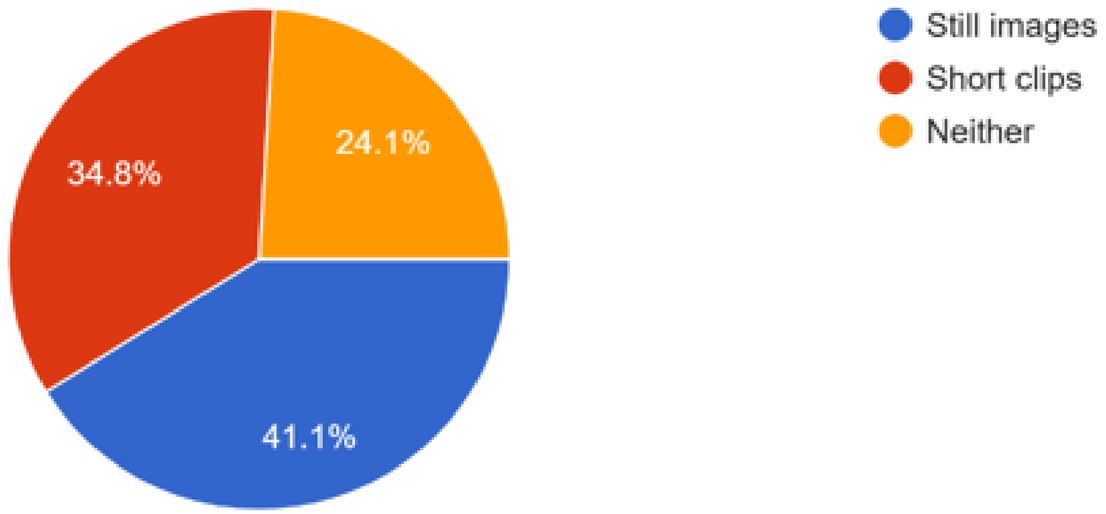
Source: Representative figures based on feedback from 1 trust

# Sonographers Voice

## Personal Preference

Would you prefer to archive still images of all the required cardiac views or short clips of all the required cardiac views?

158 responses




I believe archiving cardiac images is good practice. It enables reviews to take place and lessons to be learnt. They are a good teaching tool and help improve practice. It also ensures that all sonographers are working to the same high standard when it comes to obtaining fetal cardiac images.

I think we should take a clip of a sweep through the fetal heart, in place of still images.

# Sonographers Voice

## Litigation Fears

Images of the heart can be subjective. A heart that is normal when live scanning can appear abnormal on a still image. It is difficult to obtain perfect still cardiac images which then could open us up to scrutiny

Obstetric ultrasound is already a very litigious area to work and this may increase with more images needing to be stored, causing significant anxiety to sonographers.

Because it is then possible for your images to be used against you in a court of law if they are suboptimal either due to machine settings/patient BMI/fetal position.

Potentially opening the sonographer to litigation if images are not perfect

I would be concerned about them being used for blame

# Sonographers Voice

Issue with storing **clips**
82 written responses

Whilst beneficial it also potentially creates medico-legal issues if an abnormality is visible that the sonographer was not able to spot (but say an FMU doctor or specialist cardiac sonographer would because they have more in depth training / knowledge). You only see in ultrasound what you know to look for

Clips played back frame by frame may demonstrate defects not possible/difficult to be seen during live scanning, opening up sonographers to unfair criticism/litigation

It will take longer to achieve clips. Not all images are obtained in an 'order'. I don't think sweep cine would be achievable with many patient, within the scan time.

Will take up too much storage

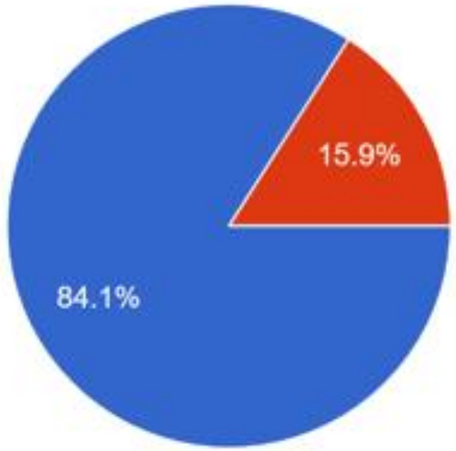
Unsure how to do that

# Sonographers Voice

## Standardisation

Do you think archiving images of the fetal heart should be standardised across the UK?

157 responses

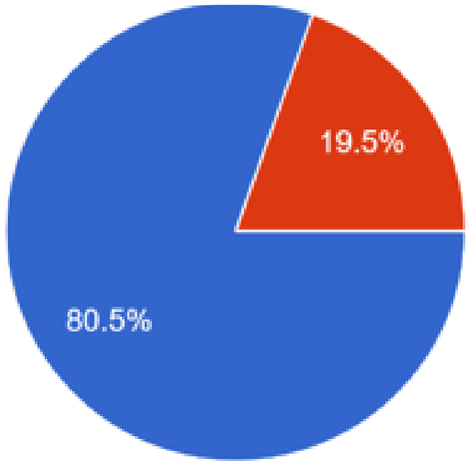



Yes

No, it should be up to individual departments/trusts

You have said you favour standardisation. Do you think that all hospitals should archive images or all hospitals should not?

133 responses




All hospitals should archive images

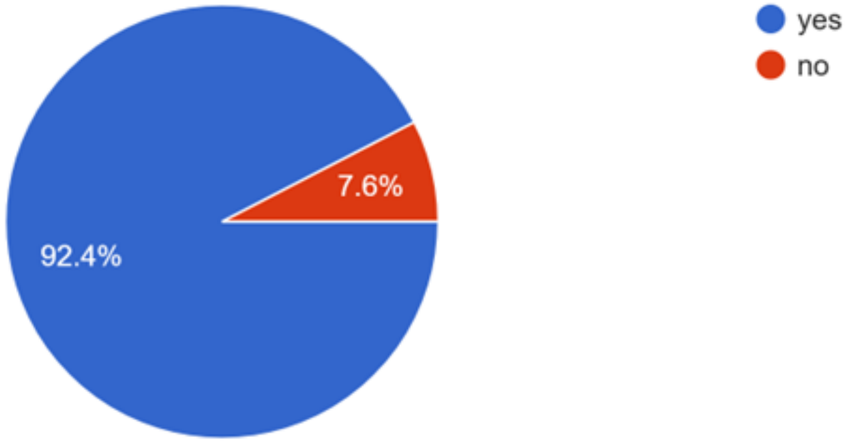
All hospitals should not archive images

# Sonographers Voice

## Recommendations

Do you think it would be beneficial to have a training session on what are acceptable images and clips of the fetal heart to archive?

158 responses




Standardisation across departments and across hospitals

Regular audit to ensure optimum views maintained and recorded

# Sonographers Voice

## Recommendations

Heart scan would be better separate to 20 week scan to focus purely on heart not everything else.

I think there should be more hands-on training for all professionals that undertake 20 week anomaly scans maybe every two or so years as a refresher

A separate storage for Obs would be more practical

Have a set policy nationally with listed view

Longer appointments

Less criticism at audit

# Summary

- 56% of UK Trusts still store fetal heart images despite national guidelines (FASP) saying this is unnecessary
- Change.org petition
- Importance of national standardisation in fetal heart imaging
- Public confidence in the profession
- May better serve the interests of justice, beneficial for both sonographers and patients.

# Thank you

Stay in touch with us on social media - we’re on Instagram, Linkedin, Facebook and YouTube!

@tinytickers

# Coming soon…

Our online training platform will be launching soon with lots of courses from basic fetal cardiac views to condition specific webinars, bite-sized lectures and quizzes!

Be one of the first to access our new digital platform.

Register your interest now

# References