Ultrasound 2024- BMUS Coventry 12/12/2024

How Can Sonographers, Midwives and Fetal Medicine Specialists Work Together to Meet SBLCBV3 and Balance the Ever Increasing Demand for Growth Scans?

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Background- National Maternity Safety Ambition


Classification: Official

Publication reference: PRN00614

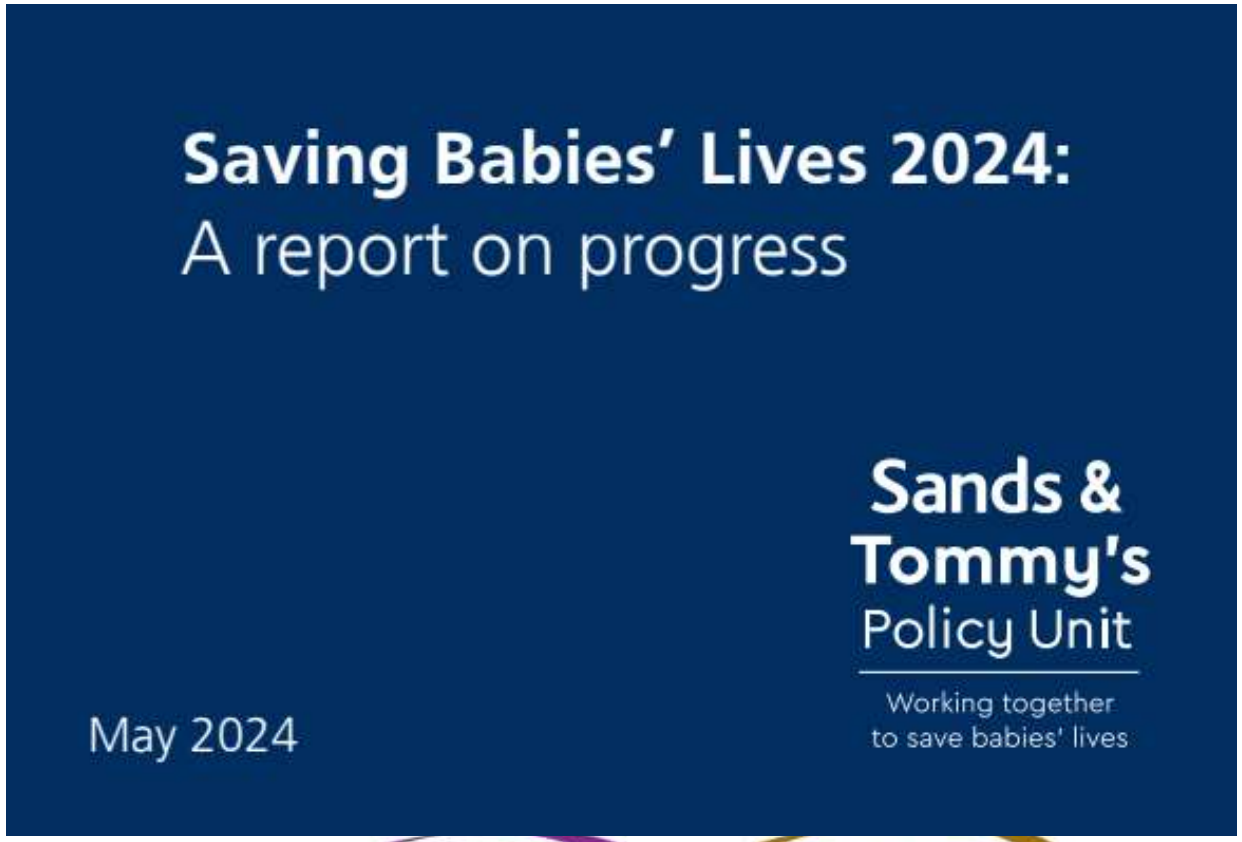
NHS England

Saving Babies' Lives Version Three

A care bundle for reducing perinatal mortality

Version 3.1, July 2023

- In 2015 the Department of Health set a target to half the national still birth rate by 2025 to 3%
- SBLV1 – 2016, halve the rates of stillbirths, neonatal and maternal deaths, and intrapartum brain injuries by 2030, with a 20% reduction by 2020
- 2017- Ambition b/f to 2025
- SBLV2- 2019, addition of PTB and uterine artery Dopplers
- SBLV3-2023, element 6 Diabetes. Align with RCOG and NICE



- much more transformative approach from government
- We are not on course to meet government ambitions to reduce rates of stillbirth, neonatal death, or preterm birth
- investment in maternity and neonatal services is falling short
- too often nationally agreed standards of care are not being followed

National Maternity Safety Ambition in England

The National Maternity Safety Ambition, launched in November 2015, aims to halve the 2010 rates of stillbirths, neonatal and maternal deaths, and brain injuries occurring during or soon after birth in England by 2025.

The stillbirth rate in 2022 was 23.5% lower compared to 2010, while the neonatal mortality rate has declined 30.0% as of 2021 (See Figure 5)[4]. Despite the decline since 2010, more recently progress has stagnated and is not on track to meet government ambitions for England.

Compared to most recent data, around 1,000 lives a year[5] could have been saved in England if ambitions were met.

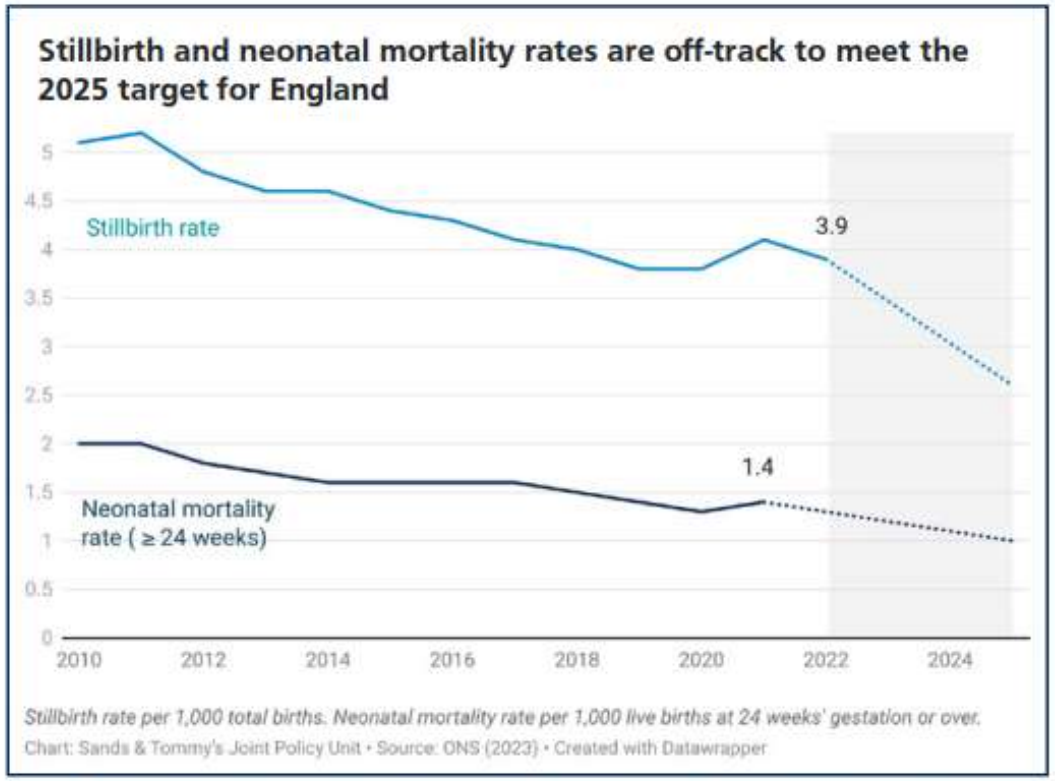
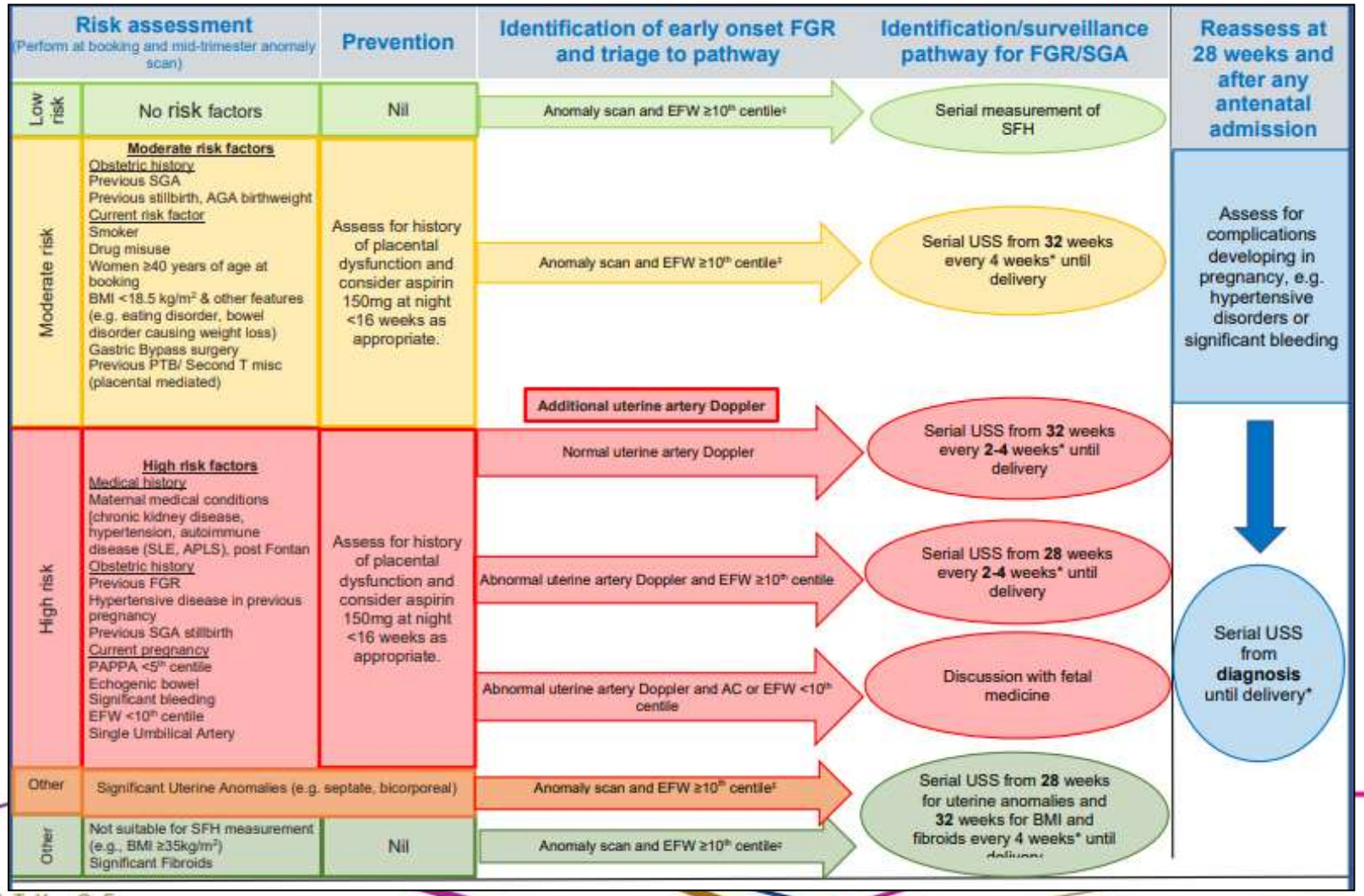


Figure 5. Stillbirth and neonatal mortality rates in England between 2010 and 2022 and trajectories required to meet 2025 targets

Element 2- Fetal Growth: Risk Assessment, Surveillance and Management



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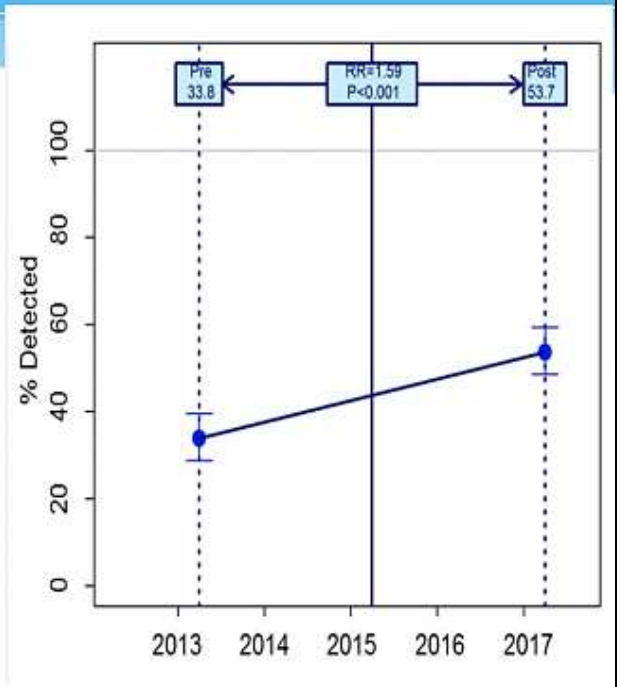
Overall Element 2

- SBLCB v3 a pragmatic attempt to improve the detection and management of SGA fetuses
- Aim: to reduce rates of perinatal death without an unacceptable increase in iatrogenic harm
- Key elements:
  - Risk assessment in early pregnancy & use of 150mg aspirin at night
  - EFW at 20 weeks & Uterine artery Doppler flow velocimetry to identify women who need surveillance at extreme preterm gestational ages
  - Management of early FGR in association with regional Fetal Medicine
  - Serial biometry/UmbA Doppler for other high risk women from 32wkGA
  - Liberal use of induction of labour at 39wkGA, and targeted use of induction at 37wkGA

SBL V1 Evaluation (2019)

Outcomes (Spire report)

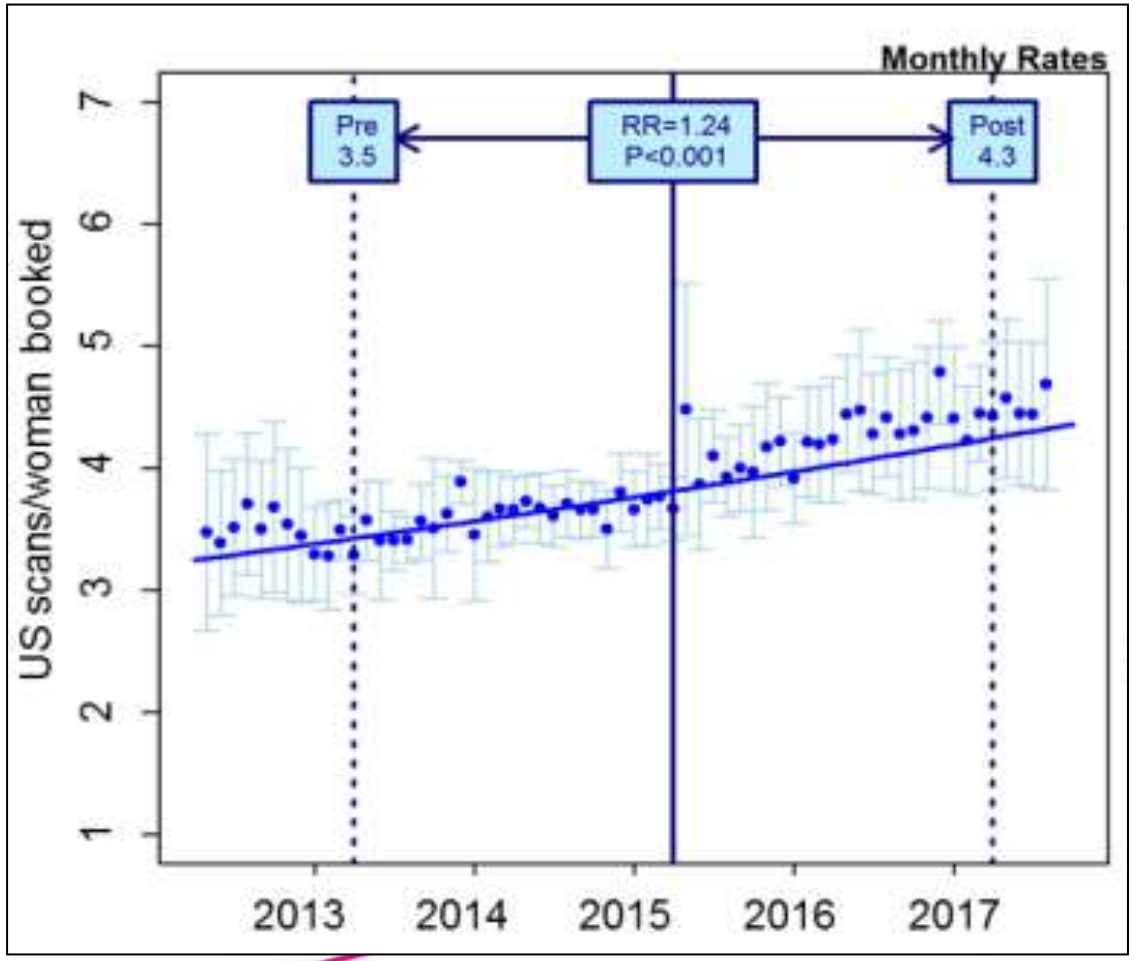
- SGA detection rates increased from 33.8% to 53.7%
- In early adopter trusts
  - SFH plotting increased from 35% to 48%
  - EFW plotting increased from 25% to 76%
  - Stillbirths identified as SGA fell from 40% to 32%



- Impact on USS Resources

- secondary costs incurred for ultrasound scans (£9.8m)
- projected cost for one year across whole England (£33.4m)
- number of ultrasound scans performed increased (by 25.7%)
- **No additional funding**

- Increasing from an average of 3.5 scans per pregnancy before SBLCB to 4.4 scans per pregnancy afterwards.
- 8 trusts increased staff hours
- 5 trusts trained MW sonographers
- Increasing capacity via evening/weekend clinics
- Assuming that a full time sonographer conducts 4,000 ultrasound scans/year 29, the equivalent of an additional 159 full-time sonographers would be needed across England to conduct the 635,000+ additional scans associated with SBLCB in one year.



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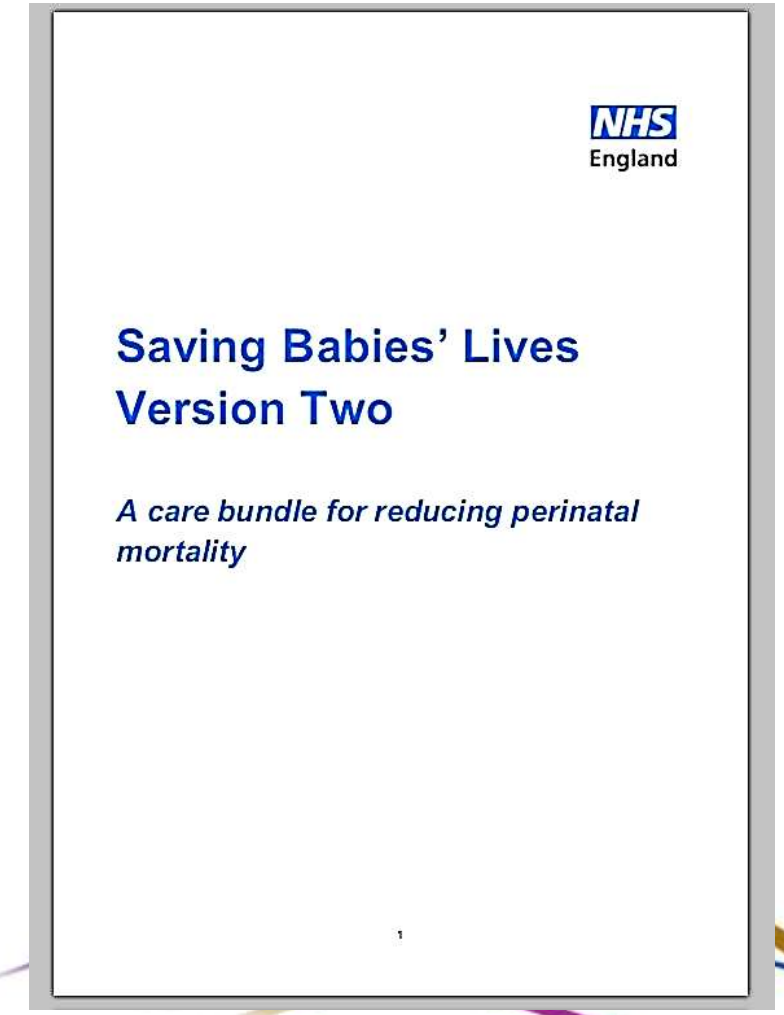
SBL V2 Bundle (2019)



- 5 Elements
- Smoking
- Fetal Growth Restriction
- Fetal Movements
- Intrapartum Monitoring
- Preterm birth prevention

Became part of the National Maternity Contract by April 2020

FGR- Element 2

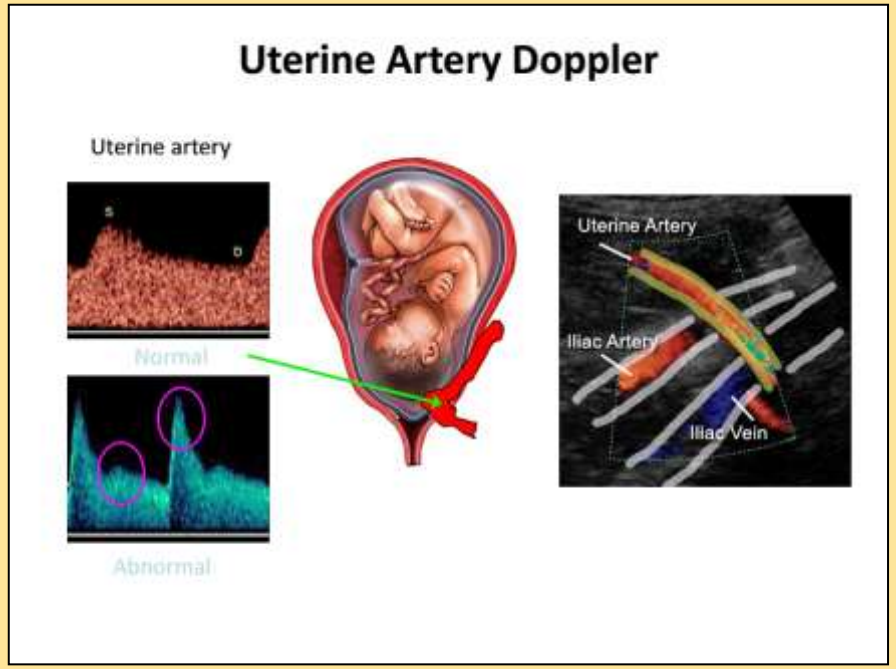
- **Prevention –**Role of Aspirin
- **Risk assessment & Surveillance of low and high risk-** New pathway
- **Management of SGA/FGR**
- **Triages women in 4 risk groups than two**

High risk factors arm- Doppler driven

Risk assessment (Perform at booking and mid-trimester anomaly scan)	Prevention	Screening for early onset FGR and triage to pathway	Screening/surveillance pathway for FGR/SGA	Reassess at 28 weeks and after any antenatal admission
				Assess for complications developing in pregnancy, e.g. hypertensive disorders or significant bleeding
High risk: High risk factors Medical history Maternal medical conditions [chronic kidney disease, hypertension, autoimmune disease (SLE, APLS), cyanotic congenital heart disease] Obstetric history Previous FGR (<3rd centile) Hypertensive disease in a previous pregnancy Previous SGA stillbirth Current pregnancy PAPPA <0.415 MoM Echogenic bowel Significant bleeding EFW <10th centile	Assess for history of placental dysfunction and consider aspirin 150mg at night <16 weeks as appropriate	Additional uterine artery Doppler		
		Normal uterine artery Doppler	Serial USS from 32 weeks every 2-4 weeks* until delivery	
		Abnormal uterine artery Doppler and EFW ≥10th centile	Serial USS from 28 weeks every 2-4 weeks* until delivery	
		Abnormal uterine artery Doppler and AC or EFW <10th centile	Discussion with fetal medicine	
				Serial USS from diagnosis until delivery*

The risk factors listed here constitute those routinely assessed at booking, other risk factors exist and risk assessment must always be individualised taking into account previous medical and obstetric history and current pregnancy history. For women with maternal medical conditions and individuals with disease progression or institution of medical therapies may increase an individual's risk and necessitate monitoring with serial scanning. For women with a previous stillbirth, management must be tailored to the previous history i.e. evidence of placental dysfunction or maternal medical conditions. Serial measurement should be performed as per NICE antenatal care guideline.

‡AC and/or EFW <10th centile at the anomaly scan is a high risk factor. * Refer to risk assessment and screening section for advice on scan interval.



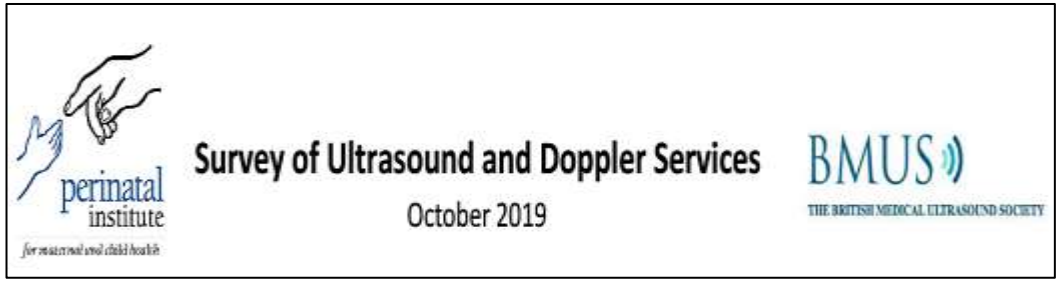
Uterine Doppler

Advantages

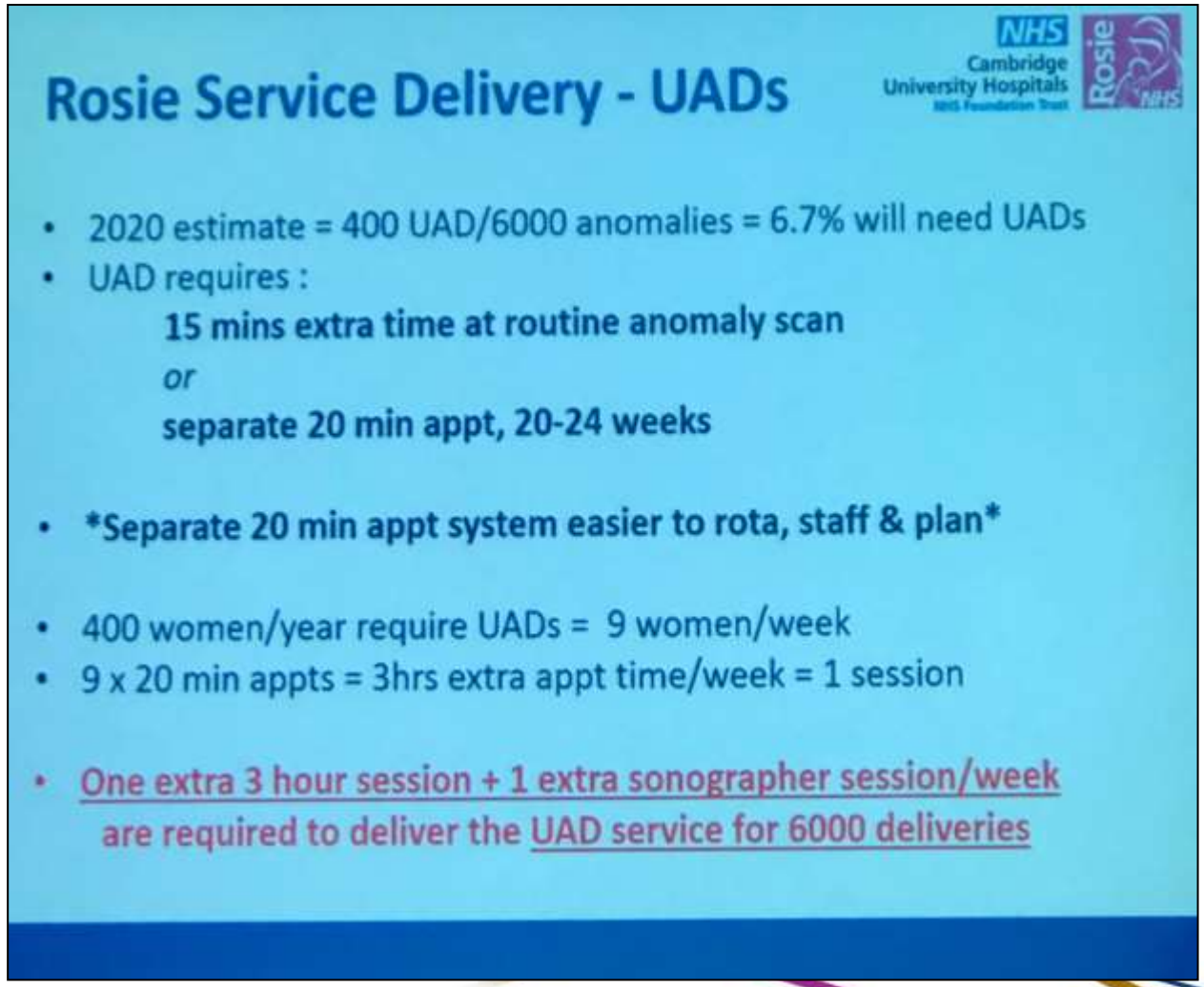
- Non-invasive
- Can be performed at the time of 20 weeks scan
- Fairly easy to learn
- Standardized approach
- Useful in setting to screen for early onset preterm PE/IUGR <32 weeks

Concerns

- Lack of consultation with SoR- workforce, capacity, training, recruitment and retention issues

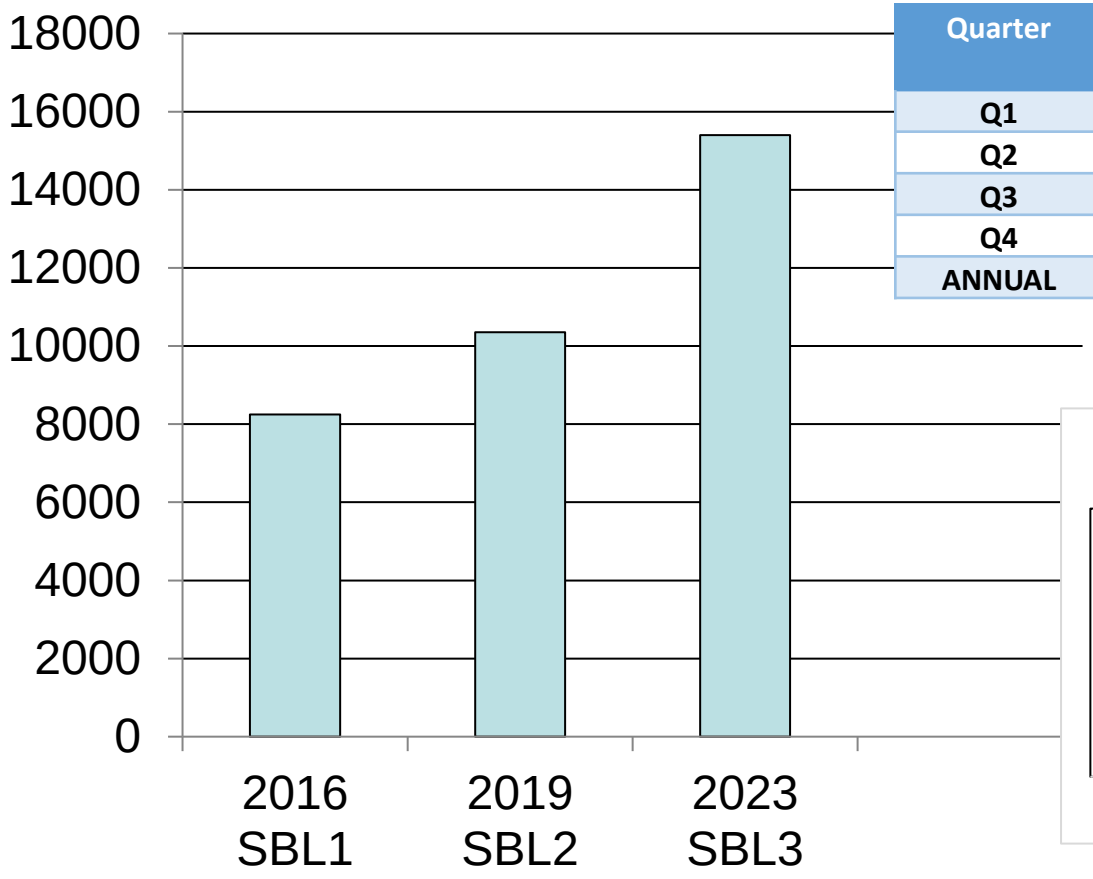


Uterine Doppler

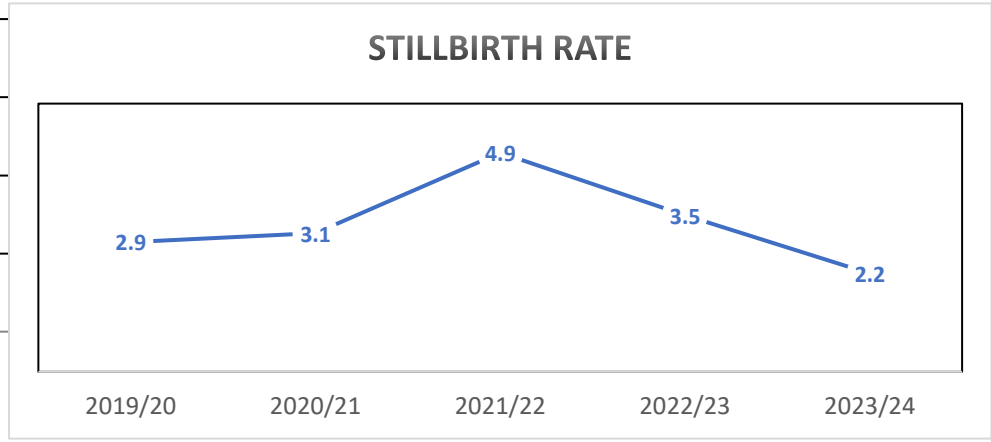


- Resources not ready for teaching & hands on training
- Delivering new curriculum
- Recruitment and retention
- Funding and capacity
- Implementation timescales

Impact on growth scan numbers and stillbirth rate at LWH



Quarter	Rate 2019/20	Rate 2020/21	Rate 2021/22	Rate 2022/23	Rate 2023/24
Q1	4.0	5.5	4.0	3.7	1.7
Q2	4.1	2.5	5.3	3.6	2.2
Q3	1.5	2.7	5.1	4.3	3.3
Q4	1.7	3.2	5.0	2.3	1.1
ANNUAL	2.9	3.4	4.9	3.5	2.2



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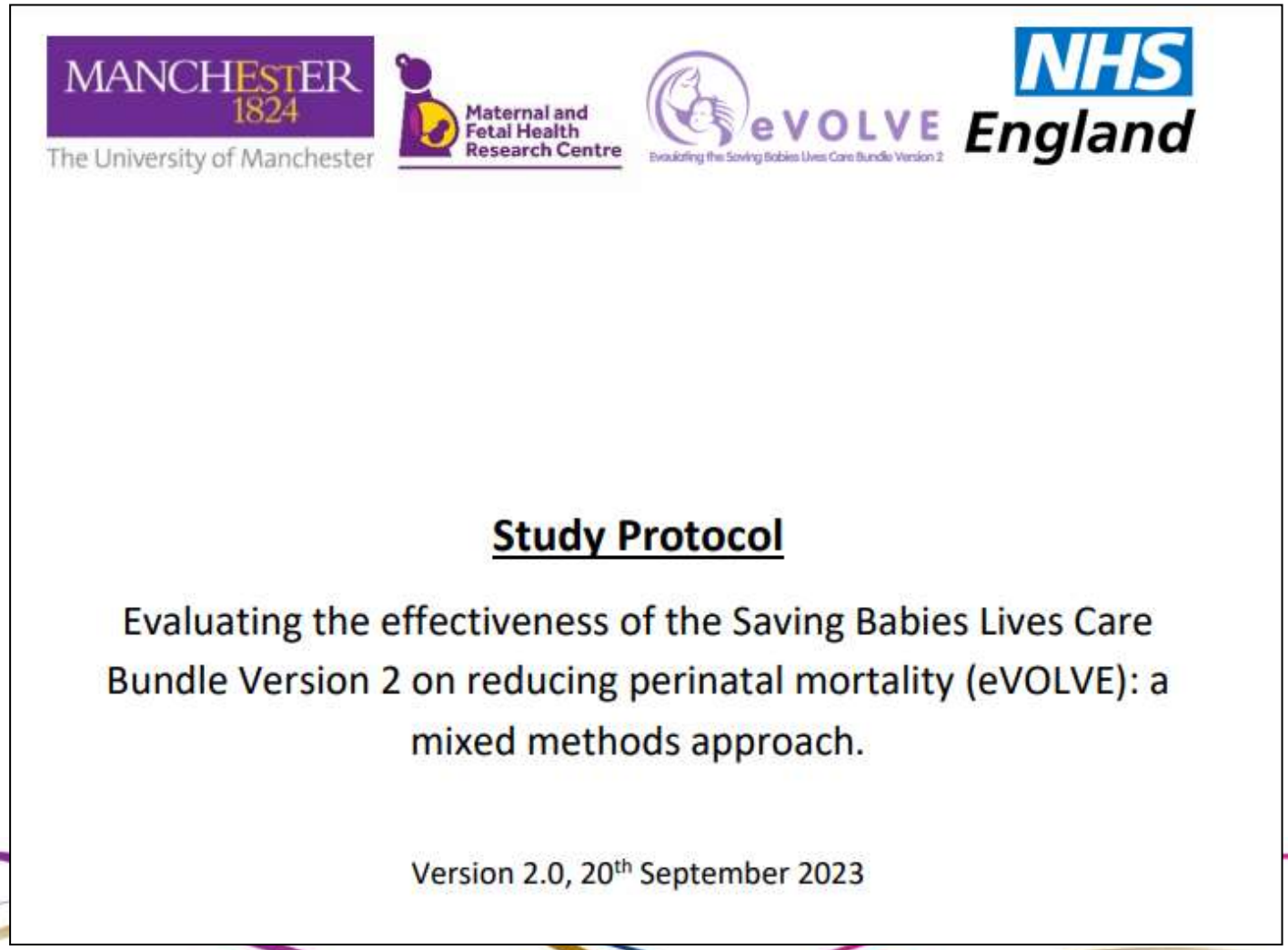
Await results



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WHAT
CAN WE
DO?

- Collaborate – midwifery, medical and ultrasound
- Workforce- recruitment and retention
- Upskilling – teaching, training, CPD events, study days
- Dedicated pathways – effective risk assessment as per SBLV3
- Effective triage of requests
- Ensure QA of growth scans
- Audit of missed FGR cases – GAPSCORE
- Learning from PMRTs, SUIs, HSIB reports

Collaborate

- Named SBL champions
- Identify Leads- Obstetrics/Fetal Medicine,Ultrasound
- Agree with IT /Governance Leads
- SBL Champion Midwife- nominated lead for collating Implementation progress
- Have a timeline and try best to stick to it.

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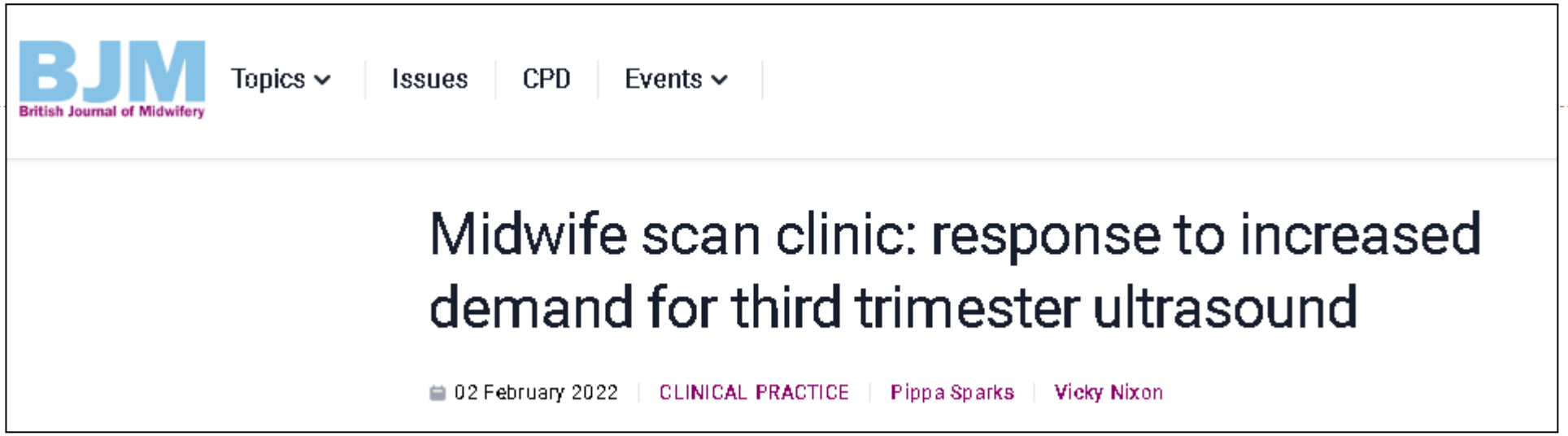


- Midwife run scan service, Kingston hospital 2019
- One stop shop- triage and post scan management
- Cost-effective, improved experience, reduced multiple visits and provided continuity of care
- Combining midwifery and ultrasound skills in a midwife scan clinic is a quality improvement initiative that facilitates the increasingly central role that ultrasound plays in fetal surveillance.

CASE Position Statement

Focused obstetric courses for 3rd trimester obstetrics, Saving Babies Lives Care Bundle version 2 (SBLCBv2)

Issued May 2021

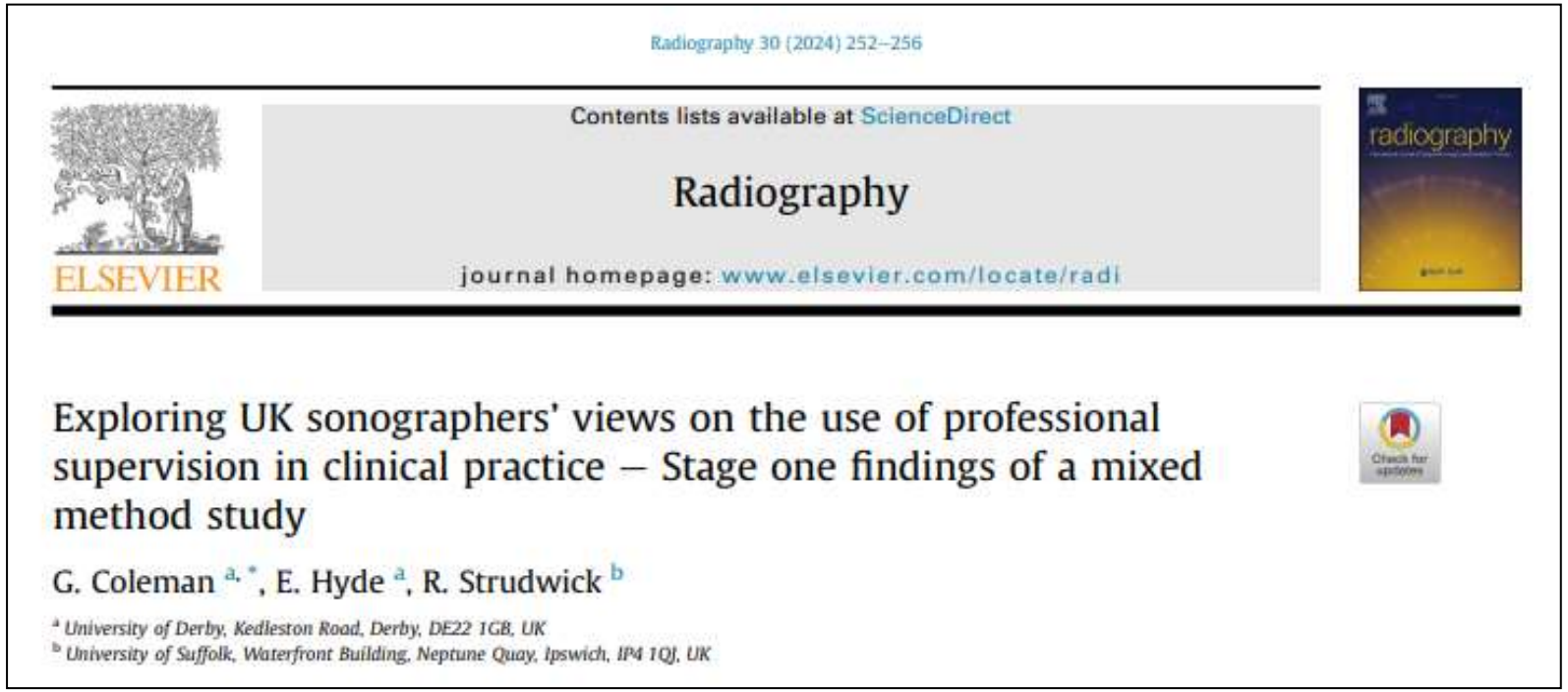
Following in-depth review of CASE processes and requirements for focused course accreditation, the following position statement is issued in relation to Focused Courses in Third Trimester Obstetric Scanning:

CASE accreditation will only be approved for focused courses that specify a clearly defined scope of practice and that require trainees to demonstrate the same level of competency as any other health care professional (HCP) carrying out that same examination. For applications that are technically complex, or where differential diagnosis is required, existing CASE learning outcomes (level 6 / level 7) need to be met. The extent to which this can be delivered and assessed effectively within a Focused Course format is dependent on target course attendants, as well as the technical complexity of the defined area of practice.

Following review of the requirements of the Saving Babies Lives Care Bundle (SBLCBv2), we confirm that Third Trimester Obstetric Scanning will **not** be considered by CASE as appropriate for delivery by a focused course format due to the breadth and complexity of scanning undertaken in this high-risk context. A formal HEI award is required.

A stand-alone module format (such as a negotiated module) may be suitable for CPD applicants where recruitment is restricted to trainees who can evidence prior knowledge and skills consistent with CASE learning outcomes (level 6 / level 7) in science / professional issues. For example, this may include learners who already hold a formal obstetric ultrasound qualification (or who have completed previous focused training) who wish to develop additional skills in middle cerebral artery (MCA) or uterine artery (UA) Doppler.

Ultrasound Workforce



Radiography 30 (2024) 252–256

Contents lists available at ScienceDirect

Radiography

journal homepage: www.elsevier.com/locate/radi

Exploring UK sonographers' views on the use of professional supervision in clinical practice – Stage one findings of a mixed method study

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[a] University of Derby, Kedleston Road, Derby, DE22 1GB, UK
[b] University of Suffolk, Waterfront Building, Neptune Quay, Ipswich, IP4 1QJ, UK

- Sonographers, consultant or clinical specialist sonographers, ultrasound managers and professional body officers.
- Multiple choice questions were utilised to obtain quantitative data on the provision of support mechanisms
- 112 responses, 55.4% felt supported
- workload pressures, staffing and retention of sonographers and professional support needed to improve

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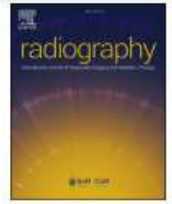


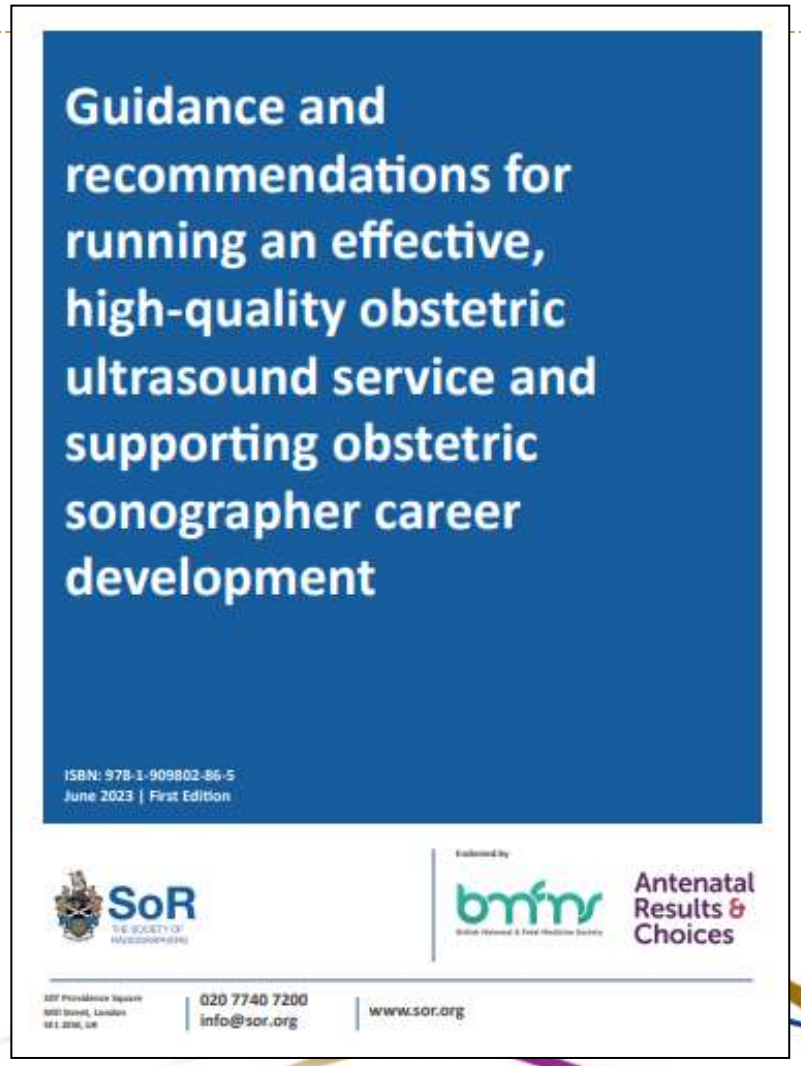
"It has been the most difficult time in my career": A qualitative exploration of UK obstetric sonographers' experiences during the COVID-19 pandemic

E. Skelton [a, *], A. Smith [b], G. Harrison [c], M. Rutherford [d], S. Ayers [e], C. Malamateniou [a, f]

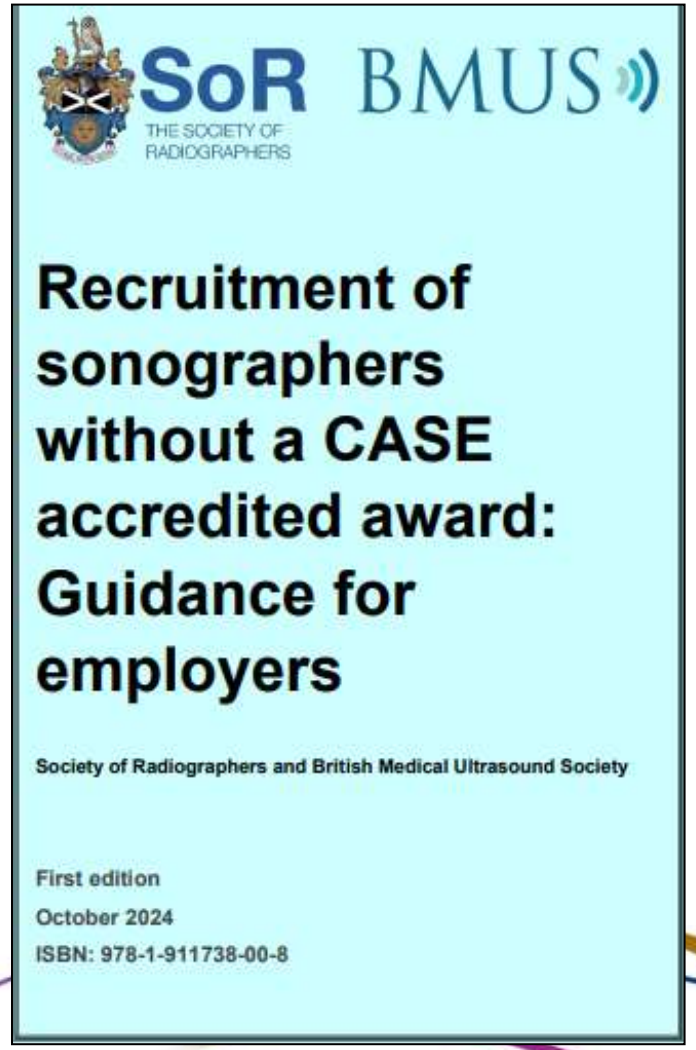
[a] Division of Radiography and Midwifery, School of Health and Psychological Sciences, University of London, EC1V 0HB, UK
[b] Guy's & St Thomas' NHS Foundation Trust, London, SE1 7EH, UK
[c] Society and College of Radiographers, London, SE1 2EW, UK
[d] Perinatal Imaging and Health, King's College London, SE1 7EH, UK
[e] Centre for Maternal and Child Health Research, School of Health and Psychological Sciences, University of London, EC1V 0HB, UK
[f] Haute Ecole de Santé Vaud, Lausanne, Switzerland

Results: : Written responses were received from 111/138 sonographers participating in the survey. Five themes were generated, depicting the impact of the pandemic on obstetric sonographers: 1) continuity in a crisis; 2) decisions about me, without me; 3) battle scars – the lasting damage of COVID-19; 4) what people think I do vs. what I really do; and 5) the human touch. A cross-cutting theme was sonographers' feelings of disconnection from senior figures and expectant parents which created a sense of abandonment and distrust.

Conclusion: Survey respondents' self-reported experiences of ineffective leadership and management, and perceived lack of understanding of the complexity of the sonographer role are potential contributory factors in the high levels of moral injury and occupational burnout reported within the workforce during the pandemic.



- This document is for policy makers, antenatal leads, sonography managers, obstetric sonographers and the wider antenatal care team.
- A fundamental ambition of the document is to support improvements in antenatal ultrasound services, with a focus on different aspects of service provision and staff wellbeing.
- The ultimate aim is to support sonographers to make changes that impact on mult-iprofessional teams, communication, job satisfaction, and ultimately service delivery and the care provided for expectant parents



- Pre-employment checks
- English requirements
- Level of education & qualification
- CASE equivalence
- Registration
- Clinical competency
- Knowledge gaps & Preceptorship

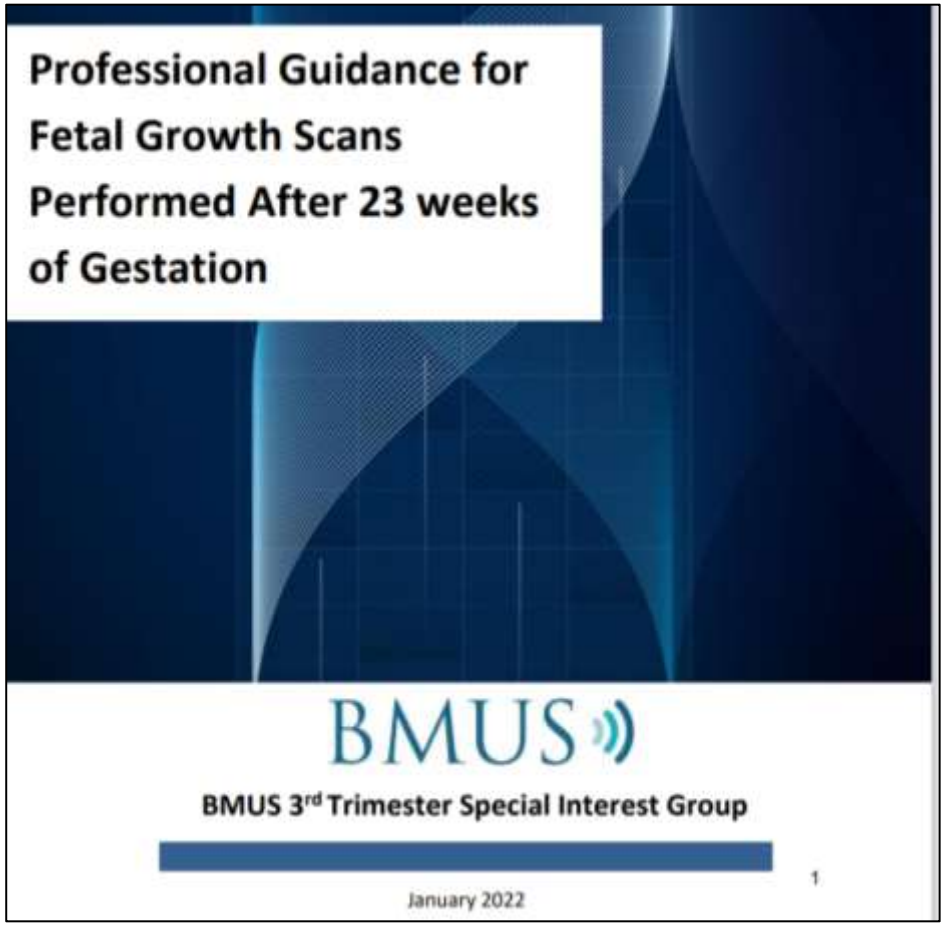
- Meeting with USS, Fetal medicine, MAU/ODU leads
- Clear criteria for place, timing and frequency of scans
- Cross- cover in times of emergency
- Dedicated triage lead- decreased inappropriate referrals from 12-5%
- Individual feedback to midwives and doctors
- Training shift leaders MAU in triaging referrals – training in SOP and IT systems. Training on the shift when ACP is alongside
- Regular meeting with community team leaders

- 1000 requests since May- 5 incidents – 2 misfiled (human error), 1 directed to main deptt, 2 rejected when needed (human error)
- 7 requests a week from 5 a day – LOTW as to where scan should be requested
- Spot audits by Community Team Leaders August 24 (62 cases)

  7% of midwives are not viewing GROW chart at the time of the consultation.

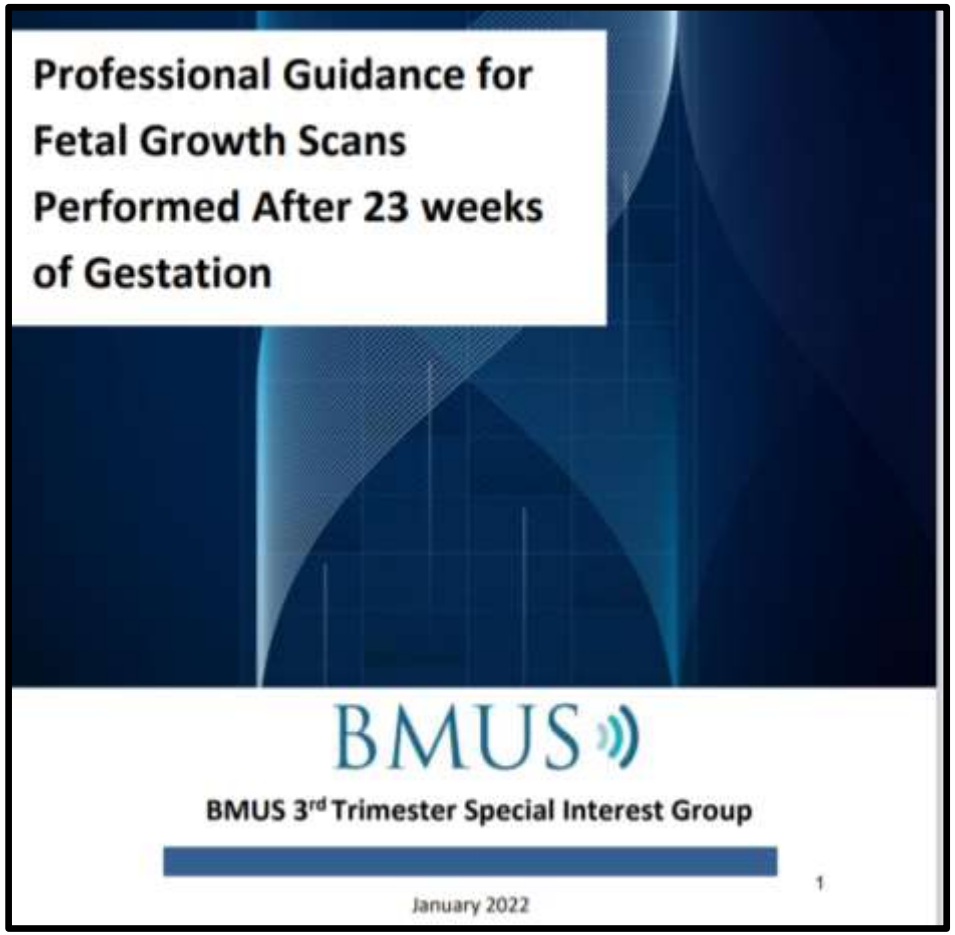
  7% of midwives are also not performing SFH measurements as per NICE Antenatal Care (NG201) guidelines.

Quality Assurance in Growth Scans



- Element 2: Fetal Growth: Risk assessment, surveillance, and management
- Continuous learning Learning from excellence and error, or incidents (Section 2.2)
- 2.26 Maternity providers are encouraged to focus improvement in the following areas:
- a) Appropriate risk assessment for FGR and other conditions associated with placental dysfunction and robust referral processes to appropriate care pathways following this.
- b) Appropriate prescribing of aspirin in line with this risk assessment in women at risk of placental dysfunction.
- c) Review of ultrasound measurement quality control. Trusts are encouraged to comply with BMUS guidance on audit and continuous learning with relation third trimester assessment of fetal wellbeing
- d) Trusts will share evidence of these improvements with their Trust Board and ICS and demonstrate continuous improvement in relation to process and outcome measures.

SIG3_document_FINAL__v_16__27_Jan_2022-_With_cover_QcOJnLN.pdf (bmus.org)



- No national recommendations for how best to use ultrasound in the assessment of pregnancies over 23 weeks of gestation.
- Fetal biometry- HC,AC,FL & EFW
- Anatomical assessment
- Liquor and placenta
- UA, Uterine Artery and MCA dopplers
- Reference literature, technique, reporting, auditing quality of service
- Image review- QA of Fetal biometry

Quality Assurance - Fetal Biometry

Ultrasound Obstet Gynecol 2020; 55: 375–382
Published online in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/uog.21929.

Expected-value bias in routine third-trimester growth scans

L. DRUKKER[1#], R. DROSTE[2#], P. CHATELAIN[2], J. A. NOBLE[2] and A. T. PAPAGEORGHIOU[1]

[1]*Nuffield Department of Women's & Reproductive Health, University of Oxford, Oxford, UK;* [2]*Institute of Biomedical Engineering, University of Oxford, Oxford, UK*

Ultrasound Obstet Gynecol 2020; 55: 170–176
Published online 8 January 2020 in Wiley Online Library (wileyonlinelibrary.com). **DOI:** 10.1002/uog.21909.

Impact of biometric measurement error on identification of small- and large-for-gestational-age fetuses

D. WRIGHT[1], A. WRIGHT[1], E. SMITH[2] and K. H. NICOLAIDES[3]

[1]*Institute of Health Research, University of Exeter, Exeter, UK;* [2]*Ultrasound Clinic Bovenmaas, Rotterdam, The Netherlands;* [3]*Harris Birthright Research Centre for Fetal Medicine, King's College Hospital, London, UK*

- Expected value bias prevalent in 13-17% growth scans due to knowledge of GA
- Measurement error in fetal biometry causes substantial error in EFW, resulting in misclassification of SGA and LGA fetuses.

Growth Scan Audit Tool- Section 7

Principal

- Accuracy and consistency of biometry and Doppler assessment is essential to provide effective monitoring of a fetus in the third trimester.

Input

- Standardised anatomical landmarks are identified, callipers are placed at predefined points
- Fetal biometric measurements are plotted on graphs against expected values for gestational age.
- Auditing against a set of standardised criteria, using a specifically designed tool

Output

- Improve the quality of sections and images
- Develop consistency of measurements locally and nationally
- Increase the accuracy of fetal growth velocity assessment
- Improve maternal & fetal outcomes.

Timing and frequency of image audits

- All staff undertaking 3rd trimester growth scans
- One or more sets of measurements and individual feedback
- 5% of all 3rd trimester growth scan images and 5% of various Doppler images
- Balanced approach with service provision, meaningful data to identify trends and provide feedback

3 monthly audit cycle

- A minimum of 3 randomly selected sets of the reported HC, AC, FL and DVP images, together with their accompanying reported Doppler images
- A minimum of 3 randomly selected reported images of UA, UtA and MCA if not included in the above
- 25 images of one of the above measurements, on a rotational basis, with the recommendation that the AC is the first to be chosen.

APPENDIX 5a SET OF IMAGES GROWTH SCAN AUDIT TOOL TEMPLATE

B mode Image: Criteria met (Yes or √), Criteria not met (No or X)				
Criteria	**Scan 1**	**Scan 2**	**Scan 3**	**Comments/feedback**
Head Circumference				
HC occupies 60% or more of ultrasound image				
Rugby ball shape				
Presence of cavum septum pellucidum				
Midline less than 20^0 to horizontal				
Midline centrally placed				
Medial walls of anterior & posterior horns of lateral ventricles centrally placed around midline				
Accurate caliper placing (BPD)				
Accurate caliper placing (OFD)				
Abdominal circumference				
AC occupies 60% or more of ultrasound image				
As close as possible to circular in shape				
Spine appears as three ossification centres				
Single rib, of equal length, on both sides				
Short length of UV, in the middle one third of the abdomen				
Stomach present				
Lung bases absent				
Kidney absent				
Accurate caliper placing (APAD)				
Accurate caliper placing (TAD)				
Femur length				
FL occupies 60% or more of ultrasound image				
Full length of diaphysis, excluding distal epiphysis if visible & end plate irregularity at either end				
Angle less than 15^0 to horizontal				
Accurate caliper placing				

AC, abdominal circumference; APAD, antero-posterior abdominal diameter; BPD, biparietal diameter; FL, femur length; HC, head circumference; OFD, occipito-frontal diameter; TAD, transverse abdominal diameter; UV, umbilical vein

Professional guidance for fetal growth scans performed after 23 weeks of gestation

APPENDIX 5b SINGLE MEASUREMENT GROWTH SCAN AUDIT TOOL TEMPLATE (AC)

Criteria for Abdominal circumference	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AC occupies 60% or more of ultrasound image															
As close as possible to circular in shape															
Spine appears as three ossification centres															
Single rib, of equal length, on both sides															
Short length of UV, in the middle one third of the abdomen															
Stomach present															
Lung bases absent															
Kidney absent															
Accurate caliper placing (APAD)															
Accurate caliper placing (TAD)															

Criteria for Abdominal circumference	16	17	18	19	20	21	22	23	24	25
AC occupies 60% or more of ultrasound image										
As close as possible to circular in shape										
Spine appears as three ossification centres										
Single rib, of equal length, on both sides										
Short length of UV, in the middle one third of the abdomen										
Stomach present										
Lung bases absent										
Kidney absent										
Accurate caliper placing (APAD)										
Accurate caliper placing (TAD)										

AC, abdominal circumference; APAD, antero-posterior abdominal diameter; TAD, transverse abdominal diameter; UV, umbilical vein

Feedback

- Detailed feedback should include examples of both good practice
- Any common themes or common areas where improvement is needed.
- If necessary, references to the individual images should be given to provide context and visual feedback.
- Improvement tool for consistency
- Mentoring for consistently suboptimal/poor practice

Thank you for your attention !