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Worcestershire Acute Hospitals NHS Trust

DIAGNOSIS AND MANAGEMENT OF CAESAREAN SCAR PREGNANCY

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

There is increasing incidence of Caesarean Scar pregnancy (CSP) secondary to increasing number of Caesarean section deliveries. This guideline discussed diagnosis and management options for diagnosis and management. Multidisciplinary approach is advised when managing CSP due to complexity in the diagnosis and management.

This guideline is for use by the following staff groups:

- Emergency Gynaecology unit and Early Pregnancy Assessment unit
- Radiology

Lead Clinician(s) Names	Dr Mamta Pathak Dr Robert Johnson Dr Inderjeet Nagra
Approved by Gynaecology Governance on:	09 January 2026
Approved by Medicines Safety Committee on: *Where medicines are included in document.*	8th April 2026
Review Date: This is the most current document and should be used until a revised version is in place	8th April 2029

Key amendments to this guideline

Date	Amendment	Approved by:
	New document approved	

Caesarean Scar Pregnancy

It has now been recognised that CSP is a precursor, and is histologically similar to, placenta accreta spectrum (PAS). The two conditions are a continuum of the same disease but CSP is a diagnosis made in the first trimester whereas PAS is usually diagnosed in the second or third trimesters

Caesarean scar Pregnancy (CSP) is a complication where the early pregnancy implants in the scar from a previous caesarean delivery. Studies quote the incidence of CSP between 1/1800 to 1/2200. However more recently, there has been a surge is this condition. This is due to globally rising caesarean section rates, improvements in ultrasound imaging and increasing operator awareness of this condition. Because CSP may cause serious morbidity such as life-threatening haemorrhage, uterine rupture, placental accreta spectrum (PAS), emergency hysterectomy and even mortality, accurate diagnosis and appropriate management of this condition are essential.
Given that we are only going to be coming across CSP more often in clinical practice, this document provides a guidance caesarean scar ectopic pregnancy to ensure that a high quality service can be delivered, maintained and improved.

Pathogenesis
The pathogenesis of CSP is not completely understood. The mechanism seems to involve blastocyst implantation within a microscopic dehiscence of tract of the previous caesarean scar.
It has now been recognised that CSP and placenta accreta spectrum (PAS) are histologically similar and exist along the same disease continuum. CSP is a diagnosis made in the first trimester whereas PAS is usually diagnosed in the second or third trimester.

Clinical Presentation
Most common clinical presentation in CSP is painless vaginal bleeding. Abdominal pain maybe present however this is non-specific. Nearly one third of patients maybe asymptomatic and diagnosis is made incidentally. Rarely women may present with haemodynamic collapse following rupture of CSP causing haemoperitoneum.
It is therefore important to have a high degree of suspicion in any patient presenting to EGAU who has had a previous CS.

Diagnosis

Transvaginal Ultrasound (TVUS) is the considered the optimal modality for diagnosis. Ultrasound scan should be performed by an experienced sonographer that performs obstetric and gynaecological patients regularly.

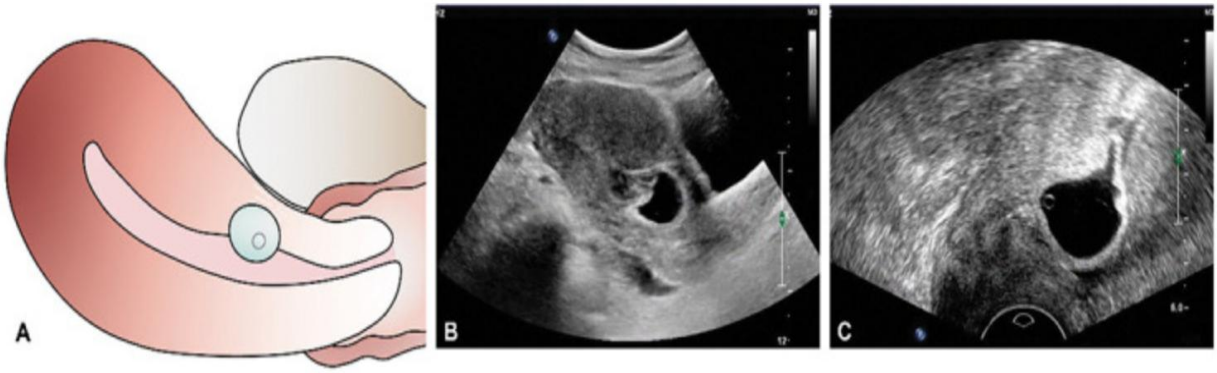
In case of diagnostic doubt, an opinion should be taken from a second sonographer that performs gynaecological ultrasound. After this image review can be requested via the duty admin support team to a Gynaecology radiologist with experience in obstetric and gynaecological imaging. Grayscale combined with colour Doppler ultrasound imaging is recommended on all studies. Some studies have also recommended combining transvaginal ultrasound imaging along with a transabdominal ultrasound with a full maternal bladder to assess the relationship between the gestational sac and bladder. This will depend on the trimester of the pregnancy but TVUS is recommended and has a sensitivity of 85% in diagnosing CSP and is the preferred first-line method. Early stage pregnancy is better

assessed with TVUS and later stages may be better assessed with trans-abdominal scanning combined with optimal bladder filling.

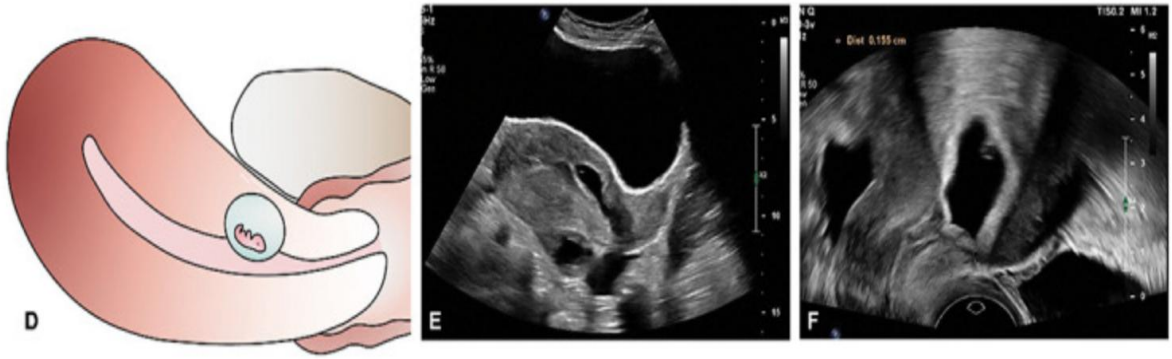
Findings on Ultrasound that suggest CSP are:-

1. An empty uterine cavity and closed, empty endocervical canal with clearly visible endometrium.
2. Detection of gestational sac/ placenta/ both in close proximity to the scar/ niche (a discontinuity in the lower anterior uterine wall that occurs as part of the healing of the caesarean section).
3. A triangular (at 8 weeks gestation or less) or a rounded or oval (at >8 weeks gestation) shaped gestational sac that fills the niche.
4. Thin or absent anterior myometrial layer between the sac and the anterior myometrial wall or bladder.
5. A rich vascular pattern at or in the area of the caesarean scar.
6. Negative sliding sign.

Classification and assessment:



Type 1 is defined as the implantation of a gestational sac within the cesarean scar, with anterior myometrium thickness greater than 3 mm regardless of the size of the gestational sac.



Type IIa is defined as anterior myometrium thickness between 1 and 3 mm and average diameter of the gestational sac or mass 30 mm or less.

Type IIb is defined as anterior myometrium thickness between 1 and 3 mm and average diameter of the gestational sac or mass greater than 30 mm.

Type IIIa, the gestational sac bulges out under the cesarean scar, with anterior myometrium thickness 1 mm or less and average diameter of the gestational sac or mass 50 mm or less.

Type IIIb is defined as anterior myometrium thickness 1 mm or less and average diameter of the gestational sac or mass greater than 50 mm.

Ban. Cesarean Scar Ectopic Pregnancy Classification System. Obstet Gynecol 2023.

The challenge in the diagnosis of CSP is distinguishing it from other clinical entities with similar presentation such as cervical ectopic pregnancies, spontaneous miscarriages in transit, low implantation of an intrauterine pregnancy. However careful assessment provides vital clues. In impending miscarriage, the sac is often irregular with absent foetal heart, located within the cavity, positive sliding sign with gentle probe pressure and absent or minimal colour Doppler flows. A cervical ectopic pregnancy is present in or close to cervical canal. The cervix will appear ballooned, good colour flow Doppler and negative sliding sign. MRI can be considered as an adjunct study if TVUS is inconclusive and can help assess bleeding risk in the case of placental disorders in stable patients. There is a similar sensitivity and specificity for diagnosing placental disorders on US and MRI with higher accuracy on MRI for severity of placental invasion and extra-uterine extension on MRI. However, MRI needs to be organised in a timely manner via a radiologist who is in agreement with performing and reporting the study. In some cases a repeat US may need to be performed. This is to avoid undue delay in establishing an accurate diagnosis of CSP and to allow any repeat imaging studies to be performed if the second US if performed is still inconclusive.

Management

CSP has only recently been recognised as a potential and infrequent consequence of CS. Hence, recommendations for its management is derived from case reports and case series only.
There is insufficient evidence to recommend one specific intervention over the other but overall, surgical management appears to be more effective than medical.
Treatment decisions are guided by the principal goal of preserving maternal health, followed by secondary goal of preserving fertility where possible. Decision on how to proceed needs to be made in conjunction with the patient. Any diagnostic doubts should be raised and discussed with a second appropriately experienced sonographer with advice if necessary by a specialist radiologist with an obstetric and gynaecology interest. In some cases, MRI scan can be considered if US is inconclusive. Usually MRI is not indicated in the first trimester of pregnancy in other clinical situations but can be performed in the select situation of CSP. However this would be performed without IV contrast. should be performed specifically in view of the clinical circumstances that warrant this.

Because of the high risk of severe maternal morbidity, expectant management is not recommended for a recognised CSP. In cases of a viable CSP, frank discussion needs to be had with the patient regarding progression of pregnancy, risk of morbidly adherent placenta, massive haemorrhage and frequent need for hysterectomy.
Patients with non-viable CSP who wish conservative management should be informed about need for prolonged follow up with ultrasound and hCG levels as well as close surveillance of symptoms. They should be informed that CSP can take several months to resolve and carry risk of development of uterine arterial malformation at the site of CSP resulting in persistent and severe vaginal bleeding.

Expectant management:

Expectant management of CSP. Systematic review with 17 studies with 69 cases managed expectantly with a positive heartbeat
Miscarriage 13%
Uterine rupture 9.9%

Severe uterine bleeding 12.9%
Continued to 3rd trimester 76.9 %
Placenta accreta syndrome (PAS) 74.8%
Hysterectomy 60.6%

Expectant management of CSP with no foetal heart beat

Spontaneous miscarriage 69.9%
Severe bleeding 22.2%
Hysterectomy nil

Placenta/gestational sac within niche or RMT ≤5 mm: high risk for increta or percreta and need for hysterectomy.

Medical Management

Medical management should only be considered in haemodynamically stable women with minimal or no symptoms.

Gestation less than 8 weeks with HCG below 5000 IU/l is more likely to respond to medical management. Methotrexate can be given either systemically, via the intramuscular route or locally into the gestational sac. There is small evidence to suggest intra-gestational methotrexate may be more efficacious than systemic methotrexate. The regimen is same as tubal ectopic pregnancy. (1MG/Kg please the guidance on Methotrexate administration in ectopic pregnancy)

Problems with medical management

- Resolution of pregnancy takes a long time
- Risk of heavy bleeding and continuing symptoms for several months
- This option does not facilitate the removal of pregnancy
-

Adequate counselling should be provided regarding the likelihood of a prolonged follow up.

One study (Naeh et al) reported a mean time to resolution of 88 days with the range between 26 to 188 days. Medical management alone may not always work, even in carefully selected women thus necessitating surgical intervention. It may take up to 4 months for the serum BHCG to come down and another 4 months for the niche to resolve leaving women with significant symptoms.

Management

The following are the Society for Maternal-Fetal Medicine recommendations:

Expectant management of caesarean scar ectopic pregnancy is not recommended (GRADE 1B)

Operative resection (with transvaginal or laparoscopic approaches when possible) or ultrasound-guided uterine aspiration be considered for the surgical management of caesarean scar ectopic pregnancy and that sharp curettage alone be avoided (GRADE 2C**)**

Systemic methotrexate alone not recommended to be used to treat caesarean scar ectopic pregnancy (GRADE 1C)

Current evidence favours surgical management as the most effective treatment of CSP, with an overall success rate of 91.5% and 9.3% complication rate. Higher the gestational age, higher is the risk of haemorrhage and complications from the procedure.

1. **Suction Evacuation under USS guidance**- This seems to be the most common surgical treatment of CSP as per current evidence and is suitable for endogenic CSP with a myometrial thickness of at least 2mm. Suction should be done under USS guidance. Sharp curettage should be avoided as it exposes the deep invasive vessels and can exacerbate bleeding.

- In a study looking at 191 patients with CSP diagnosed at <14 weeks GS and underwent surgical vacuum aspiration, 4.7% required blood transfusion, 6% needed repeat procedure and only 1 patient who needed hysterectomy. Most of the procedures were uncomplicated.
- Cervical cerclage placement before the evacuation and only secured in the setting of haemorrhage has been described in literature with good outcomes. Other adjunct strategies in the event of excessive bleeding include intrauterine balloon or uterine artery embolization/ ligation.

2. **Laparoscopic/ Open resection of CSP**- The procedure involves resection of the pregnancy followed by re-suturing of the myometrial defect. The procedure involves resection of the pregnancy followed by re-suturing of the myometrial defect. It carries the advantage of repairing the niche defect at the simultaneously.

- Resection of CSP is the procedure of choice in Type 3 CSP when the pregnancy crosses the serosal line. This can be done either laparoscopically or abdominally. Laparoscopic excision of a caesarean scar ectopic pregnancy using vasopressin is a minimally invasive surgical procedure designed to remove an ectopic pregnancy implanted in the scar tissue from a previous caesarean section.

- The position of the uterine artery should be checked in relation to the ectopic pregnancy and temporary occlusion of the uterine artery should be considered.

- Consider 400mcg of misoprostol trans-rectally to get better uterine contractions

- The procedure begins with the administration of diluted vasopressin, a vasoconstrictor, injected directly into the myometrium surrounding the ectopic mass. This step significantly reduces blood flow to the area, minimizing intraoperative bleeding and enhancing surgical visibility.

- The ectopic pregnancy is then carefully excised from the scar tissue using laparoscopic instruments, preserving the integrity of the uterus. This technique allows for precise removal of the ectopic tissue with reduced operative risks, faster recovery, and a lower likelihood of future complications compared to open surgery. However, there is insufficient evidence to definitively support one approach over the other, so the choice should be based on the surgeon's expertise. There should be a low threshold for seeking a second opinion or consulting a more experienced laparoscopic surgeon for support.

3. **Hysteroscopic Management**: Hysteroscopic resection can be used as primary surgical procedure to remove a CSP mass. It can also be used to remove persistent CSP mass after incomplete surgical evacuation or after medical management.

Adjunct and Sequential treatment Options

Uterine Artery Embolisation (UAE) has been reported in combination with suction evacuation, hysteroscopy and with methotrexate is some studies. However, the reported outcomes in managing CSP vary significantly and its role as adjunct to other management approaches needs further study.

Sequential management is where more than one method of treatment is used. In this approach, medical management is typically used first, followed by a surgical method to remove the persistent caesarean ectopic mass with the aim of reduced risk of haemorrhage at the time of surgical resection and a shorter recovery. However, studies so far have not shown any proven benefit with this approach.

Management strategy	Success rate (effectiveness) n (%) (95% CI)		Complication rate (safety) n (%) (95% CI)		Type of complication (n)
Suction evacuation	202/221	91.5% (87.8–95.2)	19/221	8.5% (5.9–11.2)	Hemorrhage [a](10); RPOC (6); thrombosis (1); sepsis (1); bladder injury (1)
Surgical excision	34/37	91.8% (83.8–99.9)	5/37	13.5% (0–29.1)	Hemorrhage [a](2); Sepsis (1); Asherman (1); broad ligament hematoma (1)
Balloon catheter treatment	42/46	91.3% (83.5–99.1)	4/46 [b]	8.7% (2.4–14.9)	Hemorrhage [a](2); EMV (2)
Local gestational sac injection	44/59	74.5% (64.1–85.1)	5/59	9.5% (1.6–15.4)	Hemorrhage [a](3); Asherman (1); delayed resorption >150 d (1)
Systemic methotrexate	38/64	59.4% (48.4–70.4)	11/64	23.9% (8.5–25.9)	Hemorrhage [a](3); methotrexate toxcicity (4); Sepsis (2), RPOC (1); GTN (1)
Primary hysterectomy	12/12	100%	9/12	75.0% (74.8-75.3)	Hemorrhage [a](5); bladder injury (4)

Kaelin Agten. Cesarean scar pregnancy Registry: first trimester management. Am J Obstet Gynecol 2024

Pregnancies following CSP

In terms of outcomes in subsequent pregnancies, the evidence is still limited and what available is quite variable.

Recurrence rate is reported from 7% to 40%. There is also no consensus about how long to wait before attempting another pregnancy but in cases of hysterotomy it is advised to wait for 6 months and 3 months following trans-cervical resection under ultrasound guidance.

A recent systematic review showed CSP recurred in 17.6% of women. In the women with normally sited pregnancies after a CSP, 1.5% had a uterine rupture, 19.1% had a miscarriage, 10.3% had a preterm birth and 4.0% had a PAS disorder. 67% of the patients did however have an uncomplicated pregnancy.

Patients need to be counselled about the recurrence rates and the potential risks in a subsequent pregnancy.

Should a patient with a history of CSEP become pregnant, close ultrasonographic monitoring is recommended to confirm the presence of an intrauterine pregnancy and to exclude recurrent CSEP or PAS. An initial ultrasound examination is recommended at <8 weeks of gestation, to confirm a normal intrauterine location.

Handover to the Obstetrics team and ongoing antenatal care.

Patients should be handed over the care to the Obstetric team to continue with management of pregnancy in a multidisciplinary manner after 16 weeks. Please refer to WAHT-TP-094 Placenta Accreta Spectrum (PAS) WAHT-TP-094 to manage the patient as per the referral pathways.

Monitoring

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: (Responsible for also ensuring actions are developed to address any areas of non-compliance)	Frequency of reporting:
	WHAT?	HOW?	WHEN?	WHO?	WHERE?	WHEN?
P1	Guideline is accessible and easily available. Guideline is available to the radiology and Gynaecology to use same diagnostic terminology	All CSP should be discussed and managed at the on call Consultant level MDT discussion in difficult cases.	Keep a data of the CSP to monitor the treatment and outcomes	Emergency Gynaecology team Lead of emergency Gynaecology	Data base to be set in the teams folder accessible to the Emergency Gynaecology team to record all the patients diagnosed with CSP	Annual report of the audit outcomes

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10. Society for Maternal-Fetal Medicine (SMFM); Miller R, Gyamfi-Bannerman C; Publications Committee. Electronic address: pubs@smfm.org. Society for Maternal-Fetal Medicine Consult Series #63: Cesarean scar ectopic pregnancy. Am J Obstet Gynecol. 2022 Sep;227(3):B9-B20. doi: 10.1016/j.ajog.2022.06.024. Epub 2022 Jul 16. PMID: 35850938.

Contribution List

This key document has been circulated to the following individuals for consultation:

Designation
Gynaecology Consultants
Dr Robert Johnson
Dr Inderjeet Nagra

This key document has been circulated to the chair(s) of the following committee's / groups for comments:

Committee
Gynaecology Governance

Supporting Document 1 – Equality Impact Assessment form

Equality and Health Inequalities Impact Assessment (EHIA) Tool

Herefordshire & Worcestershire STP - Equality and Health Inequalities Impact Assessment (HEIA) Form
Please read HEIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	✓	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	

Details of individuals completing this assessment	Name	Job title	e-mail contact
Date assessment completed			

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	Title:			
What is the aim, purpose and/or intended outcomes of this Activity?				
Who will be affected by the development & implementation of this activity?	❑	Service User	❑	Staff
	❑	Patient	❑	Communities
	❑	Carers	❑	Other _____
	❑	Visitors	❑	
Is this:	❑ Review of an existing activity ❑ New activity ❑ Planning to withdraw or reduce a service, activity or presence?			
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for				

patients / services / staff groups affected, complaints etc.	
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	
Summary of relevant findings	

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age	x			
Disability	x			
Gender Reassignment	x			
Marriage & Civil Partnerships	x			
Pregnancy & Maternity	x			
Race including Traveling Communities	x			
Religion & Belief			x	This may favour surgical management and create dilemma for some religious groups and pro-life supportersx
Sex	x			
Sexual Orientation	x			
Other Vulnerable and				

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)				
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)	x			

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
		.Allow time and information for shared decision making		
		Referral to the tertiary centre to the local placenta accreta centre in Birmingham Women's Hospital if the pregnancy is continuing		
How will you monitor these actions?	Audit in 12 month			

When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	2 years

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	
Date signed	
Comments:	
Signature of person the Leader Person for this activity	
Date signed	
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	Need for the surgical team to have skills in ultrasound scan, there is ability in the Gynaecology team to manage this
4.	Does the implementation of this document release any manpower costs through a change in practice	Yes
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval.