NATIONAL THROMBOSIS WEEK

IMPROVING PREVENTION AND BEST MANAGEMENT OF VTE- REDUCING THE RISK IN PREGNANCY

THROMBOEMBOLISM IN PREGNANCY

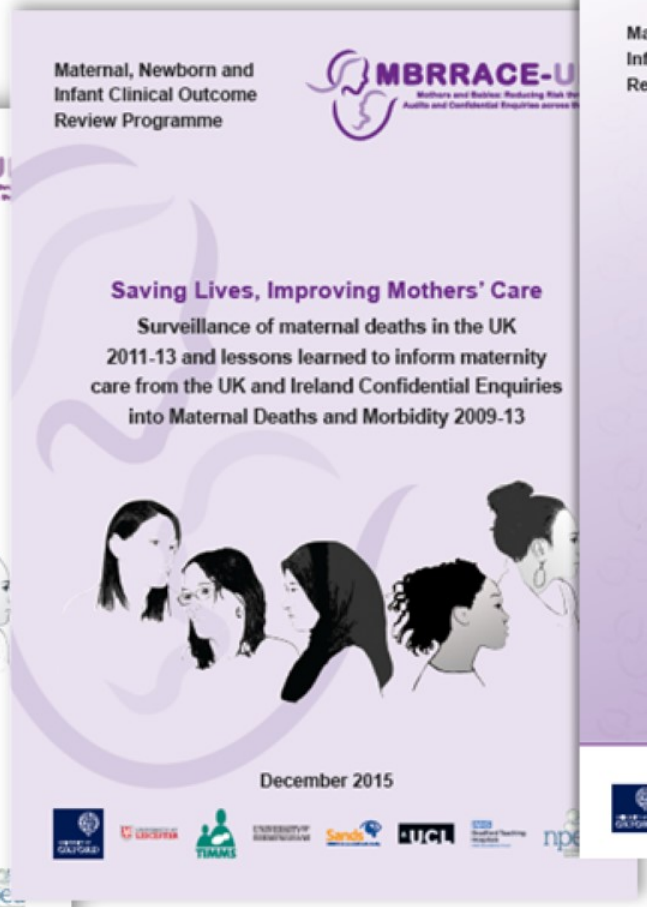
- **Pregnancy** increases the risk of venous **thromboembolism** (**VTE**) 4- to 5-fold over that in the nonpregnant state. The 2 manifestations of **VTE** are deep venous thrombosis (DVT) and pulmonary embolus (PE).

Maternal Mortality in the UK

2010-12

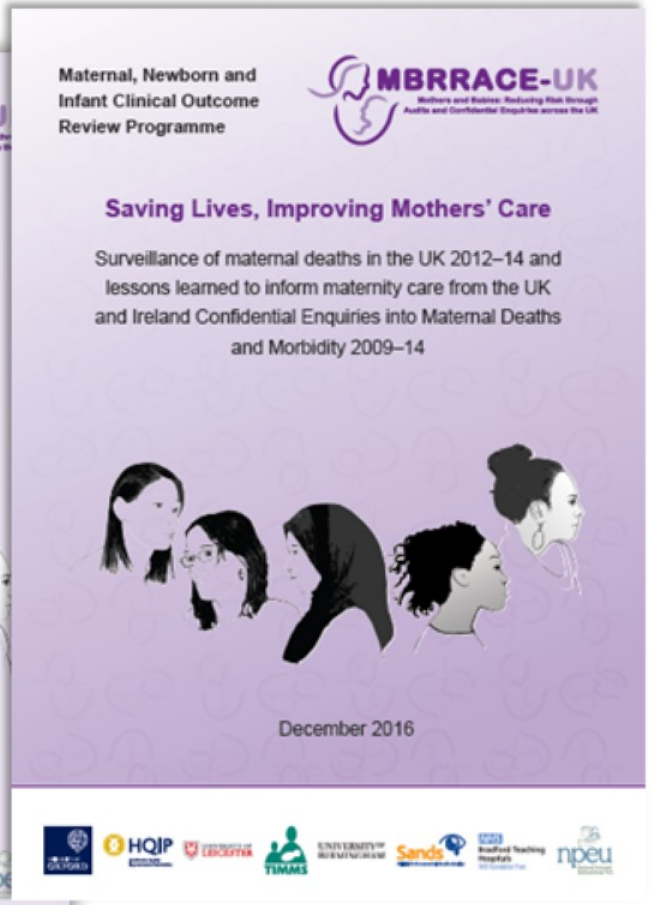
10 per 100,000 maternities

2011-13



9 per 100,000 maternities

2012-14



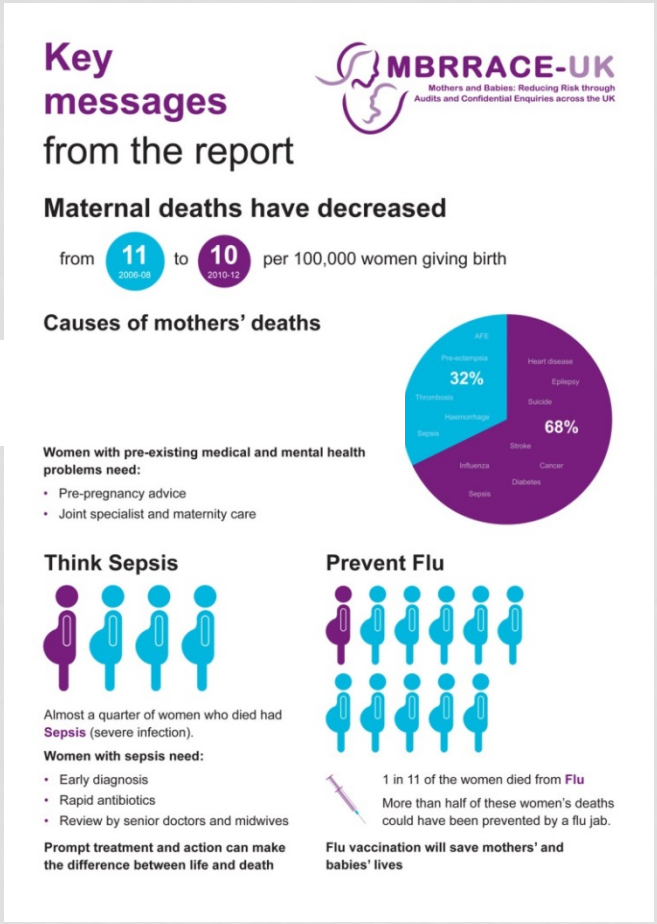
8.5 per 100,000 maternities

MBRRACE-UK
Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK

BACKGROUND

- Maternal deaths have decreased, but there are still lessons we can learn
- Two thirds of women die from medical and mental health problems and one third from direct complications of pregnancy
- Three quarters of the women who died had medical or mental health problems before they become pregnant

CAUSES OF MATERNAL DEATH



Key messages from the report

MBRRACE-UK
Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK

Maternal deaths have decreased

from 11 (2006-08) to 10 (2010-12) per 100,000 women giving birth

Causes of mothers' deaths

Women with pre-existing medical and mental health problems need:

- Pre-pregnancy advice
- Joint specialist and maternity care

Think Sepsis

Almost a quarter of women who died had **Sepsis** (severe infection).

Women with sepsis need:

- Early diagnosis
- Rapid antibiotics
- Review by senior doctors and midwives

Prompt treatment and action can make the difference between life and death

Prevent Flu

1 in 11 of the women died from **Flu**

More than half of these women's deaths could have been prevented by a flu jab.

Flu vaccination will save mothers' and babies' lives

Causes of Death in women < 24 weeks UK & Ireland 2009-2014

Cause of death	Number of women	Percentage of women
Amniotic Fluid Embolism	1	0.5
Anaesthetic deaths	1	0.5
Pre-eclampsia and eclampsia	1	0.5
Sepsis	19	10.0
Thrombosis and thromboembolism	22	11.5
Cardiac disease	24	12.6
Mental health problems	24	12.6
Early pregnancy-related causes	12	6.3
Ectopic pregnancy	9	4.8
Legal termination of pregnancy	2	1.0
Self-attempted abortion	1	0.5
Haemorrhage	2	1.1
Neurology	22	11.5
Indirect deaths	29	15.1
Unascertained	1	0.5
Coincidental deaths	33	17.3
Total	**191**	**100**

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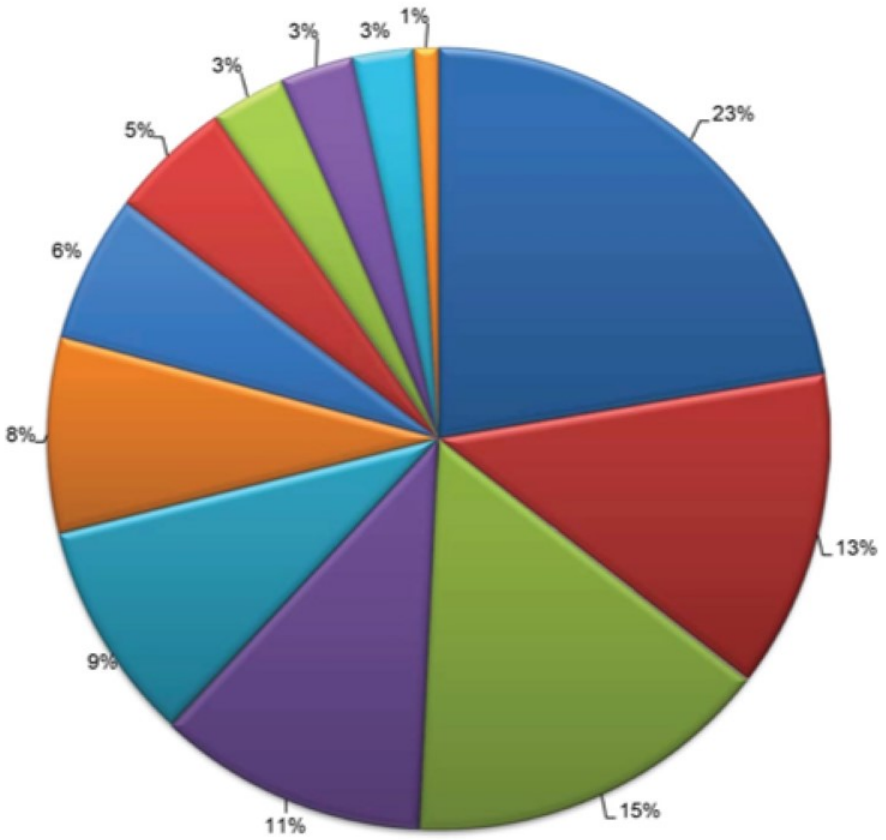
Conditions resulting in death

- **12 Deaths discussed here**
  - 9 women died as a result of ectopic pregnancies
  - 2 women died following legal termination of pregnancy
  - 1 woman died following a self-attempted abortion

- **7 Early deaths in other chapters**
  - 1 HELLP secondary to a molar pregnancy
  - 1 Cardiac death post termination
  - 2 Pulmonary Embolism after second trimester miscarriage
  - 3 Sepsis associated with miscarriage

Late maternal deaths UK 2012-14



- Coincidental - malignancy
- Cardiac disease
- Suicide
- Drug & alcohol / other psychiatric
- Other indirect deaths
- Indirect - malignancy
- Coincidental - others
- Neurology
- Thrombosis and thromboembolism
- Coincidental - homicide
- Indirect - sepsis
- Amniotic fluid embolism/early pregnancy death/ pregnancy related sepsis

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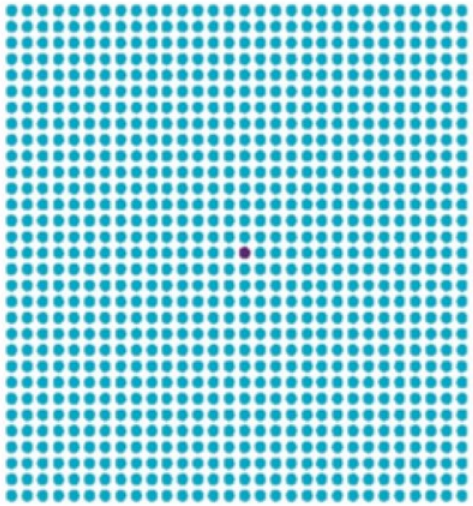
Direct Maternal Deaths 2012-14

- Thrombosis and thromboembolism the leading direct cause of death
  - 0.85 per 100,000 maternities
- Good care makes a difference

Less than **1 woman in every million** who gives birth now dies from **pre-eclampsia**



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Maternal Morbidity and Mortality Annual Report Topic Cycle

- **2014:** Surveillance of maternal deaths in the UK 2009-12. Confidential enquiries on sepsis morbidity and deaths, haemorrhage, AFE, anaesthetic, neurological, respiratory, endocrine and other indirect deaths in the UK and Ireland.
- **2015:** UK surveillance 2011-13. Lessons for care from confidential enquiries of maternal deaths due to psychiatric, thrombosis, malignancy, late and coincidental deaths.
- **2016 (This report):** UK Surveillance 2012-14. Confidential enquiries on pre-eclampsia and eclampsia, cardiac morbidity and mortality, early pregnancy mortality, lessons for critical care.
- **2017:** UK Surveillance 2013-15. Confidential enquiries on sepsis, haemorrhage, AFE, anaesthetic, neurological, respiratory, endocrine and other indirect deaths, morbidity from severe uncontrolled epilepsy and psychiatric morbidity.
- **2018:** UK surveillance 2014-16. Lessons for care from confidential enquiries of maternal deaths due to psychiatric, thrombosis, malignancy, late and coincidental deaths, morbidity from severe haemorrhage.

*Call for topics for 2019 morbidity enquiry open until 31/12/2016

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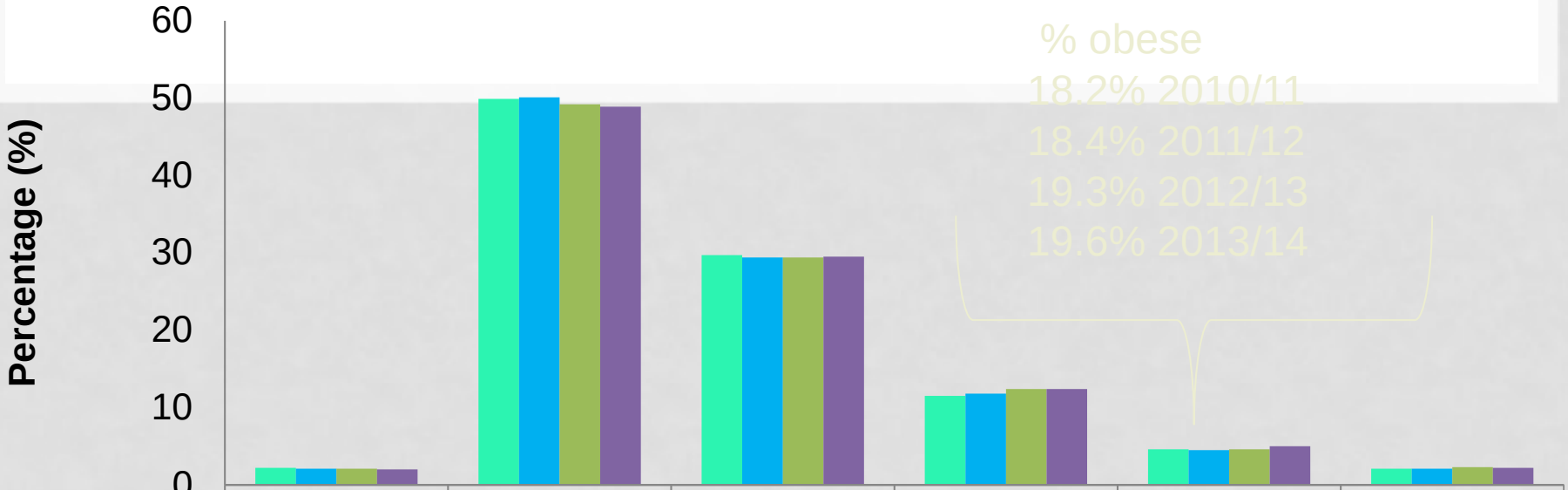
CO-EXISTING MEDICAL COMPLICATIONS

- Nearly three quarters of women who died had a co-existing medical complication
- There has been no significant change in the rate of indirect maternal death of the last ten years, when the rate of deaths from direct causes has halved
- The rate of indirect maternal deaths (6.87 per 100,000 maternities) is now twice that of direct deaths (3.25 per 100,000 maternities)

Actions are urgently needed to address deaths from indirect causes

*WEIGHT STATUS IN PREGNANCY, 2010/11- 2013/14



	underweight	healthy weight	overweight (25.0-29.99)	obese I (30-34.99)	obese II (35.0-39.99)	obese III (>=40)
2010/11	2.2	49.9	29.7	11.5	4.6	2.1
2011/12	2.1	50.1	29.4	11.8	4.5	2.1
2012/13	2.1	49.2	29.4	12.4	4.6	2.3
2013/14	2	48.9	29.5	12.4	5	2.2

Source: Results published in Children's health in Northern Ireland. Public Health Agency 2015.

LEARNING LESSONS TO IMPROVE CARE

- We owe it to those left behind to learn from the death of their mother, partner, daughter or friend and to make changes for the future to prevent other women from dying

Northern Irelands Regional Maternity Hand Held Record

Operational Guidance

Dr Briege M Lagan with
Ms Brenda Devine and
Ms Verena Wallace

HSC Health and Social Care

Antenatal VTE Risk Assessment – Booking

(Risk assessment to be completed at booking)

Name:

ID No:

ader

Antenatal assessment and management (to be assessed at booking and repeated if admitted)

Any previous VTE except a single event related to major surgery ☐

→ **HIGH RISK**
Requires antenatal prophylaxis with LMWH
Refer to trust-nominated thrombosis in pregnancy expert/ team

Hospital admission ☐
Single previous VTE related to major surgery ☐
High-risk thrombophilia + no VTE ☐
Medical comorbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy, nephrotic syndrome, type 1 DM with nephropathy, sickle cell disease, current IVDU ☐
Any surgical procedure e.g. appendicectomy ☐
OHSS (first trimester only) ☐

→ **INTERMEDIATE RISK**
Consider antenatal prophylaxis with LMWH

Obesity (BMI > 30 kg/m²) ☐
Age > 35 ☐
Parity ≥ 3 ☐
Smoker ☐
Gross varicose veins ☐
Current pre-eclampsia ☐
Immobility, e.g. paraplegia, PGP ☐
Family history of unprovoked or estrogen-provoked VTE in first-degree relative ☐
Low-risk thrombophilia ☐
Multiple pregnancy ☐
IVF/ART ☐

→ **Four or more risk factors: prophylaxis from first trimester**

Three risk factors: prophylaxis from 28 weeks

Fewer than three risk factors

Transient risk factors: Dehydration/hyperemesis; current systemic infection; long-distance travel ☐

→ **LOWER RISK**
Mobilisation and avoidance of dehydration

Weight	AN and PN prophylactic dose of LMWH
< 50 kg	20 mg OD
50 – 90 kg	40 mg OD
91 – 130 kg	60 mg OD
131 – 170 kg	80 mg OD (or 40 mg BD)
> 170 kg	0.6 mg / kg / day
Prophylaxis dose of LMWH prescribed	
Yes	☐ No

Total Risk Factor Score:

Comment:

Signature and Profession	Date	Time

pter

Antenatal VTE Risk Assessment – Booking

(Risk assessment to be completed at booking)

er

Risk assessment for venous thromboembolism (VTE)

- If total score ≥ 4 antenatally, consider thromboprophylaxis from the first trimester.
- If total score 3 antenatally, consider thromboprophylaxis from 28 weeks.
- If total score ≥ 2 postnatally, consider thromboprophylaxis for at least 10 days.
- If admitted to hospital antenatally consider thromboprophylaxis.
- If prolonged admission (≥ 3 days) or readmission to hospital within the puerperium consider thromboprophylaxis.

For patients with an identified bleeding risk, the balance of risks of bleeding and thrombosis should be discussed in consultation with a haematologist with expertise in thrombosis and bleeding in pregnancy.

Risk factors for VTE

Pre-existing risk factors	Tick	Score
Previous VTE (except a single event related to major surgery)		4
Previous VTE provoked by major surgery		3
Known high-risk thrombophilia		3
Medical comorbidities e.g. cancer, heart failure, active systemic lupus erythematosus, inflammatory polyarthropathy or inflammatory bowel disease, nephrotic syndrome, type 1 diabetes mellitus with nephropathy, sickle cell disease, current intravenous drug user		3
Family history of unprovoked or estrogen-related VTE in first-degree relative		1
Known low-risk thrombophilia (no VTE)		1*
Age (> 35 years)		1
Obesity		1 or 2*
Parity ≥ 3		1
Smoker		1
Gross varicose veins		1
Obstetric risk factors		
Pre-eclampsia in current pregnancy		1
ART/IVF (antenatal only)		1
Multiple pregnancy		1
Caesarean section in labour		1
Elective caesarean section		1
Mid-cavity or rotational operative delivery		1
Prolonged labour (> 24 hours)		1
PPH (> 1 litre or transfusion)		1
Preterm birth < 37[+0] weeks in current pregnancy		1
Stillbirth in current pregnancy		1
Transient risk factors		
Any surgical procedure in pregnancy or puerperium except immediate repair of the perineum, e.g. appendicectomy, postpartum sterilisation		1
Hyperemesis		1
OHSS (first trimester only)		1
Current systemic infection		1
Immobility, dehydration		1
TOTAL		

Abbreviations: ART assisted reproductive technology; IVF in vitro fertilisation; OHSS ovarian hyperstimulation syndrome; VTE venous thromboembolism.

*If the known low-risk thrombophilia is in a woman with a family history of VTE in a first-degree relative postpartum thromboprophylaxis should be continued for 6 weeks.

[+0] = 0; [+1] = 1; [+2] = 2

Antenatal VTE Risk Assessment – Hospitalised

(Risk assessment to be completed on EVERY admission)

Name:

ID No:

Antenatal assessment and management (to be assessed at booking and repeated if admitted)

Any previous VTE except a single event related to major surgery ☐

→ **HIGH RISK**
Requires antenatal prophylaxis with LMWH
Refer to trust-nominated thrombosis in pregnancy expert/team

- Hospital admission ☐
- Single previous VTE related to major surgery ☐
- High-risk thrombophilia + no VTE ☐
- Medical comorbidities e.g. cancer, heart failure, active SLE, IBD or inflammatory polyarthropathy, nephrotic syndrome, type I DM with nephropathy, sickle cell disease, current IVDU ☐
- Any surgical procedure e.g. appendicectomy ☐
- OHSS (first trimester only) ☐

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- Obesity (BMI > 30 kg/m²) ☐
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- Gross varicose veins ☐
- Current pre-eclampsia ☐
- Immobility, e.g. paraplegia, PGP ☐
- Family history of unprovoked or estrogen-provoked VTE in first-degree relative ☐
- Low-risk thrombophilia ☐
- Multiple pregnancy ☐
- IVF/ART ☐

→ **Four or more risk factors:** prophylaxis from first trimester

→ **Three risk factors:** prophylaxis from 28 weeks

→ **Fewer than three risk factors**

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BHSCT 11.16. Adapted from RCOG, 2015 GTG 37a

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†BMI ≥ 30 = 1; BMI ≥ 40 = 2

THANK YOU

QUESTIONS?