UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Medicine and Obsterics

Charlotte Patient

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

AIM

WHY AM I HERE?

WHY IS OBSTETRIC MEDICINE IMPORTANT TO YOU?

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Rosie Hospital 18/9/16

- Hypothyroid
- Type 1 DM on pump
- Porphyria
- Hereditary angiooedema
- Isolated ACH deficiency
- Left ventricular impairment
- Cardiac transplant

Cambridge Perinatal Group

- Key messages
- Review CMT curriculum
- Framework for considering medical disorders
- Acute medicine
- Chronic disease

Message 1

Sick

PREGNANT

Woman

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

SICK WOMAN

(who happens to be pregnant)

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Why do things go wrong in pregnancy?

- Increased anxiety from mothers
- Increased anxiety from healthcare professionals
- Lack of investigation
- Undertreatment

Cambridge Perinatal Group

Asthma

- Inhaled corticosteroids↓ 23%
- Inhaled Beta agonists ↓ 13%
- Oral corticosteroids ↓ 54%

- NO evidence any risk in pregnancy

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Message 2

- Can't = no contraception = ANC
- Shouldn't = effective contraception
- Effective contraception = LARC
- Folic acid

Cambridge Perinatal Group

Message 3

- Rule of thirds
- Think about risk/benefit ratio
- Is there a safer option?

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

CMT curriculum

- Outline the normal physiological changes occurring during pregnancy
- Demonstrate awareness of the impact of long term conditions in relation to maternal and foetal health e.g. Diabetes
- List the common medical problems occurring in pregnancy
- Identify the unique challenges of diagnosing medical problems in pregnancy
- Safe prescribing practices in pregnancy
- Demonstrate awareness of pregnancy related illness, e.g. eclampsia

Cambridge Perinatal Group

Demonstrate awareness of the impact of long term conditions in relation to maternal and foetal health e.g. Diabetes

Maternal Mortality and Morbidity

- Confidential Enquiry since 1952

CEMACH

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

UKOSS
UK Obstetric Surveillance System

Cambridge Perinatal Group

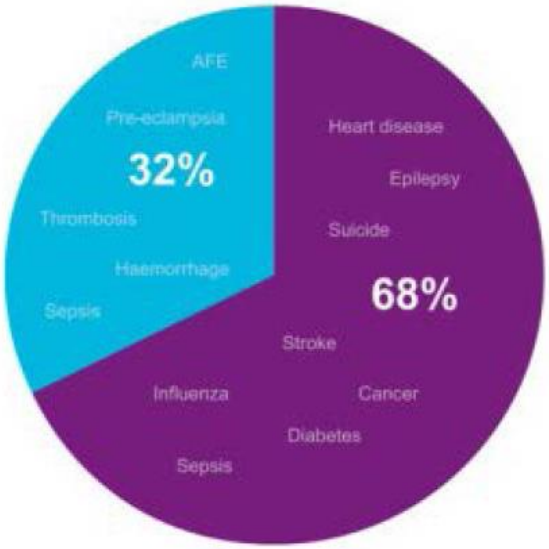
UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Maternal Mortality 2009-2012

Causes of mothers' deaths

Two thirds of mothers died from medical and mental health problems in pregnancy and **only one third** from direct complications of pregnancy such as bleeding.



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

- Pre-pregnancy advice
- Joint specialist and maternity care

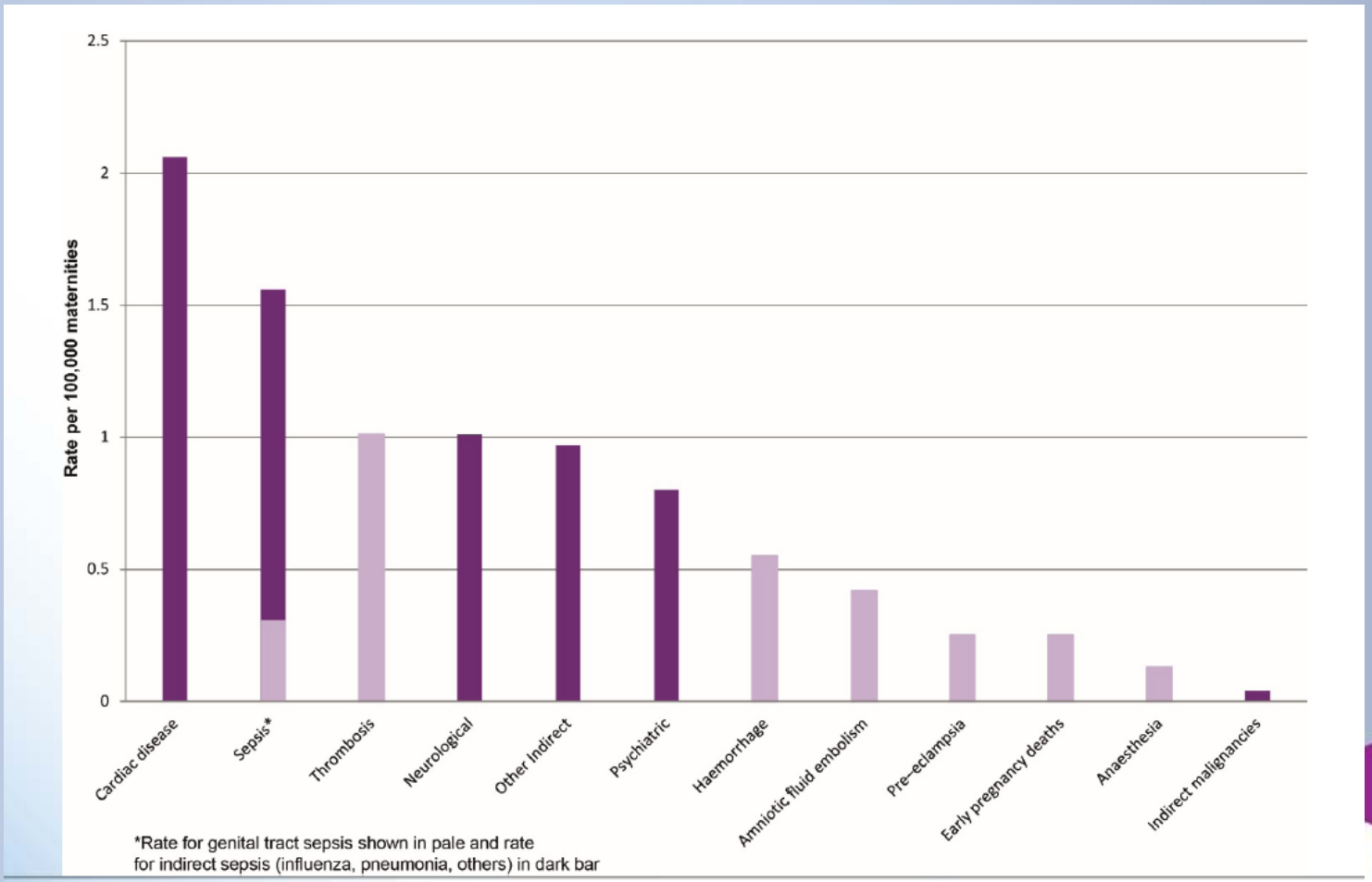
Cambridge Perinatal Group

- Maternal deaths from indirect causes are still not being addressed. There has been no significant change in the rate of indirect maternal death over the last 10 years, a time during which direct maternal deaths have halved. This needs action across a wide range of health services and not just maternity services including public health, primary and secondary care. There is a need to train physicians in pregnancy medicine and to recognise obstetric medicine as an essential specialty.

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Causes of death



Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Maternal Mortality 2011-13

Overall there has been a statistically significant decrease in the maternal death rate between 2009-12 and 2011-13 in the UK. Maternal death rates from direct causes continue to decrease, but indirect maternal death rates remain high with no significant change in the rate since 2003.

Coordinated action across a wide range of health services is required to address this problem

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Perinatal mortality

- Maternal age
- Obesity
- Prematurity
- Medical conditions

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

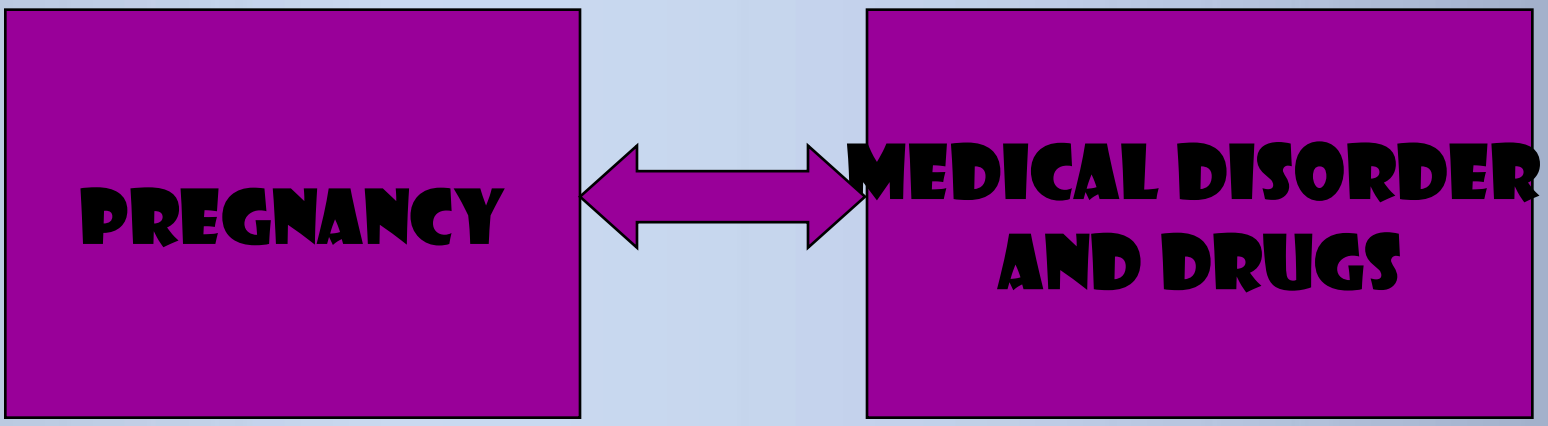
List the common medical problems occurring in pregnancy

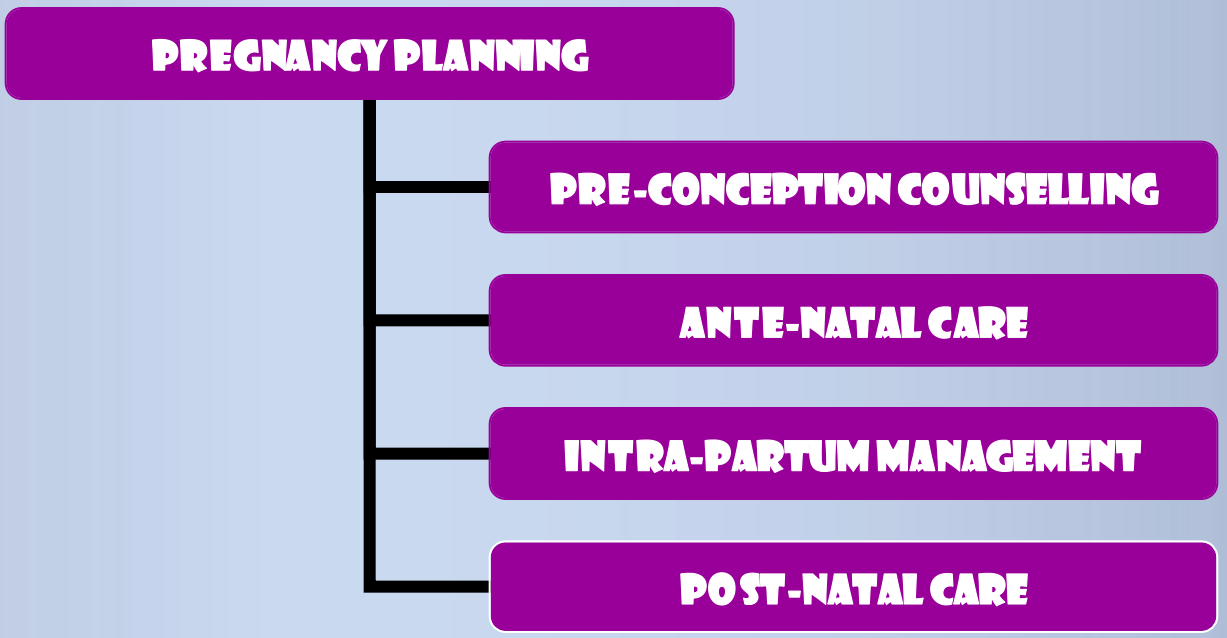
Cambridge Perinatal Group

- Pre-existing
  - Asthma
  - Epilepsy
  - Hypertension
  - Diabetes
  - Thyroid
  - SLE / CTD
  - Renal
  - Cardiac

- Pregnancy-specific
  - Pre-eclampsia
  - Thromboembolism
  - Gestational diabetes
  - Obstetric cholestasis
  - Hyperemesis
  - Acute fatty liver of preganancy

Framework




PREGNANCY PLANNING
PRE-CONCEPTION COUNSELLING
ANTE-NATAL CARE
INTRA-PARTUM MANAGEMENT
POST-NATAL CARE

Identify the unique challenges of diagnosing medical problems in pregnancy

Safe prescribing practices in pregnancy

What is not safe Investigations

- Minimise radation - think
- Avoid irradiating abdomen
- Probably avoid contrast

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

What is not safe Drugs

Cambridge Perinatal Group

What is better avoided

- New drugs
- Antibiotics –quinolones, tetracyclines, aminoglycosides **AUGMENTIN**
- Cytotoxics
- ACEI/ARBS
- Statins
- Warfarin

Demonstrate awareness of the impact of long term conditions in relation to maternal and foetal health e.g. Diabetes

Demonstrate awareness of pregnancy related illness, e.g. eclampsia

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

CASES

ACUTE MEDICINE

Cambridge Perinatal Group

Case 1

- 32 year old lady, second pregnancy, 22/40
- Overweight – 80kg
- Asthmatic – not taking regular inhalers
- Sudden onset left sided pleuritic chest pain last night
  - "Whilst picking 18 month old toddler up"
- Now SOBOE
- Exam
  - SOB transferring to trolley
  - Pulse 110, BP 106/62, RR 22, Sats 96% (Air)
  - JVP not elevated
  - Chest clear
  - Calves SNT

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Case 1

- Which of the following is/are appropriate?
  - D-dimers
  - CXR
  - Leg dopplers
  - Dalteparin 8000u bd
  - Dalteparin 12000u od
  - V/Q
  - CTPA

Cambridge Perinatal Group

Diagnosis

- DVT
  - Doppler U/S
- PE
  - CXR
  - V/Q Lung scan
  - CTPA
  - D-DIMERS ARE NOT USEFUL!!

Radiation Exposure

	mSv	mGy
CXR	0.1	<0.01
Perfusion scan	0.4	<0.8
Ventilation scan	0.4	<0.1
CT Pulmonary Angiogram	7	<0.13
Maximum Recommended		5

Background radiation exposure: 3mSv/ year

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

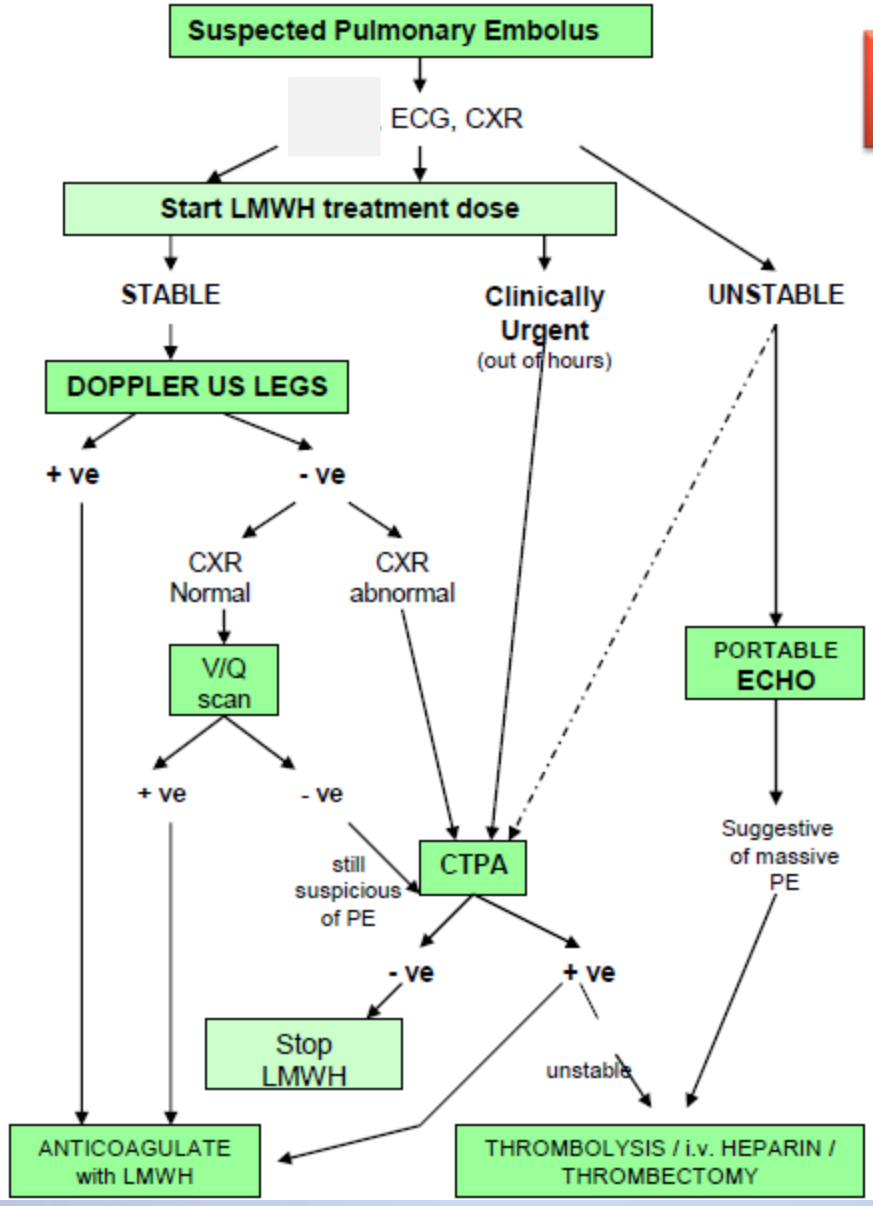
Consenting patients for investigation

- Risk of fatal childhood cancer to age 15 following in utero radiation exposure:
  - Slightly increased risk with V/Q (1/280,000) versus CTPA (<1/1000,000)

- Risk of maternal breast cancer:
  - Lower risk of maternal breast cancer with V/Q
  - Radiation to mother's breasts = 70-100 x greater than V/Q
  - Effective radiation dose per breast = 10-70mGy with CTPA
  - Hence CTPA associated radiation increases lifetime risk of developing breast cancer by 13.6% above her background risk.

Cambridge Perinatal Group

Investigation of suspected PE in pregnancy



Treatment of acute PE in pregnancy

- LMWH given until diagnosis excluded
- Give daily in TWO s/c divided doses
- Dose titrated against patient weight:

	Early pregnancy weight (kg)			
	<50	50-69	70-89	>90
Dalteparin	5000 units bd	6000 units bd	8000 units bd	10,000 units bd

- Thrombolysis
  - Should NOT be withheld in massive PE with haemodynamic instability.

Case 2

- 29 year old , first pregnancy 33 weeks pregnancy
- comes to the ED complaining of abdominal pain and vomiting.
- No diarrhoea, no other symptoms
- Good fetal movements

- O/E- looks dry, P80, BP 140/95, Resps 16, T 37.4

Differential Diagnosis

- Pregnancy related
  - PET.HELLP. AFLP.
  - Labour
  - Hyperemesis
- Non-pregnancy related
  - Gastroenteritis
  - appendicitis
- Sepsis

Investigations

- Urinalysis
- FBC, Renal function, liver function
- Stool sample
- Blood cultures, CRP
- USS???

- Pre-eclampsia – pregnancy specific syndrome characterised by a variable degree of placental dysfunction and a maternal response featuring systemic inflamation

- HELLP – haemolysis, elevated liver enzymes, low platelets (probably variation of PET)

- Headache, visual disturbance, epigastric pain
- Often asymptomatic
- Raised ALT, low platelets, raised creatinine

Pregnancy and blood tests

- Haemodilution
  - Hb, Urea, Creatinine, albumin, ALT
- Pregnancy specific changes
  - Placental alk phos, gestational thrombocytopaenia,
- Inflammatory state
  - Raised WCC, ESR, CRP
- Some things don't change
  - K, Na

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Case 3

- 28 year old lady, first pregnancy, 26/40
- Fit and well – still cycling to work
- Palpitations, lightheaded

- Exam
  - Pulse 180, BP 100/60, RR 20, Sats 99% (2l O2)

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Case 3 - ECG

Management?

Cambridge Perinatal Group

SVT - treatment

- Vagal maneouvres - safe
- Adenosine – safe:
  - 1st line pharmacological treatment. Dose 6-18mg IV
  - Effective in terminating >90% SVT
- Verapamil –"safe": (NOT WPW)
  - 2nd line pharmacological treatment. Dose 5-10mg IV over 3-5 minutes
- DC Cardioversion if unstable

SVT in pregnancy

- SVT commonest arrhythmia in women of reproductive age

- Pregnancy identified as a risk factor for SVT
  - Increased sympathetic activity
  - Expanded circulating volume – increase myocardial irritability
  - ?Oestrogens heighten cardiac excitability

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

CASES

CHRONIC DISEASE

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Diabetes

Cambridge Perinatal Group

- A is a 25 year old Type 1 diabetic. She has been diabetic since age 8. She has had one previous uncomplicated pregnancy and wishes to have another child. She has been trying to conceive unsuccessfully for 18 months and has been found to be anovulatory. She has been referred by her GP to the infertility clinic. Her most recent HbA1C was 119 mmol/mol (13%)
- What other information would you like?
- How would you advise her at the infertility clinic?
- How would you advise at a prepregnancy clinic?

- Infertility clinic- refuse to treat
- Other complications of diabetes- renal, eyes, neuro, vascular

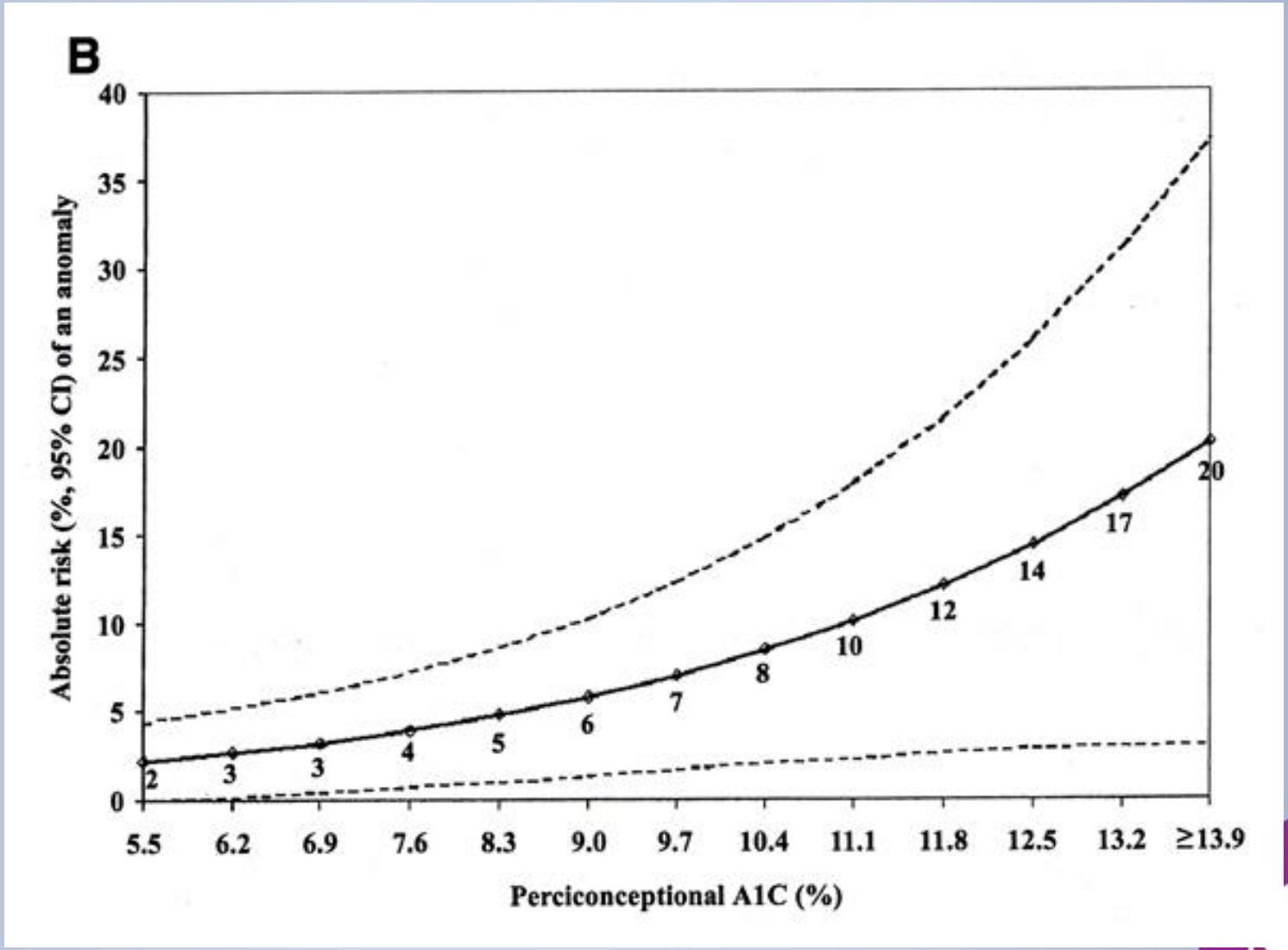
- Improving control
- Review medication
- Folic acid (5mg)
- Hypo awareness
- Multidisciplinary care

- NICE – HbA1C <48mmol/mol (6.5%)
- miscarriage
- congenital malformation
- fetal macrosomia
- birth trauma (to mother and baby)
- induction of labour or caesarean section
- stillbirth
- transient neonatal morbidity
- neonatal death
- obesity and/or diabetes developing later in the baby's life.

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

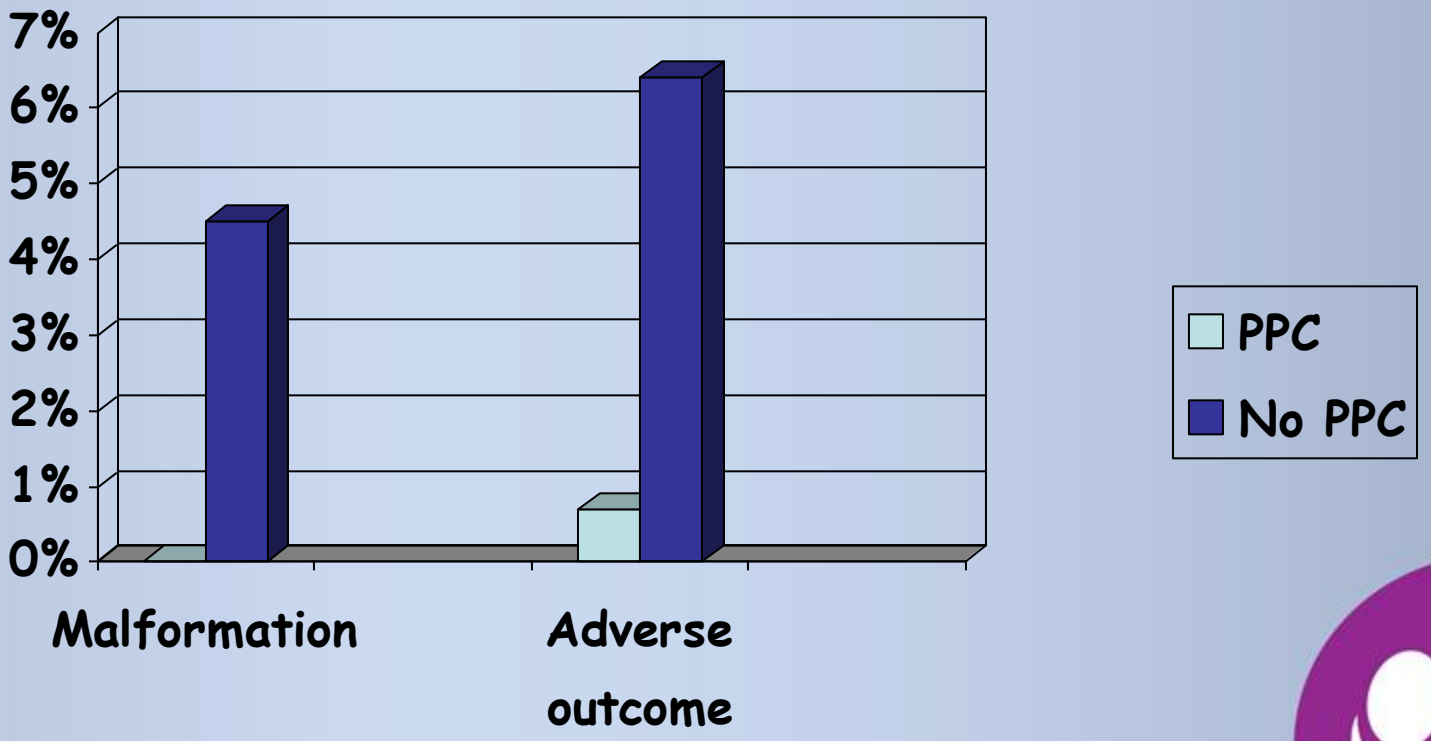
HbA1C and malformation



Cambridge Perinatal Group

Adverse outcome in women with and without prepregnancy care (T1 & T2DM)

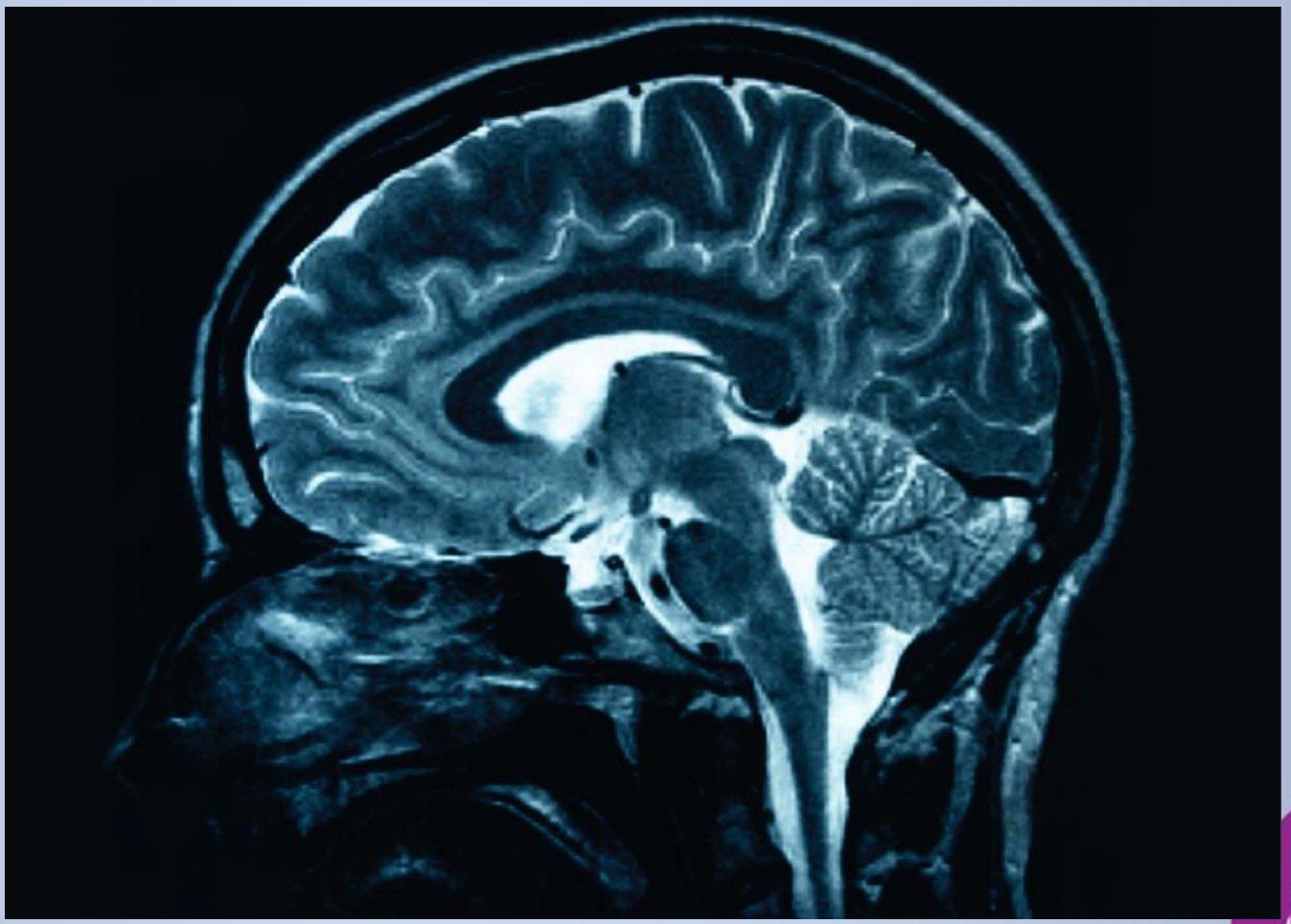
1 in 15 women without PPC have an adverse outcome versus 1 in 150 with PPC



UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Epilepsy



Cambridge Perinatal Group

- C is a 19 year old with known epilepsy who presents to your clinic with an 8 week history of amenorrhea and a positive pregnancy test. Her epilepsy is well controlled on Lamotrigine. She remembers being told that epilepsy drugs are bad in pregnancy and wants to know what to do.

- How are you going to advise her?

- What might you have advised her if you had seen her before she got pregnant?

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Anti-Epileptic Drugs

- 2-3 fold increase in risk of major malformations on AEDs
  - Heart defects
  - Neural Tube defects
  - Urogenital defects
  - Orofacial clefts

- Increased risk with Valproate
- Increased risk with polytherapy

Cambridge Perinatal Group

UNIVERSITY OF CAMBRIDGE

Cambridge University Hospitals NHS
NHS Foundation Trust

Effect of seizures

- Risks of Tonic-Clonic Seizures
  - Fetal Hypoxia
  - Fetal Intracranial haemorrhage
  - Fetal loss
  - Maternal Injury
- Risks of uncontrolled seizures outweigh risks of medication

Cambridge Perinatal Group

Pre-pregnancy Counselling

- Optimise medication
  - Monotherapy
  - Doses / Administration
  - ? Stop
- Discuss risks of medication & pregnancy
- Risks of child having epilepsy
- Folic Acid (5mg / day)