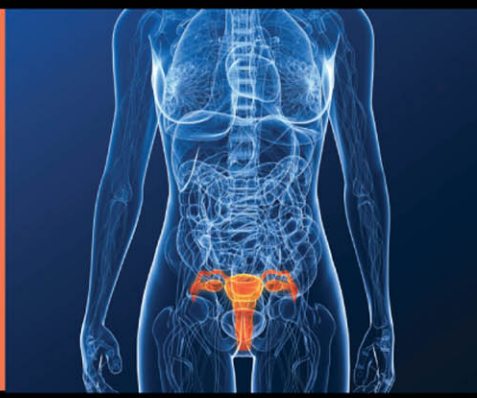
Obstetrics, Gynaecology and Women's Health

on the move



Authors: Amie Clifford, Claire Kelly and Christopher Yau
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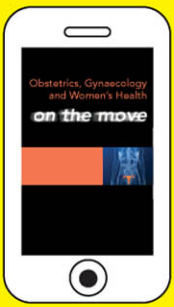

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Preface

Obstetrics and Gynaecology is a challenging specialty encompassing aspects of both medicine and surgery. It requires a considerable knowledge base, and presents a unique array of problems, which can prove daunting for both medical students and junior doctors alike.

Our challenge with this book was to try to present these fascinating but difficult subjects in an informative, yet accessible way. We have therefore tried to keep the text as concise as possible, and included many flow diagrams and summary tables. We hope that this approach will help you connect with the topics and make them easier to understand.

Unlike many books dealing with Obstetrics and Gynaecology, we have also included a chapter on breast diseases. As such, we hope that this book will offer you a comprehensive overview of women's health as a whole.

Whether you are a medical student studying women's health, or a junior doctor working in Obstetrics and Gynaecology, we hope this book will support you in your study and your work.

Finally, we would welcome any feedback or suggestions for improvements you may have. Please feel free to contact us.

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Finally we would like to extend our heartfelt thanks to all our families and friends for the support they have given during the writing of this book.

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List of abbreviations

- AED: anti-epileptic drug
- AIDS: acquired immunodeficiency syndrome
- APH: antepartum haemorrhage
- ARM: artificial rupture of membranes
- b.p.m.: beats per minute
- BMI: body mass index
- BP: blood pressure
- BSO: bilateral salpingo-oophorectomy
- BV: bacterial vaginosis
- CIN: cervical intra-epithelial neoplasia
- CMV: cytomegalovirus
- CNS: central nervous system
- COCP: combined oral contraceptive pill
- COPD: chronic obstructive pulmonary disease
- CSF: cerebrospinal fluid
- CT: computed tomography
- CTG: cardiotocography
- CVS: chorionic villus sampling
- D&E: dilation and evacuation
- DCDA: dichorionic, diamniotic
- DIC: disseminated intravascular coagulation
- DUB: dysfunctional uterine bleeding
- DVT: deep vein thrombosis
- ECV: external cephalic version
- EDD: estimated date of delivery
- EGFR2: epidermal growth factor receptor 2
- ER: oestrogen receptor
- FBC: full blood count
- FHR: fetal heart rate
- FSH: follicle-stimulating hormone
- FT_3/FT_4: free thyroid hormones
- GBS: group B *Streptococcus*
- GFR: glomerular filtration rate
- GnRH: gonadotrophin-releasing hormone
- GSI: genuine stress incontinence
- GTD: gestational trophoblastic disease
- GTN: gestational trophoblastic neoplasia
- Hb: haemoglobin
- HbA_{1c}: haemoglobin A_{1c}

- hCG: human chorionic gonadotrophin
- HELLP: haemolysis, elevated liver enzymes and low platelets
- HER2: human epidermal growth factor receptor 2
- HIV: human immunodeficiency virus
- HMB: heavy menstrual bleeding
- HPO: hypothalamic–pituitary–ovarian
- HPV: human papillomavirus
- HRT: hormone replacement therapy
- HSG: hysterosalpingogram
- HSV: herpes simplex virus
- IBS: irritable bowel syndrome
- IM: intramuscularly
- IMB: inter-menstrual bleeding
- iu: international units
- IUCD: intra-uterine coil device
- IUGR: intra-uterine growth restriction
- IUS: intra-uterine system
- IVF: *in vitro* fertilization
- LFT: liver function test
- LH: luteinizing hormone
- LMP: last menstrual period
- LSCS: lower segment caesarean section
- MCDA: monochorionic, diamniotic
- MCMA: monochorionic, monoamniotic
- MDT: multidisciplinary team
- MMR: measles, mumps and rubella vaccine
- MRI: magnetic resonance imaging
- NICE: National Institute for Health and Clinical Excellence
- NSAID: non-steroidal anti-inflammatory drug
- NT: nuchal translucency
- OA: occiput anterior
- OP: occiput posterior
- OT: occiput transverse
- PCOS: polycystic ovary syndrome
- PE: pulmonary embolus
- PID: pelvic inflammatory disease
- PMS: pre-menstrual syndrome
- POP: progesterone-only pill
- PPH: postpartum haemorrhage
- PPROM: pre-term/pre-labour rupture of membranes
- PRN: *pro re nata*
- PV: per vaginum
- RMI: risk malignancy index

- SFH: symphysis–fundal height
- SHBG: steroid hormone-binding globulin
- SROM: spontaneous rupture of membranes
- STI: sexually transmitted infection
- SUI: stress urinary incontinence
- T_4: thyroxine
- TAH: total abdominal hysterectomy
- TENS: transcutaneous electrical nerve stimulation
- TNM: tumour–node–metastasis staging system
- TSH: thyroid-stimulating hormone
- TTTS: twin-to-twin transfusion syndrome
- TVS: transvaginal ultrasound scan
- TVT: tension-free vaginal tape
- TVT-O: transobturator tape
- USS: ultrasound scan
- UTI: urinary tract infection
- VIN: vulval intra-epithelial neoplasia
- VTE: venous thromboembolic disease

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An explanation of the text

The book is divided into four parts: obstetrics, gynaecology, women's health and a self-assessment section. We have used bullet-points to keep the text concise and brief and supplemented this with a range of diagrams, pictures and MICRO-boxes (explained below).

MICRO-facts
These boxes expand on the text and contain clinically relevant facts and memorable summaries of the essential information.

MICRO-print
These boxes contain additional information to the text that may interest certain readers but is not essential for everybody to learn.

MICRO-case
These boxes contain clinical cases relevant to the text and include a number of summary bullet points to highlight the key learning objectives.

MICRO-reference
These boxes contain references to important clinical research and national guidance.

Normal range values are given for most tests in this book as a guideline for your knowledge. Please note that ranges differ between laboratories and therefore you should always use figures from your own institution to interpret results.

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Part I

Obstetrics

1 Obstetrics: history and examination

1.1 GENERAL PRINCIPLES

DEFINITIONS

- Gravidity:
  - This is the total number of pregnancies.
  - This includes the current pregnancy and any miscarriages, ectopic pregnancies or terminations.
  - A **primigravida** is a woman in her first pregnancy.
  - A **nulligravida** has never been pregnant.
  - A **multigravida** has been pregnant more than once.
- Parity:
  - This is expressed as $X + Y$, where X is the number of deliveries after 24 weeks, whether alive or stillbirth, and Y is the total number of miscarriages, ectopic pregnancies and terminations.
  - A **nulliparous** woman has not delivered a baby (beyond 24 weeks' gestation).
  - A **primiparous** woman has delivered a baby once (beyond 24 weeks' gestation).
  - A **multiparous** woman has delivered more than one baby (beyond 24 weeks' gestation).

MICRO-facts

In practice, although they are not equivalent terms, '**primiparous**' or '**primip**' is often used interchangeably with 'primagravida' to refer to a woman in her first pregnancy.

- A twin pregnancy counts as a single pregnancy for gravidity but gives a parity of two.

MICRO-facts

Jane is pregnant. She has two children, which she delivered at term, and previously had one miscarriage at 14 weeks.

- She is **gravida** 4, **para** 2 + 1, or G4 P2 + 1.

Mary is pregnant with twins. She has had two previous miscarriages, one at 10 weeks and another at 12 weeks.

- She is **gravida** 3, **para** 0 + 2, or G3 P0 + 2.

1.2 OBSTETRIC HISTORY

PERSONAL DETAILS

- Age.
- Gestation: how many weeks?
- Gravidity and parity.

PRESENTING COMPLAINT

- For example, abdominal pain, bleeding, nausea and vomiting.

CURRENT PREGNANCY

- Last menstrual period (LMP) and estimated date of delivery (EDD).
- Planned or unplanned?
- Spontaneous or assisted pregnancy (e.g. *in vitro* fertilization)?
- Menstrual history, including cycle length.
- Contraceptive history.
- Antenatal history:
  - complications;
  - attendance at antenatal appointments;
  - abnormal test/scan results;
  - midwife/consultant-led care.

MICRO-facts

Naegele's rule

For a woman with a 28 day menstrual cycle, the estimated date of delivery (EDD) is calculated by:

(Last menstrual period (LMP) – 3 months) + 7 days + 1 year

To correct for cycles longer or shorter than 28 days, **add** or **subtract** the difference from 28 days to the EDD, e.g.

LMP = 1/1/2011 in a woman with 30 day cycles; EDD = 10/10/2011

Obstetric 'wheels' are also used to quickly calculate the EDD.

PAST OBSTETRIC HISTORY

- For each pregnancy:
  - When did it occur (year)?
  - Did it result in a live birth?
  - What was the gestation (i.e. the length of that pregnancy)?
  - What was the mode of delivery, e.g. vaginal, caesarean section, etc.?
  - What was the birthweight and sex of the baby?
  - Were there any antenatal, intra-partum or post-natal maternal and fetal complications?
  - Does the child have any health problems?
- History of terminations/miscarriages/ectopic pregnancies:
  - At what gestation did it occur?
  - What was the management and were there any complications?
  - What was the indication for any terminations?
- Rhesus status and anti-D vaccinations.

MICRO-facts

A personal and family history of the following should be recorded:

- heart disease;
- hypertension and pre-eclampsia;
- diabetes;
- renal disease;
- jaundice;
- epilepsy;
- venous thromboembolic disease;
- thrombophilia;
- psychiatric disorders.

PAST GYNAECOLOGICAL HISTORY

See 10.1 History in Chapter 10, Gynaecology: history and examination.

CERVICAL SMEAR HISTORY

- Up-to-date with screening? Date of last smear.
- History of abnormal smears, including their investigation and management.

PAST MEDICAL AND SURGICAL HISTORY

- Operations.

DRUG HISTORY

- Current medications.

- Recreational drug use.
- Did the patient take folic acid supplementation?

ALLERGIES

- To anything, e.g. drug, foodstuff or latex.
- Elicit exactly what the reaction was.

FAMILY HISTORY

- Congenital abnormalities.

SOCIAL HISTORY

- Who does the woman live with?
- Type of accommodation.
- Does she have a supportive partner? If not, who will give her support?
- Occupation.
- Smoking and alcohol history.

1.3 EXAMINATIONS

GENERAL EXAMINATION

- General appearance.
- Measure weight and height; calculate body mass index.
- Blood pressure.
- Oedema: facial, sacral, palmar or pedal.
- Signs of anaemia.
- Dipstick the urine for glycosuria and proteinuria.

MEDICAL EXAMINATION

- If clinically indicated, e.g. optic fundi in a hypertensive patient.

OBSTETRIC EXAMINATION

MICRO-facts

Positioning for the obstetric examination:

- semi-recumbent;
- exposed from the lower chest to below the hips;
- cover the woman's lap with a sheet.

- **Inspection**:
  - Abdominal distension:
    - Size and symmetry.

- Linea nigra:
  - A dark line of hyperpigmented skin visible in the midline of the abdomen from the umbilicus to the pubis.
  - It is common during pregnancy.
- Striae gravidarum or 'stretch marks' are also common.
- Scars:
  - For example, caesarean section (lower segment or vertical incision), laparotomy, laparoscopy.
- Umbilicus:
  - Is it everted? This may suggest polyhydramnios or multiple gestation.
- Fetal movements (may be seen after 24 weeks).

- **Palpation**:
  - The uterus may be palpable abdominally at 12–14 weeks:
    - The height of the fundus increases with gestation (see Fig. 1.1).
  - To measure the symphysis–fundal height (SFH):
    - Feel for the fundus as shown in Fig. 1.2a using the ulnar side of your hand.
    - Palpate the upper border of the symphysis pubis.
    - Measure from the symphysis pubis to the top of the fundus using a tape measure with the markings face down.Turn over the tape. Record the measurement on a SFH chart (in centimetres).

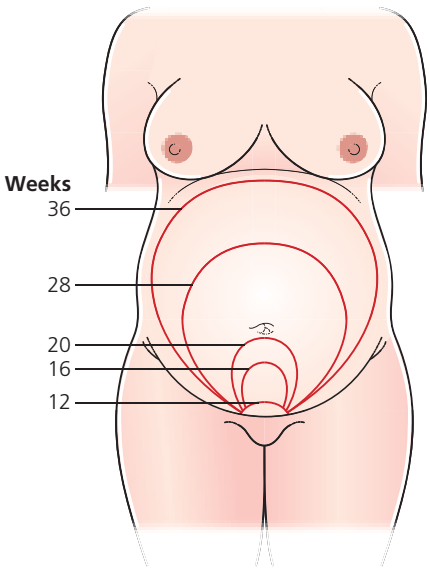


Fig. 1.1 Palpating the size of the uterus can be used to estimate gestation.

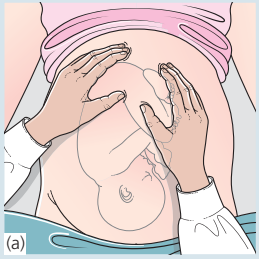
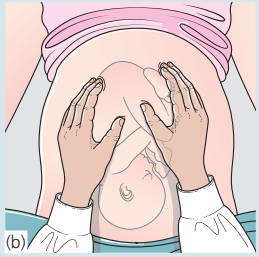
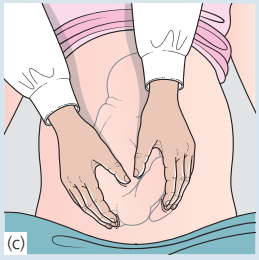
<table>
<tr><th colspan="2">(a) Palpate the fundus</th><th colspan="2">(b) Examine the fetal parts</th></tr>
<tr>
<td> 
</td>
<td>• Face the woman's head
• Use the ulnar border of your hand to palpate the fundus
• Determine which fetal part is at the fundus: usually the head or buttocks (breech)
• A head is hard and ballotable
• A breech is softer and cannot be balloted</td>
<td> 
</td>
<td>• Face the woman's head
• With the flat of one hand, apply pressure to one side of the uterus
• On the opposite side use the flats of your fingers to palpate the fetal parts. Perform for both sides
• Can you feel more than one head and one breech? Suspect multiple gestation
• Confirm the lie and determine which side the fetal back is
• Judge the liquor volume
• Feel for fetal movements</td>
</tr>
<tr><th colspan="2">(c) Determine the presentation</th><th colspan="2">(d) Determine whether the presenting part is engaged</th></tr>
<tr>
<td> 
</td>
<td>• Face the woman's feet
• Use both hands to palpate above the symphysis pubis
• Determine which part of the fetus is lowest: usually the head or breech.</td>
<td colspan="2">• Palpate as shown in part (c) to determine if the presenting part is mobile
• If it is mobile, it is not engaged
• For a cephalic presentation, use the fingers of your hand to estimate how many fifths of the head you can feel abdominally
• If two finger breadths or less is palpable, the head is engaged</td>
</tr>
</table>

Fig. 1.2 (a–d) Palpating the fetal parts.

MICRO-facts

After 24 weeks' gestation the symphysis–fundal height (SFH) (in cm) should equal the gestation (in weeks) ± 2 cm. If the SFH is larger than expected, it is known as '**large for dates**' and may be due to:

- macrosomia;
- multiple gestation;
- polyhydramnios.

A smaller SFH than expected is called '**small for dates**'. This may be due to:

- intra-uterine growth restriction;
- oligohydramnios.

- Palpating the fetal parts. Use the four steps shown in Fig. 1.2 to determine the:
  - lie;
  - liquor volume;
  - presentation;
  - engagement.
- **Lie**:
  - The relationship of the longitudinal axis of the fetus (i.e. its spine) to the longitudinal axis of the uterus.

Table 1.1 Types of lie.

LIE	DEFINITION	PRESENTATION
Longitudinal (see Fig. 1.3a)	Fetal spine is parallel to long axis of the uterus	Cephalic or breech
Transverse (see Fig. 1.3b)	Fetal spine is at 90° to the long axis of the uterus	Presenting part will be the arm/shoulder/trunk
Oblique (see Fig. 1.3c)	Fetus lies diagonally across the uterus	This is unstable, and may revert to longitudinal or transverse lie

- **Liquor volume**:
  - This is judged by how easily the fetal parts are palpated.
  - Oligohydramnios: there is little liquor; therefore, the fetal parts may be easier to palpate.
  - Polyhydramnios: there is excess liquor; it may be difficult to palpate the fetal parts. Depending on the severity of polyhydramnios, the fetus may be ballotable. Fig. 1.3

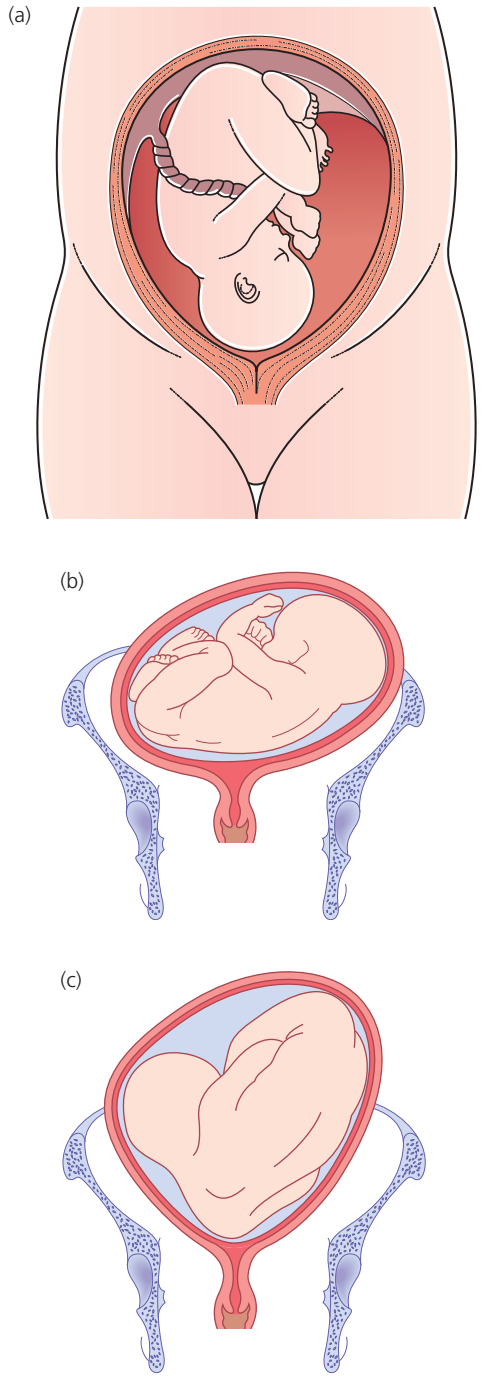


Fig. 1.3 (a) Longitudinal, (b) transverse and (c) oblique lie.

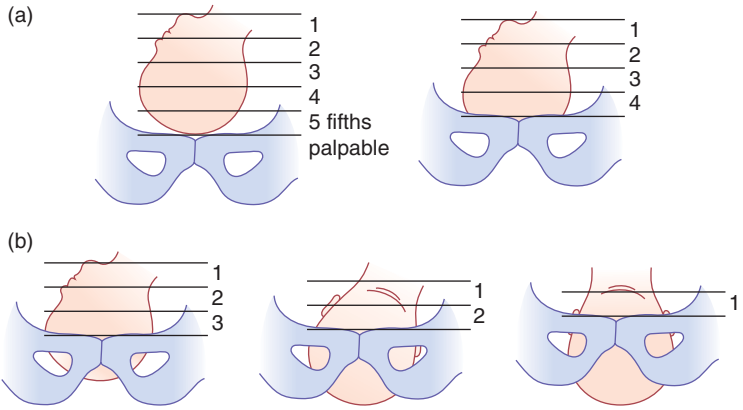


Fig. 1.4 Palpation of the fetal head to assess engagement.

- **Presentation**:
  - The part of the fetus that occupies the lower part of the uterus or the pelvis.
  - Since the lie is most commonly longitudinal, this is usually **cephalic** (head) or **breech** (buttocks).
- **Engagement (see Fig. 1.4)**:
  - This is a measure of how far the fetus has descended into the pelvis.
  - Usually it is only used for cephalic presentations.
  - The fetus is 'engaged' when the widest diameter of the presenting part is through the pelvic brim.
  - Since the size of the fetal head is roughly the same as the examiner's hand, fingers can be used to estimate the fifths of the head palpable.
  - The head is engaged when two finger breadths or less is palpable abdominally.
  - In a primigravida this usually occurs by 37 weeks. In multiparous women it may not occur until the onset of labour.

- **Auscultation**:
  - Listen over the fetal anterior shoulder (between the fetal head and the mother's umbilicus) with a hand-held Doppler device.

MICRO-facts

A normal fetal heart rate is **110–160** b.p.m. and **regular**.

2 Antenatal care

2.1 INTRODUCTION

AIMS OF ANTENATAL CARE

- To improve maternal and fetal health and prevent disease.
- To screen for and manage fetal and maternal disease.
- To educate and support the pregnant woman and her family.
- To plan for labour.

MIDWIFE AND GP VS. OBSTETRICIAN-LED CARE

- Midwives and GPs can manage uncomplicated pregnancies.
- Common indications for obstetrician-led care include:
  - Medical:
    - hypertensive disease;
    - diabetes (insulin dependent).
  - Older women (over 40 years).
  - Previous caesarean section.
  - Previous complicated pregnancy.
- A full list can be found in the National Institute for Health and Clinical Excellence guidelines.

MICRO-reference
National Institute for Health and Clinical Excellence. Antenatal care: routine care for the healthy pregnant woman. NICE Clinical Guidance 62. London, UK: NICE, 2008. Available at http://guidance.nice.org.uk/CG62

2.2 ADVICE IN PREGNANCY

GENERAL ADVICE

- Work:
  - Assess potential occupational risk factors, e.g. exposure to radiation.

- Supplementation:
  - Advise daily folic acid (400 µg): pre-conception to 12 weeks' gestation.
  - Identify women at high risk of vitamin D deficiency.
  - Avoid vitamin A supplements:
    - high intake during early pregnancy is teratogenic.

MICRO-facts

Folic acid reduces the risk of neural tube defects, e.g. spina bifida.

- Food:
  - Avoid liver (high vitamin A).
  - To reduce the risk of listeriosis, avoid:
    - unpasteurized milk and soft cheese;
    - undercooked food;
    - pâté.
  - To reduce the risk of *Salmonella*, avoid:
    - raw or partially cooked eggs and meat.
- Alcohol:
  - **Pre-conception to 3 months**:
    - avoid alcohol completely owing to the increased risk of miscarriage.
  - **3 months to term**:
    - the maximum safe limit is one or two units once or twice a week.
  - Avoid binge-drinking (>7.5 units at one time).
- Prescribed and over-the-counter drugs:
  - Women should be advised to seek advice from a pharmacist before taking medicines.
- Give smoking cessation advice.
- Exercise:
  - Encourage moderate exercise, including specific pelvic floor exercises.
  - Advise the woman to avoid high-impact or contact sports and scuba diving.
- Travel:
  - Pregnant women should wear a seatbelt 'above and below the bump, not over it'.
  - The safety of flying changes throughout pregnancy: pregnant women should discuss any air travel with their midwife.
  - Women should organize adequate health insurance and carry their pregnancy notes with them.

PRE-LABOUR COUNSELLING

- Women are encouraged to write a birth plan:
  - This includes decisions about the place of birth, pain control and interventions if the labour is complicated.
- Location:
  - The woman may choose where to deliver:
    - at home;
    - in a community unit (midwife-led unit);
    - in hospital (midwife-led unit or consultant-led unit).
  - Women with complicated pregnancies are likely to be managed in a consultant-led unit.

MICRO-reference
An example of a birth plan: http://www.nhs.uk/planners/pregnancycareplanner/pages/BirthPlan.aspx

2.3 THE ANTENATAL SCREENING PROGRAMME

SCHEDULE OF APPOINTMENTS

- For ideal antenatal care, the woman would present to her GP pre-conceptually.
- For an uncomplicated pregnancy:
  - Parous women have eight appointments.
  - Nulliparous women have 11 appointments:
    - this allows closer monitoring of blood pressure (BP), symphysis–fundal height and proteinuria.
  - There is an appointment at 41 weeks for women who have not yet delivered.
  - Fig. 2.1 gives an overview of these appointments.

THE BOOKING VISIT

- This should take place by 10 weeks (this is the national target).
- A full obstetric history is taken to identify high-risk pregnancies.
- **Screening tests**:
  - BP.
  - Body mass index.
  - Urine:
    - Proteinuria.
    - Bacteriuria.

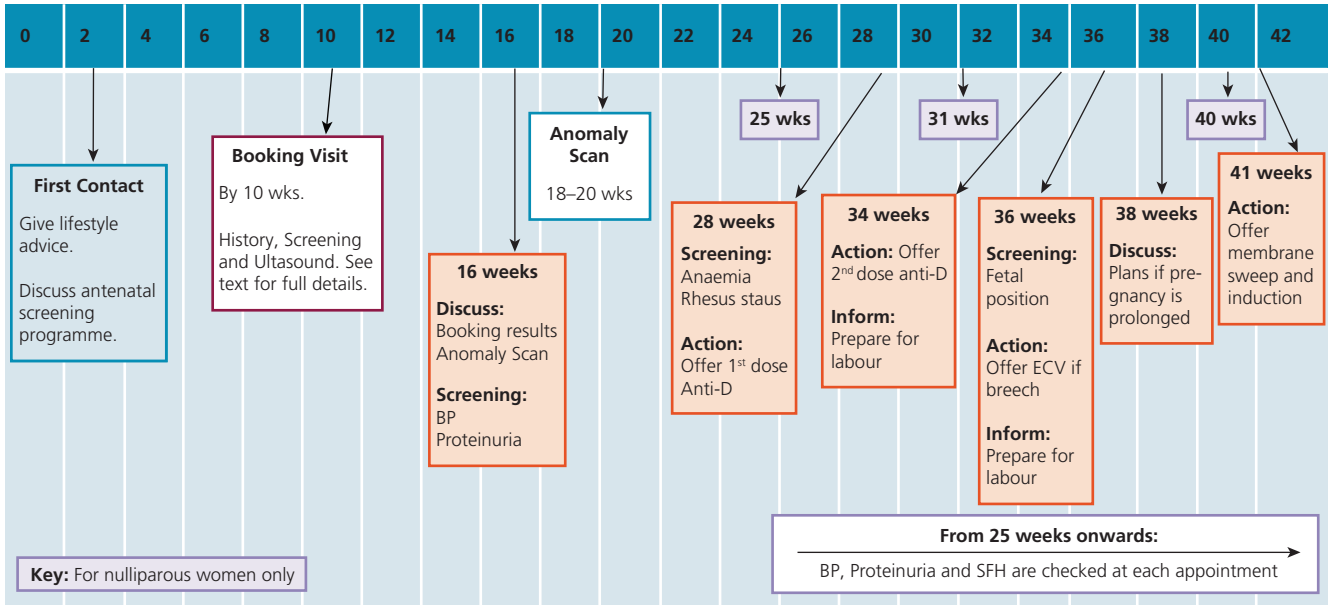


Fig. 2.1 Schedule of antenatal appointments.