

# Obstetrics: a GP refresher course

Sadly, the days are almost over when the GP was the professional who most often guided women through pregnancy, attended childbirth, and supported mother and child thereafter. The family doctor was the lynchpin of a maternity team of midwives, Plunket nurses, obstetricians and other health professionals. Now, the GP has virtually disappeared from that loop and patient care has diminished as a consequence. Recently, a groundswell has begun to reintegrate GPs into the team. This is the first in a series of articles by Auckland obstetrician **Lynda Batcheler**, designed to provide a 'refresher' in obstetrics for the GP currently largely excluded from the maternity system

## Part 1: Pre pregnancy counselling



Lynda Batcheler

### Fertility

For a woman in her early 30s hoping for children, time is not her friend. By the late 30s, fertility rates have declined sharply and miscarriage rates have increased, and the situation only worsens exponentially from then on.

It is important a woman knows delaying having a family because "the time isn't right" might be unwise, particularly if she has a history of endometriosis or polycystic ovaries or pelvic infection which may exacerbate fertility problems. If pregnancy has not occurred within 12 months of "trying", or after six months in women over 35 years, referral for advice should be made.

### Rubella status

Assessment of rubella IgG levels before pregnancy enables vaccination of non-immune women. All women with IgG levels considered not protective against rubella infection should be immunised before pregnancy. IgG levels of more than 11 IU/ml are considered protective against rubella infection.

MMR or single antigen rubella vaccine should be offered to non-immune women who are not pregnant. Seroconversion should occur in 95 per cent of women thus vaccinated and this level of protection should last for 16 years after vaccination.

Although rubella vaccine is a live virus and should not be

administered to pregnant women, no cases of congenital rubella syndrome have been documented when vaccination has occurred inadvertently in pregnancy.

It is normally recommended pregnancy be delayed for three months after administration of rubella vaccine.

### Folic acid

Periconceptual supplementation with folate (folic acid) can reduce the occurrence of both "first occurrence" and "recurrence" neural tube defects. Folate is a B vitamin vital for synthesis of nucleic acids and pyrimidines and is thus involved in cell division.

The following doses of folate are recommended to prevent neural tube defects:

- to prevent an index case: 0.8mg (800ug) folate for three months before pregnancy and the first 13 weeks of pregnancy
- to prevent a recurrent case or if there is a family history of neural tube defects: 5mg (5000ug) folate for three months before pregnancy and the first 13 weeks of pregnancy.

There is some evidence folate 0.8mg and an additional multivitamin, such as the preparation Elevit, may reduce the incidence of other congenital anomalies. Multivitamin preparations containing vitamin A should be avoided in pregnancy.

### Lifestyle issues

A woman planning a pregnancy is usually very motivated to cast off bad habits for the good of her baby.

A GP is ideally placed to discuss principles of nutrition, alcohol moderation and the cessation of smoking or recreational drugs.

Regular exercise should be encouraged.

### Medical conditions

Women with existing medical conditions, such as diabetes, epilepsy, and medicated chronic hypertension, should have a special-



The GP is ideally placed to offer pre-pregnancy counselling

ist review before pregnancy.

Some rare conditions, such as Ehlers-Danlos syndrome and Marfan syndrome, carry a risk of maternal death and thorough pre-pregnancy assessment and counselling is essential for optimum care. A GP is critical for referring these women on for such review.

Far more common a cause of obstetric complications are weight issues – particularly obesity. Pre-pregnancy weight control and ongoing pregnancy weight watching is strongly recommended, and this is very much in the GP's domain.

### Mental health issues

Suicide and homicide feature increasingly in maternal death statistics. It is critical to identify and manage depression, and acknowledge and sort out domestic violence issues, before pregnancy to help reduce these dreadful events.

### Cervical smears

Check cervical smear tests are up to date. It is helpful to take cervical and vaginal swabs, and treat infections if present.

### General advice

Remind the woman to keep a record of her last menstrual period date. Explain to her whom to call and what to do to seek pregnancy care once she gets a positive pregnancy test.

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### This series of articles will also address the following topics:

- Issues in early pregnancy
- Choice of lead maternity carer
- Place of birth
- First trimester problems
- Screening issues
- Antenatal care
- Common major pregnancy complications
- Postnatal issues

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Auckland obstetrician **Lynda Batcheler** continues her series looking at issues facing GPs involved in the care of pregnant women

## Part 2: Lifestyle issues

When a woman arrives for her first antenatal visit time should be taken to discuss lifestyle and changes which should

be made in pregnancy. Most expectant women are motivated to look after their health more carefully, the wellbeing of their baby being of paramount importance.

### Diet

The energy requirement for pregnant women increase by 200 calories a day and all pregnant women gain weight, on average 10–13kg. While appetite may increase somewhat there is no need to “eat for two”. The significantly overweight/obese woman should be encouraged not to gain more than 10kg. However, dieting to lose weight is not encouraged.

A balanced diet is important. “Five plus” fruit and vegetables a day provides carbohydrates, fibre, vitamins and minerals, with low fat. Fresh or raw vegetables should be well washed. Frozen, canned or lightly cooked vegetables are fine.

Six servings of bread or cereals a day are recommended and wholemeal or wholegrains provide increased fibre, vitamin B and minerals. Calcium requirements increase in pregnancy. If dairy products are tolerated, three servings a day are suggested. If not; tofu, canned salmon or tuna, almonds, ripe olives and sesame seeds are sources of calcium.

Lean meats, chicken, seafood, eggs and pulses are excellent sources of protein, minerals and two servings a day are suggested.

Where there is a family history of food allergy, caution with nuts and dairy products may be advised.

Vegetarians can get all essential nutrients but may need iron supplements if stores are low. Vitamin B12 levels should be regularly assessed in women who are vegan.

### Listeria and food hygiene

Listeria is a bacteria commonly found in the environment, which can contaminate prepared food, or be present in raw food. It can live in refrigerator (but not freezer) temperatures. Listeriosis can cause stillbirth, prematurity, foetal infection and maternal sepsis.

The risk of listeriosis can be reduced by avoiding raw or cold meats, fish and chicken. Cured meats and vacuum packed meats must not be eaten if cold, but may be eaten in hot dishes. Cooked fish, poultry and seafood must be PIPING HOT; with clear juices. Leftovers may be eaten within two days if PIPING HOT.

Dairy products should be made from PASTEURISED milk only and eaten soon after purchase.

Salad vegetables must be well washed and dried. Raw parsley should not be eaten (because of contamination in fertiliser).

All pregnant women should be given the brochure “Food safety in pregnancy” published by the New Zealand Food Safety Authority.

Campylobacter and salmonella infection can lead to adverse pregnancy outcomes. Safe food storage; hand washing before food preparation; safe food preparation through cooking of meats and chicken and covering cooked foods are all mandatory steps to be taken to avoid food contamination.

### Restaurant and food takeaways

The principles of food safety apply when dealing with restaurant meals and takeaway foods. Avoid pre-prepared salads and chilled foods. This rules out sushi, salads, meat rolls etc. Piping hot food prepared just before consumption, eg, pizza and fish and chips is safe.

### Caffeine intake

A moderate intake of coffee or tea (300mg caffeine per day) appears safe.

### Smoking

Smoking in pregnancy is associated with adverse foetal outcomes and increased risk of cot death. Also, the child brought

up in a smoking home is more likely to become a smoker. Pregnancy is the ideal time to encourage women to become smoke free and excellent support is available from Quitline (0800 778778).

### Alcohol

Heavy or regular alcohol intake in pregnancy can cause birth defects. There is debate about the effect of mild social drinking in pregnancy.

The best advice is to avoid alcohol while pregnant – especially in the first trimester.

### Recreational drugs

These should always be avoided throughout pregnancy and

lactation. Drug dependence requires a team approach in pregnancy to plan for a healthy outcome.

### Exercise

Pregnant women are to be encouraged to maintain exercise. The fit woman can continue exercising to her usual levels so long as she maintains hydration and nutrition and avoids over heating.

Women of lesser fitness should be exhorted to undertake moderate exercise if the pregnancy is otherwise normal – walking, biking, gym work for 30 minutes a day on most days of the week.

Contact sports are probably best avoided. Snorkelling is fine in pregnancy but scuba diving is not recommended.

Exercise lying flat on the back should be avoided. A wedge with a towel under the right hip can create sufficient lateral tilt. Women with “at risk pregnancies” should seek advice about exercise.

### Sex

Sex is usually safe throughout pregnancy unless there is placenta previa. Women should be advised that sex and orgasm may provoke painless tightenings of no consequence. If bleeding has occurred, advice should be given, usually avoiding sex for a week or two after the bleeding.

### Pets/animals

Hand washing after touching animals or cleaning excrement/kitty litter is essential. It is wise to wear gardening gloves to avoid contact with animal faeces and after gardening wash hands prior to food preparation or eating.

Women in “at risk occupations” may have toxoplasmosis immune status checked with booking antenatal blood tests. **D**

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## Part 3: The first antenatal visit

The family doctor is often the first health professional seen by a woman who thinks she is pregnant.

This first visit is an invaluable opportunity:

- for education
- to elucidate risk factors
- to review initial health/pregnancy concerns
- for guiding choice in ongoing pregnancy care
- to arrange and explain initial screening tests.

The woman may want pregnancy confirmation. Usually, it is very clear from the history of missed period(s) and pregnancy symptoms. If in doubt, urine pregnancy tests detect hCG concentrations of 25 mIU/ml with a very high degree of accuracy. A test will show as positive within five minutes. In a normal pregnancy, hCG may be detected as early as seven days post conception, and, by the time of the first missed period, hCG concentration is usually around 100 mIU/ml.

### Dates

Having confirmed pregnancy, it is very important to clarify gestation age and the expected date of delivery (EDD). The woman's menstrual dates are still the most common way of doing this. The first day of the last menstrual period (LMP) is used and a "pregnancy wheel" is an easy desk tool to then sort out dates. Make sure, however, the inner and outer circles of the wheel are not loose and able to slip, making the device inaccurate. Check also the woman's cycle length. Date calculations assure ovulation 14 days after the LMP, ie, a 28-day cycle. For example, for a 35-day cycle, add a further seven days to the EDD, and for a 21-day cycle, subtract seven days from the EDD.

Accurate dating matters enormously in pregnancy management and, the earlier it is done, the more accurate it is. If there is doubt over date or variable cycle length, an early scan is very helpful. Warn your patient this may need to be transvaginal (especially

if the uterus is retroverted). If a scan is done in the first trimester, it is the one used for dating throughout the rest of the pregnancy as scan dating in the mid-trimester is less accurate.

### Risk evaluation

The first visit requires thoughtful review of the woman's history, and the impact health and social issues might have on her pregnancy and vice versa. The following factors must be considered.

#### Health history

- past surgical problems/anaesthetic problems
- past obstetric history
- gynaecological history
- past medical history
- drug history/allergies
- transfusion history
- family history of relevance, eg, diabetes, pre-eclampsia
- age

#### Social lifestyle

- feelings about pregnancy
- family/whanau support
- occupation
- smoking/alcohol/recreational drug use
- diet
- domestic violence
- cultural needs.

Review of these issues allows a GP to help a woman make informed choices about ongoing pregnancy care, such as the place of birth and a choice of lead maternity carer (LMC).

#### Place of birth

Home births or birth at a low level birthing centre should be reserved for women with low risks – remembering, of course, risk can develop as pregnancy progresses and labour ensues. A recent consensus statement from the Royal Australian New Zealand College of Obstetricians and Gynaecologists recommends that, in a

Refer [www.nzdoctor.co.nz](http://www.nzdoctor.co.nz) for an example of a typical full pregnancy care schedule used by Dr Batchelor



Remember to, among other things, check BP at the first antenatal visit

centre where there is a low-risk birthing centre and a hospital with secondary care services, the hospital is the recommended place of birth. Midwifery circles have criticised this recommendation.

### Choice of LMC

The underlying philosophy of New Zealand's LMC system is: maternity care should be free and midwifery led; the midwife/client relationship is pivotal; and, finally, that the woman can choose her LMC.

In much of New Zealand, choice is very limited and LMCs are primarily midwives. Women are advised to book their LMC early.

Women must know, in the event of complications (as determined by risk evaluation) arising before or during pregnancy, specialist review is available free. There is no compulsion for an LMC to seek specialist advice, but it is wise for all LMCs to recognise when a problem is outside their experience or scope of practice – and to ask for help.

All pregnant women should be given the Ministry of Health "Maternity Services – Information Kit" (0800 686 223) to explain "The System".

### Examination

At the booking visit it is important to check:

- weight/height
- BP
- urinalysis
- abdominal palpation.

A brief general examination and breast examination and a first chance to discuss the virtues of breastfeeding are helpful. Vaginal examination to assess pelvic diameters is no longer done. Vaginal/cervical swabs and a smear (if due) should be taken.

### Tests

Booking blood tests (which include offering HIV screening) should be requested and explained if necessary. For dating, an early scan may be requested.

### Ongoing care

#### Emergency

Tell the woman (and write down for her) whom to contact and how to do so in the event of an emergency.

#### Routine

An appointment schedule should be arranged, though the woman needs to feel free to pop in for extra visits if she has concerns. **D**

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## Part 4: Antenatal foetal diagnosis

"Is my baby normal?" is a worry which shadows the joy of pregnancy. No antenatal tests can offer reassurance of "normality" as many problems of infancy and later childhood are not diagnosable antenatally, eg, cerebral palsy and autism.

Some disorders can be detected, however, and all women have the right to know about available tests and their limitations.

Many women choose not to have testing, eg, the proportion of women 40 years and older choosing antenatal diagnosis in Victoria, Australia was 60 per cent in 2003. Others present too late for testing. When antenatal tests are requested, it is essential that the woman:

- knows how long results will take to come through
- is comfortable with the manner and place of conveying results
- understands the implications of abnormal results and has access to reliable information in order to make informed choices
- understands the nature of the condition being screened for.

into the villus and a 10-15mg sample obtained. Local anaesthetic is used. CVS has a specific role in prenatal detection of monogene abnormalities, eg, cystic fibrosis and thalassaemia in at risk women.

The advantage of CVS is that the karyotype is known by the start of the second trimester. If the result proves abnormal, earlier (surgical) termination can be performed if the woman decides to, and legal requirements are met.

The risks of CVS are:

- procedure discomfort
- technical inability to obtain tissue
- miscarriage risk 1 per cent, in addition to the 2 per cent risk of natural miscarriage existing at the gestation at the time of CVS. Miscarriage caused by CVS usually occurs within the first two to three weeks.



Additionally, nasal bone assessment may be done. About 1.4 per cent of normal babies have an absent nasal bone while 6.7 per cent of babies with Down syndrome have an absent nasal bone at this gestation.

The measurements obtained are entered into software derived from the Fetal Medicine Foundation (UK). This gives a patient specific risk for Down syndrome and for trisomy 13 and 18. Using FMF software, a risk of >1:300 is defined as "High Risk". Amniocentesis or chorionic villus biopsy should be offered to a woman with a "High Risk" result. It must again be emphasised that nuchal translucency scanning is a screening test with false positive and false negative results. Using the >1:300 cutoff, in the largest UK study 82 per cent of cases of Trisomy 21 were detected. The false positive rate was 8.3 per cent.

### Integrated nuchal translucency (NT) and serum biochemistry

The maternal serum screening (MSS) test is a blood test done at 15 weeks, measuring alpha foeto-protein oestriol and free Beta HCG. Analysis of these results designates women as "High Risk" or "Low Risk". On its own about 75 per cent of pregnancies with trisomies will be picked up, with a 5 per cent false positive rate.

By combining NT and MSS – "Integrated Screen" – the detection rates for trisomy can be improved to perhaps 80-85 per cent, but the false positive rate is lowered, and invasive tests avoided.

### Future tests

It has been stated that with amniocentesis and CVS, for every Trisomy pregnancy detected, three normal pregnancies miscarry as a result of the procedure. Greater use of non invasive tests is advocated. First trimester blood screening combined with nuchal and second trimester blood screening increases trisomy detection rates but is not yet easily available. Work is going on to isolate foetal cells from the mother – cervical mucus, or blood-allowing karyotyping; but this is not yet available in clinical practice.

### The anatomy scan

Most women choose to have a scan at 18/40-20/40, at which time foetal growth is checked, placental site is identified, physical development of the foetus is assessed, amniotic fluid is checked.

Women must be aware that, no matter how thorough, the scan has limitations. If concerns are raised at this scan, a tertiary level scan may be arranged at base hospital foeto-maternal medicine department.

Subsequent problems may arise during pregnancy, eg, polyhydramnios, and follow-up scanning may then reveal problems not found at 18/40-20/40.

When a woman has a past history of an abnormal baby, or a family history increasing her risk, eg, neural tube defects, it is wise to seek advice from relevant experts like genetic counsellors and MFM colleagues. The woman can thus receive the most appropriate tests for her current pregnancy.

Cost and geographical isolation may be a barrier as nuchal translucency scanning and maternal serum testing are not free. **D**



Amniocentesis is usually performed after 15 weeks

### Aneuploidy screening

As the age of the first pregnancy increases, so too does the risk of aneuploidy, ie, abnormality of chromosomal number (see Table).

When amniocentesis and karyotyping became available in the late 1960s screening was offered on this age related risk alone, eg, 35 years plus. However, the reality is most babies with aneuploidies are born to mothers younger than 35 years and amniocentesis carries small but definite risks of pregnancy loss.

Newer tests are now available and such blunt screening based on age has been superseded. Tests for aneuploidy fall into two groups – invasive and non invasive.

### Invasive tests

#### Chronic Villus Sampling (CVS)

CVS samples chorionic villus (early placental tissue). Cytotrophoblast from the mesenchymal core of the villus is cultured and karyotype obtained. It is performed between 11 and 13 weeks gestation. A preliminary ultrasound scan is performed and under ultrasound guidance, transabdominally, a needle is guided

The risks of amniocentesis are:

- procedure discomfort
- pregnancy loss – approximately 1 per cent
- premature membrane rupture – within six weeks of amnio – 0.25%.

Rhesus negative mothers undergoing CVS or amniocentesis must be given anti D to prevent rhesus sensitisation.

### Non invasive tests

Non invasive tests are *screening* tests. They do not give an absolute answer about chromosome abnormalities, but give an adjusted risk factor.

#### Nuchal translucency ultrasound

This can be performed only between 11/40 and 13.6/40. Known dating and early booking are mandatory for this to be available to women. This test measures the thickness of the nuchal fold. In 80 per cent of babies with Down syndrome this is thickened, possibly because of an underlying cardiac abnormality, venous congestion or impaired lymphatic drainage of the neck.

## Maternal age risks

### Chance of having a foetal chromosome abnormality

10 weeks gestation	Woman's age	16 weeks gestation
	<30	1/425 (0.2%)
	31	1/385 (0.3%)
	32	1/372 (0.3%)
	33	1/200 (0.5%)
	34	1/160 (0.6%)
1/115 (0.9%)	35	1/120 (0.8%)
1/85 (1.2%)	36	1/100 (1.0%)
1/65 (1.5%)	37	1/80 (1.2%)
1/50 (2.0%)	38	1/65 (1.5%)
1/40 (2.5%)	39	1/50 (2.0%)
1/30 (3.3%)	40	1/40 (2.5%)
1/22 (4.5%)	41	1/33 (3.0%)
1/17 (6.0%)	42	1/25 (4.0%)
1/13 (7.5%)	43	1/20 (5.0%)
1/10 (10.0%)	44	1/17 (6.0%)
1/8 (13%)	45	1/14 (7.0%)
1/6 (17%)	46	1/11 (9.0%)
1/4 (25.0%)	47	1/10 (10.0%)
1/3 (33.3%)	48	1/10 (10.0%)
	49	1/10 (10.0%)

For example, a 41-year-old woman has a 1 in 22 chance of having a baby with a chromosomal abnormality at 10 weeks pregnant. By 16 weeks the risk has dropped to 1 in 33.

Source: *Chromosome Abnormalities and Genetic Counseling, 2nd edition by Gardner and Sutherland, 1996, Oxford university Press*

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## Part 5: Antenatal care

### Purpose of antenatal care

#### Education

All mothers-to-be are keen to have a healthy baby and are more receptive to messages about health improvement. Regular visits are an ideal time to gently promote and encourage a smoke-free environment, healthy eating patterns, regular exercise and avoidance of alcohol and non-prescribed drugs.

The "breast is best" theme should of course be emphasised, and strategies to encourage successful breastfeeding should be discussed antenatally.

In the busy 21st century, when many women work and contact with babies is limited, many new mothers have little idea of what to do when their first child arrives. Antenatal visits provide time to talk about meeting the needs of the new baby.

#### Patient concerns: minor problems in pregnancy

All antenatal visits should be "woman focused", and many women do have physical symptoms they want to discuss.

- Indigestion/heartburn: Usually dietary advice, smaller meals in the evening, and elevating the head of the bed can be helpful. Simple antacids can be used. Ranitidine is also prescribed with good effect. Remember indigestion can in fact be epigastric pain and a warning symptom of severe preeclampsia.
- Constipation: Usually increasing fluids, fibre and fresh fruit (such as kiwi fruit) plus increasing exercise will do the trick. Bulk laxatives, eg. Metamucil, are helpful. Stronger agents such as Coloxyl or Lactulose may be used.
- Joint and pelvic discomfort: This is almost universal, particularly in the third trimester. Physiotherapy referral can be very helpful (if available) for appropriate exercises, and fitting of a

Antenatal care is a phenomenon of the 20th century. In 1901, Ballantyne wrote a paper arguing for a "Pro - Maternity Hospital" to deal with issues of illness arising in expectant mothers. It was only in 1910 that the first antenatal clinic opened in Adelaide. The benefits of regular visits during pregnancy became apparent and the philosophy of antenatal care developed very rapidly so that, by 1948, 99 per cent of pregnant women in the UK were receiving some form of antenatal supervision.

Women who fail to book a lead maternity carer (LMC) and turn up unannounced at the delivery unit, or women who book late and are frequent "DNAs", are recognised as having poorer outcomes than regular attendees. Women with concealed pregnancies are at particularly high risk of poor perinatal outcome.

All women are encouraged to attend their LMC for regular antenatal checkup visits. There are four main reasons for such visits.

- It is a time when advice can be obtained, a woman's queries dealt with, and reassurance provided.
- It is an opportunity to educate on issues of importance in pregnancy and new parenthood.
- It allows "minor complaints" to be discussed and managed.
- Examination and relevant laboratory and ultrasound tests allow identification of problems in a timely manner, with the hope of improving the health of mother and baby.

### Thirteen visits - too many?

In New Zealand, it is fairly standard for a pregnant woman who books early to have a total of 13 visits, as follows:

- the booking visit (ideally under 12 weeks)
- monthly visits until 28 weeks
- fortnightly visits until 36 weeks
- weekly visits until delivery.

And, remember, a pregnant woman needs to know emergency appointments are always available if a problem arises!

The above schedule of visits was defined by the UK Ministry of Health in 1929! It has subsequently been argued, particularly in the 1980s and '90s, that antenatal care could be reduced to five visits for most pregnant women, with more frequent checkups offered to women with problems. However, such a reduced visiting schedule has not taken root in New Zealand.

Non attendance stops women taking advantage of antenatal care. There can be many barriers to women seeking regular care when clinics are centralised: transport can be a significant issue, and clinics may be perceived as unwelcoming with other children having to be brought along. Cultural barriers also exist. For working women, there may be difficulty in getting time off to attend the clinic, and long waiting times are a real disincentive for all women. However, outreach clinics and midwifery home visiting can overcome these issues to a degree.

Usually, the midwife/LMC provides all antenatal visits, with additional specialist clinic visits if required.

The format of "shared care", where the GP and LMC split visits between them, was very popular until the current funding arrangements made it non-viable in many parts of New Zealand.

support belt can be helpful if required.

- Stress incontinence: It is a common problem, particularly in multiparous mothers who have had vaginal deliveries. Pelvic floor exercises should be encouraged, with the help of physiotherapy colleagues if necessary.
- Intercurrent issues: Throughout the nine months of pregnancy, most women will have at least one cold and often an episode of gastroenteritis. They should feel free to ask for advice on management, which usually involves simple strategies for getting over the illness. It is important to reassure the mother that baby is fine.

### The examination

At each antenatal visit, a simple dipstick urinalysis for protein and glucose should be done. This is something the woman can easily be taught to do herself.

Blood pressure should be taken carefully with a cuff of appropriate size. Usually a large cuff is recommended for women over 85kg. The blood pressure cuff should be at the level of the heart. The diastolic blood pressure should be measured at Korotkoff phase 5. Manual blood pressure recordings are the gold standard rather than patients using automated machines to do home measurements.

Oedema should be documented while pedal oedema is not uncommon in late pregnancy, oedema of the face, fingers or abdominal wall should be noted.

Mothers should be offered the opportunity to measure their weight throughout pregnancy. Certainly, a booking weight should be obtained, and a weight done at term. Many women like to know what their weight gain is. A weight gain of 10-13kg is regarded as normal.

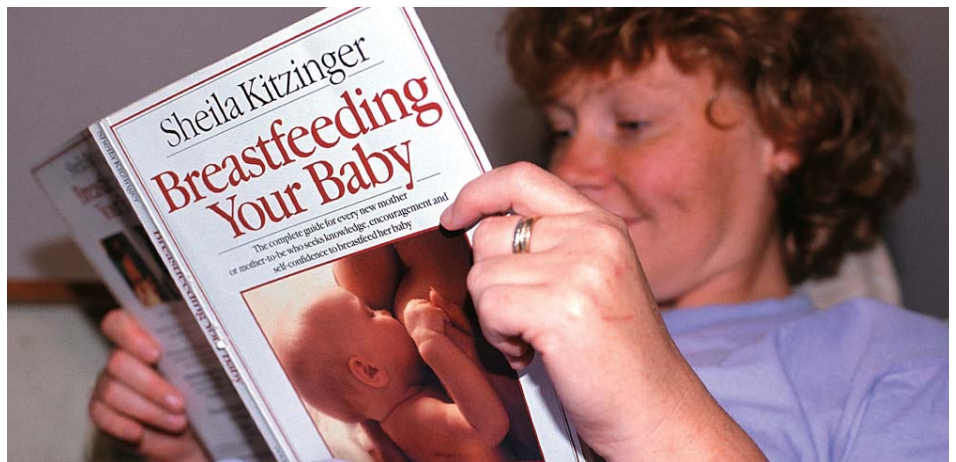
Palpation of the pregnant abdomen is important to determine the appropriateness of the fundal height, which is measured in centimetres from the top of the symphysis pubis to the top of the fundus. The foetal lie and presentation are determined and the foetal heart heard. Customised foetal growth charts which include maternal weight and height and ethnicity can be obtained from Professor Lesley McCowan at the Auckland University School of Medicine. This may improve detection rates of intrauterine growth retardation on fundal height measurements.

### Investigations

Routine bloods, including polycose, should be offered at booking and in the middle trimester. The reason for these tests should be explained and the results conveyed to the woman at the next visit. At 36 weeks, Rhesus-negative mothers should have a repeat antibody screen. Again, the reason for the ultrasound scans requested should be discussed with the woman, and time made to discuss the results at the next visit.

The purpose of the examination is, of course, to detect deviations from normal and deal with them in a timely manner.

The visits should be something the pregnant woman looks forward to and enjoys, and comes away from feeling she has been supported in her endeavours to do the best for her new baby. **D**



Strategies to encourage successful breastfeeding should be discussed antenatally

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## Part 6: Common antenatal problems

Although for many women pregnancy is a normal physiological event, this is not the case for all. Complications of pregnancy can jeopardise – mildly, sometimes gravely – the health of the woman and her unborn child. It is incumbent upon those caring for pregnant women to detect complications of pregnancy early and to manage them well; this often involves seeking specialist advice.

### Intrauterine growth restriction

Every time an expectant mother presents for an antenatal check, it is important to ask oneself “is this baby growing well?”. With experience, one knows intuitively how big the uterus should be for gestation, but it is well recognised palpations pick up a third of small babies at best. Accuracy is improved by measuring the fundal height from fundus to symphysis at each visit. There are multiple factors contributing to birth weight: race, parity, maternal height and weight, and infant sex. So, the definition of intrauterine growth restriction (IUGR) as below the 10th centile is a very broad brush. Our clinical pick-up of intrauterine growth restriction IUGR can be improved by customised centiles for symphysis-fundus measurements. An individualised fundal height/predicted weight chart can be produced for each patient at [www.gestation.net/register/grow\\_dl.htm](http://www.gestation.net/register/grow_dl.htm)

If fundal height falls below the 10th centile, or growth rate drops under the slope of the curve, it is important to request a

growth ultrasound scan.

It is wise to consider a growth scan for women at risk of having an IUGR baby. The risk factors are: IVF pregnancy, maternal smoker, being a first-time mother aged over 35 years, poor maternal weight gain, multiple pregnancy, past history of more than two miscarriages, hypertension, antepartum bleeding, and maternal chronic medical condition.

IUGR babies have grown poorly because of impaired placental circulation. The “growth scan” measures are: head circumference, biparietal diameter, abdominal circumference and femur length. At scan, the IUGR baby has an abdominal circumference on a smaller centile than other three growth scan measures. The small abdominal circumference reflects a smaller fetal liver and reduced fat stores.

Liquor volume is also assessed and, if requested, Doppler studies can be done to measure the velocity of flow through umbilical and uterine arteries.

One should look for IUGR because these babies are at increased risk of stillbirth and birth asphyxia. As newborns, they are at risk for hypoglycaemia. Undetected, this can cause neurological injury. They are also prone to hypothermia. Later, these babies are at greater risk of cot death. There is also fascinating work – the Barker hypothesis – suggesting foetal undernourishment sets the stage for adult diseases such as diabetes and “atherosclerosis”.

When IUGR is detected there are three aspects to management.

First, discuss clearly your concerns with the mother and the steps she can take. The mother can:

- stop smoking and/or using recreational drugs
- stop any vigorous exercise (eg, gym attendance)
- consider cutting down or stopping work, if hours are long and the pressure high
- eat regularly and well – without force feeding herself
- be alert to baby’s movements and call for advice if these become less frequent or quieter than usual.

Second, increase foetal surveillance by:

- increasing the frequency of antenatal visits
- giving the mother a “kick chart”
- doing growth scans every second week
- referring for specialist consultation
- if growth restriction is severe, making twice weekly assessments of foetal wellbeing (cardiotocographs, liquor volume assessment, Doppler) may be recommended.

Third, ensure timely delivery at an appropriate hospital with caesarean section and paediatric facilities.

### Hypertensive disorders

#### Chronic hypertension

Hypertension with or without proteinuria which exists pre-pregnancy or diagnosed under 20/40. This may be essential hypertension or hypertension secondary to other pathology. These women are at increased risk of: superimposed pre-eclampsia (20 to 25 per cent); deterioration of hypertension; abruptio; IUGR; early delivery (because of maternal or foetal health concerns); and increased perinatal mortality.

If pre-pregnancy medication includes diuretics or ACE inhibitors, it must be stopped or changed to either methyldopa, a beta blocker or nifedipine slow release. Specialist advice is required.

Treatment of mild-to-moderate hypertension prevents severe hypertensive episodes, with the risk of stroke and abruptio. It does not prevent the development of pre-eclampsia (PET). If a woman with chronic hypertension starts taking aspirin, eg, Cardia, and calcium from the first trimester, there may be a reduction in the development of PET. Such patients must be encouraged to book early in pregnancy.

#### Pre-eclampsia

PET is a leading cause of maternal and perinatal morbidity and mortality. Ten per cent of primigravida develop gestational hypertension, while 5 per cent develop PET. The risk factors for PET are: first pregnancy; multiple pregnancy; pre-existing hypertension; pre-existing renal disease; a past history of PET; a strong family history of PET; maternal age under 20 years or over 35 years.



Up to 8 per cent of babies are born prematurely

The pathophysiology of PET begins in the first and early second trimester. The woman’s spinal arteries in the myometrium fail to dilate. These vessels then get further narrowed by deposition of fibrinised material, leading to abnormal placentation.

PET’s severity ranges from a slight increase in BP, with puffy feet at term, through to a life-threatening multisystem disease. It is a disease of signs not symptoms. The signs of PET are:

- a BP of more than 140/90mm Hg at two or more readings; or a rise in systolic BP of more than 30mm Hg; or a rise in diastolic BP of more than 15mm Hg
- proteinuria. Dipsticks are a very useful guide and should be done at each antenatal visit; more than a trace of proteinuria should be checked by mid-stream urine, protein-creatinine ratio or a 24-hour urine test (the gold standard)
- oedema. Oedema is now an official sign of PET, but beware the woman with rapid weight gain between visits. Swelling of fingers, face or abdominal wall is a warning beacon for possible PET.

Laboratory tests which help in the diagnosis of PET are a full blood count, urate, creatinine and liver function tests.

If PET is developing, ask yourself “is baby growing, and well?”

The management of PET or severe gestational hypertension requires close watching and sometimes admission. The woman must know the symptoms of concern: epigastric pain; severe headache; marked reduction in urine output. She must know whom to call if she develops these symptoms.

Specialist advice in PET management antenatally, and in arranging timely delivery, is important.

PET patients may get worse postnatally. The woman with “mild PET” at term, especially, may suddenly deteriorate after her baby is safely delivered. Thirty to 40 per cent of episodes of eclampsia occur on postnatal wards.

A woman who has had severe PET needs debriefing at six weeks to discuss her experience and questions, review her current health, and plan for her next pregnancy.

### Pre term labour

About 5 to 8 per cent of babies arrive before 37/40 and are pre-term. Such babies account for 80 per cent of perinatal loss (excluding lethal malformations). With amazing advances in neonatology, babies of very low gestational age can and do survive well. The usual minimum gestational age for active paediatric intervention is birth at 24/40 or birth weight over 500g.

Some women are at far higher risk for pre-term labour. High-risk women include those who have a multiple pregnancy, bleeding in pregnancy, an abnormal uterus, a past history of pre-term labour, are smokers, live in poor socioeconomic circumstances or have infections (eg, febrile illness). Subclinical infections are thought to account for a significant proportion of premature births. Women at increased risk should know the signs of pre-term labour and whom to contact if concerned.

Pre-term labour cannot be prevented.

At antenatal visits, ask about signs of increasing uterine activity, such as bleeding and fluid trickling. At the antenatal examination, beware early engagement of the presenting part, which indicates labour may be sooner than expected.

If labour begins before 34/40, the key to improving baby’s outcome is administration of antenatal steroids, and delaying labour with calcium channel blockers to allow time for this. Delivery in an appropriate level facility is crucial, which may involve transferring the woman when she is well enough. Specialist advice when dealing with pre-term labour is, of course, necessary. D

The complete series of “Obstetrics: a GP refresher course” articles can be found in the following issues of *New Zealand Doctor* and at [www.nzdoctor.co.nz](http://www.nzdoctor.co.nz)

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- Part 3: The first antenatal visit, 31 May 2006, p27
- Part 4: Antenatal foetal diagnosis, 28 Jun 2006, p28
- Part 5: Antenatal care, 23 Aug 2006, p28
- Part 6: Common antenatal problems, 20 Sep 2006, p22