15 Women

Female catheterisation

Attention

Female practitioner should do this procedure, if possible.

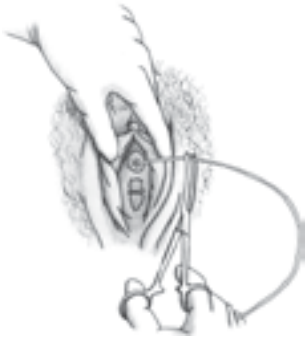
What you need

- Catheter drainage bag, if needed
- Sterile dressing pack
- **Normal saline**
- Water-based lubricant
- Urinary catheter with balloon, or in/out type
  - Smaller the urethra, the smaller the catheter, eg 14G or 16G for adults, 12G for younger girls
- 10ml syringe
- 10ml sterile water
- Clean or sterile dish/bowl to catch urine
- Sterile gloves
- Blueys
- Sterile specimen jar, if needed

What you do

- Put urine drainage bag nearby, pinned to side of bed/couch
- Lie woman on bed, put blueys under bottom, keep upper body covered
- Lay out dressing pack and equipment
- Open catheter **outer packet**, drop catheter onto sterile area. Add cleaning solution, but don't open inner plastic covering yet
- Fill 10ml syringe with sterile water to blow up catheter balloon (check amount written on side of catheter). Make sure tip is kept sterile
- Wash hands, put on sterile gloves
- Ask woman to bend knees, feet together, then let knees fall apart
- Put clean dish between her legs
- Hold labia apart with one hand. Clean genitalia with swab soaked in cleaning solution with other hand. Sweep each side, from above to below, repeat as needed
- Drape inner thighs and above pubic bone with sterile towels
- Pull end off plastic cover to expose tip of catheter
- Hold catheter by outer cover, dip in lubricant. **Do not** touch tip
- Hold labia apart so you can see urethra opening

- Hold catheter in forceps or by plastic cover so you don't touch it. Put into urethra — F 15.1
- Gently push catheter in until urine flows into dish/bowl
- Collect urine specimen if needed (*p385*), do U/A
- If catheter to stay in (indwelling)
  - Fill balloon with sterile water
  - Connect urine drainage bag
  - Tape catheter to inner thigh to stop it pulling when woman moves
  - Unpin catheter bag from side of bed/couch, pin to clothes or hang from edge of bed
  - Record urine output



15.1

Speculum examination and Pap smear

Speculum examination

Uses

- Pap smear
- STI check for women (*WBM p250*)
- To investigate vaginal bleeding in pregnant (early *WBM p9*, later *WBM p13*) and non-pregnant (*WBM p299*) women
- Assessment of pregnancy complications

Do not do speculum examination unless trained to do it properly.

Talk with woman about

- Whether she is bleeding
  - Encourage Pap smear (if due) even if she has her period
  - If bleeding irregular or symptoms of infection — important to take Pap smear now to help make early diagnosis
- What is involved in speculum examination
  - Be specific. Show equipment, use pictures to explain procedure
  - Ask ATSIHP or AHW to help and translate, if appropriate
- Whether she would like someone with her (chaperone), even if practitioner female. Record whether chaperone present or declined
- May be some vaginal spotting or light bleeding after procedure

What you need

- Speculum — have small, medium, large bivalve (duckbill) speculums to choose from. Warm if needed. Make sure it works properly
- Water-based lubricant
- Gloves
- Examination light

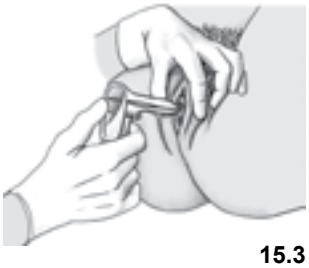
What you do

- Ask woman to empty bladder before you start
  - If appropriate, collect sample for urine pregnancy test, STI screen
- Woman lies on her back, knees bent, feet together
- Put on gloves
- Ask woman to let her knees fall apart
- Position light at end or side of bed, directed at genitals
- Look at vulva, perineal and anal areas for warts, sores, discharge, unusual skin conditions. **Medical consult** about any abnormalities

If painful unhealed sores that could be genital herpes (*WBM p255*) around vaginal opening — **do not** do examination.

- Start with medium speculum
  - If woman very small, young or old — think about starting with small speculum
  - Lubricate tip of speculum with warm tap water or small amount of water-based lubricant
- Hold speculum in your right hand with handle down and blades closed
- Gently separate labia with left hand — F 15.2
- Encourage woman to relax (breathe out) while you put speculum in gently and slowly, with downward pressure along back wall of vagina — F 15.3
- Watch speculum carefully as you push it in to avoid pinching, to help locate cervix, to look at vaginal walls — F 15.4
- When speculum fully in vagina, press lever to gently open blades about 2cm
- Find cervix, then screw nut until it just locks in — F 15.5. **Do not** over-tighten
- If you can't find cervix
  - Close blades, remove speculum half way, angle it more to middle than to back. May need to change angle a couple of times to find cervix. Be gentle
  - Remove speculum (*p414*). Change woman's position to tilt pelvis more, eg small firm pillow or rolled up towel under bottom
  - Try using larger/longer speculum or inserting speculum upside down
  - If vaginal walls lax — slide condom over speculum and cut end off. Condom will hold walls back and may let you see cervix
  - Do gentle vaginal examination to locate cervix. Gives you better idea of how to find cervix with speculum
  - If you still can't see cervix — ask woman to lie on left side with knees bent, insert speculum from back. Good for larger women
  - If you still can't find cervix — **do not** keep trying as may cause distress. **Talk with more experienced practitioner or doctor**

15.2



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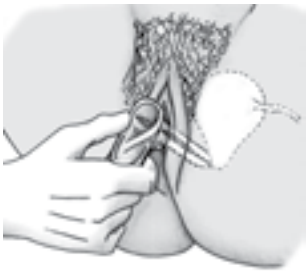

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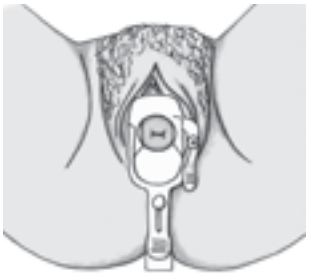


15.5

- When speculum in place
  - Try to keep 1 hand on speculum all the time to stop it slipping out before you have finished
  - Look at cervix. Take note of
    - Polyps, warts, ulcers, abnormal appearance
    - Discharge — colour, amount
    - Inflammation of cervix (cervicitis) — cervix bleeds easily when touched with cotton wool swab
    - Ectropion. Normal finding — red velvety area on outside of cervix extending into canal, sharp edge
  - Take Pap smear (*p415*), swabs (*below*) as needed
- **Removing speculum**
  - Hold 2 handles together to keep blades apart, undo speculum screw, pull blades off cervix
  - Make sure blades are well clear of cervix before letting speculum close
  - Gently remove speculum, looking at vaginal walls for discharge, redness, warts, ulcers
- Do bimanual examination (*p420*) if needed and you are skilled
- Test pelvic floor muscle tone if needed
  - Ask woman to tighten muscles around your fingers for as long as she can. Muscles should lift upwards and tighten
  - If muscles seem weak or slack — teach pelvic floor exercises (*WBM p285*)
- Let woman know procedure is finished

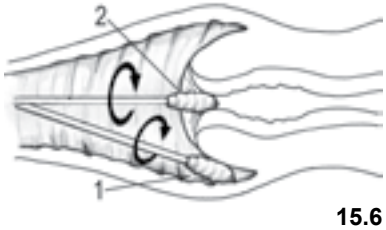
Taking swabs

What you need

- 2 amies transport medium swabs — 1 labelled HVS, 1 labelled endocervical
- 2 slides — 1 labelled HVS, 1 labelled endocervical
- 1 plain dry swab or *Aptima* swab for NAAT (check with your pathology lab)

What you do

- Using aimes transport medium swab labelled HVS (high vaginal swab)
  - Take swab from high (deep) in vagina (in the posterior fornix below cervix) — F 15.6 position 1
  - Gently **roll once** onto slide labelled HVS, then put into amies transport medium
- Using amies transport medium swab labelled endocervical
  - Take swab from just inside cervical canal — F 15.6 position 2
  - Gently **roll once** on slide labelled endocervical, then put into amies transport medium



15.6

- Take another swab for NAAT from just inside cervical canal — F 15.6 position 2
  - If using plain dry swab — put back into plastic container
  - If using *Aptima* tube — F 15.7 — remove lid, put swab in tube, break off handle at groove — F 15.8, leave swab in tube
- Do up tops of all swab containers tightly
- Store and transport at room temperature (*p360*)

15.7

15.8

Ask for these tests

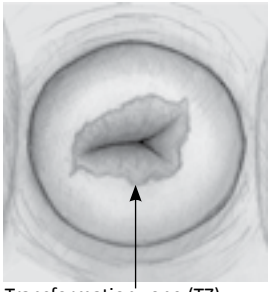
- For HVS swab and slide — MC&S
- For endocervical amies transport medium swab and slide — MC&S and/or gonorrhoea culture
- For endocervical dry/*Aptima* swab — NAAT for gonorrhoea, chlamydia, trichomonas

Pap smear

Test that screens for early signs of cervical cancer.

Attention

- Need to sample cells from cervical transformation zone (TZ) — where red 'internal' (endocervical) cells change to paler 'external' (ectocervical) cells — F 15.9. May be
  - Outside cervical canal and easily seen — usual in premenopausal women
  - In cervical canal and not visible — common in postmenopausal women
- Area of visible endocervical cells is called ectropion. Amount visible depends on age and hormonal status of woman


Transformation zone (TZ)
15.9

What you need

- Glass slide with frosted end labelled with woman's name, date of birth. Use pencil — ink will run when slide sprayed with fixative
- Choice of sampling tool/s
  - Cervix sampler 'broom'
  - Plastic spatula — don't use wooden spatula unless nothing else
  - Endocervical brush (eg *Cytobrush*)
- Cytology spray fixative
- *ThinPrep* vial, if using

What you do

- Have all equipment ready and label swabs and slides before starting

Smear should include material from TZ. Collect cells from both endocervix (inner) and ectocervix (outer) areas.

- If pregnant
  - **Do not** use endocervical brush
  - If any concerns about doing Pap smear, eg history of miscarriage — **medical consult**
- If TZ and ectropion visible
  - Use cervix sampler 'broom' or spatula alone or together
  - If large ectropion — make sure ectocervix sample collected. At least 1 tool must cross TZ
- If TZ not visible *OR* had treatment for abnormal cervical cytology
  - Use plastic spatula or cervix sampler 'broom' to sample ectocervix
  - *AND* Use endocervical brush to sample TZ and endocervix
    - Use brush second as may cause bleeding
- **Cervix sampler 'broom'** — F 15.10
  - Put long central bristles just inside cervical opening so shorter bristles rest on outer cervix — F 15.11
  - Rotate sampler 360° 5–6 times in same direction
  - Shorter bristles should cross TZ. If they don't
    - Because of large ectropion — use spatula as well to collect TZ and ectocervix sample
    - Because TZ not visible — use endocervical brush as well to collect TZ and endocervix sample

15.10

15.11

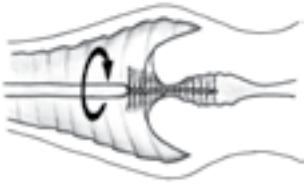
- **Plastic spatula** — F 15.12
  - Use end of spatula that will make most contact with TZ zone
  - Rest spatula firmly on cervix
  - Rotate 360° twice in same direction — F 15.13
  - End of spatula should cross TZ
    - If it doesn't because TZ not visible — use endocervical brush as well to collect TZ and endocervix sample

15.12

15.13

- **Endocervical brush** (eg *Cytobrush*) — F 15.14
  - Put endocervical brush gently into cervical opening for ⅔ of length, last 2 rows of bristles still seen — F 15.15
  - Do ¼ (90°) turn of brush — may cause a little bleeding
  - Need to use second tool as well to collect ectocervix sample

15.14



15.15

After taking sample

- Quickly and firmly transfer sample/s from tool to slide
  - Wipe both sides of spatula or cervix sampler 'broom' on slide — F 15.16
  - Roll endocervical brush along slide
  - If 2 tools used — use ½ of same slide for each tool

15.16

- Spray straight away with cytology fixative (eg *Cytospray*). Cells dry quickly, can cause inaccurate results
  - If 2 tools used, spray each ½ of slide separately as collection completed. Cover unused ½ of slide to avoid contamination with spray
- When slides have dried, put into holders and snap firmly shut, or seal with rubber band or tape
- Store and transport at room temperature (*p360*)
- Give information on pathology form to help interpret Pap smear, eg pregnant, last Pap smear result, findings on examination, contraception, date of last normal menstrual period, postmenopausal, taking HRT (*WBM p321*), if cervix clearly viewed
- Ask woman if she agrees to be on state/territory Pap Smear Register (*WBM p293*), and clinic register
  - If woman doesn't agree — write 'Not for Pap Smear Register' on pathology form
- Talk with woman about coming back to clinic for results, when results will be back
  - See *Prevention and screening for cervical cancer* for information on results (*WBM p292*)
  - **Medical consult** about any abnormal findings

ThinPrep test

- May reduce number of unsatisfactory smears
- May be useful if woman bleeding
- Not funded under Medicare
- Check manufacturer's instructions
- If using *ThinPrep* — make slides first then agitate end of cervix sampler, endocervical brush or spatula in *ThinPrep* solution — F 15.17. Throw away instrument
- Tighten lid on *ThinPrep* container so marks on lid and vial meet up

15.17

HPV DNA 'test of cure'

- Used in follow-up after treatment of high-grade abnormality (*WBM p294*). Covered by Medicare for this purpose
- Can collect sample in *ThinPrep* solution as above

Self-collected lower vaginal swabs

Allows women to collect vaginal swabs themselves

- Can be used to test for
  - STIs
  - Vaginal infections such as thrush (candida)
  - Group B Streptococcus (GBS) in pregnancy

What you need

- See Table 15.1 for swabs used for various sample types and tests
- Litmus paper

Table 15.1: Sample and swab types for self-collected lower vaginal swabs

Sample type	Test (label)	Swab
Lower vaginal swabs	NAAT – chlamydia, gonorrhoea, trichomonas	• *Aptima* swab and tube • *OR* Dry swab
	Gonorrhoea culture	• Gel swab (amies transport medium) • *OR* Dry swab (charcoal medium) — if delay in transport
	MC&S (thrush, bacterial vaginosis)	• Gel swab (amies transport medium) • *AND* Glass slide
Lower vaginal and anal swab	MC&S (GBS)	• Gel swab (amies transport medium)

What you do

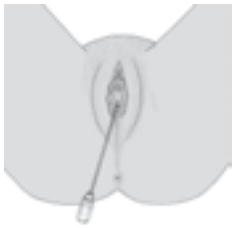
Lower vaginal swabs for STI tests

- Open swab packets. Take out transport tubes and give woman swabs in open plastic packets
- Explain to woman she needs to
  - Wash her hands
  - Have her legs apart, either sitting on toilet — F 15.18 or standing with 1 foot on toilet seat — F 15.19

15.18

15.19

- Take first swab stick from plastic packet
  - Put tip of swab about 2cm (length of 1 finger joint) inside vagina — F 15.20
  - Turn swab around once, leave in vagina, count to 10, remove
  - Put swab back in plastic packet
- Repeat with 2nd swab stick
- Wash her hands, return swabs to nurse/ATSIHP/AHW

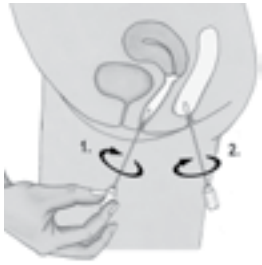


15.20

- When woman returns swabs
  - If doing pH test for trichomonas or BV — touch swab on litmus paper before putting into transport tube
  - Take gel medium swab out of plastic packet
    - If testing for thrush or BV — roll onto glass slide
    - Put swab into amies medium transport tube
    - On pathology form — 'LVS – MC&S'
  - Take second swab out of plastic packet
    - Put *Aptima* swab in *Aptima* tube, remove lid, break off at groove, put cap on
    - *OR* Put dry swab in transport tube
    - On pathology form — 'LVS – chlamydia, gonorrhoea, trichomonas NAAT'
- Store and transport at room temperature (*p360*)

Lower vaginal and anal swabs for GBS test

- Open swab packet. Take out transport tube and give woman swab in open plastic packet
- Explain to woman she needs to
  - Wash her hands
  - Place herself with legs apart, either sitting on toilet — F 15.18 (*p418*) or standing with 1 foot on toilet seat — F 15.19 (*p418*)
  - Put tip of swab stick about 2cm (length of 1 finger joint) inside vagina — F 15.20, F 15.21
  - Turn swab around once, leave in vagina, count to 10, remove
  - Put same swab about 2cm inside anus — F 15.21, F 15.22
  - Turn swab around once, leave in anus, count to 10, remove
  - Put in plastic packet
  - Wash her hands, return swab to nurse/ATSIHP/AHW



15.21

15.22

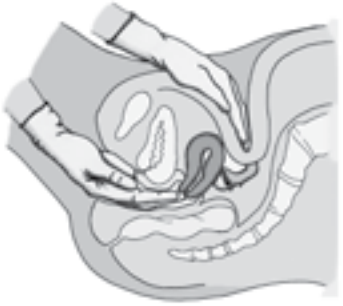
- When woman returns swab to you
  - Take swab out of plastic packet, put into amies medium transport tube
  - On pathology form — 'LVS/anal – MC&S'

Bimanual examination

Used to check for
- Inflammation and pain in pelvis, eg PID
- Size, shape, position, tenderness of uterus and ovaries

Do not
- **Do not** do on woman who has never had sex
- **Do not** do unless you have been taught to do it properly
- **Do not** do if painful sores around opening of vagina (*WBM p264*)
- **Do not** do if speculum examination very painful

Do
- Woman lies on back with knees bent and dropped out
- Put on clean gloves
- Watch for signs of discomfort or tenderness throughout procedure
- Put lubricant on right index and middle fingers
- Gently separate labia with left hand. Put index and middle fingers of right hand into vagina. Push backwards and slightly down towards rectum
- Put left hand flat on woman's lower abdomen below umbilicus — F 15.23
- Find cervix with right hand, it usually feels hard
  - Feel for masses or nodules
  - Move cervix gently from side to side
    - If movement causes pain — suggests pelvic inflammation, eg PID (*WBM p267*). Sign called 'cervical excitation'
- Use firm but gentle pressure to push cervix up towards hand on abdomen. Should push top of uterus (fundus) up to left hand and allow examination
  - Size — normal uterus about 9cm long
  - Shape
  - Position
  - Tenderness



15.23

- Move hand on abdomen to one side. Move fingers in vagina to recess beside cervix (lateral fornix) on same side, press deeper and upwards onto abdominal hand
  - Normal ovary may or may not be felt — check size, tenderness
  - Normal fallopian tube never felt
- Repeat on other side
- If any bleeding or discharge after procedure — put on pad
- If pelvic floor muscles seem weak or slack (*p414*) — teach pelvic floor exercises (*WBM p285*)
- **Medical consult** about any abnormal findings, or if not sure what you felt

Breast examination

Carried out

- To investigate breast symptoms (*WBM p290*)
- As part of Adult Health Check (*CARPA STM p256*) if over 50 years and no mammogram (*WBM p287*) in last 12 months

Talk with woman

- Normal changes in breast, eg thickening of tissue, tenderness before period
- **Abnormal changes**
  - Lumps
  - Nipple discharge
  - Change in size or shape of breast or nipple
  - Change in skin, eg redness, dimpling, puckering
  - Unusual persistent pain, especially if only in 1 breast

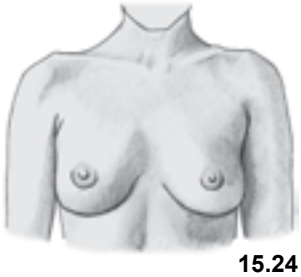
Do

- Show woman what lumps feel like using breast lump model, if available
- Ask woman to take off shirt and bra, cover her from waist down

Look

With woman sitting up — look at

- Size — normal for breasts to be a little different in shape and size, but should be about the same — F 15.24
- Skin — dimpling ('orange peel' appearance), ulcers, sores, rashes
- Nipples — discharge, sores, turning inwards (inversion)
  - Ask if inversion new or always been like that
- Ask her to raise arms, watch breasts, do they move smoothly without puckering or pulling — F 15.25
- Ask her to put hands on hips and squeeze inwards, look for difference in breast skin appearance and movement



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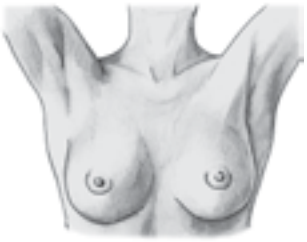


15.25

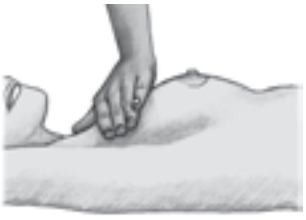
Feel

With woman lying on back — feel for lumps in breasts and armpits.

- Ask woman to put hand behind her head, to flatten breast
  - If breasts very large — put pillow under same shoulder. Creates 'poached egg effect' (centralises nipple in breast)

2 pressures used

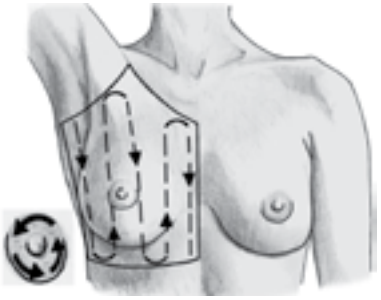
1. With flats of fingers, press firmly but gently. Use small circular movement to feel breast tissue **just underneath skin** — F 15.26
2. At same spot, make second circular movement, press more firmly to feel **deeper tissue,** but not so hard it is uncomfortable — F 15.27



15.26

15.27

- Using 2 pressures — start in middle of armpit (axilla) and work down to bra line below breast, work up and down in straight lines until whole breast has been checked — F 15.28
  - Make sure you feel carefully behind nipple
- Ask woman to bring arm to her side, allow it to relax. Feel all 4 quadrants of armpit — F 15.29. Ask about discomfort
  - Repeat on other side
- Draw diagram in file notes to show any abnormalities — F 15.30
- If abnormal findings — **medical consult**, see *Investigating breast problems* (*WBM p290*)



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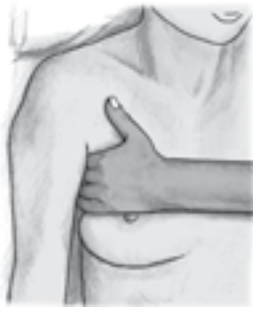
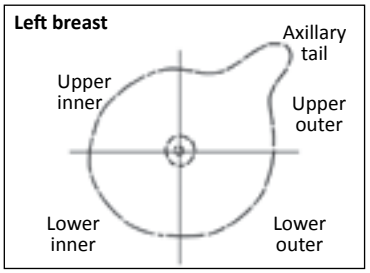


15.29

Follow-up

Encourage woman to be aware of her breasts — what is normal for her, check for changes

- Look at her breasts in a mirror
  - With arms by her side
  - With arms lifted right up
- Feel her breasts
  - If medium to large breasts — best lying down
  - If small breasts — can do in shower
- Come to clinic for a check if she finds any changes



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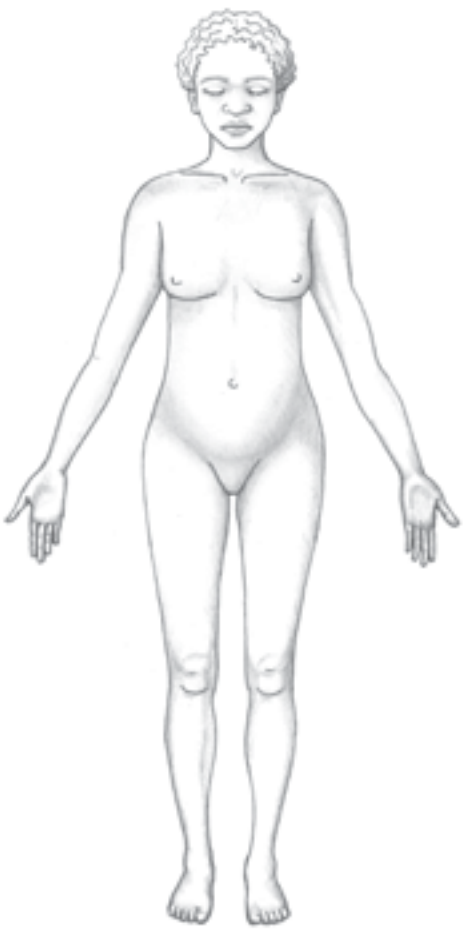
Female body charts



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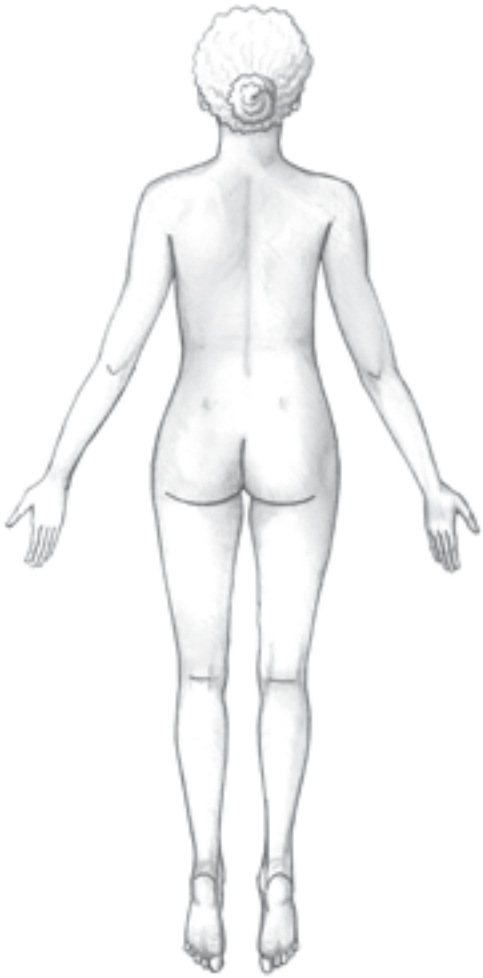

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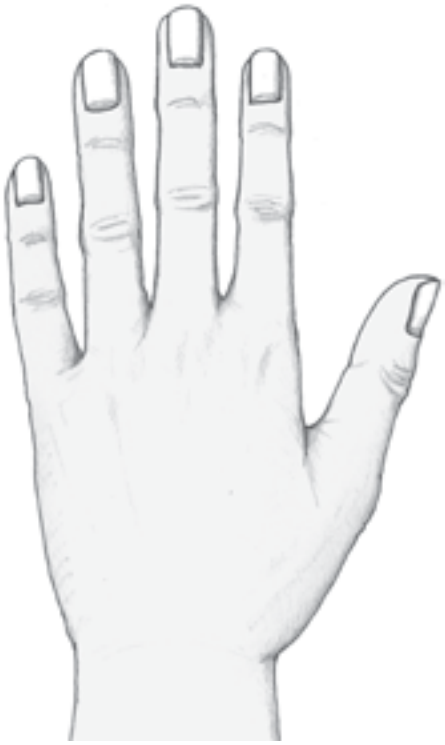

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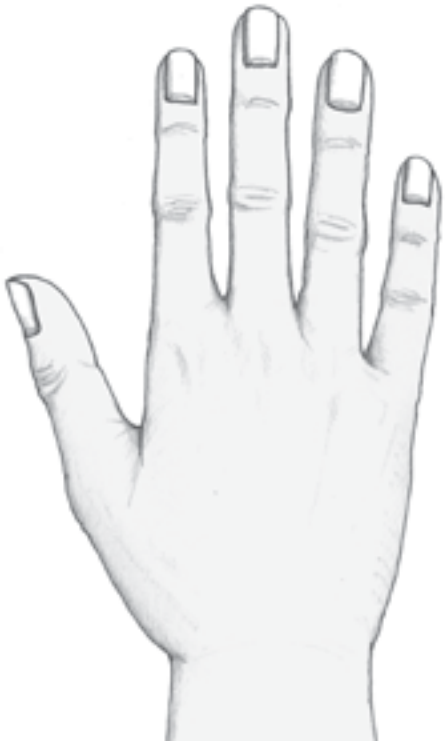

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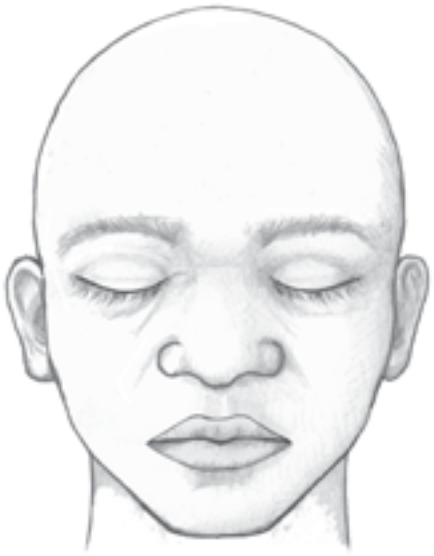

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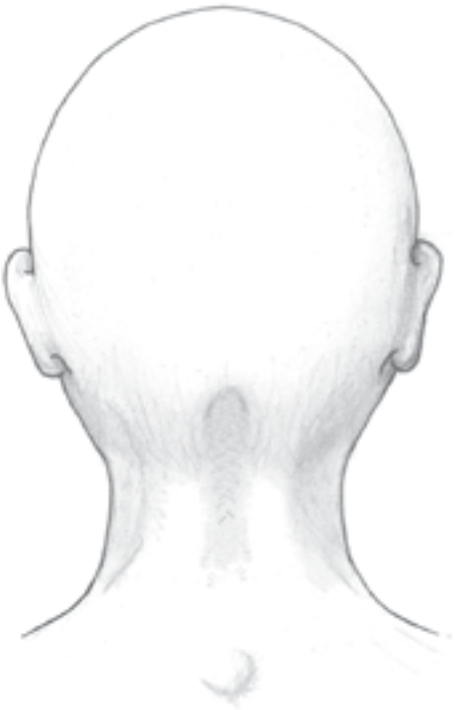

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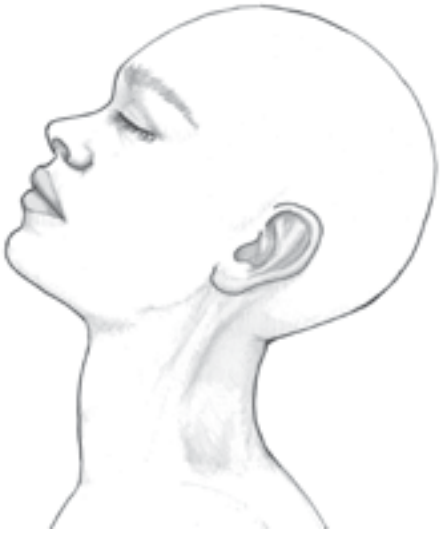

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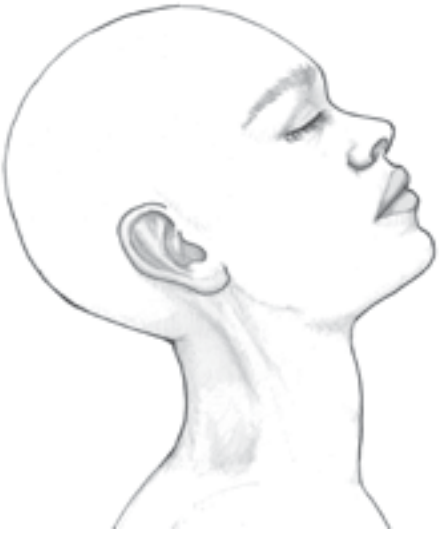

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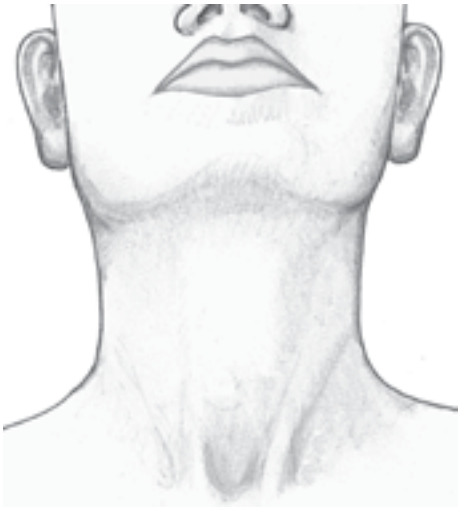

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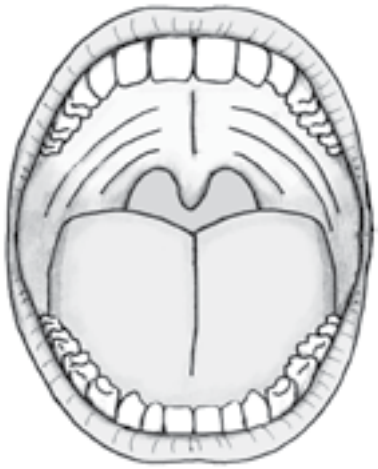

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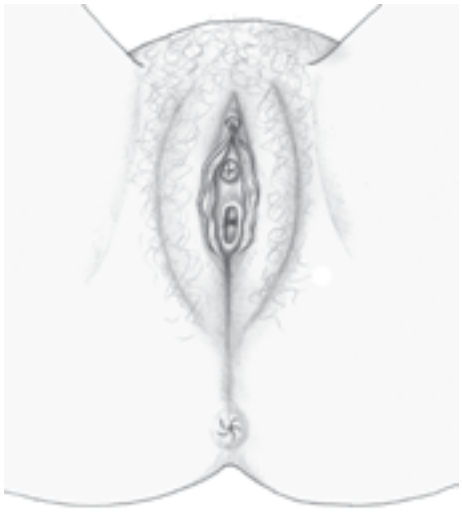

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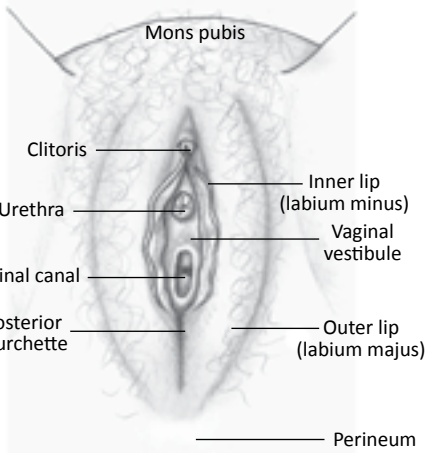


15.46

Measuring fundal height

Measurement from top of uterus (fundus) to top of pubic bone (at symphysis pubis) in pregnant woman.

- Measure at each antenatal visit after uterus has risen out of pelvis — at about 12 weeks pregnant
- Estimates how many weeks pregnant woman is, if baby growing properly
- **Measure the same way at each visit** so measurements consistent

Attention

Positioning pregnant woman

- In later pregnancy, uterus is heavy. When woman lies on her back, weight of uterus presses down on big abdominal blood vessels, she may feel faint.
  - Always put wedge/pillow under right hip to tilt woman slightly to left
  - If she feels faint — roll onto left side straight away, check fetal heart rate
- Cover woman's legs and upper body, leave pregnant abdomen uncovered

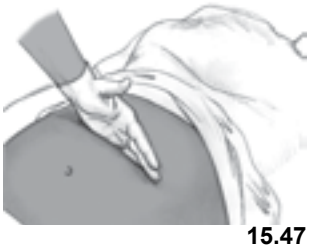
- **If you notice a contraction** — **stop** until it is over

What you need

- Disposable paper measuring tape

What you do

- Ask woman to empty bladder, collect urine sample if needed
- Lay woman as flat as possible — see *Positioning pregnant woman* (*above*)
  - Examination couch/bed must be flat
- Find top of uterus (fundus) by gently pressing side of your hand down where you think it is — F 15.47. Move hand up and down until it lies right against top of uterus (fundus). Feels like a smooth rounded muscle
- Measure with tape facing downwards so gestation or previous readings don't influence result
- Put end of tape measure at top of uterus (fundus), hold with 1 hand
- With other hand, stretch tape from top of uterus (fundus) down midline to top of pubic bone — F 15.48
- Often easier to ask woman to find pubic bone herself
- If fold of skin or fat at lower abdomen — stretch tape across the fold straight to pubic bone. **Do not** run tape under fold of skin or fat



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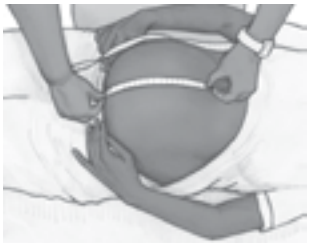
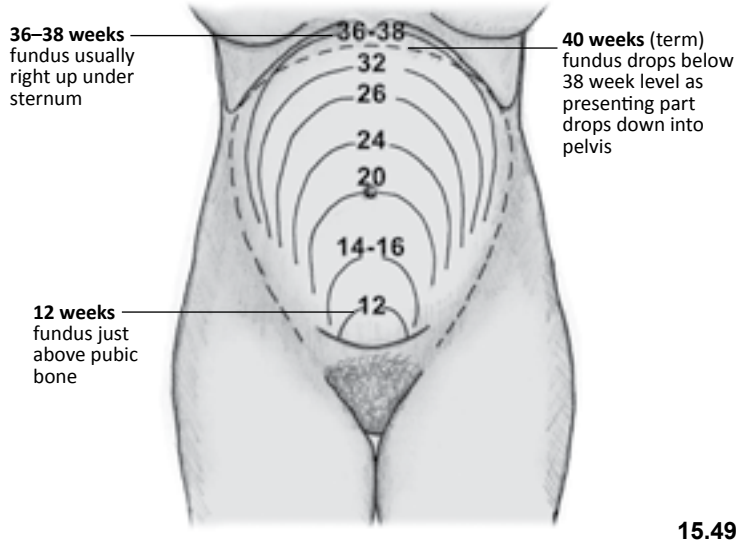


15.48

- Compare your measurement with expected measurement for woman's dates — F 15.49 and/or ultrasound
  - 12 weeks — top of uterus (fundus) just above pubic bone
  - 20–36 weeks — measurement in centimetres about the same as number of weeks pregnant
  - 36–38 weeks — top of uterus (fundus) at or under sternum
  - 40 weeks (term) — fundal height less than 38 week measurement as presenting part (eg head) drops down into pelvis
    - May not happen with first baby
  - Twins — fundal height will be about 4 weeks ahead of pregnancy dates



15.49

You can use your fingers to estimate growth — 1 finger = 1 week's growth. From top of pubic bone (12 weeks) to umbilicus, usually room for 8 fingers (8 weeks) — 12 + 8 = approximately 20 weeks growth.

Medical consult if

- Too much growth of baby (fundal height 3cm more than expected)
- Too little growth of baby (fundal height 3cm less than expected)

May need another obstetric ultrasound and review at antenatal clinic.

Palpating the baby

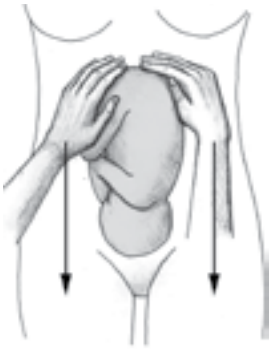
- Helps to identify part of baby furthest down in pelvis (presenting part)
  - Head (cephalic) — most common
  - Bottom (breech) — sometimes
  - Other parts of body, eg shoulder — rarely
- Most babies lie with their back to front of uterus (anterior lie) but some babies lie with their back to back of uterus and against woman's spine (posterior lie)
- If a lot of backs, limbs and/or movement — suspect twin pregnancy

What you do

- Look at abdomen for clues about which way baby is lying
- If centre of abdomen looks empty — baby's back may lie against woman's spine
  - If one side of abdomen looks fuller or firmer — baby may have back to this side and limbs to other
- Feel (palpate) with flat of your hands and finger pads
- Try to get a picture of the baby inside. Imagine what is under your hands

Top of uterus

- Face towards woman's head, put your hands palm down on either side of top of uterus — F 15.50
- Move hands down a little, feeling as you go. Feel for
  - Head — hard and even (well defined) and can be gently 'bounced' (balloted) between your hands
  - Bottom — uneven, with soft lines (poorly defined)
  - Other parts, eg shoulder — will be almost impossible to work out. If unsure — **midwife/ doctor consult**



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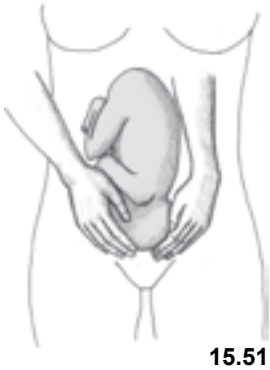
Sides of uterus — to feel for limbs and back

- Stay facing woman, keeping your hands on either side of uterus
- Feel all the way down uterus — F 15.50
  - Move one hand down at a time
  - Use opposite hand to support uterus while you explore baby's outline
- Feel for
  - **Limbs** — feel uneven, 'knobbly', may move away or even give you a kick. If baby in posterior lie — all you will feel is limbs
  - **Back** — feels firm all the way down side of uterus and won't move much if baby kicks. When you find the back, imagine where baby's anterior shoulder will be

'Presenting' part

- Face towards woman's feet, put your hands either side of lower uterus — F 15.51
- Feel for presenting part
  - Head for cephalic presentation
  - Bottom for breech presentation

Note: If head or bottom has already dropped down into pelvis ready for birth (engaged) — won't be able to feel presenting part. Check what is at top of uterus instead.



15.51

Listening to baby's heart rate

Attention

Positioning pregnant woman

In later pregnancy, uterus is heavy. When woman lies on her back, weight of uterus presses down on big abdominal blood vessels, she may feel faint.

- Always put wedge/pillow under right hip to tilt her slightly to left
- If she feels faint — roll onto left side straight away, check fetal heart rate

- **3 sounds in pregnant abdomen**
  - Sound of blood in woman's large abdominal artery (aorta). Swishing sound at same rate and rhythm as woman's pulse — about **70–100 beats/min**
  - Sound of blood passing through placenta. Swishing sound at same rate as baby's heartbeat — about **110–160 beats/min**
  - Sound of baby's own heartbeat. Sound like galloping horse's hooves on hard ground, 'clipperty clop' — about **110–160 beats/min**
- Fetal heart beat usually first heard from 10–14 weeks pregnant

Remember: May be more than 1 baby's heartbeat.

If heartbeat under 110 beats/min or over 160 beats/min — baby may be distressed. Roll woman onto left side, **midwife/medical/obstetrician consult**.

What you need

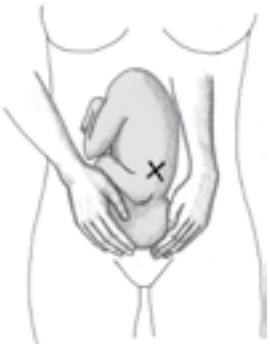
- Fetal heart doppler machine
- *OR* Pinard stethoscope

What you do

- Position woman (*above*)
- Cover woman's legs and upper body, leaving pregnant abdomen uncovered

Finding the heartbeat

- Try to find baby's position — palpate (*p430*), ask where baby kicks
- **If you know baby's position**
  - Put device on woman's abdomen over area where back of baby's shoulders lie — F 15.52
- **If you don't know baby's position**
  - Put device in centre of abdomen midway between umbilicus and top of pubic bone
  - *OR* In early pregnancy before top of uterus reaches umbilicus (12–20 weeks), put device 3 fingers above pubic bone



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- If baby upright (breech presentation) — heartbeat may be higher in abdomen
- During labour (if head coming first), heartbeat will be heard lower down towards pelvis
- If you can't hear heartbeat in any of these positions — move across abdomen in grid pattern until you have covered whole area

Remember: Take woman's pulse to be sure you are not listening to her heartbeat.

Using fetal heart doppler machine

Attention

- All machines are different — read manufacturer's instructions before use
- Probe/head delicate, be careful not to drop or bang against furniture

What you do

- Check batteries are working
- Put conductive gel over surface of probe/head, switch on machine. Have volume turned down
- Position probe/head. See *Finding the heartbeat* (*p432*)
- Turn up volume
- When you find heartbeat count for 1 full minute

Using pinard stethoscope

Attention

- Using pinard stethoscope takes practise
- **Do not** press too hard on abdomen with pinard. Uncomfortable for woman, won't help you hear any better
- Baby's heartbeat hard to hear before uterus level with umbilicus

What you do

- Examine in very quiet room
- Ask woman to lie still. Movement of clothes or material can cover sound
- Position pinard. See *Finding the heartbeat* (*p432*)
  - Put widest end of pinard ('bell trumpet') on abdomen, press just firmly enough to seal rim against skin
  - Put your ear over smaller end of pinard (diaphragm)
  - Take your hand off shaft, balance pinard between your ear and woman's abdomen, listen for 'clipperty clop' of baby's heart beat
- When you find heartbeat count for 1 full minute

Listening during labour

- Count heart rate for 1 full minute during and straight after contraction
- During first stage, check every 15 minutes, note if getting faster or slower
- During second stage (when woman pushing), check during and after each contraction. Usually slows down during contraction but should increase again at end of contraction

Listening to twin's heartbeats

- To tell if twins (without experienced practitioner or ultrasound scan) you need a helper with another doppler or pinard stethoscope
- See if you can find a heartbeat in 2 separate places, eg one low and on right, other high and on left
- Each of you should use doppler or pinard over separate heartbeat and start counting at exactly the same time. Heart rates of twins that are not distressed will differ by up to 10 beats/min
  - If one twin is distressed — heart rates may be very different

Birth and resuscitation equipment

Birth

Birthing pack (delivery/midwifery pack)

- Sterile lubricant
- Sterile sharp curved blunt-ended scissors for episiotomy
- 2 sterile metal clamps with ratchets and grazed ends for clamping cord
- Sterile blunt-ended scissors for cutting cord
- Urinary catheter equipment
- Small combine dressings
- Kidney dish for placenta
- Sponge holding forceps for membranes
- Suture materials (*p312*)
- Equipment for taking cord blood (*p446*)

General equipment

- Box of non-sterile gloves. May need to change them often
- Goggles or other eye protection
- Plastic apron to protect your clothes
- Lots of blueys, spare sheets
- Good light

Medicines

- **Oxytocin** (eg *Syntocinon*) 10units/ml (5 ampoules), 2ml syringe, 23G needle
- **Lignocaine 1%** (5 ampoules)

After the birth

- Wraps for baby — towels to dry, warmed blankets, bubble wrap, cling wrap, space blankets. See *Keeping baby warm after birth* (*p460*)
- 2 plastic cord clamps, and 2 spares in case first break
- Name bands for baby x 4
- Plastic bucket with lid or plastic bags for placenta — family may want to take it
- Thermometer, under arm (axillary)
- Paediatric **vitamin K** (eg *Konakion*) 2mg/0.2ml, 1ml syringe, 25G needle
- Birth registration forms

General equipment — mother and baby

- BP machine
- Stethoscope
- Thermometer
- Fetal heart doppler, pinard stethoscope

- Clock with second hand
- Blood specimen tubes — EDTA, plain
- Syringes 1ml, 2ml, 5ml, 10ml x 5 each
- Needles 19–26G
- **Normal saline,** tourniquet, tape
- IV giving sets (blood/fluid pump sets)
- IV cannula — 14–24G
- IV bungs, extension tubing, IV dressings
- IO needle device
- IO needles, 15mm (baby), 25mm (adult), 45 mm (obese)
- Nasogastric tubes 5F, 6F, 8F

Resuscitation — mother

- **Oxygen/medical air** with flowmeter (flow rates up to 10L/min)
- Resuscitation bag and mask, nasal prongs with oxygen tubing
- Mechanical suction and tubing
- Yankauer sucker
- Emergency trolley

Resuscitation — newborn

Warmth

- Warm towels and baby wraps, space blanket

Airway and breathing equipment

- **Oxygen/medical air** with flowmeter (flow rates up to 10 L/min)
- Infant mask and oxygen tubing. Can use cupped hand if not available
- Oxygen saturation monitor (oximeter) with infant probe
- Resuscitation bag and mask, sizes 0, 00 — assemble and check before birth

Suction

- Mechanical suction (low pressure if possible) and tubing
- Suction catheters, sizes 8F, 10F, 12F

Intubation

Use only if skilled in advanced neonatal resuscitation.

- Laryngoscope with straight blades, sizes 0, 1
  - Extra bulbs and batteries for laryngoscope
- Endotracheal tubes 2.0, 2.5, 3.0, 3.5, 4.0, 4.5mm
- Stylette or introducer
- Tape for securing tube, eg *Elastoplast*

Medicines

Use only under medical advice

- **Adrenaline** 1:10 000 (0.1mg/ml)
- **Normal saline** 30ml
- **Glucose 5%** and **glucose 10%**, 500ml
- **Water for injection** 5ml

Labour and birth

Most births are planned for a regional centre. This protocol describes care of woman having normal but unexpected birth in primary health care setting.

If birth not progressing normally — see relevant emergency procedure.

If woman arrives pushing and birth about to happen — see *Getting ready to birth baby* (*p441*).

- Childbirth is a natural event. Most women give birth without active help
- At normal birth, woman needs to
  - Have company of anyone she chooses
  - Feel safe and encouraged
  - Be free to make noise, give birth in any position she chooses

Labour

- **Labour pains** are caused by tightening of uterus (contractions)
  - Between contractions uterus is relaxed
  - During contractions uterus tightens. Put your hand on woman's abdomen to feel this happening
  - Each contraction pushes baby down on cervix and it opens a little more
- **Labour has started** when
  - Regular, painful contractions. Usually lasting 1 minute every 2–5 minutes
- **Waters have broken** (membranes ruptured) when
  - Clear fluid (liquor) loss from vagina. Doesn't always mean birth will happen soon
- **Colour of liquor** (waters) can be
  - Clear — normal
  - Bloody — mixed with mucus ('show'), normal unless 'frank' blood loss
  - Greenish/brown — meconium (baby poo) stained, baby may be distressed
- **Baby is coming when**
  - Uncontrollable urge to push, grunting, wants to go to toilet, perineum or anus bulging *AND/OR* part of baby seen when labia parted — usually head
    - If bottom or feet seen— see *Breech birth* (*p468*)
    - If cord seen — see *Cord prolapse* (*p463*) straight away

First stage of labour

From start of labour until cervix fully dilated.

First check in labour

Check — as much as you have time

Ask woman, check file notes, have helper phone hospital or other clinics for relevant information.

- **Ask**
  - Is there more than one baby
  - Is baby moving
  - When labour (pains) started
- **What is happening now**
  - Contractions
    - How often, how long — ask woman to tell you each time one starts, time over 10 minutes
    - How strong — mild, moderate, strong
  - Membranes intact or ruptured. If fluid loss — when did it start, how much, colour, smell, blood or mucus
  - If urge to push — can you see baby
- **Obstetric history**
  - When baby is due
  - Antenatal care — problems or infections during pregnancy, medical or obstetric, eg positive GBS, untreated STI, diabetes, anaemia, UTIs
    - Obstetric ultrasound report — number of babies, position of placenta
    - Blood group, latest test results
  - Number of previous pregnancies, number of live births, types of birth, multiple births
  - Problems during or after past births, eg high BP, pre-eclampsia, bleeding after birth (postpartum haemorrhage)
- **Medical history**
  - Medicines, allergies, substance use
  - Bleeding disorders, diabetes, heart disease, kidney disease, high BP

If women less than 37 weeks pregnant — see *Preterm labour* (*WBM p23*).

Check

- **Every 15 minutes**
  - Baby's heart rate

- **Every 30 minutes**
  - Woman's pulse BP, RR
  - Contractions over 10 minutes — how often, how long, how strong
  - Vaginal fluid loss — colour of liquor, blood loss
- **Every 2 hours**
  - Ask woman to try to pass urine, do U/A
  - Woman's temp
- **Every 2–4 hours**
  - Palpate abdomen, check that baby's head (or presenting part) is moving down into pelvis

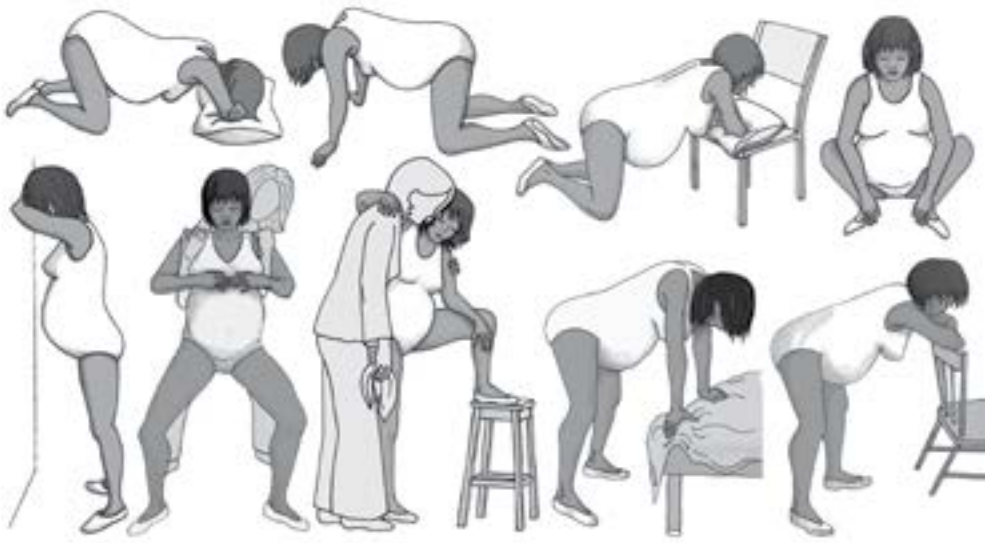
Normal observations

- Temp — less than 37.5°C
  - If more than 37.5°C — see *Group B Streptococcus* (*WBM p156*)
- Pulse — less than 100 beats/min
- BP — less than 140/90mmHg
- U/A — no more than trace of ketones or protein. Blood and leucocytes common but need **medical consult**
- Vaginal fluid loss — clear or pink
- Uterus — soft and no pain between contractions
- Contractions — become stronger, last longer, closer together
- Baby's head (or presenting part) — continues to move down into pelvis
- Baby's heart rate — 110–160 beats/min. If baby's heart rate not normal — see *Fetal distress in labour* (*WBM p37*)

Do

- **Medical consult** to talk about
  - Stopping labour (*WBM p29*)
  - Sending to hospital
  - **Oxytocin** (eg *Syntocinon*) for delivery of placenta and if bleeding after birth (*p477*)
- **Put clean pad between women's legs and monitor loss**
  - Small amount of blood and mucus ('show') normal
  - If more than 50ml vaginal bleeding — see *Antepartum haemorrhage* (*WBM p13*)
  - If green or brown vaginal fluid loss (meconium-stained liquor) — see *Fetal distress in labour* (*WBM p37*)
- **Let woman be in any position that makes her comfortable**
  - If woman wants to lie down — encourage her to use wedge to tilt her to left side

- Upright positions help labour/birth more than lying on back — F 15.53 for examples



15.53

- **If birth to progress** put in 1, or if possible 2 **IV cannula** (*p85*) (16–18G) with bung, **as soon as you can**
  - Birth is natural and not usually dangerous, but in remote clinic you need to be ready in case something goes wrong

If baby's heart rate less than 110 beats/min or more than 160 beats/min — it may be distressed.

- Change woman's position, eg if lying on back tilt to left side or sit up
- **Midwife/obstetrician consult**, see *Fetal distress in labour* (*WBM p37*)

Second stage of labour

From cervix fully dilated until birth of baby.

Getting ready to birth baby

Do — first

- Get help — don't leave woman alone
  - Have helper collect equipment (*p435*)
- If you have incubator — turn it on, needs time to heat up (*p461*)

Check

- When pushing — check baby's heart rate during and after every contraction

Do

- **Put in 1, or if possible 2 IV cannula** (*p85*) (16–18G) with bung, **as soon as you can**, if not already in place

Birthing the baby

In normal birth

- Baby will
  - Arrive (present) head first, usually with face towards mother's back
    - If bottom or feet first — see *Breech birth* (*p468*)
    - If cord first — see *Cord prolapse* (*p463*) straight away
  - Have heart rate during labour of 110–160 beats/min
  - Be bluish at birth, but become pink with first few breaths
- Vaginal discharge will be clear or pink before birth, may be mucoid and/or bloody, should **not** be green or brownish

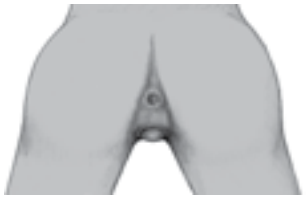
- ***Be aware:*** Woman may pass faeces when straining to push. Normal but can be embarrassing for her. Gently remove, wiping away from baby
- Let woman birth baby in any position she wants, but remind her **upright positions are best** — F 15.53 for examples (*p441*)
  - If she chooses to lie down — encourage her to lie on her left side or put wedge under right hip to tilt to left. Lying flat on her back can be dangerous for mother and baby
- **Have helper read out these instructions as you go along**

Do

- Put clean sheet under woman
- Use small combines to clean any 'show' or faeces from perineum. Wipe from front to back, then throw in bin
- Open and set up birthing pack, put on clean pair of gloves
- Put on eye protection
- Check baby's heart rate between contractions
- Talk calmly. Say things like 'You are letting this baby out so well, everything's stretching nicely', 'That's great, let the baby out slowly'

Birth of baby's head and shoulders

- Let birth of head happen slowly on its own
  - On all fours — F 15.54, F 15.55, F 15.56 (*p443*)
  - On back — F 15.57, F 15.58, F 15.59 (*p443)*
- If baby's head coming too fast — ask woman to pant or puff through contraction. Slows down birth, helps stop perineum tearing



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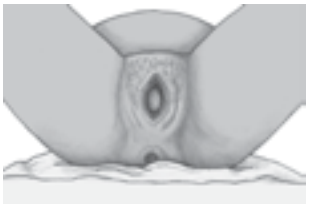

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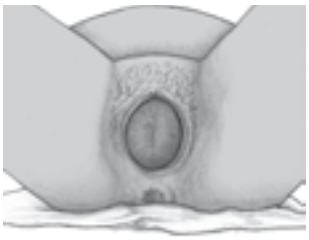

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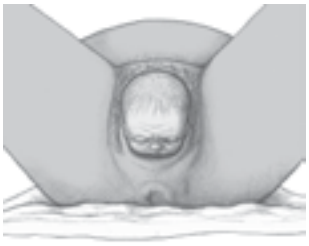
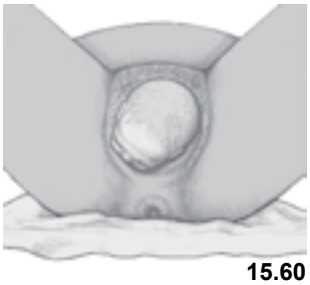


15.59

- If membranes still intact and bulging — pop with gloved finger
- **Wait for next contraction** — will take about 1 minute. As contraction starts, baby's head usually turns to face woman's inner thigh — F 15.60, F 15.61



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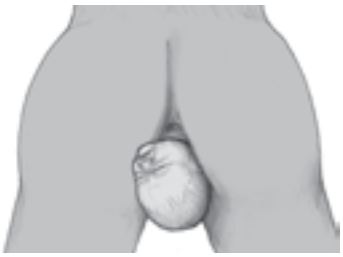


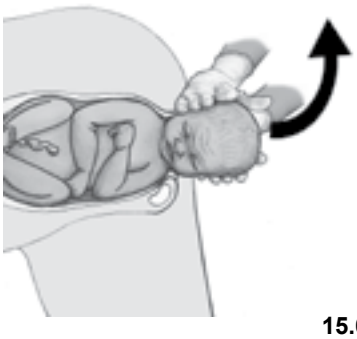
15.61

- As woman pushes with contraction, shoulders should deliver
- Shoulder under pubic bone (anterior) comes out first

If shoulder doesn't come out easily

If woman birthing on all fours

- Wait for next contraction. Holding baby's head between your hands, gently lift up towards ceiling to release anterior shoulder — F 15.62
- When shoulder comes out from under pubic bone, ask woman to stop pushing. Gently guide baby downwards towards bed/floor — F 15.63
- Other shoulder should now appear — F 15.63



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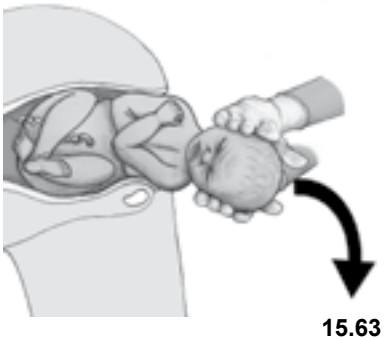
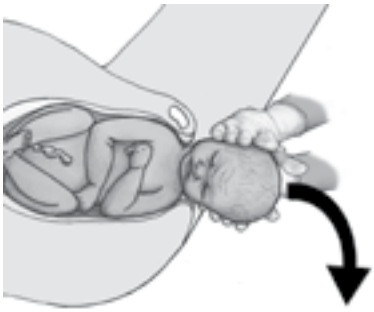


15.63

If woman birthing on her back

- Wait for next contraction. Holding baby's head between your hands, gently pull down towards bed to release anterior shoulder — F 15.64
- When shoulder comes out from under pubic bone, ask woman to stop pushing. Gently lift baby upwards towards ceiling — F 15.65
- Other shoulder should now appear — F 15.65



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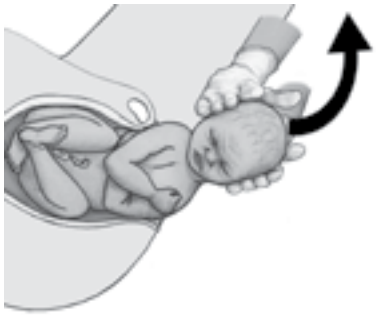


15.65

If shoulders still stuck — see *Stuck shoulder* straight away (*p465*).

Birth of body

- Support head and shoulders while waiting for rest of body to slip out. May happen straight away, or not until next contraction
- Support baby as it births. It will be slippery, so get gentle but firm grip. Can use warm towel

After the birth

- Make sure there is only 1 baby by feeling woman's uterus. Top of uterus should be no higher than umbilicus
  - If there is another baby **do not give oxytocin**. See *Birth of twins* (*p474*).
- Give **oxytocin** (eg *Syntocinon*) IM 10units in thigh
  - Placenta should separate within a few minutes. Without **oxytocin** separation may take longer

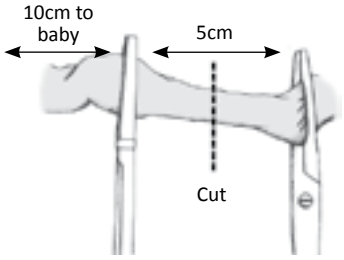
Immediate care of baby

- Put baby skin-to-skin on mother's chest/abdomen. If mother doesn't want baby on her — put baby between her legs, away from blood and mess
- Note time of birth
- Dry baby very well, remove wet towel, cover baby with warm dry towel, make sure head is covered
- Do 'rapid assessment' of baby's condition
  - Breathing or crying
  - Muscle tone
  - Heart rate

If baby floppy and/or not breathing properly and/or heart rate less than 100 beats/min — see *Newborn resuscitation* straight away .

- If baby breathing, good muscle tone, heart rate more than 100 beats/min — leave in skin-to-skin contact with mother if possible
  - *OR* If baby needs extra care — give to helper, see *Newborn needing special care* (*p492*)
  - *OR* If mother tired or unwell — give baby to family member
  - Check heart rate, RR, tone, response to stimulation, colour at 1 minute for APGAR score (*p451*)
- Have helper
  - See *Keeping baby warm after birth* (*p460*)
  - Watch baby closely over next few minutes for sign of respiratory distress
  - Check APGAR score (*p451*) again at 5 minutes
    - If less than at 1 minute — see *Newborn resuscitation* straight away (*p486*)
  - Encourage early breastfeeding — helps placenta separate from uterus, uterus to contract after placenta delivered
- See *Care of normal newborn for first 24 hours* for ongoing care (*WBM p196*)

Clamp and cut cord



15.66

- Some cultures like long cord left on baby, ask mother or support person
- Wait for 3 minutes or until cord stops pulsating if possible
- Put 2 metal clamps on cord 5cm apart, at least 10cm from baby's abdomen — F 15.66
- Cut cord **between** 2 clamps with sterile blunt-end scissors
- **Do not** take clamps off after cutting

Taking cord blood

Very important if woman Rh(D)-negative or blood group not known.

- **If before placenta delivered**
  - Unclamp metal clamp on placenta side of cord
  - Let blood flow into clean kidney dish
  - Reclamp
  - Use syringe to draw up 10ml of cord blood, put into labelled EDTA or plain specimen tube
- **If after placenta delivered**
  - Draw 10mls of blood from one placenta blood vessel with needle and syringe, put into labelled EDTA or plain specimen tube

Third stage of labour

From birth of baby until placenta delivered.

If twins — only deliver placenta/s after birth of second baby.

- Watch blood loss closely. Collect clots in kidney dish to measure later
  - Normal loss is under 500ml (2 cups), but can seem like a lot of blood
- Deliver placenta
  - If **oxytocin** given — see *Delivering placenta with controlled cord traction* (*p447*)
  - If **oxytocin** not given — see *Delivering placenta by maternal effort* (*p448*)
- Check for tears of birth canal (*p453*)
- STI check
  - Syphilis serology
  - Full STI check (*WBM p251*) if STI status unknown
  - Combined vaginal and anal swab if GBS status unknown (*p419*)

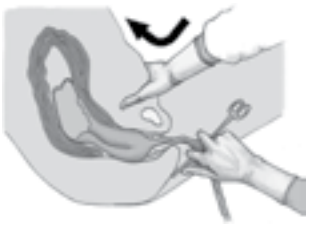
Delivering placenta with controlled cord traction

Do not

- **Do not** do controlled cord traction if **oxytocin** (eg *Syntocinon*) not available or woman refuses to have it — see *Delivering placenta by maternal effort* (*p448*)

Do

- Woman lying or half sitting on bed, with kidney dish between her legs
- Check **oxytocin** (eg *Syntocinon*) given — IM 10units into thigh
- Clamp and cut cord if not already done
- **Watch for signs that placenta has separated from wall of uterus** — trickle or gush of blood from vagina, and lengthening of cord
- Take metal clamp off cord, put back on close to vagina. Put fingers around clamp — F 15.67, or wrap cord around hand
- Put other hand above pubic bone with palm facing away from you. Use arch formed between thumb and first finger, push in and up to hold uterus in place (support it) — F 15.67
  - If cord goes back in when pushing in and up on uterus — placenta hasn't separated properly. Wait a few minutes before trying again



15.67

- Apply **gentle** traction (pull) on cord — down towards bed
- If you can't feel any movement *OR* feel cord tearing— **STOP**
  - Wait a few minutes for placenta to separate. If only small amount of bleeding, no hurry
- If you feel movement — keep applying **gentle** traction (pull) to cord until you see placenta at vaginal opening
- Hold placenta with both hands and slowly twist in one direction to peel membranes off wall of uterus
  - Keep pulling slowly and gently as you twist, until whole placenta and membranes are out
  - Put placenta in kidney dish
- Straight after placenta delivered, check top of uterus (fundus). Usually found at level of umbilicus. Should be firm like a grapefruit
  - If soft — see *Rubbing up a contraction* (*p449*)
- Check how much bleeding
- Check placenta quickly to see if there are any pieces missing, put aside to check again later (*p450*)
- Record time placenta delivered

- If placenta not delivered after following these steps — **medical consult**
- If placenta still not delivered 30 minutes after birth — see *Retained placenta* (*WBM p189*)
- If bleeding — see *Primary postpartum haemorrhage* (*p477*)

Delivering placenta by maternal effort

If no **oxytocin** (eg *Syntocinon*) available or woman refuses to have injection.

- Do nothing — let placenta be delivered by mother's effort only
- **Do not** pull on cord at any stage. May cause more bleeding

Do

- Encourage breastfeeding as soon as possible after birth. Releases natural hormone (oxytocin) that causes uterus to contract
- **Watch for signs that placenta has separated from wall of uterus** — trickle or gush of blood from vagina, and lengthening of cord
- Woman may feel a contraction or heaviness in pelvis. Usually has urge to push as placenta separates and drops down into lower part of uterus
  - Encourage woman to push when she gets the urge
  - May be easier in standing or squatting position or sitting on toilet or pan, where gravity will help
- As placenta delivers, collect in kidney dish
- Straight after placenta delivered, check top of uterus (fundus). Usually found at level of umbilicus. Should be firm like a grapefruit
  - If soft — see *Rubbing up a contraction* (*p449*)
- Check how much woman is bleeding
- Check placenta quickly to see if there are any pieces missing, put aside to check again later (*p450*)
- Record time placenta delivered

- If placenta not delivered 1 hour after birth — **medical consult**, see *Retained placenta* (*WBM p189*)
- If bleeding — see *Primary postpartum haemorrhage* (*p477*)

Finally

- See *Care of mother for first 24 hours after the birth* (*WBM p182*)
- Record in file notes
  - Date and time of birth
  - Time of delivery of placenta
  - How much blood woman lost

  - What you did, any problems you had, etc
  - Any medicines, immunisations given to mother and baby
  - If placenta and membranes complete or incomplete
  - APGAR scores — 1 minute and 5 minutes after birth (*p451*)
- Complete birth registration forms (*WBM p199*)
- Don't forget to celebrate and debrief
- If challenged or distressed by anything you saw or did — talk with
  - Friends, colleagues, qualified counsellor
  - Bush Support Services on 1800 805 391

Rubbing up a contraction

Using hands to stimulate uterine muscles to contract after delivery of placenta.

Only rub up a contraction if woman starts to bleed from relaxed uterus after delivery of placenta. Relaxed uterus will bleed heavily.

- After delivery of placenta and every 15 minutes for first hour, gently feel top of uterus (fundus). Should be hard and size of a grapefruit
  - Warn woman, as top of uterus (fundus) very tender after birth
- Have baby breastfeed if possible. Helps uterus contract
  - Important that baby feeds within first hour after birth. Most babies do this themselves if held close to breast
- Full bladder can stop uterus contracting, encourage woman to empty bladder. If unable to void and heavy blood loss — put in catheter (*p410*)

Do

- Using one hand, firmly but gently rub top of uterus (fundus)
- **Keep doing this until it becomes firm.** Will feel like a hard grapefruit or tennis ball under your hand

If uterus stays relaxed

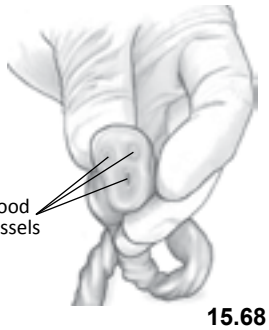
- Uterus feels spongy and bulky, woman may keep trickling or gushing blood
- Call for help
- See *Primary postpartum haemorrhage* (*p477*)

Checking the placenta

- Check placenta and membranes after delivery to make sure they are complete
- If pieces of placenta or membranes left inside — uterus can't contract completely, can cause bleeding (postpartum haemorrhage)
- Placenta may have cultural or personal significance, family may want to take it home. **Do not** dispose of it until you have asked
- If woman going to hospital — send placenta with her. Be sure it is labelled
  - Double bag then put in pathology transport container with ice brick

Do

- Look at cut cord. Usually 3 blood vessels, but sometimes only 2 — F 15.68
- Put placenta on table with fetal (cord) side up. Should be smooth and shiny — F 15.69
- Hold placenta up by cord and check membranes are intact — F 15.70
  - Note any holes, tears, ragged edges — F 15.71

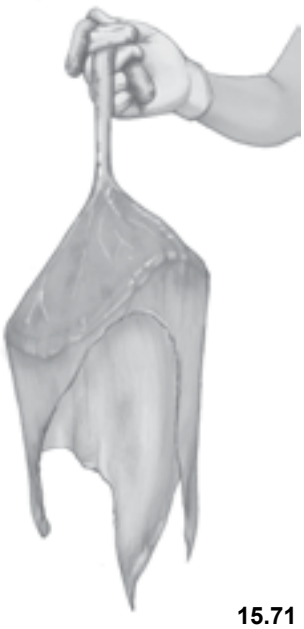


15.68

15.69

- Lay placenta flat on table with maternal side up — check it is complete
  - Note if any pieces missing — F 15.72

15.70



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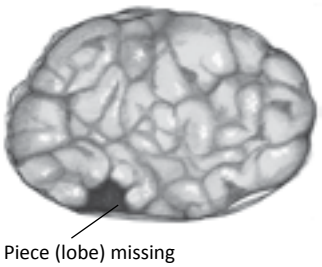


15.72

APGAR score

Used to help assess wellbeing of newborns.

- **If baby non-responsive — start resuscitation** straight away. **Do not** wait for first APGAR score

To check baby's heart rate

- Listen with stethoscope over lower left chest (apex)
- *OR* Put 2 fingers over lower left chest to feel heartbeat
- *OR* Feel at base of umbilical cord close to abdomen

Do

- Score each of the 5 signs between 0 and 2 — to give total score out of 10. See Table 15.2 (*below*)
- Check APGAR scores at **1 minute** and **5 minutes** after birth
- For sick babies keep checking every 5 minutes until score of 8 or more, or for 20 minutes

Table 15.2: APGAR score

APGAR sign	Score		
	0	1	2
A ppearance (central colour)	Grey, blue, pale	Body pink but hands and feet pale or blue	Good colour, pink all over
P ulse (heart rate)	Absent	Less than 100 beats/min	100 or more beats/min
G rimace (reflexes, response to stimulation)	No response	Pulls a face, grimaces	Cough, sneeze when mucus cleared from mouth
A ctivity (muscle tone)	Arms/legs floppy	Some flexion, elbows/knees a little bent	Flexed, all limbs moving well
R espiration (breathing)	Absent	Slow, weak, irregular	Good, strong cry

Record in file notes

- Score (*p452*)
- How long it took for baby to breathe normally
- How long it took for baby to 'pink up'
- How long before heart rate 100 beats/min or above

- **Score 8–10** — Normal score, care for baby as usual (*WBM p196*)
- **Score 4–7** — Low score, baby needs some help
  - Ask helper to find *Newborn resuscitation* (*p486*) or *Newborn needing special care* (*p492*)
  - While they are finding this
    - If RR 40 breaths/min or less and/or heart rate less than 100 beats/min — start assisted ventilation with neonatal bag and mask using room air at 40–60 breaths/min
    - If RR more than 40 breaths/min — give **oxygen** through cupped hand over mouth and nose
- **Score 0–3** — Very low score, baby needs help straight away
  - Ask helper to find *Newborn resuscitation* (*p486*)
  - While they are finding this, start assisted ventilation with neonatal bag and mask using room air at 40–60 breaths/min
  - If heart rate less than 60 beats/min after 30 seconds of ventilation — start external chest compressions (CPR at ratio 3 compressions to 1 breath), attach bag and mask to **oxygen** 10L/min

Tears of the birth canal

Common after birth. Can be tear of perineum, vagina, vulva, or rarely cervix. Always check carefully.

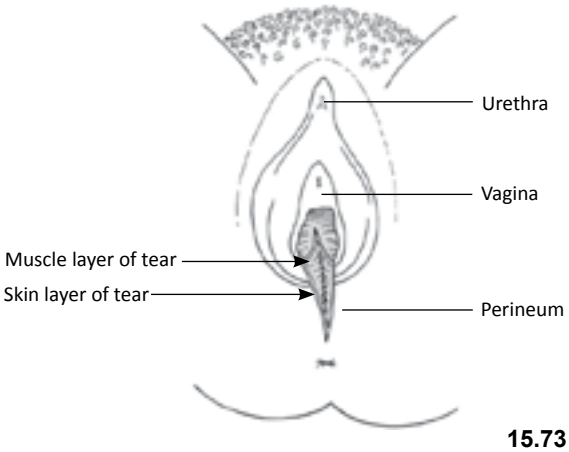
- Tears can happen if
  - Quick birth
  - Baby's head big, large baby
  - Presenting part big, eg baby's hand and arm coming out next to head
- If bright blood loss after delivery of placenta *AND* uterus firm and well contracted
  - Look at vaginal area for tear
  - If heavy bleeding but can't see bleeding tear — suspect cervical tear

If heavy bleeding at any time — see *Rubbing up a contraction* (*p449*), *Primary postpartum haemorrhage* (*p477*).

Types of tears

Table 15.3: Tears of birth canal

Classification	Type of damage
Superficial graze **1st degree tear**	Skin and superficial tissue only
2nd degree tear	Skin and muscle of perineum — F 15.73
3rd degree tear	Extends into anal sphincter, partial or fully
4th degree tear	Extending beyond anal sphincter into rectal mucosa
Episiotomy	Can extend into 3rd or 4th degree tear
Anterior genital tear	Can involve urethra, labia, clitoris



15.73

Check

- Woman often very sore, embarrassed about this examination. Be gentle, careful, sensitive
- Reassure woman, offer **nitrous oxide** (eg *Entonox)* if available for pain relief and to help relax
- Position woman lying down, bottom at edge of bed, knees bent up, feet supported
- Use good light, positioned properly
- Put on sterile gloves
- Mop up blood in vagina entrance with sterile gauze swabs
- Check perineum, vulva, urethra, labia, clitoris
  - Separate labia and look at vaginal opening
  - Wrap sterile gauze around fingers, **gently** separate walls of vagina
  - If tear/bleeding high up in vagina or hard to see — may need sterile speculum examination
- Check for 3rd or 4th degree tear — put gloved index finger into rectum, feel for anal sphincter between thumb on outside and finger on inside. Should feel circular ridge of muscle around anus
  - Check for small fibres that may indicate partial 3rd degree tear
  - Change gloves after rectal examination
- Follow each tear to end to see where it stops

Do not

- **Do not** suture tear or episiotomy unless trained

Do

Repairing tear properly will control bleeding caused by perineal trauma. Start as soon as possible.

- **Superficial graze** — common, don't need to be sutured. Sting when passing urine. Advise to drink plenty of water and use urinary alkaliniser
- **1st degree tear not bleeding** — treat as for superficial graze
- **1st degree tear bleeding** — apply pressure with sterile pad for 5–10 minutes or until bleeding stops. Add ice pack into combine pad
- **2nd degree tear** — suture unless woman refuses. See *Repairing tear or episiotomy* (*p458*)
  - If not confident about repair — control bleeding, send to hospital
- **3rd or 4th degree tear** — **medical consult**, send to hospital for repair by specialist

- If woman being sent to hospital
  - Ice pack to perineum for pain relief, ease swelling and bleeding (20 minutes on, 20 minutes off). **Do not** put ice pack directly on skin
  - If tear bleeding — apply pressure with sterile pad for 5–10 minutes
    - If bleeding continues — ask helper to apply pressure
    - Recheck for bleeding after another 10 minutes pressure
    - If still bleeding — **medical consult** again. May suggest putting in large stitches at bleeding point, clamping bleeding point, packing vagina (record what is inserted)
    - Keep applying pressure for as long as needed. Weigh pads to work out blood loss (1g = 1ml)
  - If bleeding continues — put in IV cannula (*p85*), largest possible
    - Take blood for FBE, blood group. Send in with woman
    - Start **normal saline** 1L at 125ml/hour
  - **Medical consult** about whether antibiotics needed
  - If woman unable to pass urine — put in indwelling urinary catheter (*p410*)
  - Reassure woman and family. Encourage her to hold and breastfeed baby unless feeling very unwell
  - Do routine observations for evacuation (*WBM p360*)

Remember: Keep checking uterus is firmly contracted.

Episiotomy

- Surgical cut (incision) in perineum to make opening to vagina larger. May help speed up birth of baby towards end of labour.
- May need if
  - Baby shows signs of distress for a period of time, eg baby's heart rate more than 160 or less than 110 beats/min
  - Very large baby and shoulder likely to get stuck

Attention

- **Do not** do episiotomy if woman and unborn baby not distressed and no need to hurry birth
- **Before** doing episiotomy — try changing woman's birthing position, **midwife/obstetrician consult**
- **If emergency** and you don't have time to use local anaesthetic — **cut during contraction,** while presenting part pushing down hard on perineum
- If not skilled — only do in emergency under direction of doctor or midwife
- Be ready for baby who needs resuscitation (*p486*) — call for help

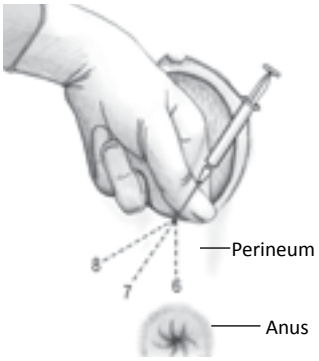
What you need

- 10ml **lignocaine 1%**
- 10ml syringe
- 21G and 23G needle
- Sharp, curved, blunt-end scissors

What you do

Give local anaesthetic — if you have time

- Between contractions put 2 fingers between baby's head and perineum — F 15.74
- Put in local anaesthetic between contractions
- Use 10ml of **lignocaine 1%**. Inject 2–3ml at 6, 7 and 8 o'clock in 'fan' shape — F 15.74
- Draw back on syringe each time to make sure that you are not injecting into blood vessel



15.74

Cutting the episiotomy

- Use sharp, curved, blunt-ended scissors
- Always angle curved end of scissors away from anus to avoid 3rd degree tear into anal canal — F 15.75
- Wait until baby's head is stretching perineum in middle of a contraction. Make cut at 7 o'clock position about 2–3cm long


15.75

Birthing baby

15.76

- Head will come more quickly now
  - Put hand gently on baby's head for support — F 15.76. **Do not** push on head
  - Ask mother **to pant** and give **little** pushes if needed, so baby born slowly
- Birth shoulders and body carefully so cut doesn't tear and get bigger
- See *Immediate care of baby* (*p445*)
- See *Repairing tear or episiotomy* (*p458*)

Repairing tear or episiotomy

Attention

Only do repair if skilled.

- If you can't do repair
  - Treat tear/episiotomy as open wound waiting to be sutured
  - **Most important to stop/control bleeding**
    - Apply pressure with pad
    - Ask woman to keep legs together to hold pad in place
    - Check blood loss often and reinforce pads as needed

- If local anaesthetic given to do episiotomy — make sure area is still anaesthetised before doing repair. Give more if needed
- **Do not** pull stitches too tight when suturing. Area may keep swelling

What you need

- Sterile dressing pack
- **Chlorhexidine aqueous solution**
- 10–20ml **lignocaine 1%**, needles and syringe for infiltration
- Sterile combine (small)
- Sterile gauze swabs x 3 packets
- Sterile suture pack with needle holders, scissors and toothed forceps
- Sterile artery forceps (fine)
- 2.0 or 3.0 absorbable synthetic suture (eg *Vicryl*, *Vicryl Rapide*, *Dexon*)
- 30–40mm half-circle or tapered needle
- Water-based lubricant for rectal examination
- Sterile towels/drape
- Ice pack
- Combine or pad

What you do

- Position woman so she is comfortable, you can see tear clearly
- Lay out dressing pack and equipment
- Count gauze squares, packs, needles — record count in file notes
- Wash hands, put on sterile gloves
- Clean site with **chlorhexidine solution**
- Drape site with sterile towels/drape
- Inject **lignocaine 1%** into whole site if needed — 10ml usually enough, but can use up to 20ml over 1 hour
  - Wait a few minutes, check area anaesthetised properly

- Check wound again. **If tear too big for you to repair — stop now**
  - Control bleeding (*p458*), arrange to send to hospital
- May need to insert vaginal pack/combine to enable good visibility while suturing. Record in file notes, **do not** forget to remove it
- Start by repairing vagina first. Find apex of tear and put first suture 3–5mm behind it — F 15.77. Use continuous non-locking stitch
- **Use these sutures** (not too tight)
  - Continuous non-locking stitch in vagina — F 15.78
  - Continuous non-locking stitch in muscle layer — F 15.79
  - Continuous subcuticular stitch in skin of perineum — F 15.80

15.77

15.78

15.79

15.80

- **If vaginal pack/combine used while suturing — take out**
- Make sure bleeding has stopped
- Do vaginal and rectal examinations — check
  - Sutures haven't gone through rectal mucosa
  - No openings between vagina and rectum
  - Sphincter feels intact
- Count gauze squares, packs, needles again, make sure count is correct, record number in file notes
- Put on ice pack (not directly on skin) then combine pad
- Give pain relief (*CARPA STM p399*)

Keeping baby warm after birth

- Babies lose heat very quickly, can quickly get cold after birth
- Cold will stress baby, cause breathing problems (respiratory distress) or low BGL (hypoglycaemia), make resuscitation more difficult

Risk factors for low temperatures

- Low birth weight
- Preterm
- Sick
- Resuscitated straight after birth
- Breathing problems
- Mother with diabetes
- Born before arriving at clinic and has become cold

Attention

- **Best way to warm baby is against mother's skin**
  - **Keep baby's head covered** — where most heat lost
  - Cover back of baby with bunny rug, sheet, clothing
- **Do not**
  - **Do not** use hot water bottle
  - **Do not** overheat baby in incubator or under overhead heater
  - **Do not** bath baby until temperature normal — most don't need bath at all

What you need

- **Warm room** for baby to arrive into
  - Turn off air conditioner and put on heating just before birth
  - If can't turn off air conditioner and warm outside — open doors and windows
- Lots of clean, pre-warmed towels, sheets, blankets. Warm by putting in sun, wrapping around hot water bottle, putting in incubator or near heater
- Bubble wrap, space blanket, cling wrap
- Incubator (*p461*)
  - Use only if mother or family member not able to hold baby *OR* baby has breathing problems and needs **oxygen**
  - Must be warm, in good working order, free of dust

What you do

- **As soon as baby born**, put onto mother's chest, skin-to-skin, and dry thoroughly with warm dry towel
- Remove wet towel and put new, warm one over baby's head and body, as baby lies on mother

- If mother not able to hold baby, and baby is pink and breathing well
  - Ask helper/relative to put naked baby under their clothes, against skin on their chest (chest-to-chest), add layers of space blankets/bubble wrap/towels around baby's body, cover head with hat or bunny rug
  - *OR* Use clean, warm towel to wrap baby as snugly as possible, making sure head is fully covered to middle of brow — F 15.81
    - Wrap body (not head) again in bubble wrap/cling wrap/space blanket
    - Give to helper to hold and watch over
  - *OR* Use incubator (*below*)

15.81

- After placenta delivered and mother comfortable, take baby's temp under arm (axillary). Make sure skin dry, thermometer snugly between folds of skin not clothing
- Wait until baby warm and settled with no signs of distress before weighing naked. Have all equipment ready before unwrapping baby
- Keep skin-to-skin with mother for as long as possible, **encourage first breastfeed within first hour** — F 15.82. Baby will warm up faster after a good feed

15.82

Using incubator or overhead heater

Attention

Baby's temperature shouldn't go up or down more than 0.5–1°C in an hour. Baby can't adjust well to rapid changes in temperature, will show signs of distress.

- Use heat shields to help reduce heat loss, eg bubble/cling wrap or space blanket over baby's body, hat or blanket for head

Incubator

Attention

- Cold incubator needs ½–1 hour to warm up so try and think ahead in an emergency. **Do not** put baby in until right temperature

Do not use incubator if you don't know how to operate it.

What you do

- Put baby into **preheated** incubator — see Table 15.4
  - Make sure you can see baby from where you are working
- Check baby's temperature **at least every 15 minutes**, adjust thermostat if needed
- Record at each check
  - Temperature of baby **and** of incubator
  - If you adjusted temperature and to what temperature

Table 15.4: Approximate incubator temperature settings on first day of life

Birth weight (g)	°C
500	35.5 +/- 0.5
1000	35.0 +/- 0.5
1500	34.0 +/- 0.5
2000	33.5 +/- 0.5
2500	33.1 +/- 0.9
3000	33.0 +/- 1.0
3500	32.8 +/- 1.2

- Cover top of incubator with blanket or space blanket to slow heat loss
  - Also blocks some light to baby, can lessen stress response and help baby maintain temperature
- **Do not** open incubator or portholes unless you have to, lets heat escape
- Do normal observation (*p445*) as for any baby after birth

Overhead heater

What you do

- **Keep checking** baby isn't too close to heater, or too hot
- Check and record baby's temperature **at least every 15 minutes**

Cord prolapse

Cord coming out before baby. Cord drops out of uterus before head or presenting part delivers.

Emergency

- Cord can be compressed between baby and pelvis during a contraction **and/or** spasm in colder outside temperature
- Both stop blood supply from placenta, baby could die
- Aim is to take pressure off the cord

- **Think about cord prolapse if**
  - Woman has ruptured membranes and baby's heart beat becomes very slow, irregular, or disappears, especially if baby preterm
  - Woman feels something drop out of vagina
  - Cord may be at entrance to, or out of, vagina — F 15.83 or at vulva

15.83

Check

- Must do vaginal examination to diagnose cord prolapse unless cord is visible outside vagina. Cord is smooth pulsating band

- Handle cord as little as possible
- Sterile gloves best, but don't delay treatment if not available quickly
- Calmly tell woman what's happening. You need her help and attention

Do not

- **Do not** let woman eat or drink anything — may need operation
- **Do not** try to put cord back into uterus

Do — if birth not about to happen

- Call for help
- If cord outside vagina — use gloved hand to gently put it back in vagina to keep warm
- Ask woman to get into knee-to-chest position — F 15.84
  - *OR* Lie on left side with pillows or blanket under hips and head tilted down — F 15.85

15.84

15.85

- **With gloved hand, put 2 fingers into vagina and push head** (or presenting part) **off cord**.
- **You need to stay like this until baby born** — can be hours

- Ask helper to
  - Do **medical consult**
    - Arrange to send woman to hospital straight away
    - Ask about stopping labour (*WBM p29*)
  - Give woman **oxygen** by mask 8L/min
  - If likely to be long time before delivery — put in indwelling urinary catheter (*p410*)
    - Use standard giving set to fill bladder with **normal saline** 500–700ml (as tolerated)
    - Clamp catheter
    - Every hour, release clamp, drain 30ml of urine and re-clamp catheter. Do more often if giving IV fluids
  - Take blood for FBE, blood group. Send in with woman
  - Monitor baby's heart rate (*p432*)
  - Calm and reassure woman

Do — if birth about to happen

If woman has urge to push — need to birth baby quickly as baby not getting oxygen supply through cord.

- Talk woman through what is going to happen in next few minutes
- Ask/help woman to get into upright position — F 15.86 for examples
- Encourage woman to push as hard as she can and birth baby as soon as possible. See *Labour and birth* (*p438*)
  - ***Be aware:*** Baby may be in breech position. See *Breech birth* (*p468*)
- Be ready to resuscitate baby (*p486*)

15.86

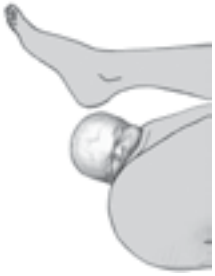
Stuck shoulder (shoulder dystocia)

Baby's head born but shoulder stuck behind pubic bone.

Emergency

- If shoulder stuck too long — risk baby will not get enough oxygen (hypoxia), have brain damage, or die
- **Do not** use a lot of force on baby's head or neck. Will not move shoulders, may injure baby
- Aim is to release stuck shoulder by moving shoulders so they fit through pelvic outlet

Check



15.87

- **Signs of shoulder dystocia**
  - Baby's neck and chin retract back into woman's body, face looks squashed ('turtle sign') — F 15.87
  - Body does not birth with next contraction

Do

- Explain to woman what is happening. She will be more able to help if she understands what is going on
- **Call for help**
  - Get **midwife/doctor/obstetrician** on speaker phone, if none locally
  - Have helper read each step out to you
  - If second helper — have them check time as you go through steps
- Try each step for 30 seconds before going to next
- Start steps with or without contraction
- Try each step in order until one works. When first shoulder released, other shoulder should follow and baby's body will be born
- Then see *When shoulder released* (*p467*)

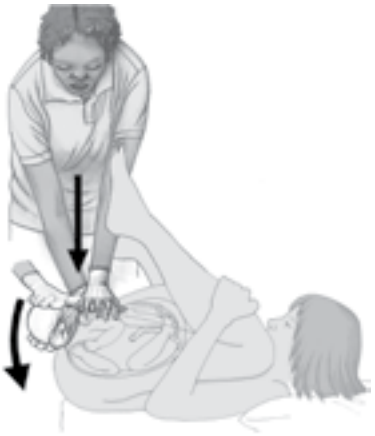
Step 1

- Help woman onto back with bottom at edge of bed if possible. Lay flat on back with just one pillow under head
- Have helper push on woman's feet to push bent knees towards chest
  - *OR* Have woman hold legs and pull knees towards chest (knees-to-nipples) — F 15.88
- Ask woman to push. At same time, using palms of your hands, apply **gentle** steady traction (pull) to baby's head downwards towards anus/floor to release top shoulder — F 15.88

15.88

If doesn't work (no progress) — Step 2
(Rubin 1 manoeuvre)

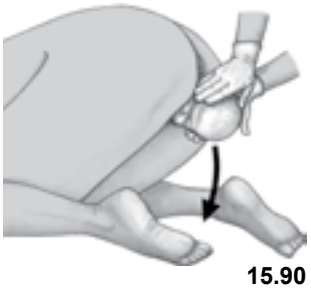
- Woman in same position as Step 1 — on back
- Keep applying gentle traction (pull) to baby
- At the same time have helper interlock hands as for CPR, put hands just above pubic bone, and push down (on side of baby's back) — F 15.89
  - Helper is trying to push baby's shoulder toward its chest and out from under pubic bone
  - Apply continuous pressure for 30 seconds
  - If no progress — try same pressure in up and down rocking motion for another 30 seconds



15.89

If this doesn't work — Step 3

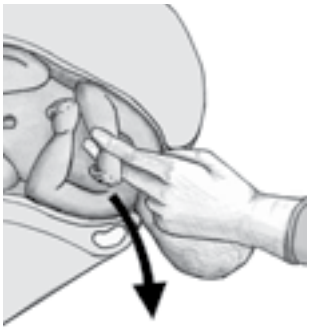
- Help woman onto all fours, still in knees-to-nipples position
- Apply **gentle** traction (pull) on baby's head downwards towards woman's front — F 15.90



15.90

If this doesn't work — Step 4

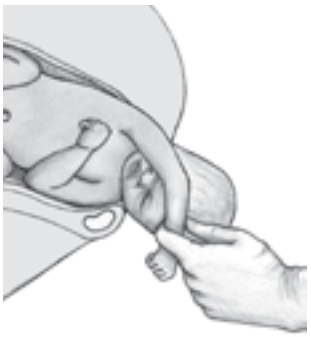
- Woman in same position as Step 3 — on all fours, knees-to-nipples
- **Try to release uppermost arm**
- Entering near anus, put fingers into vagina along baby's face
- Find baby's uppermost hand — may be in front of face or chest. Grab hand between your fingers — F 15.91, sweep hand forward towards nose and over face — F 15.92
  - If you can't find hand, try to bend elbow to bring hand forward
- Once arm outside vagina, apply **gentle** traction (pull) on baby's head down towards bed (ground). Top shoulder should come out



15.91

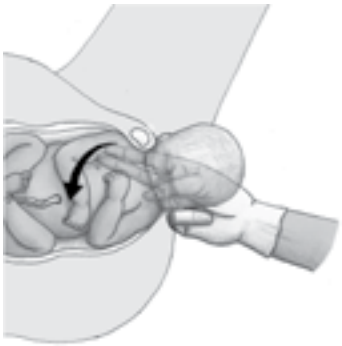
If this doesn't work — Step 5
(Woods' screw manoeuvre)

- Roll woman **back onto her back** and **try to turn (rotate) shoulders**



15.92

- Put 2 fingers into vagina near anus — F 15.93. Slide fingers up baby's back and find scapula behind top shoulder
- At same time put 2 fingers of your other hand in front of bottom shoulder — F 15.94
- Push forward on the top shoulder and backwards on the bottom shoulder at the same time — F 15.95
- If you feel shoulders turn — use palms of your hands to apply gentle traction (pull) to head — F 15.88 (*p465*)



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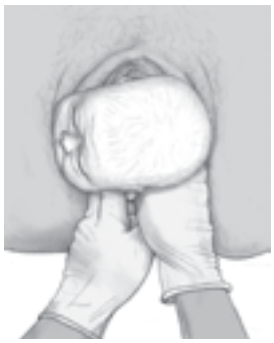
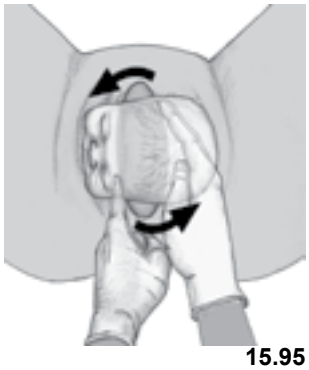


15.94



15.95

If these steps don't free baby's shoulder — breathe in, stay calm, do them again from beginning.

When shoulder released

- Support baby as it births. It will be slippery, so get gentle but firm grip. Can use warm towel
- See *After the birth* (*p445*)
- Baby will probably need **resuscitation** (*p486*)

Note: Woman more likely to have postpartum haemorrhage (*p477*)

Breech birth

Baby's bottom or foot comes out first.

- Many breech babies are born with little help
- If baby premature — increased risk of cord prolapse (*p463*), head getting stuck
- Baby more likely to open its bowels (pass meconium). May be just before birth, earlier in labour may mean baby is distressed
- Baby's oxygen supply may be decreased. **Be ready to resuscitate** (*p486*)
- Only do vaginal examination if skilled

Equipment

- Birth and resuscitation equipment (*p435*)
- Sterile Sims' speculum — F 15.96

15.96

Do — first

- Call for help
  - Get **midwife/doctor/obstetrician** on speaker phone, if none locally
- Find support people, if possible female ATSIHP or AHW or older women familiar with birthing
- Try to remain calm and confident
- Get ready to send to hospital

If in labour

- Unless birth is about to happen, **try to stop labour** (*WBM p29*). **Medical consult**
- Make sure woman has emptied bladder

If labour continues and birth likely

- Put in IV cannula, largest possible (*p85*)
  - Bung, flush with 5ml **normal saline**
- If waters break — check for cord prolapse (*p463*). Cord may be seen at vulva or felt just inside vagina. More common in breech birth
- If baby's foot seen at vulva or felt — **wait**
  - Baby's foot may have slipped through cervix that still needs to dilate
  - Baby will not be born until its bottom is at vulva. May take some time
  - Dilation may take some time, you may be asked to try to stop labour.
  - Get everything ready as you would for a normal birth

2 methods to manage breech birth

- **Normal (unassisted) breech birth** — no need to touch baby, it comes by itself
- **Assisted breech birth** — you need to help baby to be born

Do — normal (unassisted) breech birth

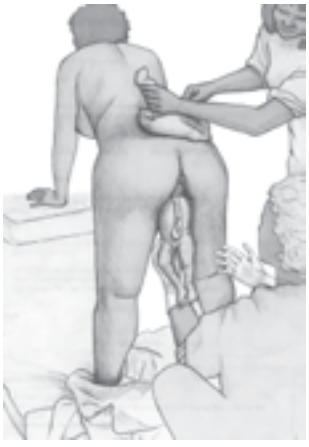
- Next steps outline birth that progresses normally
- If no progress with every contraction — see *Assisted breech birth* (*p470*)
- Have midwife/doctor/obstetrician on speaker phone if none locally

- Make sure woman in comfortable **upright** position (not lying down)
  - Standing position with buttocks leaning against edge of bed so she can rest in between contractions and baby can hang as it slowly comes out — F 15.97
  - *OR* other comfortable position — F 15.98 for examples

15.97

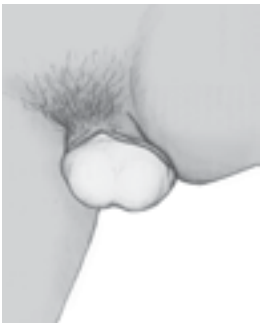
15.98

- Gravity will help with birth. Be ready as it can happen quickly, especially if baby preterm
- Check baby's heart rate after each contraction
- Reassure woman that everything is going well, she is doing a wonderful job
- Keep your 'hands off the breech' — **do not** touch the baby
- If progress seems slow — ask woman to change to another upright position
- Woman should push when she wants to — unless baby distressed. If distressed — see *Assisted breech birth* straight away (*p470*)
- **Make sure baby's back stays opposite to woman's back**
  - If you are in front of woman — you will see baby's back
  - If you are behind women — you will see baby's abdomen — F 15.99
  - If baby starts to turn so it is facing the same way as woman — see *Assisted breech birth* to help turn it back (*p470*)

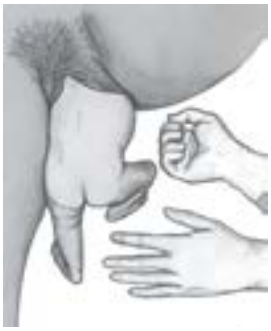


15.99

- Watch for progress with each contraction — F 15.100. 'Hands off' — F 15.101 but be ready to catch baby — F 15.102



15.100



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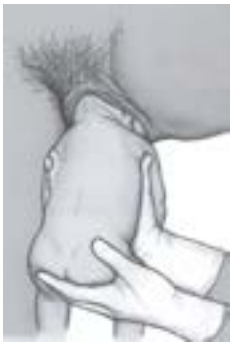


15.102

- Rub dry vigorously with warm towel. Breech babies often need more stimulation, may need resuscitation (*p486*)

Do — assisted breech birth

- **Do not** pull on baby — can cause head or shoulders to get stuck
- **Do not** hold baby by its abdomen — hold hips (bony pelvis) by putting your thumbs on baby's buttocks and your fingers around its thighs

- If baby's heart rate less than 110 beats/min (fetal distress) *OR* heart rate doesn't return to normal after a contraction *OR* no birth progress with each contraction — **change woman's position**
  - On bed with elevated back, keep her as upright as possible
  - Bring buttocks to edge of bed in half sitting position with someone holding legs up towards her abdomen. Support legs wide apart
  - *OR* If you have no help — get woman to hold her legs behind the knees, pull them back on to her abdomen towards her chest — F 15.103

15.103

- Ask woman to push with each contraction
- If baby is out to its umbilicus but legs are not out yet
  - Put a finger into vagina and push behind baby's knee – knee will bend and you can easily help leg out
  - Repeat for other leg
  - Be careful not to damage perineum
- Birth should keep progressing with each contraction
- Baby might start to turn on its side when shoulders are coming out — make sure baby doesn't turn too far

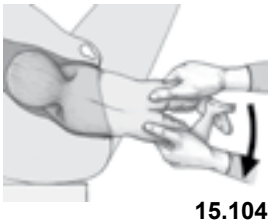
Remember: If you are facing woman, you should see baby's back.

If arms not coming and not seeing progress

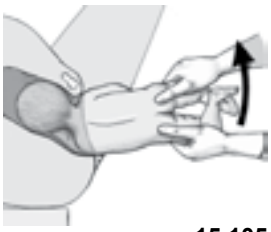
Need to **help birth** by **turning baby** to help arms and shoulders out.

> ***Remember:*** **Do not** hold baby by its abdomen *AND* **do not** pull baby. Hold hips (bony pelvis) by putting your thumbs on baby's buttocks and your fingers around its thighs.

- Turn baby on its side (with a contraction), lower baby to let baby's weight bring top arm out — F 15.104
- If baby's arm doesn't come — put finger into vagina along baby's back, over its shoulder and down chest, sweeping arm out
  - Be careful not to damage vaginal tissues
- Lift baby up to let other arm come out — F 15.105
- If you see shoulder but arm doesn't come — put finger into vagina along baby's back, over its shoulder and down chest, sweeping arm out
- Once shoulder blade is visible shoulders should be born with next push. Usually happens without difficulty



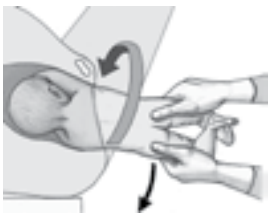
15.104



15.105

If arms still don't come

- Keep holding baby by its hips, turn baby half circle (180°) to face opposite side, lower baby to let baby's weight bring top shoulder towards front and under pubic bone — F 15.106
- If arm doesn't come out — put finger in vagina along baby's back, over its shoulder and down chest, sweeping arm out

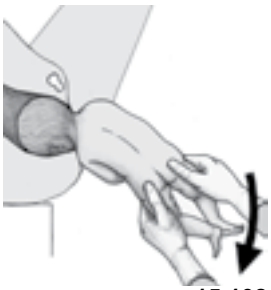


15.106

> When turning baby, keep baby's back opposite to woman's back (uppermost) at all times. **Do not** let baby turn onto its back.

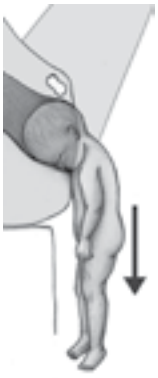
- To get other arm out — turn baby back another half circle (180°) in opposite direction — F 15.107, put finger in vagina along baby's back, over its shoulder and down chest, sweeping arm out
- When arms are out turn back so baby facing mother's back, let baby hang — F 15.108

15.107



15.108

To deliver head

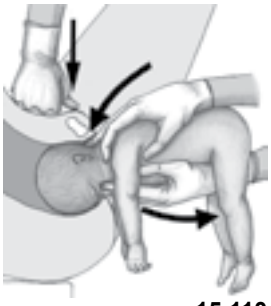


15.109

- Let baby hang and birth slowly until you can see back of baby's neck (nape) — F 15.109
- Ask woman to pant — not push. Let head come out **slowly**

If head doesn't come out easily

- Let baby rest on your forearm
- Put your index and middle fingers on baby's cheek bones or in baby's mouth — F 15.110
- Helper pushes down with closed fist just above pubic bone (suprapubic pressure) — F 15.110. Helps to keep baby's head flexed
- Put your other hand across baby's shoulders and push your middle finger against back of baby's skull (occiput) — F 15.110
- Push back of head forward and pull finger in mouth down and backwards while helper pushes from above. **Do not** twist baby
- Ask woman to pant and let head come out slowly
- Chin and mouth come out first, head will follow. As head is born through this flexing motion, lift (not pull) baby upwards — F 15.111



15.110

If head still won't come

15.111

- Lay mother down. Hold baby by legs and lift body up
- Pass Sims' speculum (or bottom of bivalve speculum) along back wall of vagina, past baby's mouth and nose. Leave it there
- Suction out secretions in vagina, around baby's mouth and nose
- Baby now has clear passage of air if it starts to breathe
- Put oxygen tubing along Sims' speculum, give **oxygen** at 2L/min
- **Midwife/doctor/obstetrician consult** straight away
  - Stay calm, talk woman through what you are doing

Remember: If baby's body delivered — head will follow. Just needs enough flexion from below and pressure from above, from either contractions or strong suprapubic pressure.

After baby born

- See *After the birth* (*p445*) and follow rest of steps for care of mother and baby

Follow-up

- Talk with mother and others there, explain what you were doing
- Talk with doctor and midwife about follow-up for mother and baby
- Baby will need to be sent to hospital if birth traumatic
- All breech babies need to be seen by paediatrician to check hips and for congenital abnormalities that may have caused breech position

Birth of twins

Emergency medical procedure. Rare in remote context but may happen if woman hasn't had antenatal care or can't get to hospital in time.

Urgent problems

- Preterm labour
- One or both babies may not be coming head first, eg breech presentation
- Cord may come before either baby (cord prolapse)
- Fetal distress, especially of second baby
- Woman more likely to bleed heavily after birth (postpartum haemorrhage)
- If not known to be twin pregnancy and **oxytocin** (eg *Syntocinon*) given after first born — cervix may close before second twin born

Do — first

- Call for help
  - Get **midwife/doctor/obstetrician** on speaker phone, if none locally
  - Arrange to send to hospital
- Do *First check in labour* (*p439*)
- Reassure woman, explain what is happening, have someone stay with her for support

If in early labour

- **Medical consult** about stopping labour (*WBM p29*)

If membranes rupture — check for cord prolapse. If cord seen at vulva or felt just inside vagina — see *Cord prolapse* straight away (*p463*).

If labour continues

- Have helper do **medical consult**, keep them on speaker phone
- See *Labour and birth* (*p438*) and *ALSO*
  - Put in second IV cannula, largest possible (*p85*)
    - Give **normal saline** at 125ml/hr
  - **Do not** let woman eat or drink anything — may need operation

You will also need

- 1–2 people to look after each baby
- 2 sets of birth and resuscitation equipment (*p435*)
- 2 oxygen sources
- 2 suction attachments
- 2 sets of 2 cord clamps labelled 'Baby 1 and Surname' and 'Baby 2 and Surname'

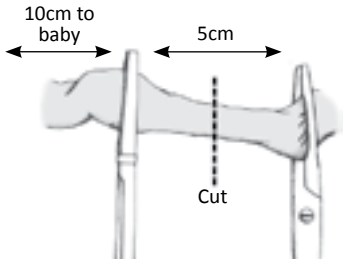
- 2 sets of 2 name bands, labelled 'Baby 1 and Surname' and 'Baby 2 and Surname'
- **Oxytocin** (eg *Syntocinon*) infusion (40units in 1L **normal saline**) — start **only after second baby is born** and placenta delivered

The birth

First baby

Birth of first baby

- If baby coming head first — see *Birthing the baby* (*p442*)
- If baby is coming bottom or foot first — see *Breech birth* (*p468*)
- Then continue with this protocol
- **Do not** give **oxytocin** (eg *Syntocinon*) until after second baby born
- **Do not** deliver placenta until after second baby born
- **Clamp and cut cord**
  - Some cultures like long cord left on baby, ask mother or support person
  - Wait 3 minutes or until cord stops pulsating if possible
  - Put 2 metal clamps ('Baby 1') on cord 5cm apart, at least 10cm from baby's abdomen — F 15.112
  - Cut cord **between** the 2 clamps with sterile blunt-end scissors
  - **Do not** take clamps off after cutting



15.112

- Dry and wrap baby, give to helper to assess, resuscitate (*p486*), keep warm (*p460*) as needed. See *Immediate care of baby* (*p445*)

Check — after birth of first baby

- Woman's pulse and BP
- Heart rate of the second twin
- Vaginal blood loss
- Colour of liquor
- Try to work out position of second baby by palpating uterus (*p430*), eg head or bottom first
- Feel for contractions — often stop for up to 5 minutes after first birth

Midwife/obstetrician consult about

- Findings and further management
- IV fluids
- Whether to do vaginal examination (only do if skilled)

- **Let them know straight away if**
  - Woman bleeding heavily
  - Baby's heart rate less than 110 or more than 160 beats/min
    - Try changing woman's position and check baby's heart rate again
    - Lie woman on her left side
    - Give **oxygen** by mask 8L/min

If no contractions after 5 minutes

- Check vaginal blood loss and baby's heart rate (*p432*) every 5 minutes
- Keep woman on her left side, reassure her, keep comfortable
- If vaginal blood loss small and baby's heart rate normal — wait for evacuation to hospital
- Think about asking mother to breastfeed Baby 1 to stimulate contractions

Second baby

If labour continues

- If baby coming head first — see *Birthing the baby* (*p442*)
- If baby coming bottom or foot first — see *Breech birth* (*p468*)
- If another part of baby felt — **medical consult** straight away

If membranes rupture — check for cord prolapse

- If cord seen at vulva or felt just inside vagina — put/keep your fingers in vagina and push baby away from cord. See *Cord prolapse* straight away (*p463*)

After birth of second twin

- Clamp cord ('Baby 2' clamps) and cut (as for first baby *p475*)
- Dry and wrap baby, give to helper to assess, resuscitate (*p486*) keep warm (*p460*) as needed. See *Immediate care of baby* (*p445*) and follow remainder of care for baby
- Check there isn't a third baby
- **If no more babies** — give **oxytocin** (eg *Syntocinon*) IM 10units in thigh
- Deliver placenta, or if 2 placentas, deliver both together
  - If **oxytocin** given — see *Delivering placenta by controlled cord traction* (*p447*)
  - If **oxytocin** not given — see *Delivering placenta by maternal effort* (*p448*)
- After placenta/s delivered, start **oxytocin** (eg *Syntocinon*) infusion (40units in 1L **normal saline**) at 125ml/hr
- Collect cord blood (*p446*) from both cords and label 'Baby 1 and Surname' and 'Baby 2 and Surname'
- While waiting for evacuation — see *Newborn needing special care* (*p492*) and *Care of mother for first 24 hours after the birth* (*WBM p182*)

Primary postpartum haemorrhage

Vaginal blood loss of 500ml (2 cups) or more within first 24 hours after birth *OR* any bleeding that causes signs of shock.

- Empty contracted uterus does not bleed heavily
- Heavy bleeding can have more than one cause

Urgent problems

- Woman may die from blood loss
- Continuous slow bleeding or sudden heavy bleeding is an **emergency**
- Blood loss often underestimated — woman can lose 1200–1500ml of blood before showing signs of shock
- Women with anaemia (*WBM p137*) at more risk

Signs of shock

- Restless, confused, drowsy, unconscious
- Pale, cool, moist, skin
- Pulse fast (more than 100 beats/min) or difficult to feel
- Low BP (systolic less than 100mmHg)
- Fast breathing
- Capillary refill longer than 2 seconds

Causes

- Uterus not contracted (atonic uterus) — **most common** cause
- Tears of birth canal (perineum, vagina, cervix, uterus)
- Placenta and/or membranes left inside uterus (retained placental products)
- Underlying bleeding disorder
- Full bladder preventing uterus from contracting properly after birth

Do — first

Remember —*Life support – DRS ABC D* (*CARPA STM p2*).

- Call for help
  - Get **midwife/doctor/obstetrician** on speaker phone, if none locally
  - Work with helper/s to move through protocol as quickly as possible
- Make sure there is only 1 baby by feeling top of uterus (fundus). Should be no higher than umbilicus
- If placenta delivered and top of uterus (fundus) soft — rub up a contraction (*p449*) to help pass clots
  - Get helper to do this until uterus stays hard (contracted), then recheck every 5 minutes

- Give **oxytocin** (eg *Syntocinon*) IM 10units
- Put in IV cannula, largest possible, if not already in (*p85*)
  - Give **normal saline** 1L straight away
  - If you can't get IV cannula in — put in IO needle (*p89*)
- Put in indwelling urinary catheter (*p410*) with drainage bag and hourly measure
- Try to keep woman calm
- Keep baby with mother, encourage to breastfeed to stimulate contractions

Check

- Uterus contracted, pulse, BP, vaginal blood loss every 5 minutes while bleeding, then every 15 minutes
  - Put pad between woman's legs. Change pad at each check. Save and weigh all pads (1g = 1ml)
- RR, O_2 sats every 15 minutes
- Hb (if *Haemacue* or POC available)
- Temp

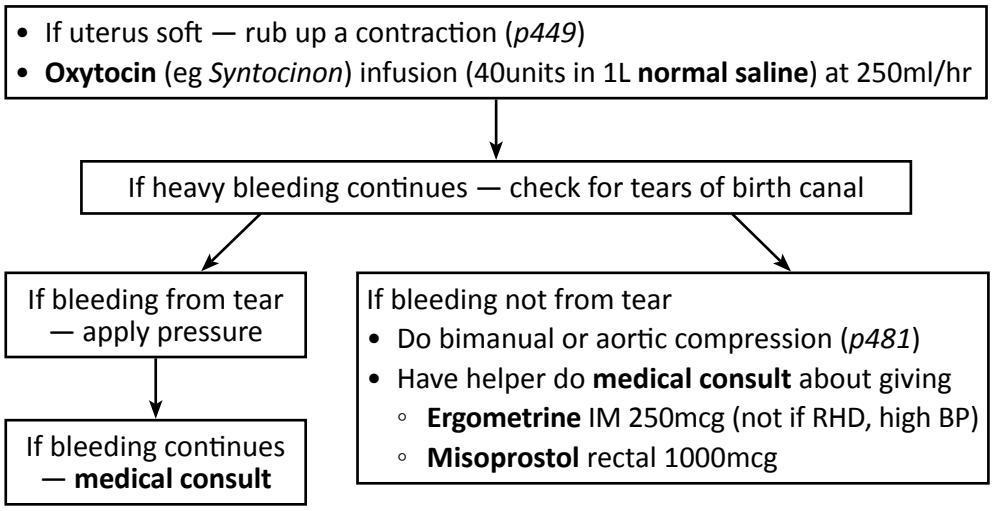
Do

- Give **oxygen** by non-rebreather mask 8–12L/min
- **Medical consult** about further management, sending to hospital
- Put in second IV cannula, largest possible, if not already in (*p85*). Bung, flush with 5ml **normal saline** every 4 hours
- Examine cervix, vagina, perineum for tears. Manage what you find — see *Tears of the birth canal* (*p453*)

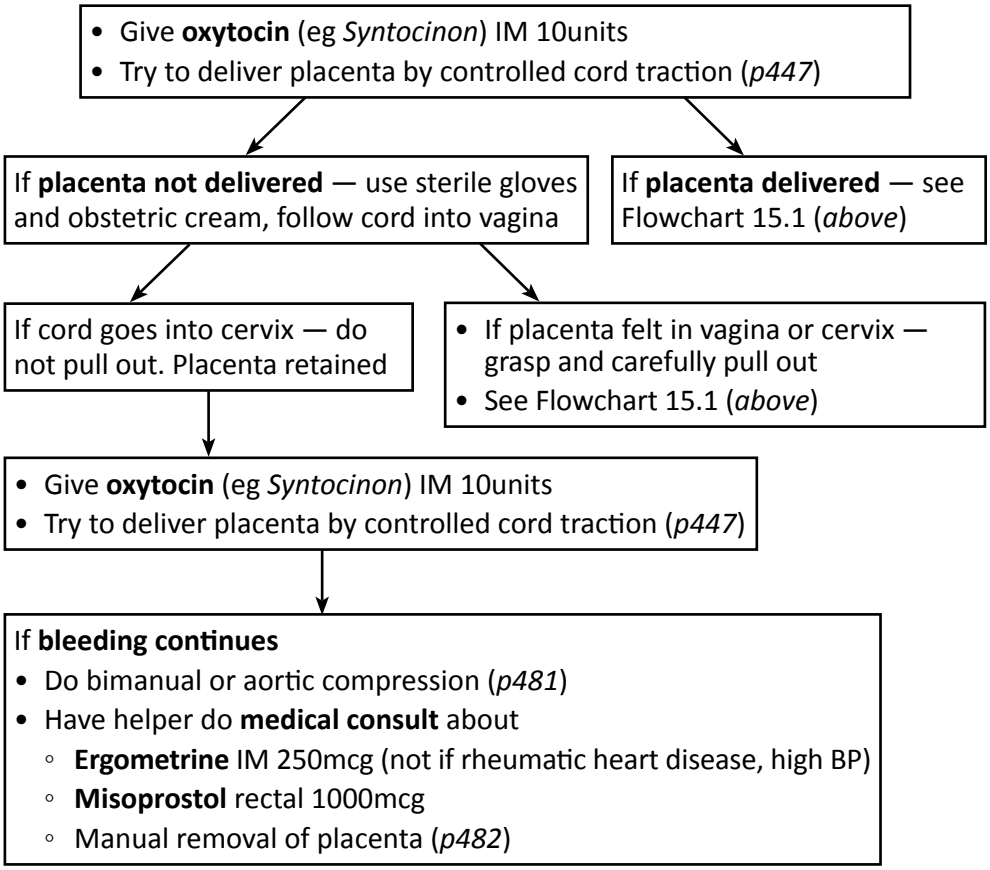
If bleeding still heavy *OR* **signs of shock** — give another 500ml **normal saline** straight away.

- **If placenta delivered — follow Flowchart 15.1** (*p479*)
  - Check top of uterus (fundus) at each step
  - If bleeding settles — stop at that step, **medical/midwife consult**
  - If heavy bleeding starts again or uterus doesn't stay contracted — rub up a contraction (*p449*), continue to work through steps
- **If placenta not delivered — follow Flowchart 15.2** (*p479*)
  - If bleeding settles — stop at that step, **medical/midwife consult**

Flowchart 15.1: If placenta delivered



Flowchart 15.2: If placenta not delivered



While waiting for evacuation

- Make sure clinic staff member stays with woman all the time
- If placenta delivered — send with woman
  - Double bag then put in pathology transport container with ice brick. Make sure it is labelled
- **If bleeding settles** and uterus stays contracted
  - Check vaginal blood loss, fundus, pulse, BP every 15 minutes
  - Continue **oxytocin** (eg *Syntocinon*) infusion at 250ml/hr
    - If evacuation delayed — **medical consult** about how long to continue
  - Give IV fluids as directed by doctor
  - Take blood for FBE, blood group and hold. Send in with woman
  - **Do not** let woman eat or drink anything — may need operation
  - Work out blood loss — weigh pads (1g = 1ml)
  - Continue postnatal care for mother (*WBM p182*) and baby (*WBM p196*)
  - Continue observations until evacuated (*WBM p360*)

Bimanual and aortic compression

Life-saving emergency procedures to slow bleeding from uterus when other procedures haven't worked.

Do

Ask helper to

- Put in 2 IV cannula, largest possible (*p85*)
  - Give IV fluids
- Give **oxygen** by non-rebreather mask 12–15L/min

- Explain to woman and support people what you are doing and why it is urgent
- Continue until bleeding controlled or emergency help arrives

Bimanual compression

Puts pressure on uterus to slow bleeding.

- Put on sterile gloves and cover main (dominant) hand with lots of water-based lubricant
- Make fist, put into lower vagina, push firmly against uterus — F 15.113
- Other hand lifts and pulls uterus forward, pushing it down over fist — F 15.113

15.113

Aortic compression

Puts pressure on abdominal aorta to slow bleeding.

- Use bent fingers (knuckles) of main (dominant) hand
- Press down on abdomen just below umbilicus and slightly to left (feel for pulsations) — F 15.114

15.114

Manual removal of placenta

Emergency procedure used if placenta won't deliver *AND* still heavy bleeding after trying all other procedures for primary postpartum haemorrhage (*p477*).

Attention

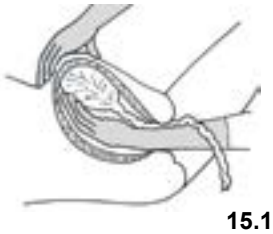
Before trying this procedure
- **Medical consult**, arrange to send to hospital
- Keep doctor on speaker phone

What you need

- Helpers. Best if one to help you, one to support and reassure woman
- 2 IV cannula in place, largest possible, with IV fluids running (*p85*)
- Indwelling urinary catheter in place, balloon blown up to keep in bladder (*p410*)
- **Oxygen** by non-rebreather mask, 8L/min
- Water-based lubricant or obstetric cream

What you do

- Explain to woman and helpers what is going to happen and why
- If woman conscious — give pain relief
  - **Morphine** IV 1–2mg every 3 minutes until woman sleepy
  - Must have **naloxone** available
- Keep IV **normal saline** running
- Put on sterile gloves, cover with water-based lubricant or obstetric cream
- Put main (dominant) hand into vagina, follow cord up to cervix
- If placenta in cervix — grasp hold and carefully pull out
- If placenta not in cervix — follow cord into uterus until you find placenta
- Put other hand on abdomen, hold top of uterus to steady it — F 15.115
- With hand in uterus, find edge of placenta. Use side-to-side sweeping movement with fingers to separate placenta from wall of uterus — F 15.115
- **If placenta doesn't separate easily — stop** straight away. **Medical consult**
- When completely free, grasp placenta — 15.116. Pull out carefully, try to keep in one piece
- Ask helper to rub up a contraction (*p449*)



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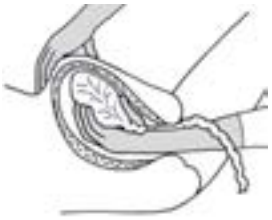


15.116

- Start **oxytocin** (eg *Syntocinon*) infusion (40units in 1L **normal saline**) at 250ml/hr
- Check placenta and membranes complete (*p450*) — may look pretty messy
  - If appears incomplete or women keeps bleeding — think about doing procedure again to check if part of placenta still inside. Stop **oxytocin** (eg *Syntocinon*) infusion first

If placenta not removed and still heavy bleeding

- Do bimanual compression (*p481*) until help arrives
- **Medical consult**

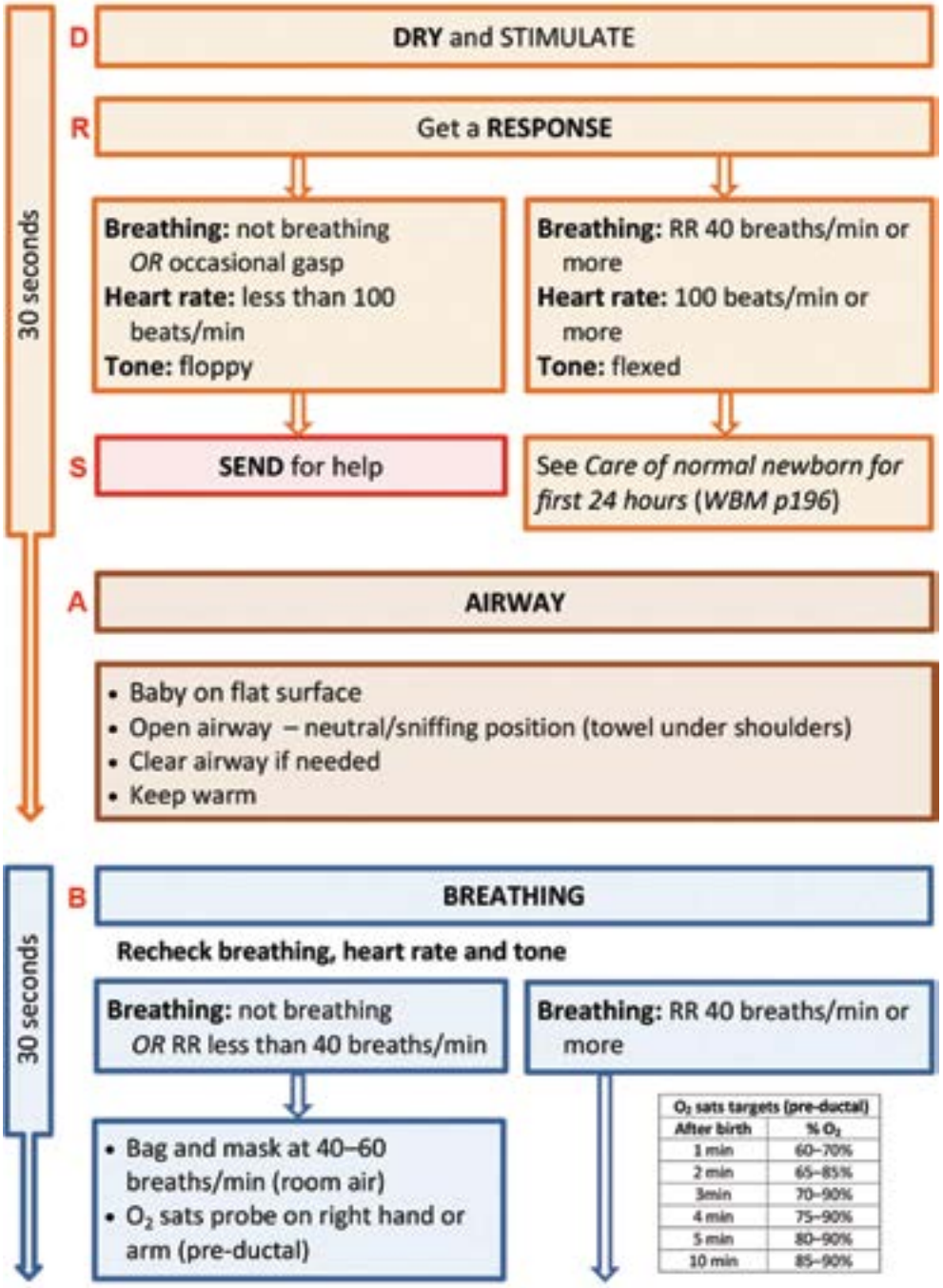
After placenta removed and waiting for evacuation

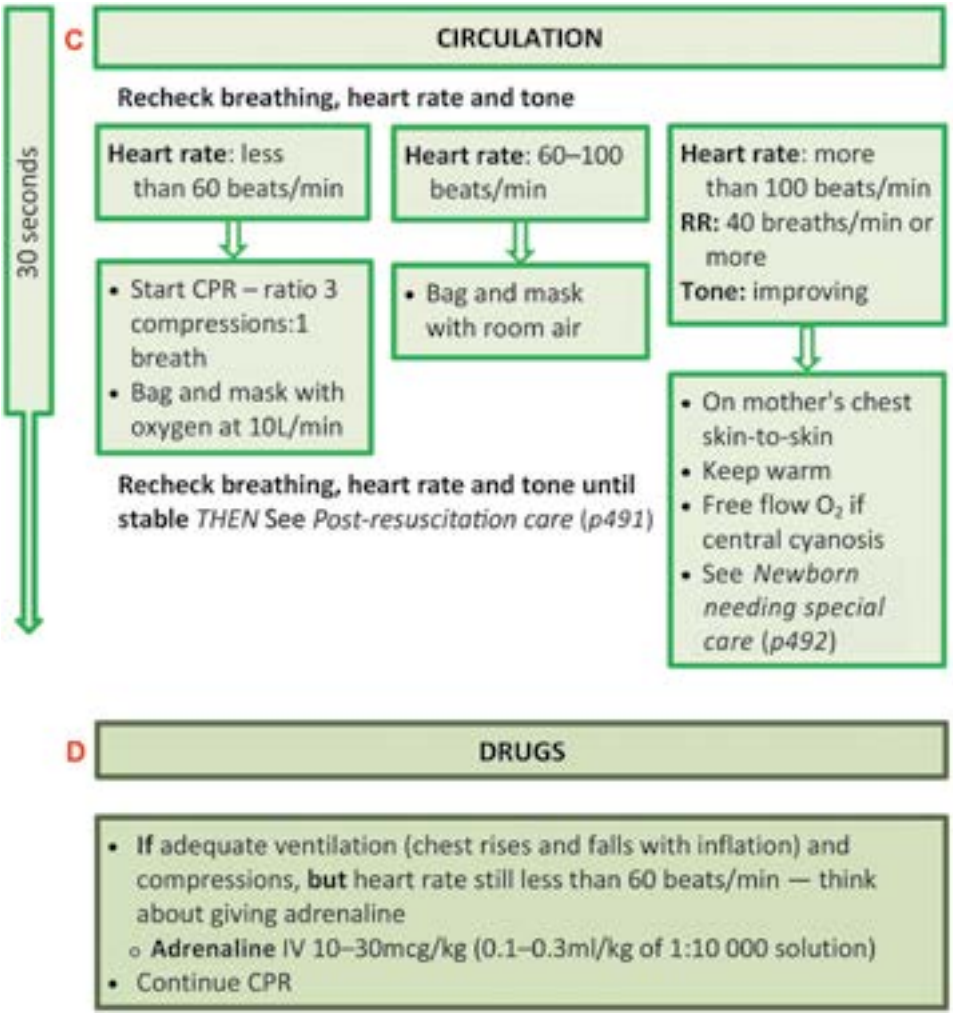
If heavy bleeding doesn't stop or starts again

- Do bimanual or aortic compression (*p481*)
- **Medical consult**
  - May suggest **ergometrine** IV 250mcg (diluted in 5ml **normal saline**) and/or IM 250mcg

- If bleeding slows or stops
  - Check vaginal blood loss and uterus to make sure it is contracted, every 5 minutes for 15 minutes, then every 15 minutes
  - Check pulse and BP every 15 minutes
  - **Medical consult** about more IV fluids, IV antibiotics
- **Do not** let woman eat or drink anything — may need operation
- Send placenta with woman
  - Double bag then put in pathology transport container with ice brick. Make sure it is labelled

Newborn resuscitation flowchart





Newborn resuscitation

- Most newborn babies do not need resuscitation — but always be ready
- If resuscitation needed — most babies only need **Airway** and **Breathing** support. Performed quickly these can prevent need for **Circulation** support
- **Bag and mask resuscitation almost always successful if performed correctly**. Can be done for several hours while waiting to send to hospital
- Put O_2 sats probe on baby's right hand or arm (pre-ductal) during resuscitation if available

Only intubate if trained and competent in advanced neonatal resuscitation.

- Keep baby warm (*p460*) and dry but **do not** overheat, can depress respiration
- APGAR score (*p451*) at 1 and 5 minutes helps assess wellbeing of newborns
  - **Do not** stop resuscitation to do APGAR score
  - Calculate score at end of resuscitation, record

What you need

- Clean, warm environment
- Complete set of newborn resuscitation equipment (*p436*)
  - Must be checked routinely and after use

Steps of resuscitation

- **D – Dry** and stimulate (to get a response)
- **R – Response** from baby
  - Do a rapid assessment of breathing effort, heart rate, tone
- **S – Send** for help
- **A – Airway** — open and clear, position (sniffing or neutral position)
- **B – Breathing** — positive pressure ventilation with bag and mask
- **C – Circulation** — chest compressions while continuing ventilation
- **D – Drugs** — give **adrenaline** or fluid
- Reassess breathing effort, heart rate and tone every **30 seconds** to decide whether to progress to next step
- Improvement in baby's condition indicated by
  - Spontaneous breathing
  - Increasing heart rate
  - Improving tone

Do — before birth

- Call for help — other nurses, ATSIHPs or AHWs
- Warm room. Close doors and windows to stop drafts, or open doors and windows if air conditioner can't be turned off

- Get equipment ready (*p436*), check it is working
- Identify flat surface for assessment and resuscitation if needed. Cover with towels if surface cold
- Try to get as much antenatal information as possible

Do — at birth

D – Dry

- **Dry and stimulate baby with warm towel**. Discard wet towel and cover baby in a clean warm towel. Cover the head

R – Response

- **Rapid assessment**
  - Breathing or crying
  - Heart rate more than 100 beats/min
  - Good muscle tone

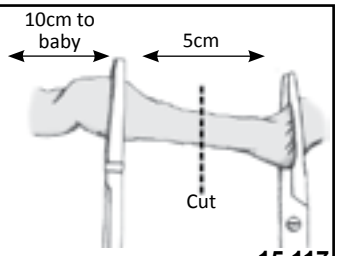
- If answer is **NO to ANY sign in rapid assessment** — baby needs more help
  - Have helper do **urgent medical consult**. If doctor not on site — should stay on phone
  - Follow the steps below or see *Newborn resuscitation flowchart* (*p484*)
    - Assess breathing effort, heart rate and tone every 30 seconds
    - Use results to guide progress through following steps or flowchart

Assessment and resuscitation techniques at each step described below.

- If answer **YES to ALL signs in rapid assessment** — see *Care of normal newborn for first 24 hours* (*WBM p196*)

Clamp and cut cord if needed

- Put 2 metal clamps on cord 5cm apart, at least 10cm from baby's abdomen — F 15.117
- Cut cord **between** 2 clamps with sterile blunt-end scissors
- **Do not** take clamps off after cutting



15.117

A – Airway

Establish an **airway**

- Put baby on flat, dry surface
- Put baby's head in sniffing/neutral position to open airway — F 15.118
  - Small towel under shoulders helps maintain position


15.118

- **Do not** tip head forward — F 15.119, or too far back — F 15.120


15.119

- Clear airway as needed
- If baby not vigorous and crying *AND* meconium-stained liquor (brown or green fluid) *OR* large amount of secretions blocking airway — use **suction**
  - Gently suction mouth then nose with 10–12F catheter for 5 seconds
  - **Do not** put suction catheter down more than 5cm
  - If skilled, use laryngoscope and suction meconium from trachea and larynx under direct vision
  - **Use care**. Don't cause laryngeal spasm and trauma

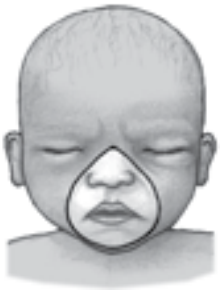

15.120

- Re-position baby's head to open airway

Re-check **breathing effort, heart rate, tone**. Continue to follow steps below or see *Newborn resuscitation flowchart* (*p484*).

B – Breathing

- If baby not breathing effectively — ventilate with bag and mask at 40–60 breaths/min
  - Start with room air for both term and preterm babies
  - Check baby's head in sniffing/neutral position — F 15.118 (*p487*)
  - Mask should cover nose and mouth — F 15.121
  - Need good seal between mask and face — F 15.122, F 15.123
  - Check for chest wall movement with each inflation — best indicator that mask is sealed and lungs being inflated
  - Put O_2 sats probe on baby's right hand or arm (pre-ductal)


15.121


15.122


15.123

- If chest not rising with each squeeze of bag — check for
  - Poor seal
    - Reapply mask to face to form better seal

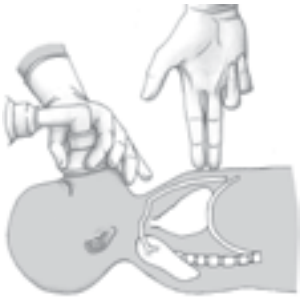
- Blocked airway
  - Reposition head
  - If secretions — suction mouth and nose. **Do not** put suction catheter down more than 5cm
- Not enough inflation pressure being used
  - Squeeze bag more firmly to get an easy rise and fall of chest
- If no improvement after 30 seconds of effective ventilation — change from room air to **oxygen** at 10 L/min

After 30 seconds — check **breathing effort, heart rate, tone**. Continue to follow steps below or see *Newborn resuscitation flowchart* (*p484*).

C – Circulation

- If heart rate **more than 100 beats/min**, breathing **40 breaths/min or more** and **tone improving** — put on mother's chest skin-to-skin
  - Give free flow **oxygen** if central cyanosis
  - See *Newborn needing special care* (*p492*)
- If heart rate **60–100 beats/min** — continue bag and mask ventilation
- If heart rate **less than 60 beats/min** after 30 seconds of effective ventilation — continue bag and mask ventilation with **oxygen** at 10L/min, start **chest compressions**
- For chest compression use
  - 2 thumbs on sternum with fingers around chest — F 15.124
    - Thumbs side by side, or overlap for small baby
    - Best for 2-person resuscitation
  - *OR* 2 fingers along sternum at right angles to chest — F 15.125
    - Best for single person resuscitation
    - Can hold mask on with other hand, tuck bag under same arm
- Depth — 2–3cm (⅓ depth of chest) — F 15.126
- Ratio — 3 compressions to 1 breath
- Rate — 90 compressions + 30 breaths/min
- Leave space for each breath

15.124



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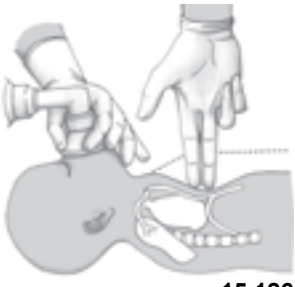
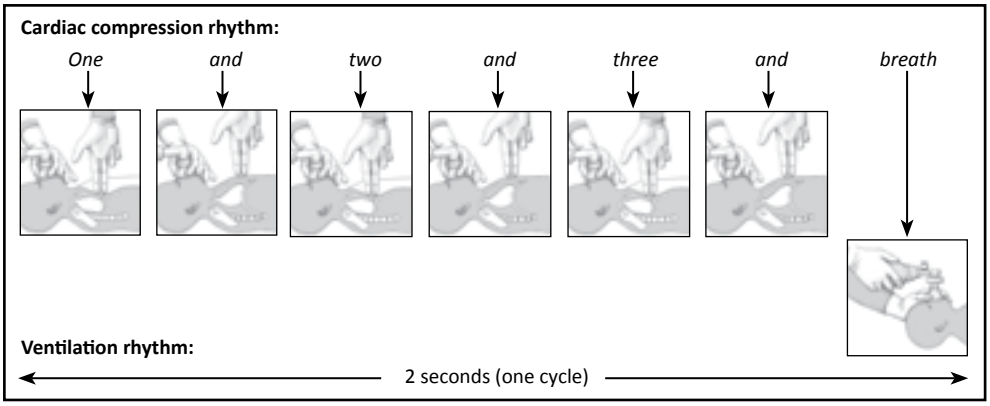


15.126

Use this rhythm in a 2 second cycle

- One-and-two-and-three-and-breath-and-one-and-two-and-three-and-breath-and … — F 15.127



15.127

After 30 seconds — check **breathing effort, heart rate, tone**. Continue to follow steps below or see *Newborn resuscitation flowchart* (*p484*).

Continue to check **breathing effort, heart rate, tone** every 30 seconds.

If baby not improving

If heart rate less than 60 beats/min — usually not enough oxygen, ineffective ventilation.

- Continue bag and mask ventilation and chest compressions
- **Review resuscitation technique**
  - Is chest movement adequate
  - Recheck seal, airway, inflation pressure (*p488*)
  - Check **oxygen** connected to bag and mask at 10L/min
  - Are chest compression ⅓ depth of chest
  - Are chest compressions and ventilation well-coordinated

D – Drugs

- If heart rate still less than 60 beats/min
  - Continue chest compressions with bag and mask ventilation
  - Give **adrenaline** and fluids as directed by doctor
    - **Adrenaline** IV 10–30mcg/kg (0.1–0.3 ml/kg of 1:10 000 solution)
- If skilled, be ready to put in IV cannula (*p85*), IO needle (*p89*), or umbilical catheter as directed by doctor

Ongoing resuscitation

- If prolonged bag and mask ventilation needed
  - Get helper to put in **orogastric** tube, if skilled
    - Stop ventilation for as short a time as possible
    - Suction gastric contents, secure tube, leave tube on free drainage (unplugged)
  - Reposition baby's head, restart ventilation
- If no heart beat after 15 minutes of resuscitation — outcome for baby always poor. **Medical consult** about stopping resuscitation
- Talk with mother and family, explain situation

Pulse oximetry

- Use O_2 sats probe, if available
  - When starting positive pressure ventilation with bag and mask
  - If giving **oxygen**
  - If persistent cyanosis suspected
- Put probe on baby's right hand or arm (pre-ductal)
- See Table 15.5 for target oxygen saturations
  - O_2 sats for normal newborns can take up to 10 minutes to rise above 90%
- If O_2 sats reach 90% — gradually reduce amount of oxygen being given
- If O_2 sats falling or less than 90% after 10 minutes — **specialist consult**

Table 15.5: Target oxygen saturations for newborns during resuscitation

Time from birth (minutes)	O_2 sats (%)
1	60–70
2	65–85
3	70–90
4	75–90
5	80–90
10	85–90

Post-resuscitation care

Babies who need full resuscitation have been severely stressed. Monitor closely while waiting for evacuation.

- See *Newborn needing special care* (*p492*) for monitoring and ongoing care
- Baby may need fluid or medicines. Be ready to put in IV cannula (*p85*), IO needle (*p89*), umbilical catheter as directed by doctor
- Continue **oxygen** unless directed by doctor to stop
- Put in nasogastric tube if skilled and directed by doctor. Size 5F for very small babies, size 6F for bigger babies
  - Leave tube on free drainage (unplugged) to let out air in stomach (from bag and mask ventilation)

Newborn needing special care

Babies who are sick at birth, or at risk of becoming unwell after birth, need close observation and most need to be sent to hospital.

Babies needing special care often have identified risk factors.

Risk factors

Mother's history	Labour and birth	Newborn period
• Little or no antenatal care (less than 4 visits) • Diabetes • Alcohol and/or other substance use • GBS positive • Current STI • High BP	• Mother needing help with birth • Baby needing **any** resuscitation at birth • Maternal fever in labour • Meconium-stained liquor (green or brown amniotic fluid)	• Birth weight less than 2.5kg or more than 4.5kg • Preterm — less than 37 weeks gestation • Congenital abnormality • Abnormal observations, eg respiratory distress, low BGL, temperature instability • Neurological — seizure, poor tone

- Serious problems for these babies include
  - Hypothermia — baby gets cold easily
  - Respiratory distress — difficulty breathing
  - Hypoglycaemia — low blood glucose

Medical consult about sending to hospital — at all stages in management and straight away if baby's condition gets worse.

Immediate care after birth

Check

- Temp under arm — never rectally
- Monitor heart rate and O_2 sats continuously
  - Use pulse oximeter with infant probe to measure O_2 sats. Put on right hand or wrist (pre-ductal). Hands or feet may be too cold for good reading
  - If no oximeter — check baby's colour (mouth, lips, mucous membranes)
- Record heart rate, RR, O_2 sats every 5 minutes for 30 minutes, then every 15 minutes
- BGL using heel-prick blood (*p373*)
  - If BGL less than 2.6mmol/L at any time — treat straight away (*p494*)
- Umbilicus for bleeding, clamp on properly
- Weigh baby if stable

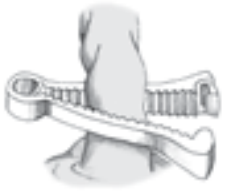
- **Check respiratory pattern every time** you do observations.
  - Look for signs of respiratory distress
    - Grunting, chest in-drawing
    - Working hard to breathe (using accessory muscles, nasal flaring)
    - RR more than 60 or less than 40 breaths/min,
    - Apnoea (stops breathing for more than 15 seconds)
  - If any of these signs *OR* O_2 sats less than 90% *OR* looks cyanosed — **treat straight away** (*p494*)

Normal observations for newborn baby

- Temp — 36.5–37.5°C under arm
- Heart rate — 120–160 beats/min
- RR — 35–60 breaths/min
- O_2 sats — 90% or more in room air in after-birth period, then 95% or more
- Colour — tongue and lips pink. Not pale or blue
- Movement — active when awake, moving all limbs with good tone. Not floppy or stiff
- BGL — more than 2.6mmol/L
- Feeding — gets started with breastfeeding. Not vomiting

Do

- Keep baby warm — see *Keeping baby warm after birth* (*p460*)
  - If well enough — direct skin-to-skin contact with mother
  - *OR* Dress and wrap in warm towel and space blanket, be careful to keep head covered
- Check and record heart rate, RR, tone, colour and response to stimulation at 1 minute and 5 minutes
  - Work out APGAR score when there is time (*p451*)
- Trim cord
  - Clamp remaining cord with plastic cord clamp 2–5cm from abdomen — F 15.128, then put second plastic clamp 2–3cm above in opposite direction — F 15.129. Make sure they snap shut
  - Take off metal cord clamp. Trim cord 1–2cm above plastic clamps, or at length asked for by mother or support person
- Clean skin thoroughly with cotton wool and water before giving IM injections
  - If mother positive for hepatitis B (HbsAg), hepatitis C or HIV *AND* baby more than 32 weeks gestation — wash injection site with warm water and **chlorhexidine**, dry thoroughly (keep warm)



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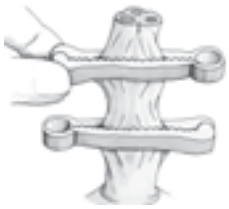

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- Give **vitamin K** (*Konakion*)
  - 1 mg (0.1ml) IM if 1.5kg or more
  - 0.5 mg (0.05ml) IM if less than 1.5kg

Do — if breathing problems (respiratory distress)

- Give oxygen by nasal prongs 0.5–2L/min *OR* infant mask 4–6L/min
- **Medical consult** about managing oxygen and/or giving antibiotics
- Continue to monitor baby closely with continuous pulse oximeter
- Record heart rate, RR, O_2 sats every 15 minutes
- If breathing irregular with long pauses (apnoea)
  - **Stimulate** baby to breathe by rubbing gently — **do not** undress baby
  - If this doesn't work, or baby too weak or too tired to keep breathing
    - See *Newborn resuscitation flowchart* (*p484*) or *Newborn resuscitation* (*p486*) straight away
    - Bag and mask ventilation with **oxygen** 8L/min at rate of 60 breaths/min
    - **Medical consult** straight away
- If O_2 sats reach 90% — gradually reduce amount of **oxygen**
- If O_2 sats falling or stay at less than 90% — **specialist consult**

Do — if low blood glucose (hypoglycaemia)

If BGL less than 2.6mmol/L

- If **safe** to breastfeed baby (see *Feeding guidelines p495*)
  - Encourage baby to breastfeed
  - Repeat BGL in 30 minutes
    - If still less than 2.6mmol/L — **medical consult** again
    - Think about giving expressed breast milk, infant formula, **glucose 5%** orally or by nasogastric tube
- If **not safe** to breastfeed (see *Feeding guidelines p495*)
  - **Medical consult**. Doctor should talk to paediatrician. If doctor not available within 30 minutes — clinic staff to contact paediatrician
  - **Do not** breastfeed or bottle-feed due to risk of aspiration
  - **IV glucose** the best treatment but not always possible
  - If no IV access — **medical consult** about putting in nasogastric tube (smallest available up to 10F). Give expressed breast milk, infant formula, **glucose 5%**
  - Repeat BGL in 30 minutes
    - If still less than 2.6mmol/L — **medical consult again**
    - If low BGL hard to correct — think about **glucagon** IM 100–300mcg/kg

Feeding guidelines

- Encourage breastfeeding if
  - More than 35 weeks gestation
  - Normal RR
  - Alert and active
- **Do not** breastfeed at this time — **medical consult** about other forms of nutrition
  - Sick babies
  - Less than 35 weeks gestation
  - Very small babies — less than 1.8kg
  - If mother HIV positive
  - Respiratory distress or needing **oxygen**
  - If needed 'full' ABC resuscitation at birth

Ongoing care

For baby that only needed airway management for resuscitation **at birth** (no bag and mask, no oxygen)

- If no risk factors (*p492*), and crying and vigorous with normal observations at 15 minutes — see *Care of normal newborn for first 24 hours* (*WBM p196*)

For all other babies, while waiting to send to hospital

- Check baby has name bands on wrist and ankle
- Check temp every hour
- Check BGL
  - If baby jittery (jumpy), unsettled, sleepy
  - Every hour if
    - Small — less than 2.5kg
    - Large — more than 4.5kg
    - Baby of mother with diabetes
    - Sick
  - If BGL less than 2.6mmol/L at any time — treat straight away (*p494*)
- If baby stable — continue to check heart rate, RR, O_2 sats every 15 minutes for 1 hour, then every 30–60 minutes
- If baby sick — continue observations every 15 minutes
- Record if baby passes urine or meconium
- **Medical consult** about
  - Antibiotics — collect blood cultures first if possible
  - **Hepatitis B immunisation**
- Fill in birth registration forms (*WBM p199*)