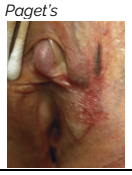
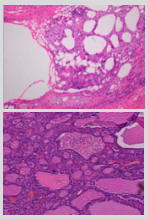
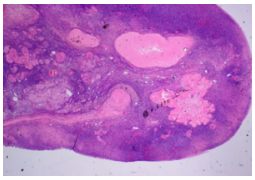
O+G CANCERS

	Ovarian Lumps	Uterine Lumps	Cervical Lumps	Vulva (2-5%)
Malignant	Epithelial derived: 1. **Serous carcinoma** (**most common**) → from fallopian tubes (ciliated epithelium) usually due to tubular occlusion – papilla (gravestones) 2. **Mucinous carcinoma** *(derived from cervix)* 3. **Endometrial carcinoma** – 2° to endometriosis usu. in POD (recto uterine pouch)	1. **Endometrial cancer** (**MOST common = 80% are AC → PTEN 10%)** 2. **Serous carcinoma** (2nd) from ciliated tubular epithelium of fallopian tubes (Tubal metaplasia in endometrium) 3. **Mucinous carcinoma** (from endocervix) – occurs slowly 4. **Rare: Mesothelioma** (peritoneal lining of uterus) → ?asbestos 5. **Uterine sarcoma (mets fibroid)**	1. **Mainly SCC (75%) -** Transformation zone more sensitive to RT (better prog.) 2. **AC (25%) -** Mucinous carcinoma (goblet cells = endocervix) [AC = less sensitive to RT (poorer prog.)] **HPV inhibits tumour suppressor genes** • E6 oncoprotein – inhibits p53 • E7 oncoprotein → inhibits Rb	• **Mainly SCC** • Also: *melanoma, BCC, Paget's* 
Benign 	➢ **DERMOID cysts (teratoma from germ cells**) – assoc. w/ **ovarian torsion** (hemorrhagic necrosis) ➢ **Sex cord-stromal tumours -** e.g. granulosa cell, Sertoli-leydig cell tumours (**check inhibin levels**) ➢ **Krukenberg tumours (signet ring cells) –**Ovarian Ca 2nd GI cancer ➢ **Struma Ovarii** (mature thyroid tissue) ➢ Ovarian **fibroma (stroma) / cysts** ➢ **Choriocarcinoma** (B-HCG) ➢ **Embryonal cell tumour** (AFP , B-HCG)	➢ **Leiomyomas** (fibroids) – **single** fibroids have **higher risk of malignancy** (leiomyosarcomas) than multiple fibroids ➢ **Adenomyosis (***endometriosis invading into muscle layer)* ➢ **Teratomas (dermoid cysts)** o *struma ovarii* (only produce T3/T4) o *Immature teratoma* (++ recur and mets) ➢ **Inflammation** = Infection = TORCHsv ➔ [endometriotis + vaginitis 60-80%] ➢ **Ectopic Pregnancy** ➢ **Tubo-ovarian cysts**	• **Teratomas / dermoid cysts** • **Corpus albicans** (white blobs) – corpus luteum becoming scar tissue • **Ovarian stroma** 	• **Cysts – Bartholin gland** • Genital Herpes • Genital warts (HPV) • Abscesses • Angiomas • Fibromas • Lipomas
RF	➢ **Obesity** ➢ **Smoking** **Non-modifiable** ➢ BRCA1/2 ➢ Lynch syndrome ➢ FHx of Breast, uterine, bowel cancer ➢ Advanced age (60yo) **Increased # of ovulations** ➢ Early menarche , late menopause ➢ Nulliparous or endometriosis **Protective factors:** ➢ breastfeeding ➢ Multiparious / pregnancy ➢ COCP	***Non-modifiable:*** ➢ Cancer (lynch, bowel, breast, p53 mutant) ➢ **P53** mutations ***Modifiable (XS estrogen exposure):*** ➢ Old age ➢ **Obesity + T2DM** ➢ early menarche + Late meno ➢ Nulliparity, no BF ➢ PCOS, HRT/COCP, anovulation ➢ Tamoxifen **Protective factors:** ➢ Smoking ➢ Multiparious / pregnancy ➢ Mirena coil or POP (progestogens)	***HPV related (16,18)*** ➢ Early Sexual activity, ➢ multiple partners, ➢ UPSI ➢ Immunosuppression (HIV) ***Non HPV related*** ➢ Mid-50s - Lower SE status, ➢ FHx ➢ OCP for > 5 years ➢ Smoking ➢ High number of full-term pregnancies (multiparious)	• **Advanced age** • **Lichens sclerosis (5%)** • **Immunosuppressed** • **HPV infection (esp. post-menopausal)** • Hx of Vulvar or cervical intraepithelial neoplasia, cancer • Smoking
Sx	**Asymptomatic** + non-specific Sx • Abdo pain → shoulder tip pain • Palpable mass / bloating / LoA • **Meig's syndrome** = ascites, ovarian cancer, pleural effusion • **Irregular periods**	**Asymptomatic** (esp. for fibroids) 1. **PV bleed – IMB, HMB, post-coital** (esp. post-menopausal – endometrial cancer until proven otherwise) 2. **Pelvic Pain +/- smelly vag discharge** 3. **Abdo distension / pelvic pressure**	**Asymptomatic but:** • **Irregular bleed or HMB** • **Post-coital bleed** • **Vaginal d/c** (watery, mucous, pus, smelly)	**Asymptomatic**, • *Itchy* - candida, trichom • *Palpable vulva lump* w/ ulcer + Pain + bleeding
Ix	• VAG spec + bimanual – adnexal mass • **CA-125 - epithelial cell tumour marker** • **TVUS** -abdo pelvis and ovarian • **Diagnosis ONLY via biopsy** ***FIGO (surgical) staging*** ➢ **Stage 1** = confined to ovary ➢ **Stage 2** = spreads past ovary but within pelvis ➢ **Stage 3** = spreads past pelvis but within abdomen ➢ **Stage 4** = OUTSIDE abdomen (distant mets)	➢ **Bloods** = anaemia, raised plt ➢ **UA** = visible or microscopic haematuria ➢ **VAG spec + bimanual** ➢ **TVUS -** (> 5mm thick endometrium = abnormal post-menopause) ➢ **Pipelle Aspiration biopsy +/- pap smear** (HPV 16/18) ➢ **CT → PET→ MRI → Hysteroscopy/D&C** ***FIGO (surgical) staging*** [more specific] ➢ Based on nuclear atypia + gland architecture **Stage 1** = confined to uterus **Stage 2** = invades cervix **Stage 3** = invades ovaries, LN, vagina and fallopian tubes **Stage 4** = invades bladder, rectum or beyond pelvis ➢ ***Poor prognosis***: LN-vascular invasion, Tumour Grade 3, older age, stromal involved	1. **VAG spec + swabs** [ulceration, inflammation, bleeding, visible tumour] 2. **Colposcopy + Biopsy** (HPV + LBC) → cervical intraepithelial neoplasia (grading dysplasia) → CIN 1, 2 and 3 [CIN 1 – mild dysplasia – returns normal] [CIN 2 - mod dysplasia – pre-cancerous if not treated] [CIN 3 – sev dysplasia – highly likely cancer] 3. **[FIGO (clinical) staging]** **Stage 1** = confined to cervix **Stage 2** = invades uterus or upper 2/3rd vag **Stage 3** = invades pelvic wall or lower 1/3rd vag **Stage 4** = invades bladder, rectum or beyond pelvis	**Clinical exam** ➢ Irregular mass usu in labia majora ➢ Fungation lesion ➢ Ulceration **Tests** • Swabs • Colposcopy + Biopsy anything suspicious (not ALL lesions – • Sentinel node biopsy • CT + CT-PET (staging) ***FIGO staging*** Vulva intraepithelial neoplasia (VIN) ➢ **High-grade squamous intraepithelial lesion** = HPV infection (35-50yo) ➢ **Differentiated VIN** = Lichen sclerosis (>50yo)
1° Prev	• **OCP**	• **Decrease E2 exposure** (reduce HRT, COCP, usage, pregnancy, breastfeeding) • **Healthy weight (Wt loss) + PA**	• **2x HPV vaccines (**free for 10-15 yo boys/girls in school) – ideally before sexually active → 2x free catch up doses before 20 • **Smoking cessation** • **Condoms + minimise sexual activity**	• **HPV vaccination** • Minimise sexual activity
2° Prev	• **CA-125** (>35 IU/mL is significant) • **Pelvis USS OR CT +/-** Histology • **Paracentesis** (ascitic tap) – test for cancer cells	• **Adequate progestin supp.** (progesterone) to slow progression • **Urgent cancer referral** for post-meno bleeding (> 12 mths since last period)	• **Cervical screening program** (from age 25 → every 5 years) **Now can be self-collected** • Colposcopy	**DDx**: lichen sclerosis, pigmented or ulcerated lesions
3° Prev	**Gynaecology-oncology MDT** • **Laparoscopic Oophorectomy** = Removing ovaries does not always prevent cancer • **May need Pelvic + para-aortic** *lymphadenectomy* • **Debulk → Adjuvant Chemo**	**Young pt** • **High dose PG therapy to** preserve uterus • If responsive → advise fertility → **hysterectomy after fertile completion** **Older pt (for stage 1 and 2)** • **TAH-BSO = Total hysterectomy + BILATERAL salpingo-oopherectomy** (neoadj. Chemo-RT)	• **CIN and early stage 1A** = LLETZ or cone biopsy • **Stage 1b -2a** = radical hysterectomy and local LN chemo and RT • **Stage 2b – 4A** = chemo + RT • **Stage 4B** = MDT (Chemo, RT, surg, palliative) • **Recurrent/mets cancer → Bevacizumab (Avastin) (anti-VEGF)**	**Rx depends on stage:** • **Stage 1A** = Radical wide local excision +/- groin LN excision • **Stage 3** = Chemo + RT for +ve node
F/U	5-year survival decreases w/ higher stage ➢ 75% (stage 1) ➢ 60% (stage 2) ➢ 23% (stage 3) ➢ 11% (stage 4)	• **5 year survival decrease** w/ higher grades (stage 1 = 80%, stage III/IV = 20%) ***Complications*** • Surgery = SSI, lymphodema • RT = RT fibrosis, cystitis, proctitis	• **Most recurrences within 3 years** • Early or advanced disease → Monitor 3-4/12 • Palliative if **ureamia present** Complications w/ LLETZ and cone-biopsy ➢ Infection, bleeding, pain ➢ Scar forms – cervical stenosis ➢ +++ risk of M/C and premature labour	**Lifetime surveillance** of remaining vulvar tissue • **Early stage (I and II)** → every 6/12 • **Advanced (III and Iva)** →every 3/12

Gynaecological Surgery and Gynaecology Oncology

LN group	Females	Male	
Lumbar/para-aortic LN	Ovary, uterine tube, uterine fundus	Testes	Gonadal CANCERS
Internal iliac nodes	➢ Bladder, uterus body, cervix, ➢ upper and middle vagina	Prostate, CC, bladder (exc. fundus)	Bladder, Cervical OR Prostate Cancer
External iliac	➢ lower body of uterus & cervix ➢ Upper vagina	Deep inguinal Fundus of bladder	STD or 2nd mets
Superficial inguinal	➢ Superolateral aspect uterus (round ligament) ➢ Vulva, skin of perineum, clitoris (exc. glans)	Scrotum, penis (exc. glans) Perineum	➢ STD ➢ Melanoma ➢ Cellulitis
Deep inguinal	Glans of clitoris	Glans of penis	
Sacral nodes	Inferior vagina		

SURGICAL Mx

Surgeries in office:

- Biopsy (cervix, endometrium)
- IUCD insertion (mirena)
- D+C
- Colposcopy

Surgeries in OT:

- Hystero-/cysto-/ oopherotectomy
- Tubal ligation
- Ectopic pregnancy

Counselling & Consent

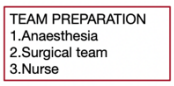
1) **Surgical vs non-surgical alternatives**
   a. (+ urgency of surgery? – ED, semi-urgent vs elective)
2) **What surgery**? (e.g. myomectomy/hysterectomy or cystectomy/oophorectomy)
   a. ?further pregnancy plans
3) **Approach** (explain need to convert) (robotic/laparoscopic → open)
4) **Anesthesia** (regional vs general)
5) Risks, complications (general vs specific)
6) **Post-op recovery expectations**
   a. Length of stay, catheter removal and next meal

Preoperative preparation

General Ix	General Advice	Medication Advice
1. **FBC** → Anaemia evaluation 2. **ABO + Group + Hold** 3. **EUC / CMP** 4. **BSL; HbA1C** 5. **Coags INR** 6. **Viral Screen** (HIV, HBsAG, HCV)- COVID 19 RT-PCR 7. **CXR / CT** Chest COVID 19 screening Protocol 8. **ECG**	1. **Diet** - previous day (last meal 4-6 hrs prior to surgery) 2. **Hydration** = Fasting/fluid Status 3. **DVT prophylaxis** 4. **Bowel Prep (laxatives vs enema)** 5. **Anaesthetics** (drug reactions, previous issues) 6. **Abx (since** Clean Contaminated surgeries as vagina is not sterile) **Single dose**- (Cefazoline 1-2gm IV) Repeat- >3 h; Blood Loss >1.5L	1. **Anti-HTN** = optimise dosage before morning of surgery 2. **Anti-coags** = stop 3-5 days → convert to clexane (bridging therapy) 3. ***Anti-DM*** = stop SGLT2i and OHA days before surgery 4. **Thyroid** = stop on morning of surgery 5. **OCP** = stop 4 weeks prior 6. **Epilepsy** = individual Mx

Intra-operative

1) Anaesthesia (NBM, anaphylaxis)
2) Fluid and temp management
3) Surgery

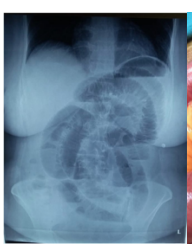


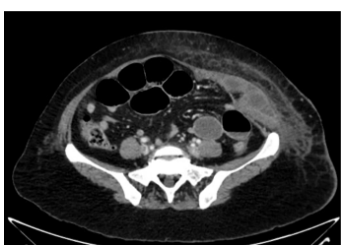
General Comp.

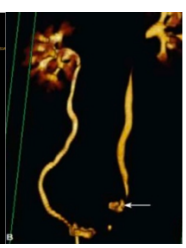
N/V	XS pain	Inflammation	Sepsis	Haemorrhage
➢ Electrolyte imbalance ➢ Paralytic ileus ➢ RF = anxiety, obesity, Motion sickness, previous post-op N/V	Expect progressive improvement ➢ ***Bowel*** = ileus, injury, constipation ➢ ***GU*** = urinary retention, injury ➢ ***Sepsis*** ➢ ***Haemorrhage***	➢ Catabolism ➢ water retention	➢ 4-5 days post-op ➢ Fever, chills, tachycardia, hypoTN ➢ **confusion** ➢ Diffuse distension +/- rebound tender *Risk factors* ➢ Extensive tissue injury and necrosis ➢ Prolonged operation time	➢ Blood **within** or OUTSIDE peritoneal cavity ➢ Hypovol. Shock (hypoTN, tachycardia) ➢ Severe vaginal bleed
➢ **Anti-emetics** = ondansetron, metoclopramide, dex	**Step-wise analgesia** (Panadol → NSAID → codeine)	➢ Hydration ➢ nutrition	➢ IV empirical ABx ➢ ED surgery	➢ eFAST or MRI to confirm ➢ ***Hysterectomy*** (no pregnancy plans) OR ➢ ***Embolization of uterine artery*** (uterus preserving)

Specific Comp.

Paralytic ileus	Subacute intestinal obstruction (Dx: portal site hernia)	Remnant CO_2 in bowel	Bladder Reflex Retention	Bladder vs ureter leakage (thermal injury)
➢ Passing urine but no flatus ➢ **AXR** = distended bowel and fluid-gas levels in small bowel Limits oral intake ➢ **IVF** → correct electrolytes ➢ **NGT** aspiration ➢ +/- enema (if refractory ileus)	*DDx: paralytic ileus* ➢ Day 3-5 post-op = Abdo pain persists ***despite*** NGT aspiration ➢ Emergency laparotomy – drain fluid in peritoneal cavity and resect areas of bowel necrosis ➢ Dx: portal site hernia	➢ Laparoscopic surgery uses CO2 ➢ XS CO2 left behind causes irritation to phrenic nerve = shoulder tip pain ➢ Normal BS and UO	➢ Suprapubic tenderness ➢ Right shoulder pain ➢ Dull percussion ➢ Normal bowel sounds + tolerating oral fluid and solids ➢ Post-op removal of endometriosis	➢ 10 days post-op following hysterectomy ➢ Spec exam = watery vaginal discharge (smells like urine) worse w/ cough ➢ DDx: CT pyelogram w/ methylene blue in bladder (is is a bladder or ureter leak?) ➢ Rx: stent







Cervical Cancer Mx + Screening:

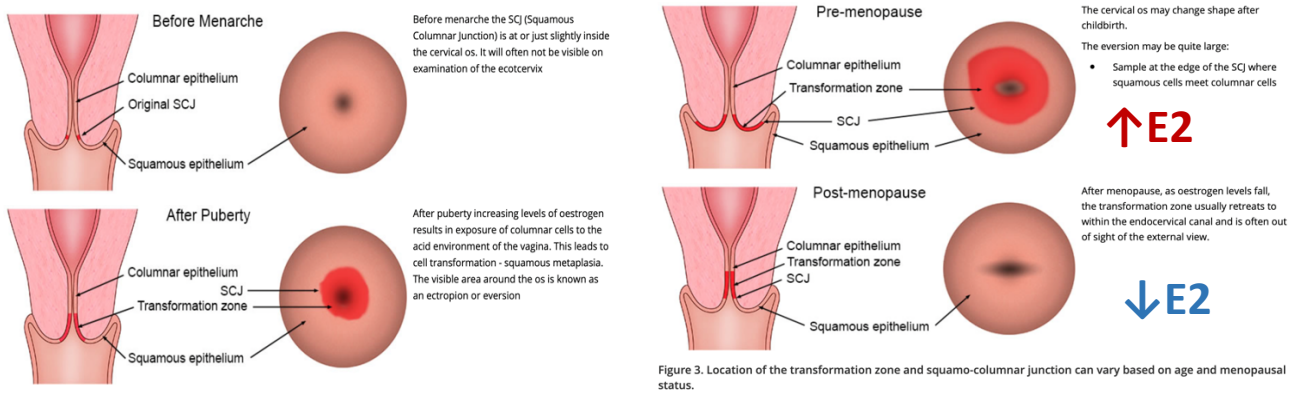
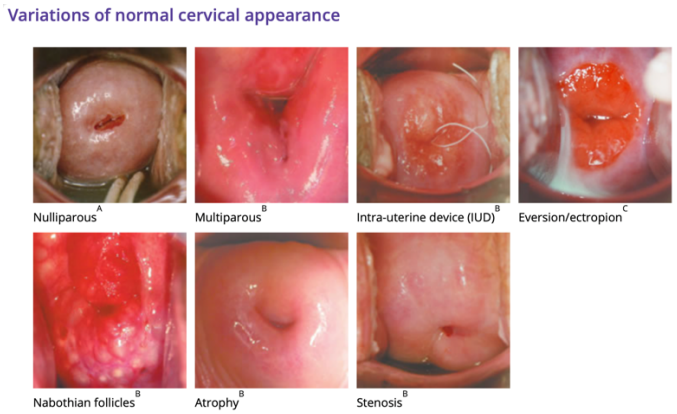
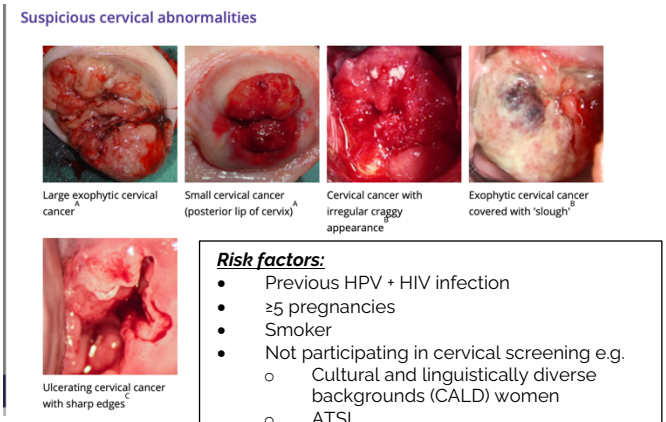


Figure 3. Location of the transformation zone and squamo-columnar junction can vary based on age and menopausal status.

- ***Endocervix*** = *Columnar epithelium* = mucus secretion (allow sperm penetration) + pregnancy protection against infection (creating mucus plug) ➔ Normal to find abundant ***neutrophils***
- ***Ectocervix*** = *Squamous epithelium* = protective barrier against trauma/friction and infection (thick layer) ➔ thick mucus plug (show)

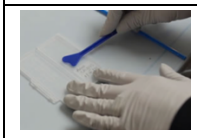


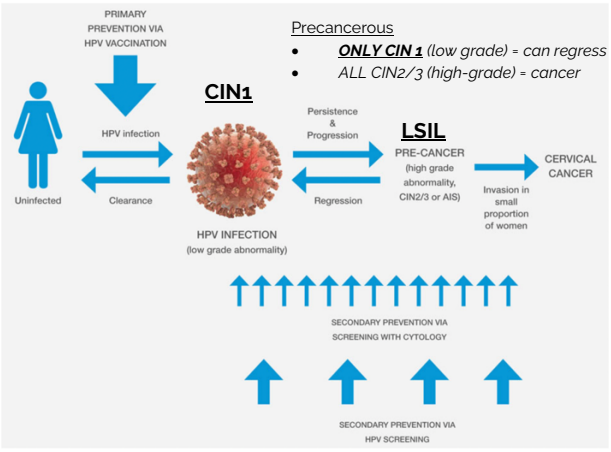


Risk factors:

- Previous HPV + HIV infection
- ≥5 pregnancies
- Smoker
- Not participating in cervical screening e.g.
  - Cultural and linguistically diverse backgrounds (CALD) women
  - ATSI
  - Early sexual in life or sexual abuse

HPV cervical cell abnormalities and the development of cervical cancer.

	Pap test	HPV test
Objective	• Abnormal cervical cells	• Presence of oncogenic HPV 16/18 types ➔ E6 (p53) /E7 (Rb) ➔ **99% of cancers**
When	• Every 2 years	• Only for ***asymptomatic*** • From 25 -74 (as persistent HPV infection takes 10 years to develop) • Repeat every 5 years if normal
Collection	• Spatula, brush and broom • Sample smeared onto microscope slide + fixative soln → sent to path lab	• **Quality sample needs**: Must include squamous cells, columnar and metaplasia • **Factors affecting quality** = *infection, haemorrhage/menstruation, pregnancy, disinfectant cream or lubricant, RT, menopause, previous smear* • Sample placed in liquid suspension → path lab (PCR + cytology)
Results	• Cell abnormalities (e.g. glandular, squamous)	• Oncogenic HPV 16/18: detected or not detected • If detected → reflex liquid based cytology (LBC) + automatic colposcopy referral
	Issues: • Low sensitivity (Cannot flag as early)	 **Benefits**: • Higher Sn, Sp, PPV, NPV for high grade cervical ca • Identify earlier step of cancer development → higher long-term predictive outcome (**identify BEFORE DYSPLASIA**) • Reduced referral rate to colposcopy (i.e minimise. invasive biopsy)



Precancerous

- ***ONLY CIN 1*** *(low grade) = can regress*
- *ALL CIN2/3 (high-grade) = cancer*

Figure 5: The primary and secondary approaches to prevention of cervical cancer in Australia.

ENTIRE CANCER PROCESS TAKES 10 YEARS TO OCCUR!

Prevention:

- ***1° = national HPV vaccination program***
  - ***Gardasil (3x dose – 1, 2, 6/12 apart)***
  - *Both boys and girls (2x dose 6/12 apart , 9-14 yo)*
  - *May not protect against HPV induced → oral SCC*
- ***2° = National cervical screening register*** for both vaccinated and unvaccinated > 25 y.o.+ 70-74 y.o. women because:
  - Cervical cancer rare in young women
  - Screening in younger women does not reduce incidence or mortality from cervical cancer
  - Cervical abnormalities + HPV infections spontaneously resolve often in > 25 y.o.
- ***Self-collection (July 2022)***
  - NOW ANY WOMEN with a cervix can request
- ***5-year testing interval for HPV testing:***
  - HPV test has high NPV
  - MINIMISE overdiagnosis of LSIL, HSIL which may regress
  - More effective than 2-yearly Pap test

Identify strategies for primary prevention of cervical cancer.

How to Deliver cervical screening in culturally-sensitive manner?

- Acknowledge pt's background, health literacy, cultural beliefs
- Offer female or ATSI doctor to perform CST
- Motivate women to ask questions about cervical screening + address their fears and concerns
- Avoid being judgmental and be patient

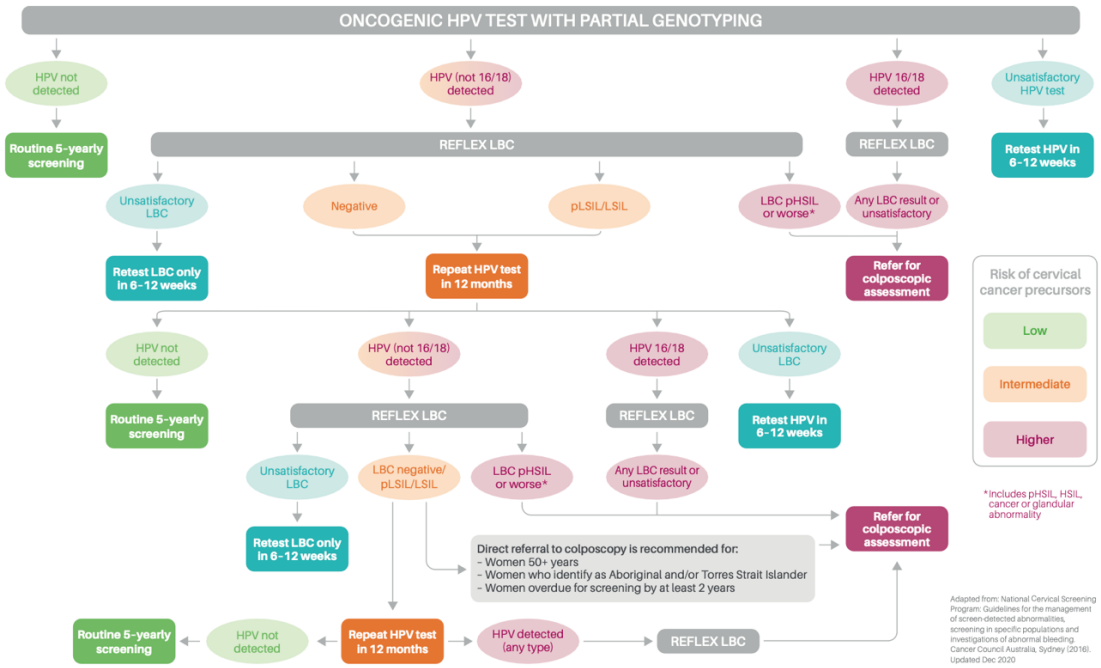
How to Deliver cervical screening in safely?

- Chaperone + consent
- Ask to have family support beside her
- Talk through each step
- Accommodate for physical disability (e.g. handrails, motorised height -adjustable exam)

Medico-legal issues:

- Obtain consent before and throughout procedure
- Educate pts that no screening test is 100% effective
- Document all discussions and recommendations for FU
  - E.g. any cervical abnormalities -report to NCSR or refer to GYN
- **Be Aware of** current policies and guidelines for CST
  - Failure to inform about abnormal result
  - Failure to offer screening or investigate symptomatic women
  - Failure to adhere recommendations provided by lab

Pathway for routine cervical screening CO-TEST = HPV + LBC

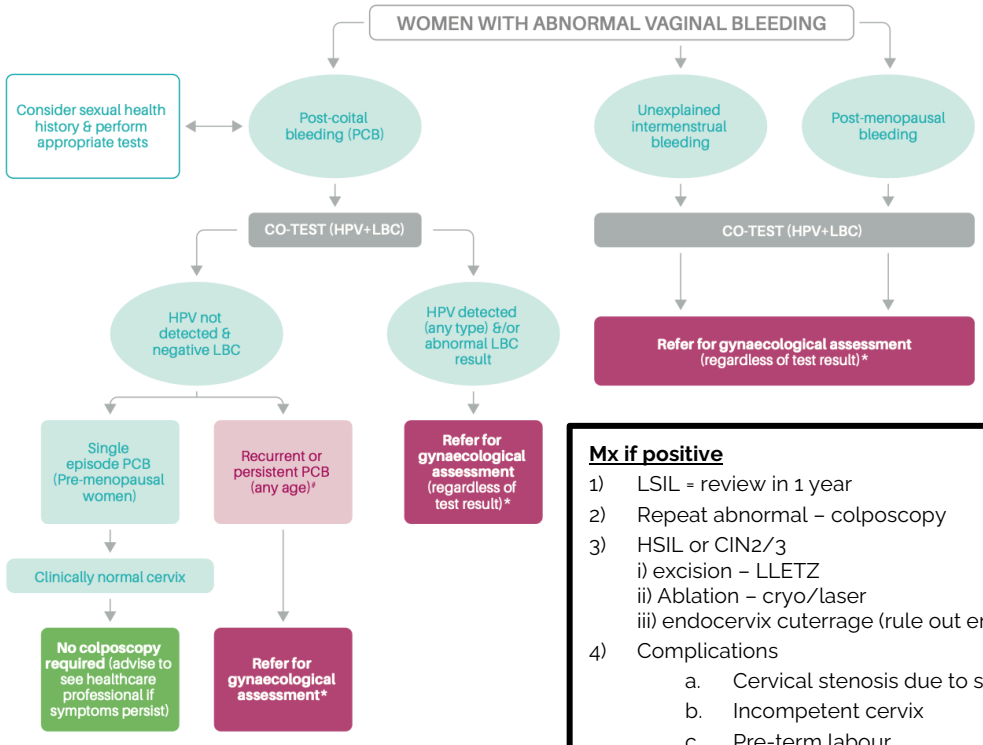


<u>Wait 6-12 weeks</u> to allow for cervix to recover since cells are disturbed during sampling process

<u>If high grade change:</u>

1) Cone biopsy =
2) LLETZ = remove cervical tissue under LA

Investigation of women with abnormal vaginal bleeding



<u>Mx if positive</u>

1) LSIL = review in 1 year
2) Repeat abnormal – colposcopy
3) HSIL or CIN2/3
   i) excision – LLETZ
   ii) Ablation – cryo/laser
   iii) endocervix cuterrage (rule out endocervical lesions)
4) Complications
   a. Cervical stenosis due to scarring
   b. Incompetent cervix
   c. Pre-term labour
   d. PPROM

Gynaecological Surgery and Gynaecology Oncology (RNSH – Pathology)

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Lumbar/para-aortic LN	Ovary, uterine tube, uterine fundus	Testes	Gonadal CANCERS
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Deep inguinal	Glans of clitoris	Glans of penis	
Sacral nodes	Inferior vagina		

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- IUCD insertion (mirena)
- D+C
- Colposcopy

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- Tubal ligation

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8) **What surgery**? (e.g. myomectomy/hysterectomy or cystectomy/oophorectomy)
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   a. Length of stay, catheter removal and next meal

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Intra-operative

4) Anaesthesia (NBM, anaphylaxis)
5) Fluid and temp management
6) Surgery

TEAM PREPARATION
1.Anaesthesia
2.Surgical team
3.Nurse

General Comp.

N/V	XS pain	Inflammation	Sepsis	Haemorrhage
➢ Electrolyte imbalance ➢ Paralytic ileus ➢ RF = anxiety, obesity, Motion sickness, previous post-op N/V	Expect progressive improvement ➢ ***Bowel*** = ileus, injury, constipation ➢ ***GU*** = urinary retention, injury ➢ ***Sepsis*** ➢ ***Haemorrhage***	➢ Catabolism ➢ water retention	➢ 4-5 days post-op ➢ Fever, chills, tachycardia, hypoTN ➢ **confusion** ➢ Diffuse distension +/- rebound tender *Risk factors* ➢ Extensive tissue injury and necrosis ➢ Prolonged operation time	➢ Blood **within** or OUTSIDE peritoneal cavity ➢ Hypovol. Shock (hypoTN, tachycardia) ➢ Severe vaginal bleed
➢ **Anti-emetics** = ondansetron, metoclopramide, dex	**Step-wise analgesia** (Panadol → NSAID → codeine)	➢ Hydration ➢ nutrition	➢ IV empirical ABx ➢ ED surgery	➢ eFAST or MRI to confirm ➢ ***Hysterectomy*** (no pregnancy plans) OR ➢ ***Embolization of uterine artery*** (uterus preserving)

Specific Comp.

Paralytic ileus	Subacute intestinal obstruction (Dx: portal site hernia)	Remnant CO_2 in bowel	Bladder Reflex Retention	Bladder vs ureter leakage (thermal injury)
➢ Passing urine but no flatus ➢ **AXR** = distended bowel and fluid-gas levels in small bowel Limits oral intake ➢ **IVF** → correct electrolytes ➢ **NGT** aspiration ➢ +/- enema (if refractory ileus)	*DDx: paralytic ileus* ➢ Day 3-5 post-op = Abdo pain persists ***despite*** NGT aspiration ➢ Emergency laparotomy – drain fluid in peritoneal cavity and resect areas of bowel necrosis ➢ Dx: portal site hernia	➢ Laparoscopic surgery uses CO_2 ➢ XS CO_2 left behind causes irritation to phrenic nerve = shoulder tip pain ➢ Normal BS and UO	➢ Suprapubic tenderness ➢ Right shoulder pain ➢ Dull percussion ➢ Normal bowel sounds + tolerating oral fluid and solids ➢ Post-op removal of endometriosis	➢ 10 days post-op following hysterectomy ➢ Spec exam = watery vaginal discharge (smells like urine) worse w/ cough ➢ DDx: CT pyelogram w/ methylene blue in bladder (is is a bladder or ureter leak?) ➢ Rx: stent