



GIT CANCER SURVEILLANCE

Barrett's oesophagus
Colorectal Cancer screening
Inflammatory Bowel Disease



Barrett's oesophagus

- Long term reflux is associated with a 10-15% risk Barrett's oesophagus
- Prevalence of Barrett's in general population 1.3% to 1.6%
- Barrett's is change in the distal oesophageal mucosa from normal squamous mucosa to columnar lined intestinal metaplasia

Risk factors

- 1. Longstanding reflux >5 years
- 2. Male >>females
- 3. Central obesity (waist:hip ratio >0.9, waist >102cm) not BMI
- 4. Age > 50 yrs
- 5. White ethnicity
- 6. Smokers
- 7. Family history (first degree) of Barrett's or oesophageal adenocarcinoma (OAC)

- Screening and surveillance attempts to reduce the risk of progression to oesophageal adenocarcinoma (OAC)
- Risk oesophageal cancer increasing and lethal , 5 year survival <20%

Diagnosis

- Extension of salmon coloured mucosa into the tubular oesophagus >1cm proximal to the GOJ with biopsies confirming intestinal metaplasia
- Biopsies should not be taken from the normal Z-line or within 1cm from the variable Z-line due to high interobserver variability and low risk of oesophageal adenocarcinoma if intestinal metaplasia <1cm
- Reporting of Barrett's based on Prague classification describing circumferential (C) and maximal length (M)

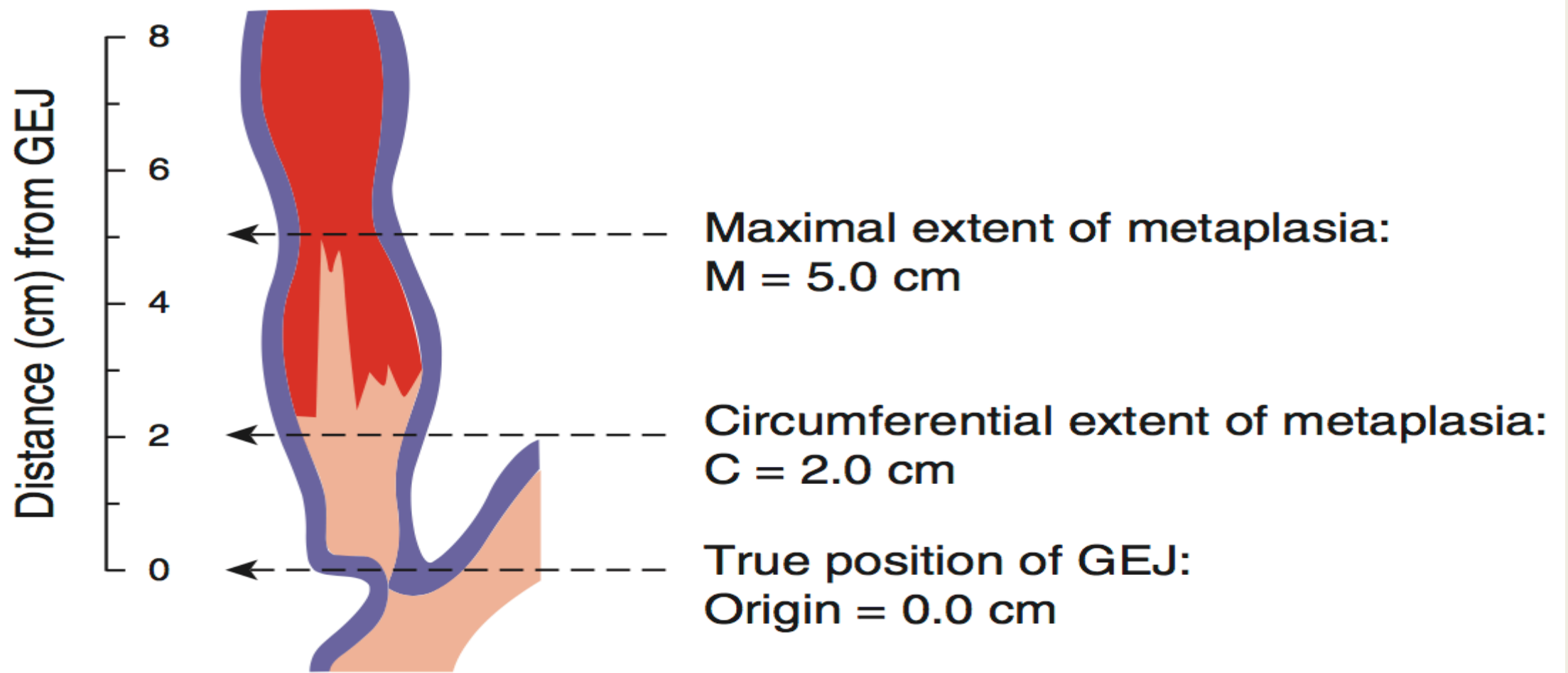


Figure 1. Illustration of Prague Classification for Barrett's esophagus (BE) where C indicates circumferential extent of metaplasia and M indicates maximal extent of metaplasia. Schema shows a C2M5 segment with identification of the gastroesophageal junction (GEJ) below the squamo-columnar junction. Reprinted with permission (24).

Screening for Barrett's oesophagus

- Consider in men with chronic (>5ys) reflux which occurs frequently (weekly or more) and two or more risk factors
- Screening for women only if multiple risk factors reflux due to substantially lower risk of OAC

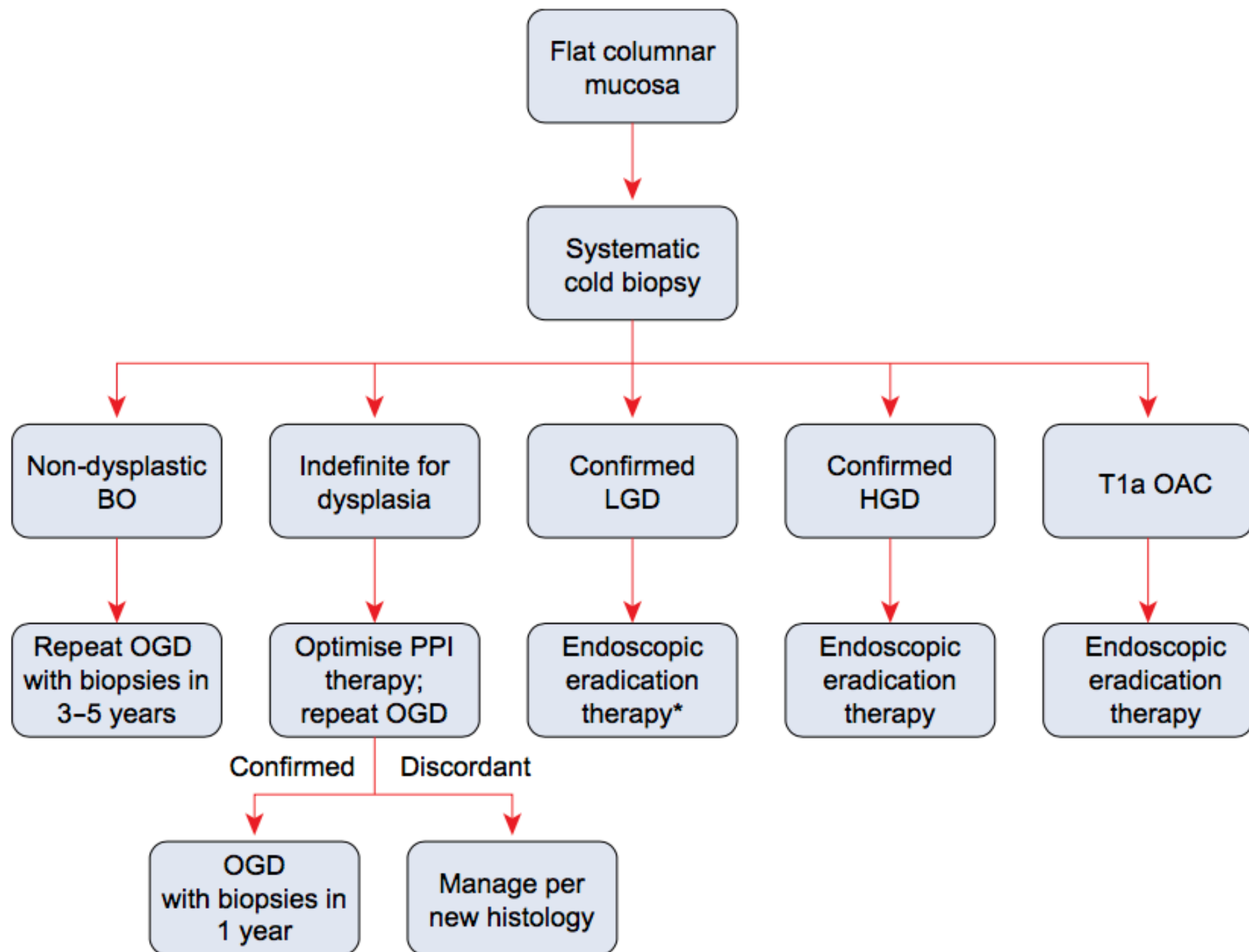
Surveillance of Barrett's oesophagus

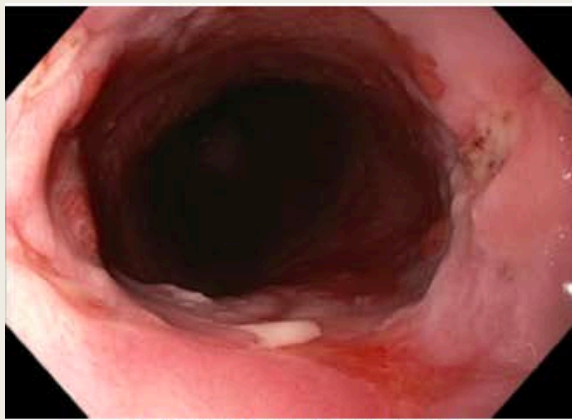
(American College Gastro Mar 2015 guidelines)

- Needs high definition white light endoscopy
 - Biopsies are take four-quadrant 2cm intervals in patient without prior dysplasia (Seattle protocol)
 - (1cm intervals if prior dysplasia)
 - Biopsies should be confirmed by a second pathologist, ideally an expert GI pathologist
-
- If no dysplasia on 2 OGDs within 1 year, repeat surveillance 3-5 years
 - (Risk of progression to cancer 0.2-0.5% per year)

- If indefinite for dysplasia, repeat OGD 3-6/12 after optimising acid suppression.
- If still indefinite for dysplasia repeat at 12/12 intervals
- If low grade dysplasia, ensure adequate acid suppression
- Endoscopic therapy is the best therapy
- EMR to any visible nodular areas or small areas
- Halo RFA to larger areas
- (Risk of progression to cancer 0.7% per year)
- If endoscopic therapy not performed, annual surveillance

- If high grade dysplasia or adenocarcinoma, refer to an expert integrated centre with endoscopy, imaging and surgery
- Overall ~20% patients with non-dysplastic Barrett's progress to dysplasia or adenocarcinoma





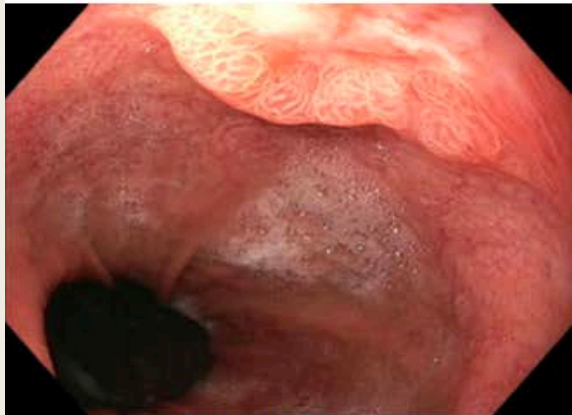
1.Top of Barrett's segment



2.GOJ/ulcerated nodular mucosa2.GOJ/ulcer



3.GOJ/ulcerated nodular mucosa3.GOJ/ulcera



4.GOJ ulcer/hernia



5.GOJ/ulcerated nodular mucosa



6.GOJ (NBI)



7.Hiatus hernia



8.Retroflexion in hernia



9.Antrum

Barrett's discussion issues

- Alcohol consumption does not increase risk of Barrett's oesophagus. Wine may be a protective factor
- Barrett's is more common in 1st degree relatives with Barrett's
- Majority (>90%) patients diagnosed with Barrett's die from other causes
- Women have a substantially reduced risk oesophageal cancer, hence only screen if multiple risk factors
- Barrett's surveillance should only occur after active inflammation for reflux is controlled ie 8-12 weeks PPI therapy
- Whilst there is no prospective clinical trial confirming benefit from endoscopic surveillance, the heterogeneity of data available suggests that surveillance is warranted

Colorectal Cancer

Colorectal Cancer statistics

- 2nd most commonly diagnosed internal malignancy
- In 2012, 14,958 new cases CRC diagnosed in Australia
- In 2013 4162 deaths from colorectal cancer
- Estimated 17520 new cases of bowel cancer will be diagnosed in 2016
- Comprise 13.4% of all new cancers diagnosed in 2016
- 2012 Age related incidence 59 per 100,000 persons
- 2016 Age related incidence 62 per 100,000 persons
- 1 in 17 males will develop CRC
- 1 in 26 females will develop CRC
- 5 year survival 2005-2012 is 68%, 1983-1987 is 48%

Treatment at an early stage is associated with an excellent long term survival

Table 1. Five-year survival by the American Joint Committee on Cancer system⁴

Stage	Definition	5-year survival
I	T1 or T2 N0 M0	93.2%
IIa	T3 N0 M0	84.7%
IIb	T4 N0 M0	72.2%
IIIa	T1 or T2 N1 M0	83.4%
IIIb	T3 or T4 N1 M0	64.1%
IIIc	Any T N2 M0	44.3%
IV	Any T or N M1	8.1%

T1 = tumour invades submucosa; T2 = tumour invades muscularis propria; T3= tumour invades through the muscularis propria into the subserosa or into non-peritonealised pericolic tissues; T4 = tumour directly invades other organs or structures and/or perforates visceral peritoneum; N0 = no regional lymph node metastasis; N1 = metastasis to one to three regional lymph nodes; N2 = metastasis to four or more regional lymph nodes; M0 = no distant metastasis; M1 = distant metastasis.

Screening tests for colorectal cancer

Test	Advantages	Disadvantages
FIT	<ul style="list-style-type: none">• Non-invasive• No time off work• Inexpensive	<ul style="list-style-type: none">• Non-bleeding polyps and cancers will not be detected• Requires continued yearly testing
gFOBT	<ul style="list-style-type: none">• Non-invasive• No time off work• Inexpensive	<ul style="list-style-type: none">• Requires multiple samples• Requires dietary restrictions• Lower sensitivity and specificity than FIT
Flexible sigmoidoscopy	<ul style="list-style-type: none">• Minimal bowel preparation• No fasting required	<ul style="list-style-type: none">• No sedation, thus uncomfortable
Colonoscopy	<ul style="list-style-type: none">• Complete bowel examination• Diagnostic and therapeutic	<ul style="list-style-type: none">• Complete bowel preparation required• Conscious sedation used; day off work and chaperone required• Risks include perforation and bleeding• Expensive

FIT = faecal immunohistochemical testing. gFOBT = guaiac faecal occult blood test (Hemoccult SENSAs; Beckman Coulter).

Population screening: National Bowel Cancer Screening program

- 1997 Australian Health Technology Advisory Committee recommended population screening for CRC, commenced pilot study 2002-2004
- NBSCP commenced 2006 initially mail out 55-65 yo
- Goal is to achieve NHMRC recommendation screening every 1-2 yrs from age 50
- Program being phased in gradually to 2020:

Phase	Start Date	End Date	Eligible Ages
1	7 August 2007	30 June 2008	55 and 65
2	1 July 2008	30 June 2011 ^(a)	50, 55 and 65
2 ^(b)	1 July 2011	30 June 2013	50, 55 and 65
3	1 July 2013	ongoing	50, 55, 60 and 65
3	1 January 2015		50, 55, 60, 65, 70 and 74
3	1 January 2016		50, 55, 60, 64, 65, 70, 72 and 74
3	1 January 2017		50, 54, 55, 58, 60, 64, 68, 70, 72 and 74
3	1 January 2018		50, 54, 58, 60, 62, 64, 66, 68, 70, 72 and 74
3	1 January 2019		50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72 and 74

- Of the 2,239,760 FOBT kits mailed Jan 2013 – Dec 2014, 37% were returned completed
- (Excludes older patients in non NBCSP screening practices)

Risk Stratification based on family history

Category 1

Those at or slightly above average age-specific risk

This includes patients with no family history up to those with one affected first-degree relative diagnosed ≥ 55 years. Whilst patients with one affected first-degree relative (≥ 55 years) have up to twice the average risk of CRC, this is not sufficient to warrant more intensive screening.

Category 2

Those at moderately increased risk, a relative risk of approximately 3 to 6-fold

Patients with one first-degree relative diagnosed with CRC < 55 years, or two first- or second-degree relatives (on the same side of the family) diagnosed with CRC at any age.

Category 3

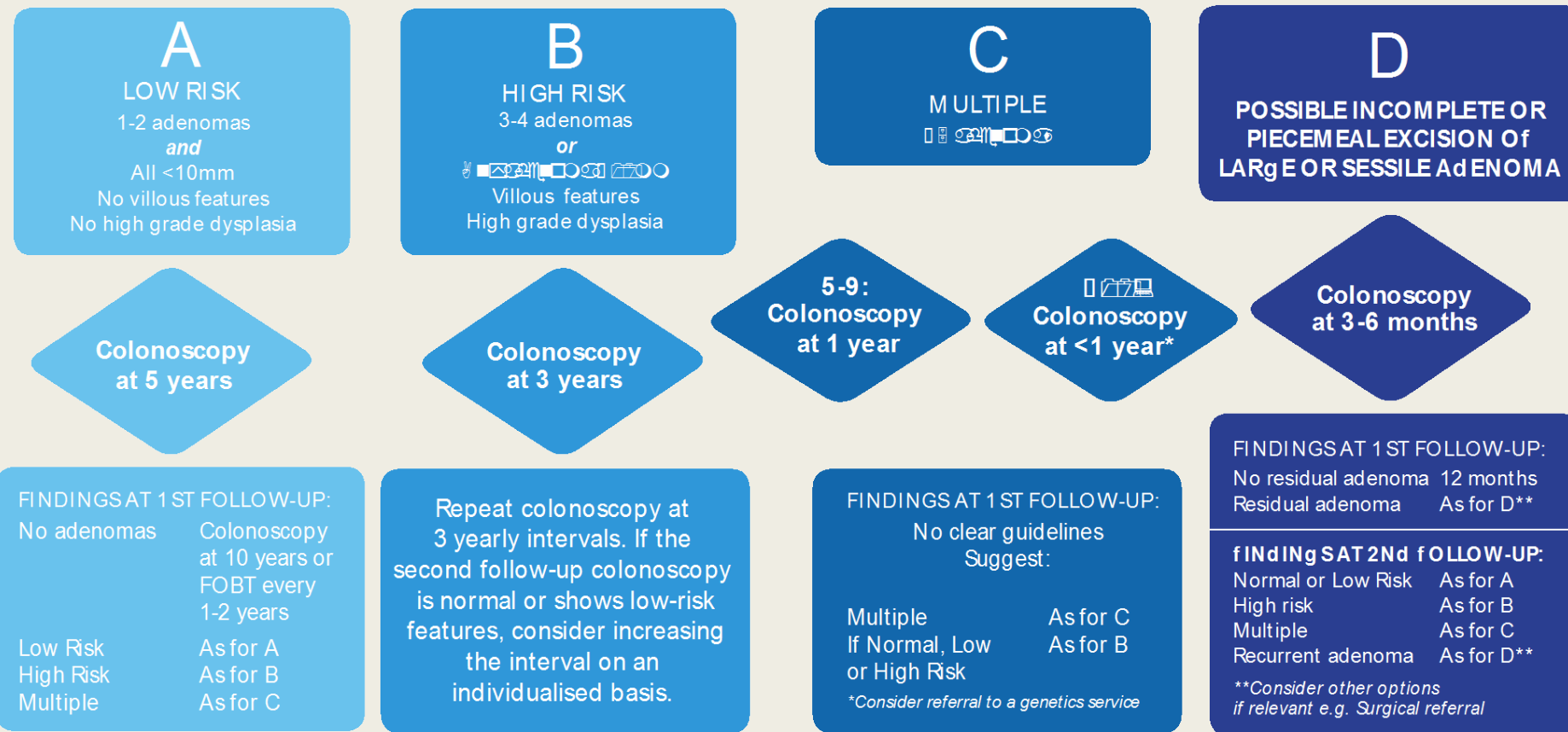
Those at potentially high risk

(these criteria also serve as a guide for clinical genetics referral, Appendix A)

- One first-degree and ≥ 2 first- or second-degree relatives with CRC on the same side of the family, or
- One first-degree and ≥ 1 first- or second-degree relatives with CRC on the same side of family in the context of:
 - multiple CRCs in one individual
 - CRC < 50 years
 - the presence of other HNPCC-related cancers, which includes gastric, small intestinal, endometrial, ovarian, ureter, renal pelvis, biliary tract, pancreas and brain
- Relatives diagnosed with an autosomal dominant inherited CRC syndrome, such as HNPCC or familial adenomatous polyposis (FAP)
- Siblings of patients with MUTYH-associated polyposis (an autosomal recessive condition)

- Colonoscopy NOT recommended for average risk population due to the risks and lack of randomised controlled trials to show benefits
- Population screening ie FOBT is NOT recommended for people with symptoms eg IDA, bleeding or those having regular surveillance colonoscopies eg past polyps or cancer or high risk genetic syndromes
- Individuals who have had a high quality colonoscopy within 2 yrs should delay FOBT screening as almost all positives not due to cancer
- 5% of CRC due to high risk syndromes eg FAP, Lynch syndrome and MUTYH associated polyposis

Colonoscopic Surveillance Intervals - Adenomas



NOTES

- This algorithm is designed to be used in conjunction with the NHMRC approved Clinical Practice Guidelines for Surveillance Colonoscopy – in adenoma follow-up, following curative resection of colorectal cancer, and for cancer surveillance in inflammatory bowel disease (December 2011) and is intended to support clinical judgement.
- Surveillance colonoscopy should be planned based on high-quality endoscopy in a well-prepared colon using most recent and previous procedure information when histology is known.
- Sessile serrated adenomas and serrated adenomas are followed up as for adenomatous polyps given present evidence, although they may progress to cancer more rapidly.
- Most patients ≥75 years of age have little to gain from surveillance of adenomas given a 10-20 year lead-time for the progression of adenoma to cancer. The finding of serrated lesions may alter management.
- Small, pale, distal hyperplastic polyps only do not require follow-up. Consider sessile serrated polyps if multiple proximal sessile serrated adenomas are found.
- In the absence of a genetic syndrome, family history does not influence surveillance scheduling which is based on patient factors and adenoma history.
- Follow-up of an advanced rectal adenoma by digital rectal examination, sigmoidoscopy or endo-rectal ultrasound should be considered independent of colonoscopic surveillance schedules.

ENDORSED BY:



Developed by: Karen Barclay, Cancer Council Australia Surveillance Colonoscopy Guidelines Working Party.
Algorithm for Colonoscopic Surveillance Intervals – Adenomas. 2013.
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CRC surveillance post surgical resection

- Ensure completion colonoscopy within 3-6/12 if obstructing cancer
- 1st surveillance colonoscopy at 12 months then 3 years.

Serrated polyps

- Comprise traditional serrated adenomas (TSA) and sessile serrated adenomas (SSA)
- Most prevalent in the proximal colon
- May progress through a different genetic pathway to traditional adenomas
- Serrated polyps with any dysplasia scope at 3 years
- Not enough evidence to have separate guidelines to adenomas, hence treat as adenomatous polyps

Discussion issues

- 1. High quality endoscopy including bowel preparation
- 2. Should adenoma rate be cumulative or per the current colonoscopy?
- 3. Colonoscopy provides more protection for L sided CRC than R sided
 - ? Views /anatomical blind spots
 - ? preparation quality
 - ? Incomplete colonoscopy

Familial adenomatosis polyposis

- Autosomal dominant and accounts 1% all CRC
- Mutation in the APC suppressor gene
- Develop >100 colorectal adenomas from early teenage years
- All pts develop cancer by age 50
- Attenuated FAP <100 colorectal adenomas
- CRC diagnosis delayed 15 yrs vs classical FAP
- Annual colonoscopy at time of diagnosis
- Plan surgery late teens or early adulthood

Hereditary Non-Polyposis Colorectal Cancer

- Comprise 3-5% all CRC
- Increased risk of R colonic cancer
- Associated with endometrial, ovarian, gastric, small bowel and ampullary cancer
- 70% pts with HNPCC will develop a malignancy
- Bethesda Criteria: CRC before 50 yo, synchronous or metachronous tumour or other HNPCC tumour, CRC with 2 or more relatives with CRC or other HNPCC tumours
- Tumours are stained for mismatch repair genes: MLH1, MSH2, MSH6, PMS2
- Negative staining means a deficient gene
- Screening colonoscopy from 25 yo every 1-2 years

MUTYH associated polyposis

- Autosomal recessive
- Similar phenotype to attenuated FAP
- 93 fold increased risk CRC
- Annual colonoscopy (+/- OGD) until colectomy due to adenoma burden

Hyperplastic polyposis syndrome

- WHO criteria:
- Five hyperplastic polyps proximal to the sigmoid, at least two are >1cm
- Any hyperplastic polyps if 1st degree family member has HPS
- >20 hyperplastic polyps throughout the colon
- Need annual or 2nd yearly colonoscopy to decrease polyp burden starting aged 40 or 10yrs prior to age of 1st family member diagnosis
- Colectomy if polyp burden cannot be controlled endoscopically

Surveillance in Ulcerative colitis

- Lifetime risk CRC in UC ~18%
- Australian data risk of CRC:
 - 1% @ 10 years
 - 3% @ 20 years
 - 7% @ 30 years
- Must survey if UC extends proximal to the sigmoid colon or Crohn's colitis involves > 1/3 colon
- CRC risk not increased in disease limited to the rectum (no surveillance needed)

- Start surveillance at 8 yrs or if PSC present start surveillance then
- Annual colonoscopy if: active disease
- PSC (4-5x increased risk)
- Family hx 1st degree CRC <50 yo
- Multiple polyps
- Otherwise 2nd yearly colonoscopy
- If L sided colitis, start surveillance 12-15 yrs after diagnosis

- If 2 colonoscopies are normal both endoscopically and histologically can repeat at 5 years
- Use chromoendoscopy and targeted biopsies not random biopsies
- If unifocal LGD rescope 6/12 then if normal, annually
- If multifocal LGD, high risk of future cancer, recommend colectomy. If colectomy declined, rescope 3/12 then annually
- If HGD, likely imminent carcinoma for colectomy

- Efficiency of surveillance colonoscopy not yet proven by RCT but case studies have shown a +ve benefit
- Chemoprevention using 5-ASA eg mesalazine may reduce CRC risk in UC therefore long term benefit



"You don't need a colonoscopy, but I'm sending you for one because, quite frankly, I don't like you."