Endoscopic Diagnosis and Management of Advanced Polyps and Early Colorectal Cancers

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The Royal Marsden
New cases of bowel cancer, 2014, UK - 41,265

Deaths from bowel cancer, 2014, UK - 15,903

Survival for bowel cancer for 10 or more years, 2010-11, in England and Wales is 57%

Preventable cases of bowel cancer, UK 54%
Diagnosis and Treatment of Early GI Cancer

- Increased burden of cancer in an aging population (1:4 to 1:3 individuals are predicted to have cancer during their life time)

- This is one of the biggest challenge to our healthcare system in the future

- Outcome of cancer treatment depends on the stage of disease at diagnosis
Stage at Diagnosis - CRC

Proportion of Cases Diagnosed at Each Stage, All Ages

Source: cruk.org/cancerstats
Survival by Stage - CRC

One-Year Net Survival (%) by Stage, Adults Aged 15-99, England
How can we improve survival?

- One year bowel cancer survival has improved from 47% in 1971-1972 to 77% in 2010-2011
- In order to improve survival further, diagnosis at an earlier stage is imperative
- Symptomatic patients are likely to have advanced disease
- Diagnosis of early stage cancer will require surveillance of asymptomatic individuals:
  - General population (if cost effective)
  - High risk patients
Diagnosis and Treatment of Early GI Cancer

- Recent advancement in therapeutic endoscopic techniques allow us to treat early GI malignancies
- *Endoscopy is at present the most useful tool in making a diagnosis of Gastrointestinal cancers*
- *Highly sensitive and specific biomarkers and Genetic testing in future will allow us to diagnose more patients at an earlier stage*
Colon Cancer Incidence

Change of the Incidence Rate, %

Age range, y
- 20-34
- 35-49
- 50-74
- ≥75

2010          2020          2030
0             -20          -37.8%
-40           -44.5%       -37.8%
-60           -44.5%       27.7%
-80           -44.5%       90.0%
-100          -44.5%       90.0%

Bailey C, JAMA Surg 2015;150
Precursors to Colorectal Cancer

- Adenoma: 75%
- Sessile Serrated Polyp: 25%
Chromosomal Instability

- APC/β-catenin
- KRAS
- TP53, PIK3CA, loss of 18q

Normal mucosa → Aberrant crypt focus → Early adenoma → Late adenoma → Invasive cancer

EGFR, COX2 → Increasing CIN

Pino MS, et al. NEJM 2010;339;1277
Pathways to CRC:

- Adenoma → CIN-MSS
- Sporadic CRC → CIN-MSS
- MYH → CIN-MSS
- Lynch Syndrome

- CIMP-MSS/MSI → Serrated Neoplasm
- MLH1 promoter methylation
- BRAF mutation
- MSI
Microsatellite Instability

- Repeated nucleotide sequences called "microsatellites"
- DNA fidelity maintained by Mismatch Repair Proteins (MMR)

MLH1  PMS2
MSH2  MSH6

Boland CR, Gastroenterology 2010;138:2073
CpG Island Methylation (CIMP)

Normal colon epithelium

Colorectal cancer

Gene Expression

Gene Silencing

Methylated CpG site
Unmethylated CpG site

Lao, V. V. & Grady, W. M. Nat. Rev. Gastroenterol. Hepatol. 8, 686–700 (2011)
Lifetime Risk of Colorectal Cancer

- FAP: 60-100%
- Lynch Syndrome: 40-60%
- IBD: 15-40%
- Personal/Family h/o CRC: 15-20%
- General population: 5%
Question 1:

A 62 year old woman with a recent diagnosis of breast cancer and no other personal and family history of cancer inquires about CRC screening in light of her recent breast cancer diagnosis. Which of the following options is a current recommendation for CRC screening in her:

1. Faecal occult blood test every 2 year
2. Flexible sigmoidoscopy every 3 years
3. Stool DNA-FIT test every 5 years
4. Colonoscopy every 5 years
Colorectal Screening Guidelines

Screening for asymptomatic individuals with average risk:

Two screening programmes in UK:

- Ages 60-74 yrs have faecal occult blood test every 2 years (Ages over 74 years can request a screening kit, Individuals over 85 years should not be screened)

- Bowel scope test at age 55 years once – flexible sigmoidoscopy
## CRC Screening Guidelines in USA

<table>
<thead>
<tr>
<th>Age: 50yrs</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method</strong></td>
<td><strong>Interval</strong></td>
</tr>
<tr>
<td>gFOBT or FIT</td>
<td>1 year</td>
</tr>
<tr>
<td>Flex Sigmoidoscopy</td>
<td>5 years</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>10 years</td>
</tr>
<tr>
<td>CT Colonography</td>
<td>5 years</td>
</tr>
<tr>
<td>FIT-DNA</td>
<td>Unknown (1-3 years)</td>
</tr>
</tbody>
</table>

# Faecal Occult Blood tests

<table>
<thead>
<tr>
<th>Feature</th>
<th>Guaiac</th>
<th>Immunochemical</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target</strong></td>
<td>Peroxidase in haemoglobin</td>
<td>Antibody to globin</td>
</tr>
<tr>
<td><strong>Number of Stools</strong></td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>Diet/Medication Restriction</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Specific for LGI Bleeding</strong></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Qualitative/Quantitative</strong></td>
<td>Yes/No</td>
<td>Yes/Yes</td>
</tr>
<tr>
<td><strong>Test Adherence</strong></td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td><strong>Sensitivity/Specificity for CRC</strong></td>
<td>31-64%/90-98%</td>
<td>82-92%/90-97%</td>
</tr>
</tbody>
</table>
FOBT and CRC Mortality

Reduction in cumulative CRC mortality after 30 years of screening compared to control population:

- Biennial screening 22% reduction
- Annual screening 32% reduction

MT-DNA vs FIT for Polyp Detection

<table>
<thead>
<tr>
<th>Sensitivity for Advanced Neoplasia/SSP &gt; 10 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-DNA</td>
</tr>
<tr>
<td>FIT</td>
</tr>
<tr>
<td>P value</td>
</tr>
</tbody>
</table>

Multi-Target DNA vs FIT

Components of MT DNA
- Kras mutation
- Methylation markers
- FIT

<table>
<thead>
<tr>
<th>CRC</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-DNA</td>
<td>92%</td>
<td>87%</td>
</tr>
<tr>
<td>FIT</td>
<td>74%</td>
<td>96%</td>
</tr>
<tr>
<td>P value</td>
<td>0.002</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

![Bar chart comparing Multitarget DNA test to FIT](chart.png)

- Stage I (N=29) P=0.04
- Stage II (N=21) P=0.06
- Stage III (N=10) P=0.002
- Stage IV (N=4) P=0.002
- Stage I–III (N=60) P=0.002

## Flexible Sigmoidoscopy and CRC Incidence and Mortality

<table>
<thead>
<tr>
<th></th>
<th>Schoen (N=77,445) FS every 3-5 years</th>
<th>Atkin (N=57,237) One FS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR (95% CI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incidence</td>
<td>0.79 (0.72-0.85)</td>
<td>0.77 (0.70-0.84)</td>
</tr>
<tr>
<td>Mortality</td>
<td>0.74 (0.63-0.87)</td>
<td>0.69 (0.59-0.82)</td>
</tr>
</tbody>
</table>
CRC after Negative Colonoscopy Evidence for 10yr interval

Colonoscopy provides protection for 10 years

<table>
<thead>
<tr>
<th>Year FU</th>
<th>1-2</th>
<th>3-4</th>
<th>5-9</th>
<th>10</th>
<th>20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1945 cases</td>
<td>0.14</td>
<td>0.12</td>
<td>0.26</td>
<td>0.28</td>
<td>0.04</td>
</tr>
<tr>
<td>2399 controls</td>
<td>(0.10 to 0.20)</td>
<td>(0.08 to 0.19)</td>
<td>(0.18 to 0.39)</td>
<td>(0.17 to 0.45)</td>
<td>(0.24 to 0.66)</td>
</tr>
</tbody>
</table>

36-yr old woman with no personal history of cancer. Her mother has a previous history of endometrial cancer at the age of 58yrs

What is the most appropriate management for this patient?

1. Colonoscopy every 1 year, beginning at age 40
2. Colonoscopy every 1 year begin now
3. Colonoscopy every 5 years begin age 40
4. Colonoscopy every 5 years begin now
## CRC Screening
### Family History Risk

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Age to Begin</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRC or adenoma in FDR &lt;60yr Or ≥2FDRs at any age</td>
<td>40</td>
<td>Colonoscopy every 5 yrs</td>
</tr>
<tr>
<td>CRC or adenoma in FDR ≥60yr Or ≥2FDRs at any age</td>
<td>40</td>
<td>Average Risk options</td>
</tr>
<tr>
<td>Or 10yrs younger than youngest case in family, whichever is earlier</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Levin B et al. CA Cancer J Clin 2008:58;130-160
Precursors to Colorectal Cancer

Adenoma: 75%
Sessile Serrated Polyp: 25%
<table>
<thead>
<tr>
<th>CRC Precursor lesions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Benign Histology</strong></td>
</tr>
<tr>
<td><strong>Adenomatous Lesions:</strong></td>
</tr>
<tr>
<td>Tubular adenoma</td>
</tr>
<tr>
<td>Tubulovillous adenoma</td>
</tr>
<tr>
<td>Villous adenoma</td>
</tr>
<tr>
<td>(+/- high grade dysplasia)</td>
</tr>
<tr>
<td><strong>Serrated Lesions:</strong></td>
</tr>
<tr>
<td>Hyperplastic polyp*</td>
</tr>
<tr>
<td>Sessile Serrated Adenoma</td>
</tr>
<tr>
<td>Traditional Serrated Adenoma</td>
</tr>
</tbody>
</table>
Lesion characterisation

Visible Lesions & Paris Classification

- 0-Ip
- 0-Ia
- 0-Ib
- 0-Ic
- 0-IIa
- 0-IIb
- 0-IIc
- 0-III
Colon EMR: Chromo Agents

Too dark

OK
Dye Based IEE
Indigo Carmine
# Kudo Pit Pattern Colorectal Lesion Classification

<table>
<thead>
<tr>
<th>Kudo Pit</th>
<th>Round pits.</th>
<th>Non-neoplastic.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Stellar or papillary pits.</td>
<td>Non-neoplastic.</td>
</tr>
<tr>
<td>II</td>
<td>Small tubular or round pits that are smaller than the normal pit</td>
<td>Neoplastic.</td>
</tr>
<tr>
<td>IIIa</td>
<td>Tubular or roundish pits that are larger than the normal pits.</td>
<td>Neoplastic.</td>
</tr>
<tr>
<td>IIIb</td>
<td>Branch-like or gyrus-like pits.</td>
<td>Neoplastic.</td>
</tr>
</tbody>
</table>

*Requires:*
- High Magnification
- Indigo Carmine
- Crystal Violet

# NBI International Colorectal Endoscopic (NICE) Classification

<table>
<thead>
<tr>
<th></th>
<th>Type 1</th>
<th>Type 2</th>
<th>Type 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td>Same or lighter than background</td>
<td>Browner relative to background</td>
<td>Brown to dark brown relative to background; sometimes patchy whiter areas</td>
</tr>
<tr>
<td><strong>Vessel</strong></td>
<td>None, or isolated lacy vessels coursing across the lesion</td>
<td>Brown vessels surrounding white structures</td>
<td>Has area(s) of disrupted or missing vessels</td>
</tr>
<tr>
<td><strong>Surface Pattern</strong></td>
<td>Dark or white spots of uniform size, or homogeneous absence of pattern</td>
<td>Oval, tubular or branched white structure surrounded by brown vessels</td>
<td>Amorphous or absent surface pattern</td>
</tr>
<tr>
<td><strong>Most Likely Pathology</strong></td>
<td><strong>Hyperplastic</strong></td>
<td><strong>Adenoma</strong></td>
<td><strong>Deep submucosal invasive cancer</strong></td>
</tr>
</tbody>
</table>

## Examples

Hewett D, Kaltenbach T, ...Rex D. Gastro 2012
Hayashi N, Tanaka S, ...Soetikno R. GIE 2013
Lesion Characterisation
Lesion Characterisation
Lesion Characterisation
Techniques in the Management of Early GI Cancer

- Standard Snare Polypectomy
- Endoscopic Mucosal Resection
- Endoscopic Submucosal Dissection
- Endoscopic Full Thickness Resection
### Comparisons of Endoscopic Therapy

<table>
<thead>
<tr>
<th></th>
<th>Polypectomy</th>
<th>Endoscopic Mucosal Resection</th>
<th>Endoscopic Submucosal Dissection</th>
<th>Endoscopic Ablation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target</strong></td>
<td>Polypoid</td>
<td>Nonpolypoid</td>
<td>Nonpolypoid</td>
<td>Nonpolypoid</td>
</tr>
<tr>
<td><strong>Depth</strong></td>
<td>Resection at the mucosa</td>
<td>Resection at deep submucosa</td>
<td>Deep submucosa</td>
<td>Superficial submucosa</td>
</tr>
<tr>
<td><strong>Goal of resection</strong></td>
<td>R0</td>
<td>R0 (&lt; 2 cm)</td>
<td>R0 (any size)</td>
<td>Non oncologic</td>
</tr>
<tr>
<td><strong>Pathology Specimen/Stage</strong></td>
<td>Yes of entire lesion</td>
<td>May be piecemeal of entire lesion</td>
<td>En bloc of entire lesion</td>
<td>Biopsy sample only</td>
</tr>
</tbody>
</table>
Endoscopic Mucosal Resection (EMR)

- EMR is an endoscopic alternative to surgical resection of mucosal neoplastic lesions
- EMR involves snare resection of the dysplastic lesion
- Lesion is excised rather than ablated – allows histological diagnosis and staging
EMR/ESD/Tissue Resection

Current

- EMR without suction
- EMR with suction
  - Cap-EMR
  - Band-EMR
Techniques - Endoscopic Mucosal Resection

A. Inject solution into the submucosa
B. Capture with a snare
C. Cut

Soetikno, Gotoda, Nakanishi and Soehendra. GIE 2003
Cap-EMR
Cap-EMR
Cap-EMR
Band-EMR
Band-EMR
Band-EMR
Band-EMR
Non-lifting Sign

Kaltenbach T & Soetikno S. Optical Diagnosis of Colorectal Polyps ASGE Educational Video 2013
Endoscopic Submucosal Dissection (ESD)

- Large >2cm and complex morphology lesions are removed en bloc by dissecting through the submucosal plane
- Specially designed needle-knives
- Facilitated by submucosal injection of viscous substances such as hyaluronidate, which provide prolonged submucosal lifting
- High level of endoscopic expertise required
Endoscopic Submucosal Dissection (ESD)
Transparent tip hood

The standard tip hood

ST Hood

Various knives

Dual knife

Hook knife

IT-knife2

B-knife

Flush knife

Small cap of hemostatic forceps
ESD Step 1:
Staining and Marking the Lesion
ESD Step 2: Submucosal Fluid Injection and Circumferential Incision
ESD Step 3:
Dissection of Submucosal Space
ESD Step 4: Hemostasis
ESD Step 5: Specimen Preparation
Endoscopic Full-Thickness Resection

Full-thickness resection in the descending colon with the FTRD® System

Source: Prof. Dr. Karel Caca & Dr. Arthur Schmidt
Klinik für Innere Medizin, Gastroenterologie, Hämato-Onkologie, Diabetologie und Infektiologie, Klinikum Ludwigsburg, Germany
**Basics of full-thickness resection with FTRD**

**Procedural steps during use**

- Marking of lesion (FTRD Marking Probe)
  ![Diagram](image)

- Mounting of colonic FTRD to endoscope according to IFU
  ![Diagram](image)

- Insertion of endoscope up to lesion that shall be resected
  ![Diagram](image)

- Establish HF connection
  ![Diagram](image)

- Position endoscope over lesion
  ![Diagram](image)

- Grasping of tissue and mobilizing into cap using a grasping instrument, e.g. FTRD Grasper
  ![Diagram](image)
Basics of full-thickness resection with FTRD

Procedural steps during use

- Ensure marked tissue is completely in cap
- Fix FTRD Grasper
- Clip application
- Remove snare safety lock on snare handle
- Close snare
- Resection of tissue (HF current)
- Retrieve the resected tissue from the body with the endoscope
- Check resection specimen and resection site
- Dispose of colonic FTRD components
Basics of full-thickness resection with FTRD

The FTRD System Set consists of all instruments that are necessary for the intervention.
Clinical considerations

FTRD is the first interventional system for combined full-thickness resection of colonic lesions with closure and cutting of the tissue in one integrated procedure.

Principle: with the FTRD System cutting of the tissue does not occur until the target area has been closed by the clip. The peritoneal cavity is not opened.

The FTRD is based on the well-known OTSC® System but has a different cap geometry, a novel clip and an integrated mechanism for resection.

The lesion to be resected is pulled into the system under visualization.
Basics of full-thickness resection with FTRD

Procedural steps: endoscopic view

Source: Prof. Dr. K. Caca and Dr. A. Schmidt, Klinikum Ludwigsburg, Germany
Rev22_2018-07-06
Question 3:

A 63yr old male underwent average screening colonoscopy. The bowel prep was excellent. Exam completed.

A 5mm sigmoid tubular adenoma and 8mm tubulovillous adenoma with high grade dysplasia in the transverse colon were seen and removed.

What is the appropriate follow up for this patient:

1. 1 year
2. 3 year
3. 5 year
4. 10 year
NICE guidance for screening after polyp detection

Low risk (colonoscopy at 5 years):
- one or two adenomas smaller than 10 mm

Intermediate risk (colonoscopy at 3 years):
- three or four adenomas smaller than 10 mm or
- one or two adenomas if one is 10 mm or larger

High risk (colonoscopy at 1 years):
- five or more adenomas smaller than 10 mm or
- three or more adenomas if one is 10 mm or larger
### Adenoma Surveillance Strategy

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Interval</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low risk: 1-2, &lt;1 cm, TA</td>
<td>5-10 yrs</td>
<td>Based on other risk factors</td>
</tr>
<tr>
<td>High risk: 3-10, or &gt;1cm, or TVA/VA/HGD</td>
<td>3 yrs</td>
<td>If normal or 1-2 TA, Repeat 5 yrs</td>
</tr>
<tr>
<td>Highest risk: ≥ 10 on 1 exam</td>
<td>&lt; 3 yrs</td>
<td>Consider genetic syndromes</td>
</tr>
</tbody>
</table>

Lieberman et al. Gastroenterology 2012;143;844
Colorectal Screening Guidelines

Screening for individuals with higher than average risk in UK is by colonoscopy:

1. Familial adenomatous polyps (FAP)
2. Lynch Syndrome
3. Strong family history of bowel cancer
4. Ulcerative colitis and Crohn’s colitis
5. Polyps in the bowel
6. Previous history of bowel cancer
### Post–CRC Colonoscopy Surveillance Recommendations

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Interval</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon Cancer</td>
<td>Within 1 year after resection,</td>
<td>Curative colon cancer resection with peri-operative clearing</td>
</tr>
<tr>
<td></td>
<td>If normal repeat in 3 years,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If normal repeat every 5 years</td>
<td></td>
</tr>
</tbody>
</table>

Rex D. CA Cancer J Clin 2006;56:160-167
Question 4:

A 66 yr old woman in for colonoscopy. Previous findings: First colonoscopy done for average risk screening: 2 TA 3 and 7mm in transverse and descending colon; 2 sessile serrated polyps 15 and 11mm, removed from the ascending and transverse colon

Second exam: 3, 2-4mm hyperplastic polyps removed from transverse and descending colon.

Today’s exam: 1, 3mm hyperplastic polyp and 1, 4mm TA removed in the transverse colon and hepatic flexure each

What is the appropriate follow up interval:

1. 1 year
2. 3 year
3. 5 year
4. 10 year
# Serrated Polyp Surveillance

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Interval Yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serrated Lesions</td>
<td></td>
</tr>
<tr>
<td>&lt;10mm, rectosigmoid hyperplastic polyp</td>
<td>10 years</td>
</tr>
<tr>
<td>SSP &lt;10mm</td>
<td>5 years</td>
</tr>
<tr>
<td>SSP ≥10mm</td>
<td>3 years</td>
</tr>
<tr>
<td>Serrated Polyposis Syndrome (SPS)</td>
<td>1 year</td>
</tr>
</tbody>
</table>

SPS:
1. ≥5 serrated polyps proximal to sigmoid with ≥2 being ≥10mm
2. Any serrated polyp proximal to sigmoid with FHx SPS
3. >20 serrated polyps throughout the colon

## Surveillance of Large Polyps

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Interval</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sessile polyps removed piecemeal or ≥20mm in size</td>
<td>Within 2-6 months to verify complete removal</td>
<td>Once eradicated, surveillance based on endoscopist judgement</td>
</tr>
</tbody>
</table>
# Surveillance for Lynch Syndrome

<table>
<thead>
<tr>
<th>Organ</th>
<th>Age to begin</th>
<th>Method</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon</td>
<td>20-25 years*</td>
<td>Colonoscopy</td>
<td>1-2 years</td>
</tr>
<tr>
<td>Uterus/Ovary</td>
<td>30-35 years</td>
<td>TVUS, Endometrial Bx</td>
<td>1-2 years</td>
</tr>
<tr>
<td>Stomach/Small Bowel</td>
<td>30-35 years</td>
<td>OGD-bx H pylori</td>
<td>2-3yrs</td>
</tr>
<tr>
<td>Urothelium</td>
<td>30-35 years</td>
<td>Urinanalysis</td>
<td>1 years</td>
</tr>
</tbody>
</table>

*Or 10 years younger than the age of youngest relative affected, or 2-5 years younger if relative was <25 years of age

GiardelloF, et al Gastroenterology 2014
# Surveillance in IBD

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Age to Begin</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulcerative Colitis or Crohn’s Colitis</td>
<td>Pancolitis: 8 years</td>
<td>Colonoscopy every 1-2 years</td>
</tr>
<tr>
<td></td>
<td>Lt sided Colitis: 12-15 years</td>
<td></td>
</tr>
<tr>
<td>Primary Sclerosing Cholangitis</td>
<td>At the time of diagnosis</td>
<td>Colonoscopy every 1 year if IBD present</td>
</tr>
</tbody>
</table>

Lindor K, Am J Gastroenterol 2015; 110;646-659
When to stop surveillance?

- When risk > benefit
- Ages 75-85 years
  - Potential benefit for surveillance > screening
- Ages >85 years
  - Patients with advanced colorectal neoplasia are at higher risk for metachronous advanced neoplasia vs average-risk
  - Consider continued surveillance

Lieberman D et al, Gastro 2012:143;844
Submucosal Injection

Glyceol®
Muco Up®
- Start form oral side if retroflex position is available
- Don’t make circumferential incision at the beginning
Utility of Transparent Hood

- Better visualization of the operating field
- Give appropriate counter traction
Utility of Gravity
Reliable *en bloc* resection is available!
Lower GI Endoscopy at The Royal Marsden

Diagnostic flexible sigmoidoscopy
Diagnostic colonoscopy
Advanced diagnostic colonoscopy
- High Definition white light endoscopy
- Narrow band imaging of lesions surface
- Chromoendoscopy of colonic lesions (dye based)

Therapeutic colonoscopy
- Standard polypectomy
- Endoscopic mucosal resection of flat lesions
- Endoscopic submucosal dissection of advanced polyps & early cancers

Rectal Endoscopic Ultrasound for staging rectal lesions and for biopsy of peri-rectal mass and lymph node
NICE Guidelines – Referral for Suspected CRC

Refer adults using a suspected cancer pathway referral (for an appointment within 2 weeks) for colorectal cancer if:

- ≥40yrs with unexplained weight loss and abdominal pain or
- ≥50 with unexplained rectal bleeding or
- ≥60 and over with:
  - iron-deficiency anaemia or
  - changes in their bowel habit, or
  - tests show occult blood in their faeces (see recommendation for who should be offered a test for occult blood in faeces). [new 2015]
Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for colorectal cancer in adults with a rectal or abdominal mass [new 2015]

Consider a suspected cancer pathway referral (for an appointment within 2 weeks) for colorectal cancer in adults aged under 50 with rectal bleeding and any of the following unexplained symptoms or findings:
- abdominal pain
- change in bowel habit
- weight loss
- iron-deficiency anaemia. [new 2015]
NICE Guidelines - FOBT

Offer testing for occult blood in faeces to assess for colorectal cancer in adults without rectal bleeding who:

- ≥50 and over with unexplained:
  - abdominal pain or
  - weight loss, or

- ≥60 with:
  - changes in their bowel habit or
  - iron-deficiency anaemia, or

- ≥60 and over and have anaemia even in the absence of iron deficiency [new 2015]