Bowel Screening Colonoscopy in Glasgow 2017

How well are we doing?
How well should we be doing?
How can we evidence and improve performance?
Bowel Screening Standards - Scotland

Standard Statement 8

Safe and effective investigation is available to people with a positive screening test.

Criteria

8.1 Screening colonoscopy is undertaken in a unit taking part in the Global Rating Scale.

8.2 Colonoscopy is carried out by a colonoscopist who can show at least 90% colonoscopy completion, 35% adenoma detection rate and a six-minute withdrawal time for diagnostic colonoscopy in mandatory, continuous audit of screening colonoscopy.
Definitions

Completion Rate

- Percentage of all (unadjusted for mitigating factors) colonoscopies where the caecum is intubated with photographic evidence
Definitions

Adenoma Detection Rate

Percentage of colonoscopies where at least one adenoma (or serrated adenoma) is found

NB - multiple adenomas do NOT change numerator
    - histological ADR is presented for bowel screening data in NHSGGC
Definitions

Colonoscopy withdrawal time

Inspection time taken on withdrawal from caecum to anus during negative procedures
Quality in Screening Colonoscopy

• Maximise detection of pathology
  - Examination of entire colon
  - Careful inspection of the whole colon
  - Lesion recognition

• Minimise harm to screening population
  - Safe removal of adenomas
  - (Effective removal of adenomas by appropriate intervention)
  - Lesion recognition/interrogation and shared decision making in complex cases
<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caecal Intubation Rate</td>
<td>90%</td>
<td>97%</td>
</tr>
<tr>
<td>Adenoma Detection Rate</td>
<td>35%</td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>40%</td>
<td>44% (2016)</td>
</tr>
<tr>
<td>Withdrawal Time</td>
<td>6 minutes</td>
<td>10 minutes</td>
</tr>
</tbody>
</table>
Screening Colonoscopists

- 22 active screening colonoscopists in GGC
- 6 Clyde sector, 8 South sector, 8 North sector

- Adenoma detection rates - **Average 42%**
  - $>35\%$ over 4 year period in $20/22$ (91%)
  - $>40\%$ over 4 year period in $16/22$ (73%)

- Completion rates - **Average 97.4%**
  - $>90\%$ over 4 year period in $21/22$ (95%)
<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of scopes</td>
<td>90%</td>
<td>95%</td>
</tr>
<tr>
<td>where preparation adequate or excellent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyp retrieval rate</td>
<td>90%</td>
<td>95%</td>
</tr>
</tbody>
</table>
## Bowel Screening Standards – England (2011)

<table>
<thead>
<tr>
<th>Minimising harm to screening population</th>
<th>Minimum number of BCSP colonoscopies per annum undertaken by an accredited BCSP colonoscopist</th>
<th>≥150 colonoscopies</th>
<th>Not applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>(ii) Perforation rate</td>
<td>&lt;1 per 1000 colonoscopies</td>
<td>Auditable outcome</td>
<td></td>
</tr>
<tr>
<td>(iii) Post polypectomy perforation rate</td>
<td>&lt;1 per 500 colonoscopies where polypectomy is performed</td>
<td>Auditable outcome</td>
<td></td>
</tr>
<tr>
<td>(iv) Post polypectomy bleeding rate</td>
<td>&lt;1 per 100 colonoscopies where polypectomy is performed</td>
<td>Auditable outcome</td>
<td></td>
</tr>
<tr>
<td>(v) Rate of other adverse events</td>
<td>100% recorded</td>
<td>Auditable outcome</td>
<td></td>
</tr>
<tr>
<td>(vi) Colonoscopy comfort</td>
<td>100% recorded</td>
<td>Auditable outcome</td>
<td></td>
</tr>
<tr>
<td>(vii) Sedation use and doses</td>
<td>100% recorded</td>
<td>Auditable outcome</td>
<td></td>
</tr>
<tr>
<td>(viii) Use of reversal agents</td>
<td>100% recorded</td>
<td>Auditable outcome</td>
<td></td>
</tr>
</tbody>
</table>
Governance of Bowel Screening Colonoscopy in NHS GGC

• Board Audit group
  - Meets bi-annually to report on colonoscopy KPIs
  - Caecal intubation rate, Adenoma detection rate, complication
  - Data presented annually and as 3 year aggregate

• Local M&M process in each sector
Proposals for Effective Governance

Audit targets

- Total number of colonoscopies per operator per year
- Unadjusted caecal intubation rate
- Adenoma detection rate
- Complication rate (analysis, interrogation)
- Post colonoscopy cancer rate (analysis, interrogation)
Total Number of Colonoscopies

- England: > 150 screening colonoscopies per year
- GGC: > 150 colonoscopies per year
  (> 75 screening colonoscopies)
Proposals for Performance Management

- **Caecal Intubation Rate**

  Performance review with local lead

  - 85-90% in 1 year : calculation of adjusted CIR and analysis of individual cases
  - <85% in 1 year : calculation of adjusted CIR, consider stopping screening (unless year 1 screener)
  - <90% over 3 years : stop screening
Proposals for Performance Management

- **Adenoma Detection Rate**
  - 30-35% in any one year : mandatory recording of withdrawal time
  - <30% in any one year : mandatory recording of withdrawal time
  - performance review with local lead
  - <25% in any one year : stop screening
  - <35% for 3 year period : stop screening
Proposals for Performance Management

Complications

- Adequate detection of complications

- Feedback from local lead to ensure knowledge of complications on annual basis
Complications in NHSGGC

2013-2015

8 colonic perforations (out of 5525 = rate 1/715)
6 required surgery. 1 death.

7 episodes of bleeding (rate = 1/770)
1 significant (rate 1/5000)
Post Colonoscopy Colon Cancer

• Diagnosis of colorectal cancer within 3 years after a colonoscopy where cancer was not detected

• Rates in England (non screening) approx 7.3% in 2007
  Morris Endoscopy 2014

• 8 cases identified between 2009 and 2015
  8/886 = 1% of cancers which may have been present at screening
  One Dukes A, 2 Dukes B, 4 Dukes C1, 1 no data
  7 different colonoscopists
Complex Polypectomy

<table>
<thead>
<tr>
<th>SMSA Polyp score and level</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SMSA Polyp score</strong></td>
<td><strong>Points</strong></td>
<td><strong>Morphology</strong></td>
<td><strong>Points</strong></td>
<td><strong>Access</strong></td>
<td><strong>Points</strong></td>
</tr>
<tr>
<td>Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;1cm</td>
<td>1</td>
<td>Pedunculated</td>
<td>1</td>
<td>Easy</td>
<td>1</td>
</tr>
<tr>
<td>1-1.9cm</td>
<td>3</td>
<td>Sessile</td>
<td>2</td>
<td>Difficult</td>
<td>3</td>
</tr>
<tr>
<td>2-2.9cm</td>
<td>5</td>
<td>Flat</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-3.9cm</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;4cm</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMSA Level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1: 4-5 points</td>
<td>2</td>
<td>6-9 points</td>
<td>3: 9-12 points</td>
<td>4: &gt;12 points</td>
<td></td>
</tr>
</tbody>
</table>

Longcroft Wheaton, *Dis Colon Rectum* 2013
Large Non-Pedunculated Colorectal Polyps

- Careful visual interrogation
- Photograph/video before removal
- Characterise morphology using Paris classification
- Characterise pit pattern via Kudo classification
- Caution with biopsies

- Local referral pathways and audit of quality of removal

BSG Guidelines Rutter *Gut* 2015
Polyp Management

• No standard process therefore variation in practice

• Optimal polyp management important to
  - Minimise complications of polypectomy
  - Increase likelihood of adequate removal
  - Minimise need for potentially unnecessary surgery

• Not all screeners may be equally skilled in management of all lesions.

• Identification of frequency of complex lesions will help resource planning – MDT discussion, endoscopist skill mix
**NHS Greater Glasgow & Clyde**  
**Endoscopy Services**  
**Audit of Spread & Complexity of Polyps across GG&C**

*This is a scannable form.* Please complete all appropriate sections of the form with an X or clear legible writing. Do not use patient labels and please do not photocopy forms. (If you require more forms please call 0141 201 0741)

**Please complete a separate audit form for EACH Polyp detected**

<table>
<thead>
<tr>
<th>CHI No:</th>
<th>Date of Procedure:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>/ /</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Endoscopy Unit:</th>
<th>Endoscopist:</th>
</tr>
</thead>
</table>

**SMSA score for determining difficulty of Polyp:**

<table>
<thead>
<tr>
<th>Size</th>
<th>Morphology</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1cm</td>
<td>Pedunculated</td>
<td>Left colon</td>
</tr>
<tr>
<td></td>
<td>SMSA score 1</td>
<td>SMSA score 1</td>
</tr>
<tr>
<td>1-1.9cm</td>
<td>Sessile</td>
<td>Right colon</td>
</tr>
<tr>
<td></td>
<td>SMSA score 3</td>
<td>SMSA score 2</td>
</tr>
<tr>
<td>2-2.9cm</td>
<td>Flat</td>
<td>Access</td>
</tr>
<tr>
<td></td>
<td>SMSA score 5</td>
<td>Easy</td>
</tr>
<tr>
<td>3-3.9cm</td>
<td></td>
<td>SMSA score 1</td>
</tr>
<tr>
<td>&gt;or equal to 4cm</td>
<td></td>
<td>Difficult</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMSA score 3</td>
</tr>
</tbody>
</table>

**Total Score:**

**Action:**

- Remove
- Defer
- Refer

If Defer or Refer is ticked please state reason below:

<table>
<thead>
<tr>
<th>Intervention:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cold Snare Enbloc</td>
</tr>
<tr>
<td>Cold Snare Piecemeal</td>
</tr>
</tbody>
</table>

With Subinjection  
Tattoo placed  
Yes | No | Yes | No | Record 1
CPD Requirements in Screening Colonoscopy

• Evidence of tailored CPD regarding knowledge and skill in screening colonoscopy

• Upskilling course or advanced polypectomy course once per appraisal cycle
Trainees on Bowel Screening Lists

- Excellent training opportunity
- Direct supervision
- Should already have completed JAG accreditation in colonoscopy
# Trainees on Bowel Screening Lists

<table>
<thead>
<tr>
<th>Criteria for full criteria</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon provisional certification</td>
<td>Granted</td>
</tr>
<tr>
<td>Caecal intubation rate</td>
<td>≥90%</td>
</tr>
<tr>
<td>Unassisted (physically)</td>
<td>≥90%</td>
</tr>
<tr>
<td>Polyp detection and removal</td>
<td>≥10%</td>
</tr>
<tr>
<td>Sedation rate for patients aged under 70 years old.</td>
<td>≤5mgs midazolam</td>
</tr>
<tr>
<td>Sedation rate for patients aged 70 or over</td>
<td>≤2.5mgs midazolam</td>
</tr>
<tr>
<td>Analgesia rate for patients aged under 70 years old.</td>
<td>≤50mg Pethidine, ≤100µg Fentanyl</td>
</tr>
<tr>
<td>Analgesia rate for patients aged 70 or older</td>
<td>≤25mg Pethidine, ≤50µg Fentanyl</td>
</tr>
<tr>
<td>Serious complication rate</td>
<td>≤0.5%**</td>
</tr>
<tr>
<td>Number of procedures completed since award of provisional certification</td>
<td>≥100</td>
</tr>
<tr>
<td>Recommended lifetime procedure count</td>
<td>≥300</td>
</tr>
<tr>
<td>Procedures in previous 3 months</td>
<td>≥15</td>
</tr>
<tr>
<td>Formative DOPyS (level 2)</td>
<td>≥4</td>
</tr>
</tbody>
</table>

A level 2 DOPyS records a polyp which is greater than or equal to 10mm in size.

4 most recent formative lower GI DOPyS (level 2) all items scoring 'Competent for independent practice' 100%

Polypectomy techniques assessed by DOPyS (level 2) – Stalked polyps ≥1

Polypectomy techniques assessed by DOPyS (level 2) - Small sessile lesions/ EMR ≥1
Accrediting as Screening Colonoscopist

- No ‘driving test’ in Scotland

- Should aspire to demonstrate same objective criteria as in England
  - Minimum lifetime experience >1000
  - >150 colonoscopies in previous 12 months
  - Caecal intubation rate of 90%
  - Polyp detection rate of 20%
  - Provide evidence of complications and sedation use
Bowel Screening in NHSGGC

Dr Emilia M Crighton

DDPH

23 October 2017
Bowel Screening

We’ve done the test. Have you?

Over 3,000 people are diagnosed with bowel cancer every year in Scotland. The good news is bowel screening reduces bowel cancer deaths. Everyone between 50 and 74 years of age is sent a test kit every two years. Take the test. You can do it at home. It’s quick, easy to do and it could be a lifesaver.

To find out more call the Helpline on 0845 270 0030 or visit www.bowelscreening.scot.nhs.uk.
Identify eligible residents

Send test kit

Perform screening test at home

Process test kit and return result to patient

If positive – Refer to NHS Board

Pre-assessment

Colonoscopy

CT Colonography

Pathology

Surgery/oncology/radiology

SCI Gateway Information Request (GPs)

Key:

Recall 2 years

Positive

Negative

Follow up as agreed in failsafe

Other pathology

Scottish Bowel Screening centre

NHS Greater Glasgow and Clyde

General Practices
## Uptake of Bowel screening by sex in NHSGGC

<table>
<thead>
<tr>
<th>Sex</th>
<th>Not Screened</th>
<th>Screened</th>
<th>Total</th>
<th>% Screened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>95585</td>
<td>79956</td>
<td>175541</td>
<td>45.5</td>
</tr>
<tr>
<td>Female</td>
<td>87057</td>
<td>92687</td>
<td>179744</td>
<td>51.6</td>
</tr>
<tr>
<td>Total</td>
<td>182642</td>
<td>172643</td>
<td>355285</td>
<td>48.6</td>
</tr>
</tbody>
</table>
Uptake of Bowel screening by age in NHS GGC

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Not Screened</th>
<th>Screened</th>
<th>Total</th>
<th>% Screened</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-54</td>
<td>67651</td>
<td>44846</td>
<td>112497</td>
<td>39.9</td>
</tr>
<tr>
<td>50-52</td>
<td>46355</td>
<td>29512</td>
<td>75867</td>
<td>38.9</td>
</tr>
<tr>
<td>55-59</td>
<td>43802</td>
<td>38815</td>
<td>82617</td>
<td>47.0</td>
</tr>
<tr>
<td>60-64</td>
<td>26251</td>
<td>27015</td>
<td>53266</td>
<td>50.7</td>
</tr>
<tr>
<td>65-69</td>
<td>29392</td>
<td>40855</td>
<td>70247</td>
<td>58.2</td>
</tr>
<tr>
<td>70-74</td>
<td>15546</td>
<td>21112</td>
<td>36658</td>
<td>57.6</td>
</tr>
<tr>
<td>Total</td>
<td>182642</td>
<td>172643</td>
<td>355285</td>
<td>48.6</td>
</tr>
</tbody>
</table>
### Uptake of Bowel screening by SIMD in NHS GGC

<table>
<thead>
<tr>
<th>SIMD Quintile 2016</th>
<th>Not Screened</th>
<th>Screened</th>
<th>Total</th>
<th>% Screened</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Most Deprived)</td>
<td>74563</td>
<td>48745</td>
<td>123308</td>
<td>39.5</td>
</tr>
<tr>
<td>2</td>
<td>31725</td>
<td>27441</td>
<td>59166</td>
<td>46.4</td>
</tr>
<tr>
<td>3</td>
<td>23540</td>
<td>23712</td>
<td>47252</td>
<td>50.2</td>
</tr>
<tr>
<td>4</td>
<td>22524</td>
<td>28265</td>
<td>50789</td>
<td>55.7</td>
</tr>
<tr>
<td>5 (Least Deprived)</td>
<td>30290</td>
<td>44480</td>
<td>74770</td>
<td>59.5</td>
</tr>
<tr>
<td>Total</td>
<td>182642</td>
<td>172643</td>
<td>355285</td>
<td>48.6</td>
</tr>
</tbody>
</table>
# Uptake for Bowel screening and positivity rate by age and sex for NHSGGC

<table>
<thead>
<tr>
<th>Gender</th>
<th>50-54</th>
<th>55-59</th>
<th>60-64</th>
<th>65-69</th>
<th>70-74</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male Uptake</td>
<td>36.0</td>
<td>43.9</td>
<td>48.0</td>
<td>56.2</td>
<td>56.7</td>
<td>45.5</td>
</tr>
<tr>
<td>Female Uptake</td>
<td>43.8</td>
<td>50.1</td>
<td>53.4</td>
<td>60.0</td>
<td>58.4</td>
<td>51.6</td>
</tr>
<tr>
<td>Total Uptake</td>
<td>39.9</td>
<td>47.0</td>
<td>50.7</td>
<td>58.2</td>
<td>57.6</td>
<td>48.6</td>
</tr>
<tr>
<td>Male Positivity</td>
<td>2.1</td>
<td>2.5</td>
<td>2.9</td>
<td>3.2</td>
<td>3.6</td>
<td>2.8</td>
</tr>
<tr>
<td>Female Positivity</td>
<td>1.5</td>
<td>1.8</td>
<td>1.9</td>
<td>2.2</td>
<td>2.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Total Positivity</td>
<td>1.8</td>
<td>2.1</td>
<td>2.4</td>
<td>2.7</td>
<td>3.1</td>
<td>2.3</td>
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</table>
## Bowel screening positivity rate by SIMD for NHSGGC, 2016-17

<table>
<thead>
<tr>
<th>SIMD Quintile 2016</th>
<th>Negative</th>
<th>Positive</th>
<th>Total</th>
<th>% Screened</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Most Deprived)</td>
<td>47145</td>
<td>1600</td>
<td>48745</td>
<td>3.3</td>
</tr>
<tr>
<td>2</td>
<td>26704</td>
<td>737</td>
<td>27441</td>
<td>2.7</td>
</tr>
<tr>
<td>3</td>
<td>23183</td>
<td>529</td>
<td>23712</td>
<td>2.2</td>
</tr>
<tr>
<td>4</td>
<td>27743</td>
<td>522</td>
<td>28265</td>
<td>1.8</td>
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<tr>
<td>5 (Least Deprived)</td>
<td>43841</td>
<td>639</td>
<td>44480</td>
<td>1.4</td>
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<tr>
<td>Total</td>
<td>168616</td>
<td>4027</td>
<td>172643</td>
<td>2.3</td>
</tr>
</tbody>
</table>
Colorectal Cancer Registration & Mortality 1997-2015 (Rolling 3 Years)
European Age Standardised Rate (EASR) Per 100,000 Population
Source: ISD March 2017
G-FOBT to FIT

- Automated FIT
Questions ?
Management of large non-pedunculated colonic polyps in NHS Lothian

Bowel Screening Meeting
Glasgow 23rd October 2017
Background

- Complex polyps were being taken off by a number of different operators across different sites
- No audit of results
- Concern about complications and patients having unnecessary surgery
- Agreement that complex polypectomy should be carried out at the Western General Hospital
Definition of LNPCP (large non-pedunculated colonic polyp)

- Sessile lesion
- Greater than 20mm measured against the open snare

- BSG Guidelines for the management of large non-pedunculated colonic polyps (LNPCP)

*Rutter et al Gut 2015*
Complex large LNPCP

Large NPCP (LNPCP) – a sessile or flat polyp of at least 20mm in size

**Complex NPCP**
(a) Increased risk of malignancy (see below)
(b) Increased risk of incomplete resection/recurrence (see below)
(c) Increased risk of adverse event (see below)
(d) SMSA level 4

**Increased risk of malignancy**
- Pit pattern type V
- Paris O-IIc or O-Ila+IIc morphology
- Non-granular laterally spreading type polyp (LST-NG)
- Granular LST (LST-G) with a dominant nodule
- Distorted surface pattern, colour and vessels (NICE NBI type III)
- Thick and irregular microvessels (Sano capillary pattern type III)

**Increased risk of incomplete excision/recurrence**
- Size ≥40mm
- Location involving ileocaecal valve, appendix, diverticulum or dentate line
- Within an inflamed segment of colitis
- Prior failed attempt at resection or recurrence at site of previous resection (excluding unifocal, diminutive and easily resected/ablated residual adenoma on first site check)
- Non-lifting sign after submucosal injection
- Endoscopist concern about difficult location (e.g. behind flexure or fold, in stenotic diverticular disease)

**Increased risk of adverse events**
- Caecal location
- Size ≥40mm
- Endoscopist inexperience

Matthew D Rutter et al. Gut 2015;64:1847-1873
Audit of NHS Lothian complex polyp service

• Aim: Patients who underwent EMR over a three year period from 2011 to 2014 were analysed retrospectively for technique, polyp characteristics, pathology, recurrence rates and complications.

• Three operators

Nesargikar et al Gut 2015
Polyp Audit II

- 80 EMRs were carried out over a 3 year period
- Male: Female 52:28, mean age 68.25
- Median polyp size was 28.5 mm (10 mm–60 mm)
Histology

- Tubolovillous adenomas 75%
- High grade dysplasia in 27.5% (22/80)
- Polyp cancers in 3.75% (3/80)
- Only two polyps failed to be lifted, with majority of polyps removed by piecemeal resection
Follow Up & Complications

• Repeat scope at a Median of 5 months
• Polyp recurrence rate was 17.5%
• All were successfully treated endoscopically

• Complications
  – Bleeding 4 patients, abdominal pain 1, post polypectomy syndrome 1 and perforation 1
  – Two patients required operative intervention and rest were managed conservatively
  – APC was used in 64% patients and was associated with 6 of the above 7 complications.
Conclusions

• EMR is a safe procedure with few complications and acceptable recurrence rates
• The most significant complication of perforation was encountered in the early days of EMR
• This study demonstrates that with experience EMR can be safely practiced and advocated for large non-pedunculated colonic polyps
Key performance indicators (KPIs) for the management of LNPCP

<table>
<thead>
<tr>
<th>Domain</th>
<th>KPI</th>
<th>Minimum Standard</th>
<th>Aspirational Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimal Decision Making</td>
<td>Surgery rate for LNPCPs</td>
<td>Auditable outcome-no current standard defined</td>
<td></td>
</tr>
<tr>
<td>Endoscopic Skill</td>
<td>Recurrent/residual polyp at 12 months in endoscopically managed LNPCPs</td>
<td>&lt;10%</td>
<td>&lt;5%</td>
</tr>
<tr>
<td>Safety</td>
<td>EMR Perforation Rate</td>
<td>&lt;2%</td>
<td>&lt;0.5%</td>
</tr>
<tr>
<td></td>
<td>ESD Perforation Rate</td>
<td>Auditable outcome-no current standard defined</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EMR Post-procedure bleeding rate</td>
<td>&lt;5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ESD Post-procedure bleeding rate</td>
<td>Auditable outcome-no current standard defined</td>
<td></td>
</tr>
<tr>
<td>Timeliness</td>
<td>Time from diagnosis to referral for definitive therapy</td>
<td>&lt;4 weeks (28 days)</td>
<td>Prop of cases within this period: Auditable outcome-no current standard defined</td>
</tr>
<tr>
<td></td>
<td>Time from referral to definitive therapy</td>
<td>&lt;8 weeks (56 days)</td>
<td>Prop of cases within this period: Auditable outcome-no current standard defined</td>
</tr>
<tr>
<td>Volume of Procedures</td>
<td>Number of procedures per endoscopist per year</td>
<td>Auditable outcome-no current standard defined</td>
<td></td>
</tr>
</tbody>
</table>
Improvements Since 2014

• Blended current
• Cold Snare
• Soft Coagulation
• Cold Biopsy
Comparative Data: Sydney 2010-14

983 Large Sessile Lesions (LSL) referred for resection

- 17 incomplete data
- 49 EMR not attempted - high risk SMIC
- 8 EMR not attempted - technical reasons

911 Large Sessile Lesions (LSL)

One lesion selected per patient

802 Patients EMR Attempted

- 719 DMI 0 No Injury
- 19 DMI I
- 40 DMI II
- 12 DMI III
- 4 DMI IV
- 1 DMI V

1 delayed perforation

Burgess et al II

- 96% Complete excision of the lesion
- 50% Surgery, 50% further endoscopic treatment for unsuccessful resections

- Transverse colon, en-bloc resection and increasing levels of dysplasia were associated with deep mucosal injury
- No difference in SSP complications
A ‘type III’ defect refers to partial resection of the muscularis propria resulting in a defect target sign (DTS) (A, B, C) or a specimen target sign (D, E, F).

Endoscopic management of LNPCP

Planning
- Adequate planning (time, endoscopist, kit, nurses) to ensure single procedure resection
- Consent (options, risks) with written information in plain English
- Manage antithrombotic medications as per BSG guidelines

Procedure
- Use carbon dioxide
- Use submucosal injection solution with contrast agent and low concentration adrenaline
- Avoid pure cutting or prolonged pure coagulation current
- Piecemeal may be preferable for larger and/or proximal lesions
- Non-lifting lesions should not be subjected to attempted resection by conventional snare polypectomy
- Snare resect a lesion completely wherever possible (APC or soft coagulation only when further snare resection not possible)
- Careful post-procedure inspection of the resection site and photographic documentation
- Tattoo site in accordance with local policy

Post-procedure
- Provide patient with written information about post-procedure complications with recommended actions and an emergency phone number
- Check site 2-6 months after piecemeal endoscopic resection
- Positively identify, photograph & assess scar with image enhancement techniques

Matthew D Rutter et al. Gut 2015;64:1847-1873
Suggested management algorithm after large non-pedunculated colorectal polyps (LNPCP) identification

Matthew D Rutter et al. Gut 2015;64:1847-1873

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Complex Polyp MDT

- Agreement from surgery, radiology and pathology
- Plan to run every 2 weeks
- Admin would be provided by the CRC MDT team
- Unisoft update
- Referrals from Lothian, Borders, Fife
**Patient name:**

**Gender:**

**DOB:**

**NHS no:**

---

**Endoscopist + Centre**

**Additional colorectal pathology e.g. IBD**

**Significant comorbidity e.g. ASA score, Schonberg Index**

**Anticoagulant/antiplatelet use + indication**

---

**Patient Symptoms**

**Additional colorectal pathology e.g. IBD**

**Significant comorbidity e.g. ASA score, Schonberg Index**

---

**Polyp details - Please record polyp details + indicate SMSA score. This will help determine difficulty of achieving successful endoscopic resection**

<table>
<thead>
<tr>
<th>Details</th>
<th>SMSA score (circle/highlight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td>Left = 1; Right = 2</td>
</tr>
<tr>
<td>Size</td>
<td>&lt;1cm = 1; 1-1.9cm = 3; 2-2.9cm = 5; 3-3.9cm = 7; &gt;4cm = 9</td>
</tr>
<tr>
<td>Morphology (e.g. Paris/LST)</td>
<td>Pedunculated (Ip) = 1; Sessile (Is/Isp) = 2; Flat (II) = 3</td>
</tr>
<tr>
<td>Access issues</td>
<td>Proximal aspect of fold, difficult colonoscopy etc; Easy = 1; Difficult = 3</td>
</tr>
<tr>
<td>Total SMSA score/level (circle/highlight)</td>
<td>Level 1: 4-5</td>
</tr>
</tbody>
</table>

---

**Surface Characteristics (e.g. Pit Pattern, Sano CP, NICE NBI classification)**

**Features indicating high risk of malignancy**

- **Morphological:** Lesion depression (Paris 0-IIc or 0-IIa+c), LST-NG, LST-G with dominant nodule, non-lifting sign
- **Surface:** Ulceration, Pit Pattern V, Sano CP III, NICE NBI Type 3

**High risk of recurrence/incomplete excision**

- >40+mm, difficult location (dentate line, ICV, appendix, diverticulum, anastomosis), previous failed attempts, other:

---

**Relevant histology results**

**Relevant Radiology results**

**Additional info**

**Does patient have any particular wishes/preference? Are they prepared to travel to another centre?**

**Specific questions regarding management?**

Please attach photos/video, including as a minimum: full lumen view, close up lesion surface, close-up of any abnormal/concerning focus. Additional desirable imaging: enhanced lesion surface imaging (e.g. NBI/FICE/I-Scan)

For rectal lesions please also include: Retroflexed image & front facing image from anal verge

---

**ACPGBI/BSG Complex Colorectal Polyp Minimum Dataset.** 

*Chattree et al. Colorectal Dis 2016*
Conclusions

• LNPCP management in Lothian has been centralised and audited
• Standards up to were 2014 reasonable and I suspect continue to improve
• We now need the MDT infrastructure to take the service forward
Serrated lesions in the colon

Nick Church

GGC screening update

23rd October 2017
Importance

• Post colonoscopy CRC remains an issue despite quality improvement in UK colonoscopy

• Colonoscopy protects against left sided but not right sided cancer
  – Initial results from 2 Canadian case/control studies 2009 (symptomatic patients)
  – Later studies by same groups showed protection against right sided cancer by gastroenterologists, higher caecal intubators and higher polyp detectors
  – 3 case/control studies in US patients 2013 – 7-10% less protection from right sided cancers than left sided (open access and screening patients)
Reasons for failing to prevent right sided cancer

• Didn’t get there
• Couldn’t see when we got there
• Didn’t identify lesions
• Didn’t completely remove lesions
• Proximal serrated lesions may account in part for these observations
The cutting edge of serrated polyps: a practical guide to approaching and managing serrated colon polyps

Berkeley N. Limketkai, MD,1 Dora Lam-Himlin, MD,2 Michael A. Arnold, MD,3 Christina A. Arnold, MD4

Baltimore, Maryland; Scottsdale, Arizona; Columbus, Ohio, USA

Endoscopic features of sessile serrated adenomas: validation by international experts using high-resolution white-light endoscopy and narrow-band imaging

Yark Hazewinkel, MD,1 Maria López-Cerón, MD,2 James E. East, MD,3 Amit Rastogi, MD,4 Maria Pellisé, MD, PhD,2 Takeshi Nakajima, MD, PhD,5 Susanne van Eeden, MD, PhD,6 Kristien M.AJ. Tytgat, MD, PhD,1 Paul Fockens, MD, PhD,1 Evelien Dekker, MD, PhD1

Amsterdam, The Netherlands; Barcelona, Spain; Oxford, United Kingdom; Kansas City, Missouri, USA
| Hyperplastic polyp                        | Microvesicular (MVHP)                  |
|                                      | Goblet cell rich (GCHP)                |
|                                      | Mucin poor (MCHP)                      |
| Sessile serrated adenoma/polyp (SSA/P) | Without cytological dysplasia          |
|                                      | With cytological dysplasia             |
| Traditional serrated adenoma (TSA)    | Without conventional dysplasia         |
|                                      | With conventional dysplasia            |
| Filiform serrated adenoma             |                                          |
| Serrated polyp, unclassifiable         |                                          |
Hyperplastic polyps

- 75% of serrated polyps
- 28-42% of all polyps detected at colonoscopy
- More common in men
- Most frequently left sided/distal
- Average size <5mm
- Sessile
- Pale, stuck on
- Stellate pit pattern
- Non-dysplastic
- Malignant potential absent/low
Sessile serrated lesions

- Described in 1996, called SSA/P from 2003 now called SSL

- Previously known as giant hyperplastic polyp, variant hyperplastic polyp, serrated polyp with abnormal proliferation, mixed polyp, hyperplastic polyp with adenoma

- 1-9% of colonic polyps (compares with conventional adenoma 55-71% of all polyps)

- Recent study suggesting that at screening colonoscopy SSL should be expected in 5% of patients
SSL

- More common in women, median age 62
- Proximal large SSL associated with 2-5 times greater risk of synchronous advanced neoplasia
- Multiple studies show association with interval cancer
- Predominantly right sided
- Sessile or flat
- Average size >5mm
SSL

- Typical endoscopic features
  - Mucus cap
  - Indistinct border
  - Irregular shape
  - Cloudy surface
  - Round open pit pattern
  - Dark spots in crypts

- Dysplasia uncommon – associated with increasing age, larger size, nodule, adenomatous pit pattern

- Malignant potential even if no dysplasia
Colon cancer arising from a sessile serrated adenoma/polyp detected on positron emission tomography/computed tomography
Nanda et al. GIE 2014; 79(5): 864-70
Challenges with SSL

• Subtle lesions tricky to spot

• Lesions often larger than anticipated

• Lifting flattens lesions – snares slip

• Risks of heat in the right colon – delayed bleeding, post-polypectomy syndrome, perforation
Surveillance?

• BSG guidelines do not include serrated lesions
• TSA – manage as per standard adenoma
• SSL – BSG position statement 2017

• WHO definition of serrated polyposis
• AGA guidelines on surveillance – tables for reference
• ESGE guidelines – no flow chart
**TABLE 5. WHO classification criteria for serrated polyposis**

- At least 5 serrated polyps proximal to the sigmoid colon, at least 2 polyps $>10$ mm, or
- Any number of serrated polyps proximal to the sigmoid colon in an individual who has a first-degree relative with serrated polyposis, or
- $>20$ serrated polyps of any size distributed throughout the colon

*WHO, World Health Organization.*
### TABLE 3. U.S. Multi-Society Task Force Guidelines (2012) for surveillance intervals in individuals with baseline average risk *

<table>
<thead>
<tr>
<th>Baseline endoscopy, most advanced finding</th>
<th>Recommended surveillance interval, y</th>
</tr>
</thead>
<tbody>
<tr>
<td>No polyps</td>
<td>10</td>
</tr>
<tr>
<td>Small hyperplastic polyps limited to the rectosigmoid, &lt;10 mm</td>
<td>10</td>
</tr>
<tr>
<td>&lt;3 small tubular adenomas, &lt;10 mm</td>
<td>5-10</td>
</tr>
<tr>
<td>High-risk adenomas (previously termed advanced conventional adenomas)</td>
<td></td>
</tr>
<tr>
<td>3-10 small tubular adenomas, &lt;10 mm</td>
<td>3</td>
</tr>
<tr>
<td>≥1 tubular adenoma, &gt;10 mm</td>
<td>3</td>
</tr>
<tr>
<td>Any villous component</td>
<td>3</td>
</tr>
<tr>
<td>Any high-grade dysplasia component</td>
<td>3</td>
</tr>
<tr>
<td>Serrated lesions</td>
<td></td>
</tr>
<tr>
<td>SSA/P, &lt;10 mm, without cytologic dysplasia</td>
<td>5</td>
</tr>
<tr>
<td>SSA/P, ≥10 mm</td>
<td>3</td>
</tr>
<tr>
<td>SSA/P with cytologic dysplasia</td>
<td>3</td>
</tr>
<tr>
<td>TSA</td>
<td>3</td>
</tr>
<tr>
<td>&gt;10 tubular adenomas</td>
<td>&lt;3</td>
</tr>
<tr>
<td><strong>Patients with serrated polyposis</strong></td>
<td>1</td>
</tr>
</tbody>
</table>

SSA/P: Sessile serrated adenoma/polyp; TSA, traditional serrated adenoma.

* Assumes complete excision of the lesion of interest. For those incompletely removed polyps with malignant potential, repeat endoscopy at a short interval is advised (3-6 months). Polyps larger than 10 mm diagnosed as a hyperplastic polyp proximal to the sigmoid should be managed as an SSA/P.

### TABLE 4. Expert consensus opinions for surveillance after complete removal of serrated polyp(s) *

<table>
<thead>
<tr>
<th>Baseline endoscopy, most advanced finding</th>
<th>Recommended surveillance interval, y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any number of hyperplastic polyps, restricted to the rectosigmoid, &lt;10 mm</td>
<td>10</td>
</tr>
<tr>
<td>≤3 proximal hyperplastic polyps, ≤5 mm‡</td>
<td>10</td>
</tr>
<tr>
<td>≥4 proximal hyperplastic polyps, any size</td>
<td>5</td>
</tr>
<tr>
<td>≥1 proximal hyperplastic polyp, &gt;5 mm</td>
<td>5</td>
</tr>
<tr>
<td>≤3 SSA/P or TSA, any site, &lt;10 mm</td>
<td>5</td>
</tr>
<tr>
<td>1 SSA/P or TSA, any site, ≥10 mm</td>
<td>3</td>
</tr>
<tr>
<td>≥3 SSA/P or TSA, any site, &lt;10 mm</td>
<td>3</td>
</tr>
<tr>
<td>≥2 SSA/P, any site, ≥10 mm</td>
<td>1-3</td>
</tr>
<tr>
<td>SSA with cytologic dysplasia, any site, any size</td>
<td>1-3</td>
</tr>
<tr>
<td>First-degree relative of a patient with serrated polyposis</td>
<td>5, starting at age 40 or 10 y younger than the age at diagnosis of the affected relative</td>
</tr>
</tbody>
</table>

SSA/P: Sessile serrated adenoma/polyp; TSA, traditional serrated adenoma.

* Assumes complete excision of the lesion of interest. For those incompletely removed polyps with malignant potential, repeat endoscopy at a short interval is advised (3-6 months). Polyps larger than 10 mm diagnosed as a hyperplastic polyp proximal to the sigmoid should be managed as an SSA/P.

‡ Assuming the patient does not have serrated polyposis syndrome.

§ Proximal refers to polyps located proximal to the sigmoid colon.

Complete removal of all proximal colon polyps or all serrated polyps larger than 5 mm, if numerous diminutive polyps, Colon resection advised for colorectal cancer or when endoscopic control of polyps is no longer feasible.
Serrated surveillance flowchart

Detection

Patient with serrated polyp(s) resected (excluding diminutive hyperplastic lesions)

Polyps

All serrated polyps <10mm in size, no associated dysplasia and not meeting criteria for SPS

Serrated polyp either size ≥10mm, or with associated dysplasia, or TSA

Multiple serrated polyps meeting criteria for SPS

Surveillance Interval

No surveillance on the basis of serrated polyps

One off surveillance colonoscopy at 3 years

Surveillance colonoscopy every one to two years once colon cleared

There is no current data to suggest that risk for patients with adenomas and serrated polyps is cumulative and therefore each polyp group should be considered separately for surveillance. The shortest surveillance interval recommended should take precedence.

SPS, Serrated Polyposis Syndrome; TSA, traditional serrated adenoma

Summary – what we know

- Serrated lesions variable in character
- Hyperplastic lesions of little significance
- SSL easily missed
- SSL associated with interval cancer
- SSL with dysplasia rapidly progress to cancer
Future questions

• Do SSL account for interval right sided cancers – or is it synchronous missed conventional adenomata?

• Which SSL need to be resected
  – ? All
  – ? Only dysplastic
  – ? Complications acceptable
  – ? What is recurrence rate after resection
Questions?