



**2016**

**Commissioning guide:**

**Groin Hernia**

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## 1. Introduction

Groin hernia repairs are amongst the most commonly performed general surgical operations with over 71,000 inguinal and femoral hernias repairs carried out in England in 2014/15.\*

There is more than a 2-fold variation in the rate of inguinal hernia repair across the NHS. Patients and surgeons have the choice between various techniques and materials.

There is no national system of audit or follow-up, and the overall low reported recurrence rate following inguinal hernia repair makes it difficult to determine which procedure is best. However outcomes should not be judged in only terms of hernia recurrence, but also wound complications, length of hospital stay, chronic pain, patient experience, quality of life and cost<sup>2</sup>.

The British Association of Day Surgery has suggested that 80% of inguinal hernia repairs should be carried out as day case procedures. In 2014/15 77.8% of primary inguinal hernia repairs (unilateral) were carried out as a day case, and rates varied from 67% to 88% across providers.\*

This document summarises the highest level evidence regarding the management of groin hernia (inguinal, femoral, primary and recurrent) in order provides a resource to assist commissioners, clinicians and managers in delivering a high quality, cost-effective, evidence-based service across England and Wales, that meets the needs of the local population and takes into account patient experience.

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\* Data taken from Procedure Explorer Tool <http://rcs.methods.co.uk/pet.html>

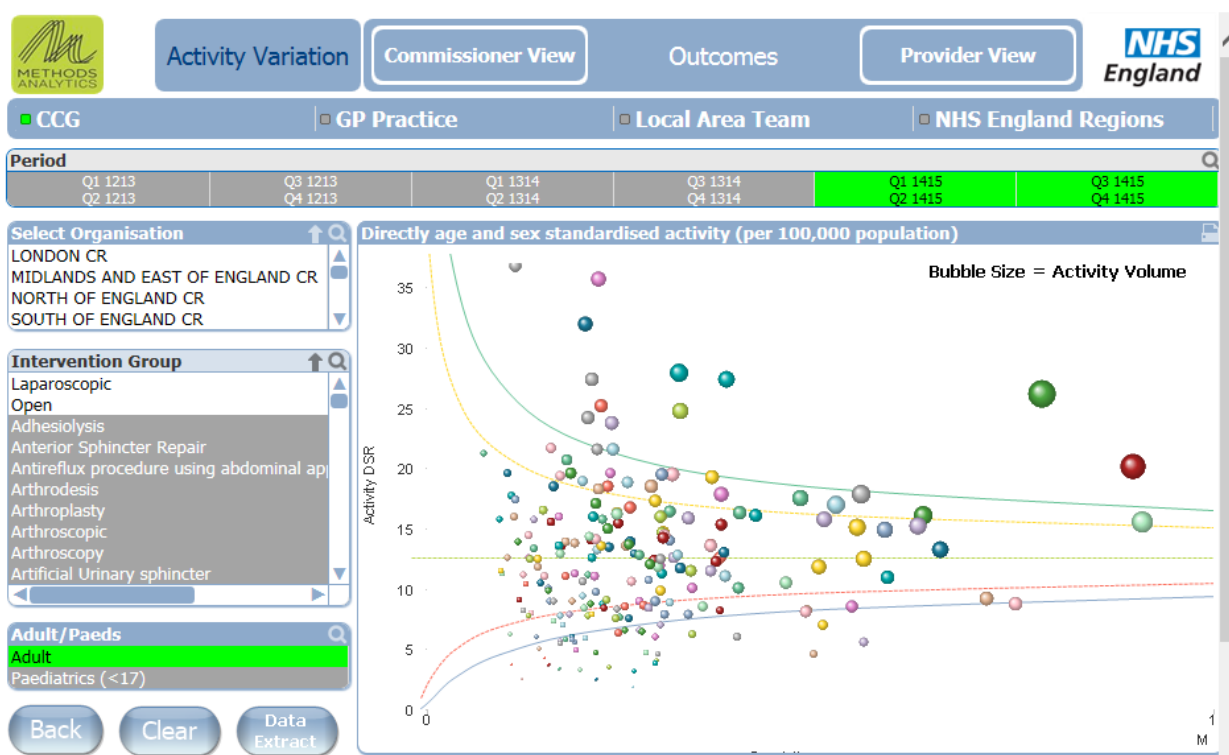


Figure 1: This funnel plot shows all primary, bilateral inguinal hernia repair procedures on adults per 100,000 population per CCG across England, for the year 2014/15. Each bubble represents a CCG, with the size of the bubble representing the number of procedures undertaken. [Taken from <http://rcs.methods.co.uk/pet.html>]

## 2. High Value Care Pathway for groin hernia

### 2.1 Primary Care

#### *Primary Care Referral Guidelines:*

- All patients with an overt or suspected primary or recurrent inguinal or femoral hernias to a surgical provider except for patients with minimally symptomatic inguinal hernias who have significant comorbidity (ASA 4) **AND** do not want to have surgical repair (after appropriate information **has been** provided). Similarly, ASA 1-3 patients who do not want surgical repair after appropriate information has been provided do not require referral.
- CCGs should not set criteria for referral and treatment for inguinal hernias outside that recommended in this guidance, as this approach produces worse clinical outcomes and has not been shown to be cost effective<sup>5,6</sup>

- Irreducible and partially reducible inguinal hernias, and all groin hernias in women should be “**urgent referrals**”<sup>7,8</sup>
- Patients with suspected strangulated or obstructed inguinal hernia should be ‘**emergency referrals**’<sup>7,8</sup>
- All children <18 years with inguinal hernia should be referred to a paediatric surgical provider
- Modifiable risk factors such as smoking cessation, diabetic control and weight reduction should be optimised in the primary care setting prior to elective surgery

#### *Imaging*

- Diagnostic imaging should not be arranged at primary care level

#### *Whom to refer to:*

- Patients with primary groin hernias meeting referral criteria can be referred **generically** to an appropriate secondary care provider
- Patients with bilateral groin hernias should be referred to a surgeon who performs **both** open and laparoscopic repair
- Patients with recurrent inguinal or femoral hernias meeting referral criteria should be referred to a surgeon who performs **both** open and laparoscopic repair and where possible to the **named surgeon** who performed the first repair (providing the patient does not request otherwise)
- Patients with multiply recurrent (more than one recurrence) groin hernias should be referred to a **named surgeon** who has **subspecialty interest** in hernia repair **and** performs **both** open and laparoscopic repair

Patients should be directed to appropriate supporting patient information e.g. as available on the British Hernia Society website (<http://www.britishherniasociety.org/>)

## 2.2 Secondary Care

#### *Medical Imaging*

- Medical imaging should be considered in patients in whom there is diagnostic uncertainty or to exclude other pathology<sup>9</sup>

- Dynamic ultrasound scan (dUSS) is recommended as the first line investigation. (ultrasound under valsalva manoeuvre or any position to increase the intra-abdominal pressure)
- Herniography is rarely performed but can be utilised if local expertise is available as an alternative to dUSS<sup>10</sup>
- Magnetic resonance imaging (MRI) should be considered if USS is negative and groin pain persists, OR if the cause of pain is not deemed likely to be due to a hernia by the surgeon. The MRI is to assess for causes of groin pain other than a hernia<sup>11,12</sup>

#### *Which patients require an operation?*

- Surgical repair should be offered to patients with a symptomatic inguinal hernia and should be considered in patients less than 65 years of age with an asymptomatic inguinal hernia<sup>13,14</sup>
- Patients with asymptomatic hernias should be referred to a surgeon; asymptomatic hernias can be managed conservatively (watch and wait approach)<sup>\*</sup> but there is a likelihood of requiring surgery in the future, outcomes are worse and conservative management is not cost effective for the healthcare community<sup>3-6</sup>.
- Patients should always be warned of the potential complications of repair including chronic pain. Five years after an inguinal hernia repair only a small proportion of patients, between 2% and 3.5%<sup>16</sup>, report moderate to severe chronic pain. Laparoscopic inguinal hernia repair has been reported to result in less chronic pain than open repair<sup>15</sup>

#### *Peri operative management*

- All patients should be pre-assessed in keeping with NHS and NICE guidelines<sup>16,17</sup>
- All patients should be considered for day case surgery. The pre-assessment process and surgical infrastructure are important in ensuring appropriate selection and effective day case services<sup>18-20</sup>
- A small number of individuals require post-operative in-patient care because of co-morbidity, social reasons or for complex inguinal hernias

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<sup>\*</sup> *A watch and wait approach describes conservative management in patients with an asymptomatic hernia after discussion of the risks and benefits of surgery with a surgeon, but if the hernia becomes symptomatic then the risks and benefits are re-evaluated at that stage*

- There is no indication for the routine use of antibiotic prophylaxis in elective open or laparoscopic groin hernia repair in low-risk patients. In high risk patients i.e. recurrent hernias or immunosuppression a single dose of broad spectrum antibiotic should be given<sup>21</sup>

#### *Open vs. laparoscopic repair*

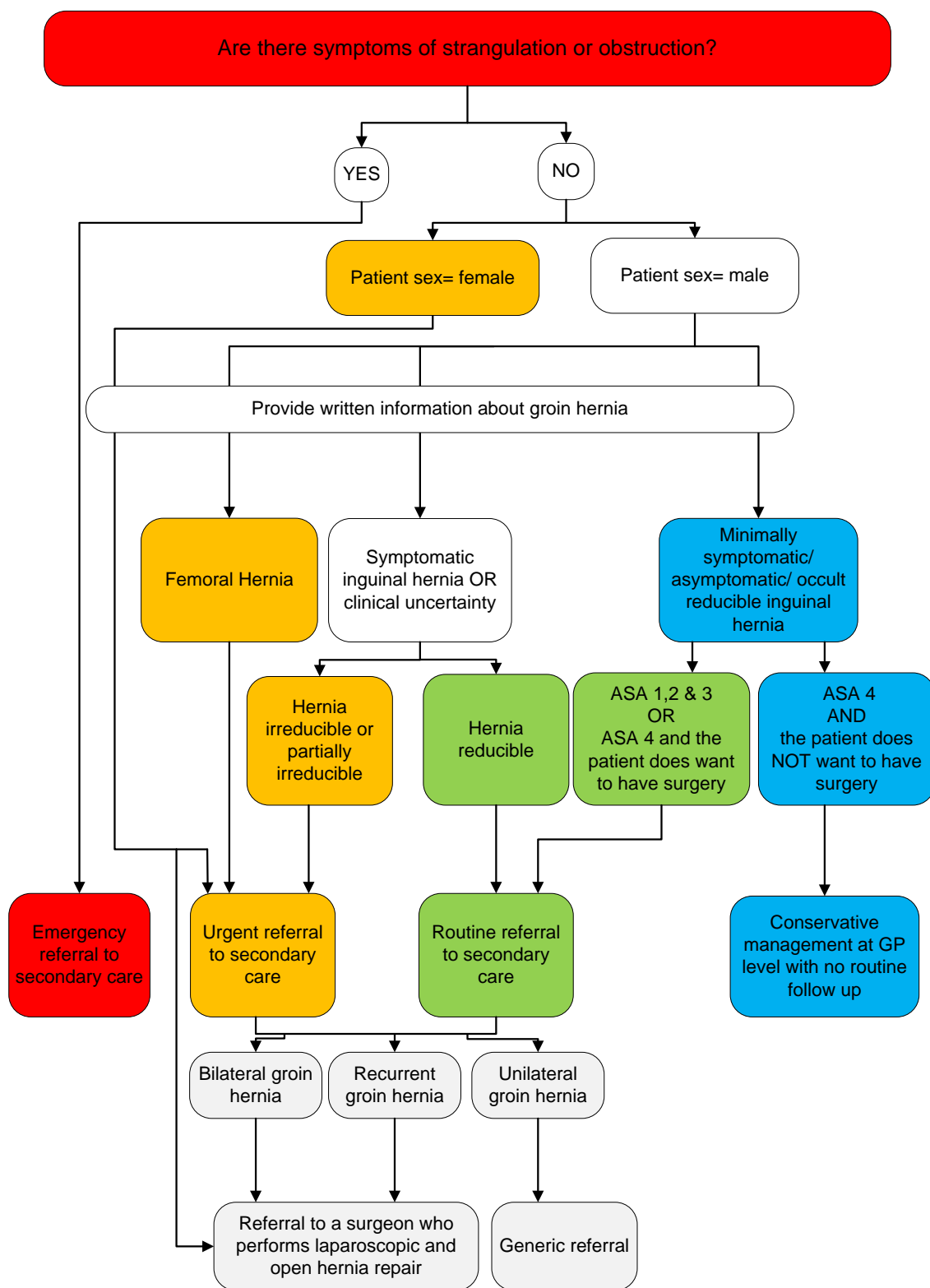
- In the management of unilateral primary inguinal hernias (general population) there is conflicting information on whether laparoscopic repair reduces the incidence of chronic pain and improves other outcomes. The majority of meta analyses conclude that the incidence and severity of pain (both acute and chronic) is lower after laparoscopic repair compared to open repair but there are limitations in the studies used<sup>22-26</sup>
- The laparoscopic approach may be beneficial in patients at risk of chronic pain. This group includes younger patients, patients with other chronic pain problems, or patients who present with severe groin pain and with only a small hernia on examination and these patients should be given the choice of laparoscopic repair<sup>27</sup>
- Groin hernias in women should preferentially be repaired laparoscopically because of the risk of undiagnosed femoral or contralateral inguinal hernias<sup>28</sup>
- Bilateral inguinal hernias should be repaired laparoscopically from a cost-utility and patient perspective<sup>29-33</sup>
- The open approach under local anaesthesia (LA) is a very acceptable and cost effective technique in suitable patients, and may be particularly beneficial in older patients or those with significant co-morbidity<sup>34,35</sup>
- The resource cost at the time of surgery is higher for laparoscopic surgery (Total Extraperitoneal (TEP) and Transabdominal Pre-peritoneal (TAPP)) compared to open surgery, however the laparoscopic approach is more cost effective in the long-term<sup>9,14,36</sup>
- There is no evidence supporting TEP ahead of TAPP or vice versa<sup>37</sup>
- The technique used in the index hernia repair should be taken into account when choosing the technique for repair of recurrence. If the initial approach was an open anterior repair then the recurrent operation should be a laparoscopic repair and vice versa<sup>9,38</sup>
- All adult inguinal hernias should be repaired using flat mesh (or non-mesh Shouldice repair, if experience is available)<sup>9,26</sup>
- A cost effective 'so called lightweight' (large pore) mesh should be used<sup>14,39</sup>

*Follow Up*

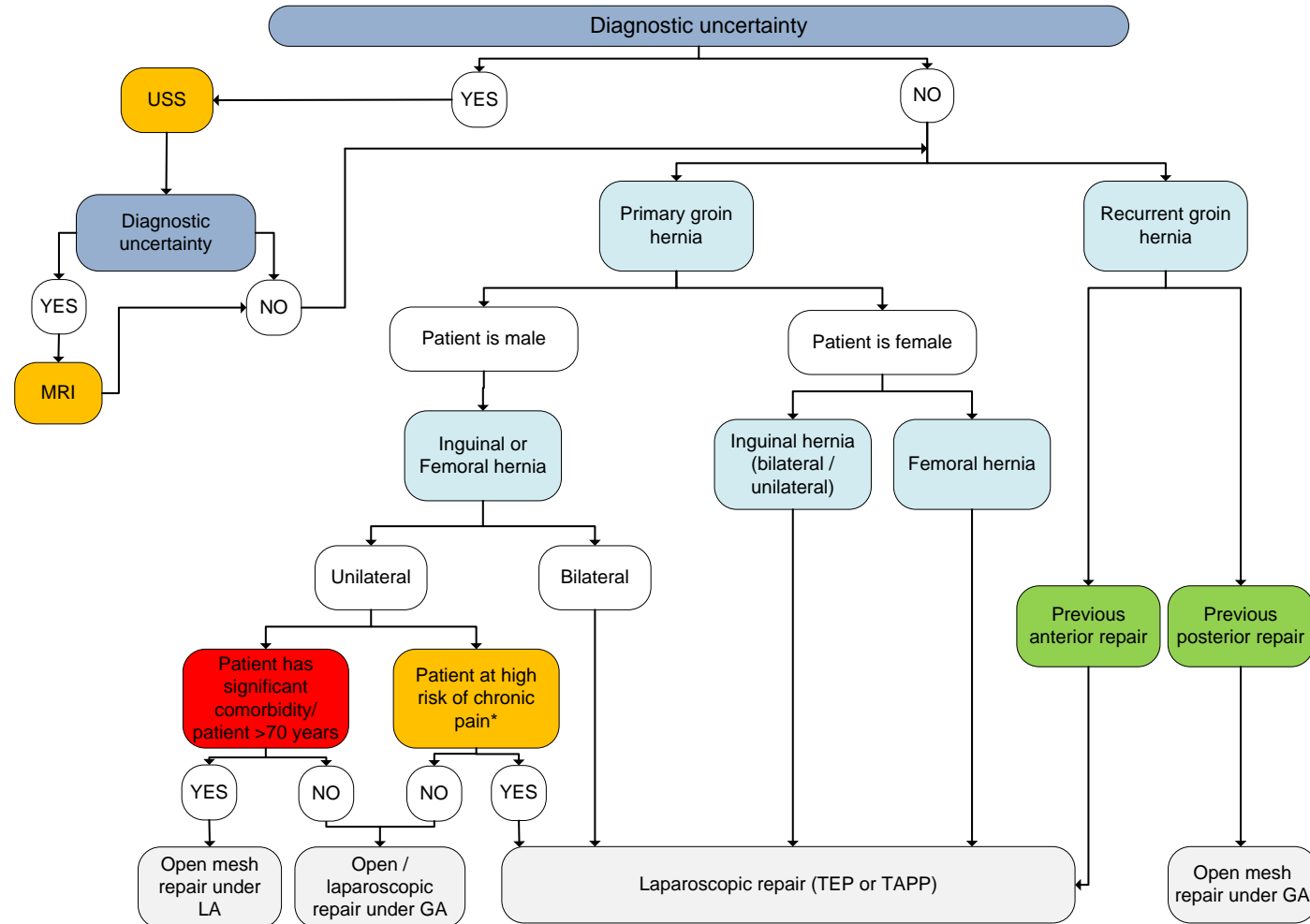
- Routine outpatient follow up is not required after inguinal hernia repair



Primary care flow diagram



Secondary care flow diagram (for elective hernia assessment and repair)



\*younger/ active patients, predominant symptom of pain, history of chronic pain

### 3. Procedures explorer for Groin Hernia

Users can access further procedure information based on the data available in the quality dashboard to see how individual providers are performing against the indicators. This will enable CCGs to start a conversation with providers who appear to be 'outliers' from the indicators of quality that have been selected.

The Procedures Explorer Tool is available via the [Royal College of Surgeons](#) website.






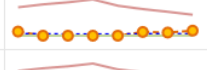

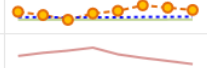

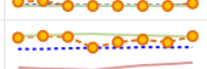


### 4. Quality dashboard for Groin Hernia

The quality dashboard provides an overview of activity commissioned by CCGs from the relevant pathways, and indicators of the quality of care provided by surgical units.

The quality dashboard is available via the [Royal College of Surgeons website](#).

Below is an example Quality Dashboard for **Nottingham City CCG**:

#### Primary Inguinal Hernia Repair - Bilateral (Laparoscopic)

| Metric   | Period     | Value | Mean  | Chart  | Trend   |
|--|------------|-------|-------|--|---|
| Age/Sex Standardised Activity (per 100,000 population) | RY Q1 1415 | 11.11 | 8.74  |  |  |
| Average Length of Stay (Days)                          | RY Q1 1415 | 0.61  | 0.40  |  |  |
| 7 Day Readmission Rate (%)                             | RY Q1 1415 | 6.45  | 2.16  |  |  |
| 30 Day Readmission Rate (%)                            | RY Q1 1415 | 12.90 | 3.91  |  |  |
| 30 Day Reoperation Rate (%)                            | RY Q1 1415 | 3.23  | 0.80  |  |  |
| Daycase Rate (%)                                       | RY Q1 1415 | 87.10 | 67.35 |  |  |

### 5. Levers for implementation

#### 5.1 Audit and peer review measures

Within the current framework of the NHS the collection of good quality, accurate and relevant outcome data on the outcome of hernia repair is difficult. While randomized trials have investigated important clinical questions, they are limited in their ability to detect rare or uncommon events, and provide no information about the overall quality of the hernia service in the general population.

A large national surgical registry would be an ideal source of data **BUT** would have to be carefully implemented in order to accurately and completely collect the relevant information. The information recorded would have to become part of the natural data collection process for each patient and would have to be easy to use in the NHS framework. In addition analyzing registry data requires sophisticated techniques, such as propensity scores or instrumental variables, to reduce the impact of confounding reports as a result of selection bias.

Only audit and peer review measures have been included which are achievable within the NHS framework and do not significantly influence the healthcare practitioner's workload. Secondary care providers must ensure that adequate outcome data is recorded at a local level in order to demonstrate the efficacy of their service.

A free to access European-wide database (EuraHS) is currently available (<http://www.eurahs.eu/HOME.php>), and we encourage data collection at a local level via this platform.

|                       | <b>Measure</b>                  | <b>Standard</b>   |
|-----------------------|---------------------------------|---|
| <i>Secondary Care</i> | Cancellation rates              | Operations cancelled by the hospital within 48 hours of surgery   |
|                       | High compliance with PROMs data | Providers should aim to collect Patient Reported Outcomes Measures (PROMs) for all patients and compliance should be checked against hospital exit data |

### 5.2 Quality Specification/CQUIN

Commissioners may wish to include the following measures in the Quality Scheduled with providers. Improvements could be included in a discussion about a local CQUIN.

| <b>Measure</b>           | <b>Description</b> | <b>Data specification (if required)</b> |
|--------------------------|--------------------|---|
| Day case rates           | ≥70% day case rate | Data available from HES                 |
| 7 day Readmission rates  | <5%                | Data available from HES                 |
| 30 day Readmission rates | <5%                | Data available from HES                 |

|  |      |  |
|--|------|--|
| Reoperation (same side) within 12 months       | <5%  | Data available from HES                                  |
| Laparoscopic rates for recurrent groin hernia  | ≥40% | Data available from HES                                  |
| Laparoscopic rates for bilateral groin hernia  | ≥40% | Data available from HES                                  |
| Laparoscopic rates for groin hernias in women  | ≥40% | Data available from HES                                  |
| Compliance rates with completion of PROMs data | ≥75% | PROMs compliance rate from data collection organisations |

## 6. Directory

### 6.1 Patient Information

| Name  | Publisher              | Link  |
|---|------------------------|---|
| <b>National patient information leaflet on groin hernia</b> (produced in conjunction with the commissioning guidance) | British Hernia Society | <a href="http://www.britishherniasociety.org/for-patients/what-is-a-groin-hernia/">http://www.britishherniasociety.org/for-patients/what-is-a-groin-hernia/</a> |
| <b>Inguinal Hernia</b>  | NHS Choices            | <a href="http://www.nhschoices.nhs.uk">www.nhschoices.nhs.uk</a>  |
| <b>Inguinal Hernia</b>  | EMIS                   | <a href="http://www.patient.co.uk">www.patient.co.uk</a>  |

### 6.2 Clinician information

| Name  | Publisher             | Link  |
|---|-----------------------|---|
| <b>Groin Hernia Guidelines</b>                      | ASGBI                 | <a href="http://www.asgbi.org.uk/en/publications/issues_in_professional_practice.cfm">http://www.asgbi.org.uk/en/publications/issues_in_professional_practice.cfm</a>   |
| <b>World guidelines for Groin Hernia Management</b> | The HerniaSurge Group | <a href="https://www.europanherniasociety.eu/fileadmin/downloads/Rotterdam/HerniaSurgeGuidelinesStateMentsRecomendations.pdf">https://www.europanherniasociety.eu/fileadmin/downloads/Rotterdam/HerniaSurgeGuidelinesStateMentsRecomendations.pdf</a> |

|  |  |   |
|--|--|---|
| <b>European Hernia Society guidelines on the treatment of inguinal hernia in adult patients</b>                    | Hernia 2009 Aug; 13(4): 343–403.           | <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2719730/pdf/100292009_Article_529.pdf">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2719730/pdf/100292009_Article_529.pdf</a>   |
| <b>Laparoscopic surgery for inguinal hernia repair: systematic review of effectiveness and economic evaluation</b> | Health Technology Assessment               | <a href="http://www.hta.ac.uk/pdfexecs/su/mm914.pdf">http://www.hta.ac.uk/pdfexecs/su/mm914.pdf</a>   |
| <b>Surgical Options for Inguinal Hernia: Comparative Effectiveness Review</b>                                      | Agency for healthcare research and quality | <a href="http://www.effectivehealthcare.ahrq.gov/ehc/products/244/1176/CE_R70_Inguinal-Hernia_FinalReport_20120816.pdf">http://www.effectivehealthcare.ahrq.gov/ehc/products/244/1176/CE_R70_Inguinal-Hernia_FinalReport_20120816.pdf</a> |

### 5.3 NHS Evidence Case Studies

| Name                                       | Publisher               | Link  |
|--|-------------------------|---|
| <b>Pre-Operative Assessment Guidelines</b> | Royal Cornwall Hospital | <a href="http://www.rcht.nhs.uk/DocumentLibrary/RoyalCornwallHospitalsTrust/Clinical/Anaesthetics/PreOperativeAssessmentGuidelines.pdf">http://www.rcht.nhs.uk/DocumentLibrary/RoyalCornwallHospitalsTrust/Clinical/Anaesthetics/PreOperativeAssessmentGuidelines.pdf</a> |

## 7. Benefits and risks of implementing this guide

The benefits of adopting this guidance are to ensure evidence-based practice for groin hernia surgery and to reduce regional variation in the quality of service provided. This should allow access to effective management, improve access to patient information and improve the overall patient experience. Adoption of the recommendations made in this guidance should reduce unnecessary referrals; ensure that imaging and perioperative investigations and the surgical procedure are appropriate.

The risk of adoption of the guidance is that the current local framework may not have the resources or the infrastructure in place to deliver a complete service including laparoscopic and open groin hernia repair. This would require additional resource to establish a specialist provider

in order to develop a patient-centric hernia service. Alternatively patients may have to travel further for treatment to a center that can offer the most appropriate service.

## 8 Further information

### 8.1 Research recommendations

We identified several gaps in available evidence in the course of conducting this guidance. The following areas should be addressed:

1. A RCT of laparoscopic vs. open inguinal hernia repair in patients with pre-operative risk factors for developing chronic pain
2. A cohort study (with well-matched groups) comparing laparoscopic and open LA inguinal hernia repair in patients > 70 years
3. Laparoscopic vs. open surgery for femoral hernia repair
4. Mesh vs. suture open femoral hernia repair
5. Use of MRI in occult hernia

### 8.2 Other recommendations

There is an urgent need to develop an appropriate, relevant and validated condition specific PROMs questionnaire for inguinal hernia, rather than relying on the current generic EQ5D questionnaire, which runs the risk of generating potentially misleading and unhelpful data.

For the next update of this document in 2019, the following areas should be addressed:

1. Hernias <18 year olds
2. Measuring outcome data
3. Establishment of compulsory national hernia registry

### 8.3 Evidence base

- 1 Kingsnorth, A. Controversial topics in surgery. The case for open repair. *Annals of the Royal College of Surgeons of England*. 2005; 87(1): 57-60; discussion 57-60.

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#### *8.4 Guide development group*

A commissioning guide development group was established to review and advise on the content of the commissioning guide. This group met once, with additional interaction taking place via email and teleconference.

| <b>Name</b>         | <b>Job Title/Role</b> | <b>Affiliation</b>     |
|---------------------|-----------------------|------------------------|
| Mr David Sanders    | Surgeon, Chairman     | British Hernia Society |
| Mr Martin Kurzer    | Surgeon               |                        |
| Mr Andrew de Beaux  | Surgeon               |                        |
| Dr Jennifer Hislop  | Health Economist      |                        |
| Prof Paddy O'Dwyer  | Surgeon               |                        |
| Mr Liam Horgan      | Surgeon               |                        |
| Mr Aman Bhargava    | Surgeon               |                        |
| Mr Alistair Windsor | Surgeon               |                        |
| Prof Aali Sheen     | Surgeon               |                        |
| Mr Brian Stephenson | Surgeon               |                        |

Two separate patient representatives and commissioner representatives were sought during the peer review process

#### *8.5 Funding statement*

Funding for the literature search was provided by The Royal College of Surgeons. Funding for meetings was by the British Hernia Society

#### *8.6 Conflict of interest statement*

The following conflicts were recorded:

| <b>Name</b>        | <b>Reported conflicts</b>  |
|--------------------|--|
| Mr David Sanders   | Educational grant, fees for speaking and sponsorship for attending meeting   |
| Mr Andrew de Beaux | Fees for speaking at meeting, sponsorship for attending meeting, director of De Beaux Medical Services, a private surgical company |
| Prof Aali Sheen    | Fees for speaking at a conference, sponsorship for attending conference, British Hernia Society board member                       |