Parastomal Hernia workshop: The need for consistency in prevention and management

Wendy Osborne & Jacqui North
Some degree of herniation around a stoma is so common that this complication may be regarded as inevitable.

(Goligher 1984)
Most parastomal hernias are minimally symptomatic
(Pearl W 1989)
(Ripoche et al 2011)

¾ of patients suffer clinical symptoms
(Aquina et al 2014)

Impact on QOL
(Kald et al 2008)

- Peristomal bulging
- Worry concerns over pouch – risks of leakage, odour, soiling
- Fatigue
- Self conscious – fear of going out

The patients experience

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Symptoms associated with PSH.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>Frequency (%)</td>
</tr>
<tr>
<td>Pain</td>
<td>35</td>
</tr>
<tr>
<td>Difficulty with stomal appliance</td>
<td>28</td>
</tr>
<tr>
<td>Leakage</td>
<td>27</td>
</tr>
<tr>
<td>Skin irritation</td>
<td>22</td>
</tr>
<tr>
<td>Difficulty with irrigation (137 stoma pts.)</td>
<td>24</td>
</tr>
<tr>
<td>No particular symptoms</td>
<td>24</td>
</tr>
</tbody>
</table>
Our ASCN (UK) Objective

“To develop evidenced based guidelines with the intention of improving patient outcomes, but ultimately identify practice that would reduce the development of parastomal hernia’s”
Early intervention prevents Parastomal Hernia and improves quality of life: a research study

Jacqui North
Research Study

- Conducted in 3 parts
  - Incidence
  - Assessment
  - Prevention
### Incidence of parastomal hernia?

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Study</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>Pringle and Swan</td>
<td>2001</td>
</tr>
<tr>
<td>16%</td>
<td>Lala et al</td>
<td>2002</td>
</tr>
<tr>
<td>10-50%</td>
<td>Raymond and Abulafi</td>
<td>2002</td>
</tr>
<tr>
<td>16%</td>
<td>Arumugam et al</td>
<td>2003</td>
</tr>
<tr>
<td>28%</td>
<td>Thompson and Trainor</td>
<td>2005</td>
</tr>
<tr>
<td>33%</td>
<td>Pilgrim et al</td>
<td>2010</td>
</tr>
<tr>
<td>52%</td>
<td>Cingi et al</td>
<td>2006</td>
</tr>
</tbody>
</table>

» 78% on CT
Results of Incidence survey

• 500 patients in survey

• Various locations

• 23% Hernia
Results of PSH assessment

• 65% regular follow-up
• 30% self referral
• 85% noticed the hernia

• Physical examination, lying and standing
• Height, weight, BMI
  – BMI average 27.4
• Intra-abdominal pressure checked
Checking intra-abdominal pressure
Parastomal hernia assessment

- 89% hernia reducable
  - 69% spontaneous
  - 19% non-spontaneous

- 39% felt dragging sensation
- 39% heaviness
- Rest had no problem

- Average size of hernia 14 cm
How preventable are they?

• Thompson and Trainor 2005 & 2007
  – Prevention programme
    • Support garments
    • Avoid heavy lifting for 1 year
  – Commenced 3/12 post surgery
    • Noted most hernia occurred in early months
Going one step further

• Intervention from discharge
  – Full risk assessment
  – Lightweight support immediately
  – Increase support if required
  – Exercise programme
  – Advise on lifting
  – Regular follow-up/assessment/advise etc.
Quality of life

• Score taken at each stage
  – Discharge
  – 3 months
  – 6 month
  – 1 year
Findings

Increased Quality of life

Reduced incidence
Quality of life score

![Graph showing quality of life score over time for different categories](image)
Incidence of parastomal hernia
Compliance is vital

• Advice on discharge not enough!
Where’s the support wear?

A WOMAN NAGGING
IS MORE POWERFUL THAN A KINGS ROAR
Keep doing the exercises!!!!
Finally

- Reduced incidence of parastomal hernia
  - Even without full compliance

- Improved quality of life

- Reduced cost to NHS

- Reduced cost to patient
Collating the evidence and identifying priorities

ASCN Parastomal Hernia Master Class

‘Avoiding the hump’ – Prevention rather than cure
Oxford & Scotland 2015/2016

- Colorectal Consultant
- CNS
- Personal experience
- Physiotherapist
- Support garments
Clinical Guidelines

- Prevention
- Management

- An assessment tool to highlight risk factors
- Agreement on what exercises & support garment advice provided
- Agreement on when to refer for surgical opinion

Key Recommendations

- Hernia Prevention advice to start pre-op
- Support underwear advice
- Core muscle exercises
- Risk & QOL assessment
- Symptomatic hernia request
- CT scan

Fig. 1 With the new computed tomography (CT) scan method, patients were in the prone position and the stoma was placed in the centre of an inflatable plastic ring.
Key messages

No lifting for 12 weeks post-surgery or until wounds healed
nothing heavier than 2.2Kg (5lbs) for up to six weeks after surgery

Posture and gentle exercises in post op recovery
E.g Core 4, Walking short distances, climbing stairs.

After 12 weeks increase exercise;
Build up slowly avoiding strain on abdominal muscles, gentle swimming, yoga and Pilates helps build core strength

Smoking cessation – 4 x the risk

Manage weight: keeping BMI within limits

Advise on lightweight support underwear post op
It’s all about Big Knickers

But not in isolation
Consistency in advice for core exercises
ASCN National Clinical Guidelines
Parastomal Hernia

- Prevention
- Management

- Evidence based practice
- ASCN Recommendations
- QOL
- Core exercises
- Risk assessment
Identification of risk

### Appendix 3a (i): Guide to inform clinical history for assessment of predisposing factors for prevention of Parastomal Hernia

Parastomal hernia development is the highest stomal complication (North 2014). We as SCNs have a responsibility to advise our patients of the risk factors.

All patients with a stoma are at a lifelong risk of developing a parastomal hernia due to the surgical defect created within the abdominal wall. The need to identify risk factors to advise and educate patients about this is essential.

It is recommended that these risk factors are re-assessed and discussed on every clinical assessment.

<table>
<thead>
<tr>
<th>Predisposing consideration</th>
<th>RISK Factors</th>
<th>Additional information/explanation</th>
<th>Reference</th>
</tr>
</thead>
</table>
| Age                        | Children  
                           | The over 70                           | Rectus muscle underdeveloped in paediatrics. Rectus muscle gets weaker as collagen reduces with age | Thompson (2008)                   |
| BMI (Appendix 3a (ii))     | Obese                                           | Undue strain and force on rectus abdominis | McGrath/Porterst (2006)  
                           |                                                 | Thompson (2008)                      |
| Occupation/lifestyle       | Manual  
                           | Young family                          | Undue strain and force on rectus abdominis |                               |
| Activity                   | 1 - 5 i.e. weight lifting                      | Undue strain and force on rectus abdominis | Kane et al (2004)                        |
|                            | 1 lie on sofa - 5 gym/sport every day           |                                    |                                |
| Surgery                    | Emergency  
                           | Post op infection                      | Risk of infection, larger aperture of stoma with emergency surgery | Bucknel & Ellis (1982)  
                           | Multiple abdominal surgery               |                                    | Bucknel & Ellis (1984)              |
|                            | Malnutrition                                    | Deficiency in iron, selenium, zinc   | McGrath/Porterst (2006)             |
| Stoma - site               | Transverse colostomy                           | Research currently indicates higher risk in colostomist  
                           | Colostomy                              | Incidence reduced if within rectus muscle  
                           | Out of rectus muscle                    | Implications of abnormal collagen and PMH of hernias  
                           | Previous hernia repair                  | Likelihood of recurrence               | McGrath/Porterst (2006)            |
|                            | Surgical technique (trephine/aperture of stoma greater than 35mm x incision) |                                    | Carne et al (2003)                   |
| Diagnosis/PMH              | Malignancy                                       |                                    | Cowin & Redmond (2012)              |
|                            | Diverticular                                    |                                    | Pilgrim et al (2010)                 |
|                            | Existing Hernia                                 |                                    |                                |
|                            | Previous Hernia                                 |                                    |                                |
|                            | AAA                                             |                                    |                                |
|                            | Connective tissue disorders                     |                                    |                                |
|                            | Steroids                                        |                                    |                                |
|                            | Diabetes                                        |                                    |                                |
| Smoking                    | Smoker                                          | 4 x greater risk of PSH in smokers   | McGrath/Porterst (2006)             |
| Raised intra abdominal pressure | COPD/emphysema                                | Persistent coughing/forceful sneezing/vomiting leads to undue strain within the abdomen  
                           | Ascites                               | Risk of constipation post-operatively due to poor fluid intake secondary to the change in absorption and alterations in renal function acutely or long term | Thompson (2008)  
                           | Acute/chronic constipation (colostomists/urostomist) |                                    | Readding (2014)                     |
ASCN National Clinical Guidelines
Parastomal Hernia

- Prevention
- Management

- Prevention
- Management
- Evidence based practice
- ASCN Recommendations
- QOL
- Core exercises
- Risk assessment
- Referral to surgeons
# Appendix 3c: Referral Form for Symptomatic Parastomal Hernia

<table>
<thead>
<tr>
<th><strong>PATIENT DETAILS</strong> - NHS No.</th>
<th><strong>GP PRACTICE DETAILS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hospital No.</strong></td>
<td><strong>Name of GP</strong></td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td><strong>Name of Practice</strong></td>
</tr>
<tr>
<td><strong>First Names</strong></td>
<td><strong>GP Address</strong></td>
</tr>
<tr>
<td><strong>Date of Birth</strong></td>
<td><strong>Post Code</strong></td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td><strong>Telephone No.</strong></td>
</tr>
<tr>
<td><strong>Postal Code</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Daytime Telephone No.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Home Telephone No.</strong></td>
<td></td>
</tr>
</tbody>
</table>

**REVIEW REQUIRED** *(Please tick the appropriate box)*

<table>
<thead>
<tr>
<th><strong>URGENT</strong></th>
<th><strong>ROUTINE</strong></th>
</tr>
</thead>
</table>

**CLINICAL DETAILS** - referral to GPC/Gastroenterologist for symptomatic parastomal hernia

**TYPE OF STOMA**

<table>
<thead>
<tr>
<th>End/Loop</th>
<th>Ileostomy</th>
<th>Colostomy</th>
<th>Urostomy</th>
<th>Other</th>
</tr>
</thead>
</table>

**Date of Stoma formation**

**Reason for surgery for Stoma**

**Stoma formation**

**Size of parastomal hernia**

* measured width/height in cm standing* *(Please circle)*

<table>
<thead>
<tr>
<th>Small (less than 5cms)</th>
<th>Medium (5-10cms)</th>
<th>Large (greater than 10cms)</th>
</tr>
</thead>
</table>

**History of presenting symptoms**

**Abdominal pain related to hernia - symptomatic**

**Problematic stoma pouch management**

**Persistent leakage (not resolved following CNS assessment)**

**Persistent skin soreness (not resolved following CNS assessment)**

**Other related stoma complications (e.g. prolapse)**

**Alteration in bowel function**

**Support garment assessment completed. Is the garment worn?**

**Has QOL been impacted as a result of parastomal hernia?**

<table>
<thead>
<tr>
<th>Diabetes</th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous abdominal/parastomal hernia</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Steroids</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

**Past medical history**

Further information

**OTHER INFORMATION**

<table>
<thead>
<tr>
<th>BMI</th>
<th>Please state</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Allergies</strong></td>
<td>NO</td>
</tr>
</tbody>
</table>

If yes, please give details:

<table>
<thead>
<tr>
<th><strong>Smoker</strong></th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, cigarettes smoked per day</td>
<td>Chemo/DXT in last 6 months</td>
<td>NO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Alcohol</strong></th>
<th>NO</th>
<th>YES</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, number of units per week</td>
<td>On Warfarin</td>
<td>NO</td>
</tr>
</tbody>
</table>

**STATUS**

| CT scan performed | **PHONE** | **NOT REQUESTED YET** | **AWAITING CT SCAN** | **RESULTS OF CT SCAN AVAILABLE** |

<table>
<thead>
<tr>
<th>Name of referring nurse</th>
<th>Telephone No.</th>
</tr>
</thead>
</table>

Email address
Review of core exercises
Table Activity - 5mins

1) Please look at the exercise literature collated on the table

2) Review and discuss the exercises

3) Discuss with your colleagues:
   When do you discuss core exercises with your patients?

   How often do you advise they should be doing these exercises?

   How do you explain them to your patients?

Appendix 3c: Parastomal Hernia - Exercises

Ensure you are safe and comfortable before commencing your exercises.
Lay with your head on a pillow, knees bent and feet flat.
It is important that you perform exercises gently and to your ability during the first 6 weeks.
These should not be painful or put excessive strain upon your abdominal muscles.
Avoid sit-ups or abdominal crunches.

1. Abdominal Exercise (Lying)
   With your hands gently resting on your tummy, breathe in through your nose and as you breathe out, gently pull your tummy button down towards your spine.
   As you feel the muscles tighten, try to hold for 3 seconds and then breathe away normally.

2. Pelvic Tilt
   Comfortably position your hands in the hollow of your back
   Tighten your tummy muscles as before, flatten your lower back onto your hands and lift your bottom.
   Hold for 3 seconds and then breathe away normally.

3. Knee Roll
   Tighten your tummy muscles as before and gently lower both knees to one side as far as is comfortable.
   Slowly bring them back to the middle and relax.
   When ready, repeat this movement to the other side.

4. Abdominal Exercise (standing)
   Stand with your back against a wall.
   Tighten your tummy muscles and try to keep your back in contact with the wall.
   Hold for 3 seconds and relax.
   You should aim to do each of these exercises 5 times per day.
   Do more repetitions as you feel able.
   Maintaining this regime for up to 12 weeks after surgery may reduce your risk of herniation.
Risk assessment

How do you assess your patients?
<table>
<thead>
<tr>
<th>Predisposing consideration</th>
<th>Risk factor</th>
<th>1 – low risk</th>
<th>2 – medium risk</th>
<th>3 – high risk</th>
<th>Value</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Age 5-15</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Over 70</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>Obese</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Occupation/lifestyle</td>
<td>Manual *</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Young family</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Fairly active</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gym everyday</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Stoma site</td>
<td>Transverse colostomy</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Colostomy</td>
<td></td>
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<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Out of rectus muscle</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Previous parastomal hernia repair</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Trephine stoma</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aperture &gt;35mm</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
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</tr>
<tr>
<td>Diagnosis</td>
<td>Malignancy</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Diverticular</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
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<tr>
<td></td>
<td>Existing hernia (any)*</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>Previous hernia</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
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<tr>
<td></td>
<td>AAA</td>
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<td>1</td>
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<tr>
<td></td>
<td>Connective tissue disorders</td>
<td></td>
<td></td>
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<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetic up to 1 year after surgery</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetic</td>
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<td>1</td>
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<tr>
<td>Smoking</td>
<td>Smoker</td>
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<td>3</td>
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</tr>
<tr>
<td>Medication</td>
<td>Steroids up to 1 year after surgery</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Steroids after 1 year</td>
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<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Raised intra abdominal</td>
<td>COPD/Emphysema</td>
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<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>pressure</td>
<td>Ascites</td>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acute/chronic constipation (colo/uro)</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**Exceptions:** existing hernia and heavy manual work are **high risk** irrelevant of score

**Total risk score:**  
- **Low risk:** 0-10  
- **Medium risk:** 11-20  
- **High risk:** 21 and above

**Based on your assessment what would be your recommended support garment product:**  
(please circle)  
- None  
- Light  
- Medium  
- Firm support  
- Prescription required Y/N

Please advise which is your Recommended Support product (if appropriate)  
Name of product:  

.................................
Total 78 risk assessment forms completed (4 wks)

Risk Assessment results:
- 50 = low risk
- 24 = medium risk
- 4 = high

Observations
The number of ‘medium risk’ assessments were recommended light support garments

Overall feedback
- Consensus - clear need for the risk assessment to support clinical practice
- Provided clinical evidence to justify rationale for recommendation/need for firm support garment

Recommendations for amendments to form additions
- Chemo/ DXT
- Acute/chronic constipation
- ? Iaprosopic / Robotic surgery
- Open wound
- 2 stomas

Risk assessment recommendations
- Risks divided to 2 categories
  - low and high
    - Increase low risk to 15
    - High risk 16 above
Table Activity – 5 minutes

In two’s or three’s:

1) How do you currently assess risk for parastomal hernia?

2) Please review the Risk Assessment (RA)
   - Do you think a RA would influence your practice?
   - When would you implement the RA during your patient consultations?
   - Would completion of the RA provide you with clinical justification for support garment prescriptions?

<table>
<thead>
<tr>
<th>Predisposing consideration</th>
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<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Young family</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity / Hobbies</td>
<td>Fairly active</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gym/physical exercise</td>
<td>3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Surgery/Stoma site</td>
<td>Robotic / laparoscopic surgery</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Transverse colostomy</td>
<td>3</td>
<td></td>
<td></td>
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<td>Colostomy</td>
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<td></td>
<td></td>
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<td></td>
<td>Stoma out of rectus muscle</td>
<td>2</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aperture &gt;35mm</td>
<td>3</td>
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<td>Diagnosis</td>
<td>Malignancy</td>
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<td>Diverticular</td>
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<td></td>
<td>Existing hernia (any)</td>
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<td>Previous hernia</td>
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<td>AAA</td>
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<td>Connective tissue disorders</td>
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<td>Diabetic and in 1st year after surgery</td>
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<td>Smoking</td>
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<td>Medication</td>
<td>Steroids within 1 year of surgery</td>
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<td>Steroids long term</td>
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<td></td>
<td>Chemotherapy within 1 year of surgery</td>
<td>4</td>
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<td>Pelvic radiotherapy</td>
<td>4</td>
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<td>Raised intra-abdominal pressure</td>
<td>COPD/Emphysema</td>
<td>3</td>
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<td>Narcotic</td>
<td>4</td>
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<td></td>
<td>Acute/chronic constipation (colo/uro)</td>
<td>4</td>
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</tbody>
</table>

Total risk score: Low risk: 0-15  High risk: 16 and above

Based on your assessment what would be your recommended support garment product:
(please circle)
None  declined  Light  Firm support  Prescription required Y/N

Other specialist clinical assessment notes to support garment choice

Please advise which is your Recommended Support product (if appropriate)
Name of product ........................................  Product code: .............  No. ordered ......................
If the clinical assessment suggests a firm support
What support garment do you choose?

- Underwear
- Belts
- Girdles
- Shields

Differing levels of support
Position of the stoma
Compliance
Cost
Considerations in relation to support garments

- Cost implication
- Range and availability
- Right garment for right reason
- Knowledge of range of garments
- Competency to measure / assess for garment fitting
- Who should measure?
Questioning practice and need for clinical evidence

- Scotland review of product
- Categorisation of products
- Lightly woven V tightly woven

If we now have the clinical rationale for support garments through risk assessment - we now require evidence to support clinical effectiveness
Cohort study to Investigate the prevention of Parastomal Hernia
• The aims of the study are to:

1. establish the incidence of symptomatic and radiological PSH during a minimum of 2 years follow up

2. evaluate the effects of key technical surgical steps during index stoma formation on the risk of subsequent PSH formation

• Multidisciplinary

• Multi-perspective

• Multicentre
CIPHER – PHASE A

• Key surgical steps
  - Video capture
  - Non-participant observation
  - Surgeon interviews

• PROM
  - Semi-structured patient interviews
  - With and without PSH
  - Questionnaire development (COSMIN)
CIPHER – PHASE A

Working with ostomates to create a questionnaire that can detect symptoms of a parastomal hernia

Benefits of the questionnaire

• Provides the bigger picture, looking for more than what you can see on a scan

• Identifies the symptoms that matter to day-to-day life

• Reduces harm from unnecessary CT scanning
CIPHER – PHASE B

- Prospective
- Observational
- UK based
- > 50 Centres / 4000 patients
- 2 yr recruit / median 3 yr follow up
- PROM / QoL / CT (collaboratives)
CIPHER – PHASE B

QUESTIONS TO ANSWER

• Incidence of PSH
• Record variability of surgical technique
• Risk of PSH by type of stoma
• Risk according to trephine in fascia
• Risk of PSH if prophylactic mesh used
• Does mesh type, position & placement technique matter?
• Health economics

• Define threshold symptom level for intervention
• Correlate CT findings & symptom scores
• Validate EHS classification
CIPHER – PHASE C

QUESTIONS TO ANSWER

- Incidence of PSH
- Record variability of surgical technique
- Risk of PSH by type of stoma
- Risk according to trephine in fascia
- Risk of PSH if prophylactic mesh used
- Does mesh type, position & placement technique matter?
- Health economics
- Define threshold symptom level for intervention
- Correlate CT findings & symptom scores
- Validate EHS classification
- Frequency of PSH repair
- Watchful waiting – is it safe?
- A repair cohort?
Summary outcomes

- Research proposal
  - Article in BJN
- Prevention – replicate Jacqui’s study
- Management – QOL of effectiveness of garments
Working together to:

- Build the evidence
- Standardise clinical practice
- Improve patient outcomes
References