

British Hernia Society (BHS) - Unwarranted Variation Scenario: Getting the Complex Abdominal Wall Repair Pathway Right



Angela's story:

Complex Abdominal Wall Repair (CAWR)

This document is for:

Commissioners	Understand the issues uncovered by this case review, and then work to determine the scale of optimal pathway implications for your local health economy. Collaborate in partnership with all NHS parties involved to deliver effective change.
Clinician Providers:	Develop a multidisciplinary team to offer a CAWR service that meets site specific commissioning criteria with linked outcomes
GPs	Early recognition of patients presenting with significant risk factors in conjunction with a sizable incisional hernia, linked to a history of colorectal tumour resection. Appropriate referral to designed CAWR service provider
Patients	Timely presentation to their GP experiencing abdominal discomfort related to a significant stomach bulge resembling an incisional hernia located on their previous surgical scar line; with a sensation of abdominal muscle collapse.

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Foreword from John Abercrombie

In England we spend over £40M p.a. on incisional hernias, it is clear from our interviews with surgeons that all is not well and that significant improvements can be made both in terms of patient care and economic savings when it comes to Complex Abdominal Wall Repair (CAWR).

Getting It Right First Time (GIRFT) is a major quality improvement initiative and within general surgery, CAWR is an intervention that would significantly benefit from improvements in its care pathway leading to improved outcomes for this patient cohort.

In general surgery, we have seen wide variations in the way in which services are delivered and in the outcomes they produce. Many clinical teams are unaware how they perform when compared with other trusts in England. Long term results are so important in abdominal wall reconstruction but they are almost completely unknown.

Investing in the transformation of provider services has the potential to generate huge gains which in turn, can make trusts more sustainable in the longer term as well as improving care for patients.

Much of what we do measure currently is politically derived and risks being counter-productive.

There is, however, much we could measure that would make a difference: surgical performance; the number of urgent - if not emergency - patients who receive care within a given time; readmissions and infection rates. Linking such data to the different procedural approaches used, we can truly understand what the safest and most effective procedures are in NHS practice rather than clinical trials.

Building that next level of insight is our goal and that is why the GIRFT programme supports this CAWR. The NHS RightCare scenario methodology (that this work is based upon) is a very powerful mechanism to share insights. Combining surgeons' knowledge with English Hospital Episode Statistics (HES) data and patient personal experience across a journey of suboptimal and optimal pathways is an engaging way to highlight important drivers of suboptimal outcomes.

My hope is that GIRFT will stimulate the development of many initiatives such as this report, providing the impetus for clinicians, managers and programmes such as ours to work together, creating solutions and improvements that for too long have seemed impossible to deliver.

John Abercrombie (MB BS FRCS)

General surgery, Clinical Lead for Getting It Right First Time (GIRFT)
NHS England National Programme

Mr Dominic Slade, Consultant General & Colorectal Surgeon at Salford Royal Hospital, has also given his support to this work as you can see in this short [video](#).

Analysis Style

NHS RightCare has developed a series of [long term conditions scenarios](#) using this style of analysis where suboptimal and optimal case studies of a fictitious, but realistic, patient are compared and contrasted. The intention is to highlight potential improvement opportunities.

The British Hernia Society's aim, like NHS RightCare, is to raise awareness through supporting local health economies (including clinical, commissioning and finance colleagues) to think strategically about designing optimal care for people, in this those with complex hernias.

This scenario has been developed with experts in this specialist field and includes prompts for commissioners to consider when evaluating their local health economy requirements.

Context

Complex abdominal wall defects may be the result of a failed prior attempt at closure, trauma, infection, radiation necrosis, or tumour resection. The problem can be very significant (both financially and on the patient's quality of life) in terms of multiple hernia operations, where one CAWR procedure would be optimal.

The scale of incisional hernias in England is illustrated with HES data from 2017/18 which shows 15,537 inpatient spells (79.5% of these were elective admissions). The corresponding indicative cost in this period (all admissions) was £67.5m (average cost per spell = £4,342 and on average over £340k per CCG).

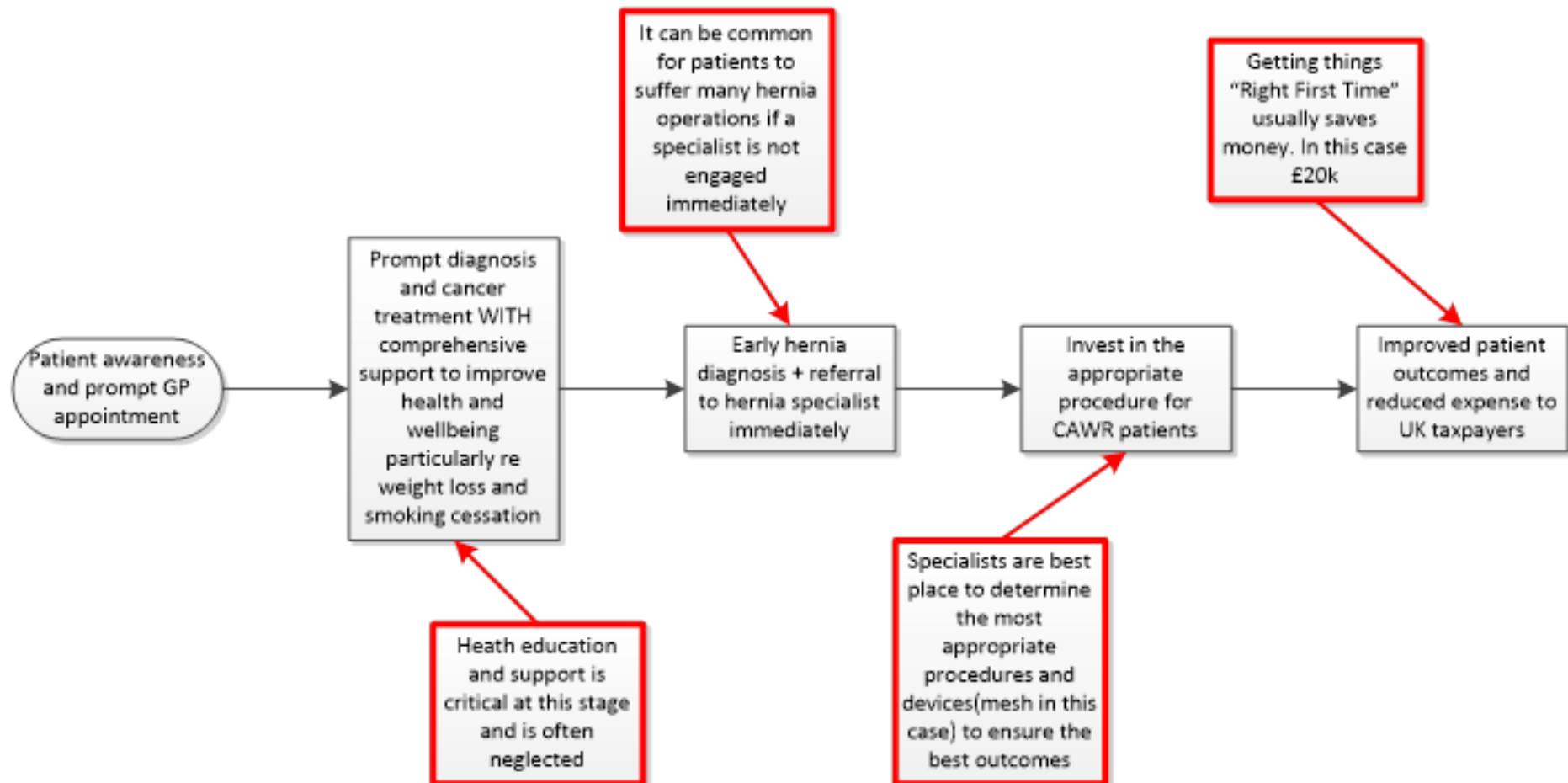
NB a significant proportion of overall incisional hernia cost is consumed by this CAWR cohort; the top 10% of incisional hernia patients account for 29.6% of total costs, referred to below as most costly spells. Every spell reduced through GIRFT saves money, but more importantly, a huge amount of patient anxiety and distress.

Hospital Episode Statistical (HES) analysis_ NHS Fiscal Year 2016/17

1. For all patients that had an elective incisional hernia repair spell in 2016-17, 10.6% have previously had another incisional hernia procedure within the last 3 years. For patients in the 30% most costly spells, this rises to 12.1% compared to 10% for all other patients.
2. Within the 30% most costly incisional hernia procedural spells, 50% of elective and 71% of non-elective spells have a length of stay 7 days or above. For all other spells, only 7% and 37% exceed 7 days respectively.
3. Within the 30% most costly incisional hernia procedural spells, 26% of patients have been diagnosed with obesity and 27% have been diagnosed with smoking/tobacco use.
4. The average cost for the 30% most costly spells is £6,976 for elective spells and £13,031 for non-elective spells. This compares with £2,303 and £4,397 respectively for the other 70% of incisional hernia spells. Note these costs represent HRG payments and not necessarily the patient level costs incurred by NHS providers.

For more HES patient level aggregated data and charts please follow this link to the [detailed paper](#)

Typical Cancer/Hernia Optimal Pathway



Goals & values

Angela wants to:

- Be able to work and live pain free
- Support her family financially

Angela is committed to:

- Her family
- Her friends
- Her work colleagues

Charlotte's sources of information

- www.nhs.uk
- British Hernia Society
- Facebook

Meet Angela



Age: 55

Sex: Female

Marital status: Married (Robert)

Children: Two (grown up)

Occupation: Taxi Driver

Income: Wages (when working)

Education: 5 GCSEs

Diagnosis: Cancer (recto-sigmoid tumour) & Hernia

Age symptoms started: 55

General Health: Smoker and overweight (BMI 33 – Obese)

Quote: "I just want to get on with my life"

Challenges & pain points

Angela is challenged with:

- Being a burden to her family
- Pain
- Depression
- Spoiling Robert's retirement

Angela's pain points are:

- Shame of disability at a young age
- Fear of cancer and its return
- She's missing out on so many things in life

Engagement difficulties / objections

- I don't like not working, it's horrible

Angela is a 55-year-old taxi driver who lives with her husband, Robert. They are a close-knit family with two grown up children and their families living nearby. In the summer of 2011 Angela had noticed blood coming from her back passage. This made Angela very concerned, but she was so busy with late night shifts she hoped the problem would go away.

But it didn't. Angela required a cancer tumour that required surgery that then led to serious hernia problems...

For the full detailed story, please follow [this link](#)

The two pathways compared (summarised)

Story Flow	Suboptimal Details	Optimal Details
Patient alerted to blood in faeces	Angela notices in the summer of 2011 but waits until Sept to visit her GP	As Suboptimal
GP Review (suspected cancer)	Tests show increased levels of HBA1c (type 2 diabetes) the GP suspects colorectal cancer and refers to local colorectal unit	As Suboptimal
GP additional support and holistic care		+ Discussed results further and talked about next steps any worries she may have as well as support to address her smoking and T2 diabetes
Hospital Review / Diagnosis (suspected cancer)	Colonoscopy & Diagnosed with recto-sigmoid tumour	As Suboptimal
Hospital surgical treatment (and aftercare)	Cancer operation in mid October 2011 . Wound was weeping and inflamed due to a MRSA infection, had a district nurse every three days (for 3 weeks) to dress wound	As suboptimal + Jane, her colorectal nurse specialist, explained that she would be providing ongoing counselling & tel support if Angela needed anything at all
Hospital routine follow up	6 month follow up - small lump in tummy but not bothering her	As Suboptimal
Hospital advice / aftercare (suspected hernia)	advised to give more time to settle down	The doctor was concerned about this (due to the hernia training & departmental protocols he had received) and said if it becomes more pronounced they would refer her to see a hernia specialist. The doctor was also concerned about her HBA1c levels which were still elevated and also that Angela was still smoking, although she had managed to cut down due to the support from the clinic.
GP visits due to abdominal pain	Four months later Angela went to her GP complaining of discomfort & the GP advised to discuss up with the surgeon	As Suboptimal but with additional support from the practice nurse
GP ongoing Care / Support at home	Downward spiral of discomfort, weight-gain, anxiety and family tension	For the following months Angela was struggling but she was getting a lot of support from her GP who reassured her it was safe to keep active and that any exercise she could do would help her & improve her physical & psychological wellbeing.
Hospital routine 12 month follow up (Cancer free but hernia confirmed)	Lump in tummy. Suspected hernia - advised to lose weight and then a hernia would be considered ... Few months later and consultant confirms an 8cm hernia & Angela chooses a laparoscopic operation	Angela had now stopped smoking and lost some weight (plus more support re weight loss). Confirmed 8cm hernia that required specialist intervention and referred Angela to Mr Latham (hernia specialist). Mr Latham confirmed the 8cm defect and he was satisfied with the improvement in her comorbidities. He arranged for Botox treatment and a swab for MRSA ahead of the open posterior component separation .
Hospital support post hernia surgery	6 weeks later and she is pain free (but not for long unfortunately)	At her 6 month follow up appointment, her abdominal wall repair was assessed and the closure was healing well.
Life after the hernia operation is good (but for how long?)	Angela is now in good health, has a new lease of life and goes back to work (for now).	As per suboptimal + She can look forward to a happy and productive work life and retirement, with no long term ill effects from this episode.

Story Flow	Suboptimal Details	Optimal Details
Abdominal discomfort again	8 months after the operation and Angela is in pain again.	N/A
GP referral to the surgeon	GP advises to speak to surgeon at her up and coming 2 year cancer follow up	N/A
Angela is now is a very poor shape	ANXIETY, pain and discomfort	N/A
Hospital 2 year follow up - hernia confirmed	The surgeon confirms the need for a second hernia operation	N/A
Hospital surgery	March 2014 to correct the problem a revisional open hernia repair with only synthetic mesh	N/A
Primary care support for wound and depression	Post operation her wound was not healing and she hadn't been able to get back to work (still uncomfortable) GP prescribed anti-depressants (10 months of wound treatment...) She cancelled everything; Angela's life was on hold	N/A
Angela in a downward spiral	Serious anxiety and depression	N/A
GP referral to the hospital again	This provided Angela with a ray of hope	N/A
GP continues with the prescriptions for depression	Angela's health and wellbeing is very poor at this point in the pathway	N/A
Hospital surgeon recommends yet another operation	In November 2014 Angela had a major abdominal wall repair operation but the surgeon was unable to achieve fascial closure, defaulting to a bridging approach without component separation.	N/A
Hospital stay was long and expensive	She stayed in hospital for 22 days, 10 of which were in intensive care	N/A
The future was bleak	Angela was discharged home but never became fit to work and now has a lowered life expectancy	N/A

The **suboptimal case cost £45.9k** compared to **£26.2k in the optimal case**. For the complete story that analyses the finances and reflects Angela's emotions and experiences please follow [this link](#).

Treatment and care costs, how they compare

For the financial evaluation we performed a detailed analysis through mapping the lifecycle of the pathways. Through this process we were able to identify the cost drivers that would be incurred in primary, community and hospital care, using NHS HRG / reference costs etc. NB The financial costs are indicative and calculated on a cost per patient basis. Local decisions to transform care pathways would need to take a population view of costs and improvement.

Table 1: Comparison of the two scenarios by cost category

Analysis by cost category	Sub-optimal	Optimal	Optimal %
Primary care management	£673	£951	141%
Secondary care management	£42,971	£25,273	59%
Community care management	£2,290	£0	0%
Grand total	£45,934	£26,224	57%

This estimated £20,000 saving (for one patient) over the pathway of care is driven by three primary variables:

- i. **Number of operations:** The suboptimal case has four operations compared to only two in the optimal (including two extra “standard” hernia operations which are inappropriate)
- ii. **Wound care:** After the second standard hernia operation (suboptimal) Angela suffers from a serious wound which requires over ten months of community care with a district nurse that is not required in the optimal case. (The greater the number of operations, the greater the risk of complications.)
- iii. **Primary care costs:** There is a 41% increase in investment in primary care to support Angela with comorbidities to reduce risks associated with obesity and smoking. (NB this investment is significantly offset considering that the number of GP visits is 13 in the suboptimal case compared to only three in the optimal case.)

The immediate referral to a specialist in CAWR, represents improved value for money, better use of healthcare resources and, most importantly, a significant improvement in Angela’s clinical outcome and quality of life.

Note that this estimated financial saving of almost £20,000 in this case can be seen as a conservative value because in the suboptimal scenario Angela has to retire (due to disability) before the age of 60. In the optimal case, Angela would have been expected to continue working for at least an additional five years.

Note: the consistent view from all clinicians who have engaged with this scenario is that CAWR specialist episodes take a lot more theatre and post operation time than standard procedures and therefore the HRG payments do not cover the trust’s costs. [Click here](#) to see the full analysis of costed details and assumptions applied.

Key Learning Points:

Clinicians

Patient selection criteria - hernia expert leadership is required to develop an NHS triage system for the management of incisional hernia, building on existing VHWG* criteria. Evidence based pathways need to risk stratify patients into 'defined groups /cohorts' based on specific patient and hernia related risk factors.

Consider the adoption of EHS registry to serve as a national hernia database. Prospective data collation would stimulate interest and focus surgeons on improving post-operative outcomes and operative technique at their participating NHS site.

Patients

Good compliance with smoking cessation and dietary advice will significantly increase the likelihood of making a full and efficient recovery and minimise risk of a revisional operation.

Patients must also be accountable for maintaining their own post-operative health with strong adherence with specialist AWR team's advice.

Commissioners

Commissioning for outcomes - agree clinical and patient related outcomes on their service level agreement with approved providers who offer a specialist AWR service, taking a multi-disciplinary approach.

Locally agreed tariff to cover patient level costings, as current funding from national tariff, offered for a standard CAWR, is shown to be inadequate full financial analysis can be seen in the [detailed paper](#).

Questions for clinicians and commissioners to consider

At the CCG population level, we estimate that there are around 4,500 patients¹ in England living with CAWR symptoms and many will not have been identified formally as requiring CAWR specialised treatment.

In the local health economy, who has overall responsibility for:

- Raising awareness that CAWR is a problem that requires recognition and targeted interventions with specialist referrals at an early stage?
- Getting agreement (in line with GIRFT recommendations) between trusts and commissioners that CAWR represents good value for certain patients?
- Training and education with respect to evidence-based clinical selection criteria and optimal procedural approach/ technique?
- Agreeing fair compensation to trusts for these specialised treatments (acknowledging that current HRG payments for CAWR do not come close to current financial outlay trusts make for CAWR surgical intervention)?
- Monitoring specialist referrals (timeliness and outcomes) and the number of secondary hernia operations where specialist referrals were not made?
- Ensuring individuals with CAWR problems are educated and supported in their condition and facilitated to appropriately self-manage symptoms to optimise their health and wellbeing?

The above questions are vital in understanding who manages which components of the whole pathway. Most importantly, it is impossible to effect optimal improvement if the system is does not address the unmet needs identified. .

Conclusions

The outcome for Angela is the optimal scenario is better on all fronts. She underwent fewer surgeries and her total time of ill health was much shorter.

Vitality for Angela, she did not have to suffer the awful wound that was a key factor in the sub-optimal scenario.

Most importantly however, at the end of the treatment Angela was in good health and could go back to work.

She can now enjoy a happy and productive work life and retirement with no long term ill effects.

¹ 4,484 incisional hernia patients in the top 3 deciles (most complex) in 17/18 HES data

Links to other resources

For more information about Complex Abdominal Wound Repair, its detection, management, guidelines and policy you may want to look at the following resources:

- I) Classification of primary and incisional abdominal wall hernias:
<https://www.ncbi.nlm.nih.gov/pubmed/19495920>
- II) EuraHS: the development of an international online platform for registration and outcome measurement of ventral abdominal wall hernia repair:
<https://www.ncbi.nlm.nih.gov/pubmed/22527930>
- III) Ventral Hernia Algorithm from the Danish Hernia Registry:
<http://www.britishherniasociety.org/ventral-hernia-algorithm-from-the-danish-hernia-registry/>
- IV) CeDAR: Carolinas Equation for Determining Associated Risks (an App):
<https://itunes.apple.com/us/app/cedar-ventral-hernia/id830530974?mt=8>

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