NHS RightCare

NHS RightCare scenario:
The variation between sub-optimal and optimal pathways

Betty's story:
Leg ulcer wound care

January 2017

Contents

The story of Betty's experience of having a leg ulcer, and how it could be improved…

In this scenario – using a fictional patient - Betty – we examine a leg ulcer wound care pathway, comparing a sub-optimal but typical scenario against an ideal pathway. At each stage we have modelled the costs of care to commissioners and describe the impact of sub-optimal care and ideal care on the outcomes and experience of 'Betty'.

This document is intended to help commissioners and providers understand the implications – both in terms of quality of life and costs – of shifting the wound care pathway from an uncoordinated and reactive approach to a proactive evidence-based approach.

This scenario has been produced in partnership using the NHS RightCare methodology and the work of Leading Change, Adding Value: A framework for nursing, midwifery and care staff (1). The aim is to help clinicians and commissioners improve value and outcomes for this patient group.

Two summary slide packs are also included as appendices.

Introduction

A recent research study has estimated that the annual cost of managing wounds in the NHS and associated comorbidities is £5.3 billion. This is comparable to the £5 billion spent on managing obesity in the NHS. Over a year approximately 4.5% or 2.2 million people of the UK adult population will have a wound and about 30% of wounds in this study lacked a diagnosis (2) documented in the GP records.[1]

In the UK most wounds are managed largely in the community by GPs and more commonly by nurses. (2) (3)

The most commonly treated wounds are leg ulcers (3). Leg ulcers are chronic wounds that occur in the lower leg; they are distressing and painful to those who have them, prone to infection and have a negative impact upon a patient's mobility and quality of life. (5)

1.5% of the UK population (with wounds) are estimated to have a leg ulcer and 19% of the leg ulcers in this research study were not characterised (2). To ensure the most appropriate treatment, the 'character' of leg ulcers needs to be diagnosed to determine the predominant cause, such as venous, arterial or mixed aetiology.

Improved wound care including effective assessment, diagnosis, treatment and prevention of wound care complications can minimise treatment costs (2) and importantly improve outcomes and experience for people with a wound.

[1] Other studies estimate an overall point prevalence of wounds is:

- 12% of the population in Hull and East Riding of Yorkshire (3)
- 0.147% of the population in Leeds with a complex wound receiving health care (4)
- 0.64% of those receiving community services in Manchester (Unpublished)

The "Effective Health Care Bulletin on compression therapy for venous leg ulcers concluded:

"There is widespread variation in practice, and evidence of unnecessary suffering and costs due to inadequate management of venous leg ulcers in the community."

(NHS Centre for Reviews and Dissemination, 1997)" (7)(p.2)

This scenario demonstrates opportunities to reduce the unwarranted variation but this requires good organisation of care.

The evidence underpinning leg ulcer care is not new as shown in the Effective Health Care Bulletin in 1997 and yet unwarranted variation exists as demonstrated in the research (2) (6). Why is this? Why does this continue?

This scenario gives some insight into what might be happening based on the research and discussion with clinicians.

Introducing Betty

Betty is a 70 year old widow. She lives on her own in a village 10 miles outside the nearest city. She has arthritis in her knees and is overweight after she gave up smoking 10 years ago, but otherwise is quite well. Betty retired from her job as a shop assistant and has a good social network in the village.

She's noticed that her legs feel heavy and tired after a day out and in the summer they swell so she has to be careful which shoes / sandals she wears. The skin on her legs is getting a bit dry so she tries to remember to use her favourite skin cream on her legs at night.

Betty has tried to limit the impact of arthritis on her life by joining a local rambling group where she joins the 'B group' for the weekly walk of three to four miles and all the social events.

Once a week Betty takes a trip into the nearest city to have lunch with her friends and afterwards they all go to Aqua-fit, to be honest they do spend more time chatting than exercising in the pool and then reward themselves with a calorie rich lunch!

Betty's journey: NHS health check

Betty's journey is not unusual. When Betty reaches 70 she is invited for an NHS health check with the General Practice Nurse (GPN) where she is identified as being overweight with a BMI of 30 and would benefit from some behaviour change advice. Betty comes back to see a Healthcare Assistant (HCA) for lifestyle advice.

Betty and the HCA, who is herself a mature lady and somewhat overweight, agree that being overweight is part of growing older and hard to address, especially as going to a gym where everyone wears Lycra does not appeal.

Graze to the leg

Now at 74, Betty grazes the inside of her ankle during a walk; she thinks it might have been going over a stile. She first notices it when her tights stick to the skin a few days later. Not wanting to 'bother' her doctor she manages it herself from her first-aid kit using a small adhesive plaster to prevent the graze sticking to her tights and changes it every couple of days. As this is uncomfortable she pops into the local pharmacy while she is in town to ask the advice of her pharmacist, who sells her some small non-adherent dressings.

GP visit

As the graze on her ankle is not getting any better five weeks later Betty decides to see her GP about it. It is not an emergency so when she sees the GP a week later, she is reassured because the GP is not worried about what the GP calls a ‘wound’. However the skin around her ‘graze’ is red and inflamed and because there is yellow tissue (to her it looks like pus) inside the ‘graze’, the GP prescribes antibiotics three times a day.

In people with chronic leg ulcers systemic antibiotics should only be used if there is evidence of clinical infection (8). In Betty’s case there were no signs of clinical infection.

The GP suggests that Betty should continue to use non-adherent dressings on the wound and gives advice regarding changing the dressing and to come back at the end of the course of antibiotics if it isn’t any better.

Two weeks later she returns to the GP, the wound is still present with red edges, a yellow centre and the surrounding skin is also red and inflamed. The GP decides to refer Betty to the GPN for wound care saying, “Let’s see if the professionals at wound care can make some progress as it’s a bit stuck, isn’t it?”

The General Practice Nurse (GPN)

The GPN assesses the wound and notes the continued redness, inflammation and yellow material inside the wound. Due to these signs she discusses with the GP whether another course of antibiotics is required. Both agree that a second course of antibiotics – the same as before – would be useful to clear any infection. The GPN also recommends an antimicrobial dressing to help clear up any infection. Over the next six weeks the GPN treats the wound at weekly appointments. She gives Betty a number of spare dressings for in between times, in case the wound fluid leaks through to her tights.

Personal hygiene

Betty would prefer a dressing that she can manage herself and which would allow her to resume Aqua-fit and have a bath, however as her appointments with the nurse are short there is no opportunity for Betty to discuss this. The fact that her dressing isn't waterproof means that she is unable to have her regular bath and instead resorts to a thorough strip wash. Betty has not been given any advice on whether to have a bath or shower. Betty feels dirty with the constant draining of fluid from the wound onto her leg and this is affecting her social life. She becomes self-conscious over the months about her inability to have a regular bath and stops going out for lunches with her girlfriends that coincided with Aqua-fit.

Research has shown that the leakage and odour from leg ulcers can cause embarrassment, resulting in social isolation, low mood, depression and poor self-esteem. Interventions to improve leakage and odour have often proved to be inadequate. (5)

Betty finds that she needs to change the dressing at least twice between her visits to the nurse; she starts wearing trousers every day to avoid people seeing the dressing and the red, angry skin. Betty normally only wears 'slacks' in the garden and when rambling and now feels scruffy in trousers, and no longer feels smart when she is out and about in the village.

Loss of identity

A little bit of her identity has changed as she is used to being known as the very smart Mrs Smith who worked at the local shop. Gradually Betty needs to change the dressing more often as her leg is very weepy and the GPN increases the visits to three times a week.

Re-assessment of the leg ulcer should be carried out at 12 weeks if no progress at 12 weekly intervals. (8)

Betty has felt off colour with the courses of antibiotics which have made her feel nauseous (and she's experienced some diarrhoea after the antibiotics – but she doesn't like to mention it). She misses the Aqua-fit and can no longer go on the rambles as her ankle is sore and swollen. She is also concerned about the rubbing of her walking

shoes on the ankle and getting another injury. The GPN and GP aren't aware of the emerging impact of this small wound on her fitness, social arrangements and mood. She is slowly becoming more isolated and miserable.

After trying an antimicrobial dressing for six weeks the GPN changes the dressing to an alternative – a hydrofibre and silver dressing covered with a foam dressing and a barrier film to protect the skin around the wound. The GPN recommends dressing the wound two to three times per week to see if this will 'help shift the infection'.

> NICE guidelines state there is at present no robust clinical or cost-effectiveness evidence to support the use of antimicrobial dressings (for example, silver, iodine or honey) over non-medicated dressings for preventing or treating chronic wounds. Indiscriminate use should be discouraged because of concerns over bacterial resistance and toxicity. (9)

After dressing Betty's leg for three months the GPN is frustrated at the lack of improvement in Betty's ankle, as she feels that they should be making some headway by now. The GPN has started to feel less confident about wound management admitting that it has been a few years since she has had an update and doesn't treat people with leg ulcers very often. She knows that incorrectly applied compression can lead to amputation of legs and toes. She has asked to go on a study day however this has been delayed due to her GPN colleague being off on long term sick and the need to cover her colleague's clinics. She is feeling quite isolated in her health professional role.

Wound assessment

An opportunity arises to attend a study day organised by the local Tissue Viability Nurse and the university on wound care. The GPN attends and manages to talk to a Tissue Viability Nurse about Betty. She recognises that Betty's persistent wound on her ankle may have developed into a leg ulcer. The GPN is reminded that she needs to use a hand held Doppler ultrasound to assess the arterial supply to Betty's leg before doing anything else. However the GPN doesn't have access to the handheld Doppler or the experience of completing this assessment. Furthermore the GPN appointments are only for 10 minutes and it's impossible to do a full assessment in that time (she notes that the Doppler must be taken after 10 minutes rest). She knows following the training that the treatment of choice for venous leg ulcers is compression bandaging. However the GPN doesn't have a lot of experience in compression bandaging (she last did it at a course five years ago) and feels that she would need some updating to be able to deliver this safely. The session at the university makes it very clear that compression bandaging can only be delivered to people who have got adequate arterial supply, and must be delivered by people with training in this treatment. The consequences of getting this wrong include rapid ulcer and limb deterioration and pain and possibly amputation, so the GPN is glad that she is taking things slowly with Betty. Better safe than sorry.

A month on and the wound is not improved (although to keep Betty's spirits up the GPN says that it's looking better). The nurse manages to take one or two tracings of the wound on a transparent grid and notes there has been little change. Following the education and training day the GPN is now rather frustrated that there may be options for Betty to have an assessment for a venous leg ulcer and get treatment, but does not know what is the best option. She discusses this with the GP and together they decide that Betty should be referred to the dermatology department. A referral to the vascular service was discussed; however the waiting list for this is longer than that for a dermatology appointment.

For people with leg ulcers the arterial supply to the leg should be assessed to support the safety of compression bandaging (8). This should occur at the first assessment (7). This includes an Ankle Brachial Pressure Index (ABPI) performed before treatment and appropriate training is required due to the complexity of interpretation of the results. Skills should be maintained. (8)

The research identifies that there continues to be unwarranted variation in consistent ABPI assessment in people with leg ulcers (6) (10). There is evidence of people with a leg ulcer whose ABPI was not recorded but were receiving compression therapy. Assessment of ABPI is a recognised requirement for leg ulcer and diabetic foot management, yet only 16% of all cases with a leg or foot ulcer had an ABPI recorded in their records, of which 81% were treated with compression. Of the 84% that did not have their ABPI recorded, 46% were treated with compression (10). This research is not dissimilar to a study that suggested that 23.6% of the leg and foot wounds were not assessed using an ABPI. (3)

Dermatology

Eight weeks later Betty attends dermatology out-patients and her ABPI is confirmed by Doppler assessment that she has a venous leg ulcer. Unfortunately the ABPI result is not shared with the GP practice. As there are not any particular skin problems that require the dermatology team, she is referred back to the General Practice for a medicated paste bandage and compression bandaging.

The GPN isn't able to apply compression bandaging as she doesn't feel confident to apply it both safely and therapeutically.

In order to stop Betty's leg from swelling the GPN decides to apply the medicated paste bandage, padding and crepe bandages twice per week for five weeks, to little effect. Betty has now had a wound on her ankle for six months. In the meantime she's received her appointment through from the orthopaedic surgeon who has been asked to schedule her for knee replacement surgery. Unfortunately when the orthopaedic surgeon sees the wound on her ankle she declines to proceed with an operation date until the ulcer heals, because the infection risk is too high.

In the meantime Betty has become less mobile because of the increased pain in her knees, her swollen ankles and the wound. She feels that if she had her knee replacement she would be able to do a bit more and the GPN knows that it's important for Betty's general health that she is more mobile, and also knows that being active is good for venous return in her leg.

> Most people affected by wounds, and health professionals, viewed healing of the complex wound as the primary goal. Patients were concerned about the socially inhibiting consequences of their complex wound, but wound care services did not focus on the psychological or social impacts. The treatment model was geared to healing, not 'living with' a long-term condition with potentially negative consequences. (4)

Lack of time and equipment

Betty and the GPN are in a Catch-22 situation now. Her wound is getting worse as Betty is becoming less and less mobile with her arthritis. This leads to the ulcer getting larger and her leg more swollen. The GPN doesn't have the time, equipment, or expertise to provide the assessment and compression bandaging that would help Betty get her ulcer healed and thus allow her to have her knee replacement. The community nursing team are called upon to assess Betty as she is now finding it very difficult to get to the practice.

The community nurse

The community nursing team are stretched thinly due to workload and holidays across their patch. They struggle to see the same patients consecutively as different nurses allocate the work. They have developed their role as 'great generalists', rather than having people in the team focus on particular areas of activity. Due to time constraints the district nurses do not visit the GP practice very often. This has led to a loss of a close relationship with the GPs and community teams with the GPN not knowing who her community nurse colleagues are anymore.

The District Nurse (DN) team leader sees Betty at first as the team aren't sure if this is simply a wound that would require regular dressing or is really a leg ulcer (in the past the referrals to them have been a mixture of eczema and allergy as well as wounds and ulcers). Following assessment of Betty's wound the district nurse team leader knows this would benefit from a full arterial assessment by one of the two people in the team able to do a Doppler assessment to provide an accurate Ankle Brachial Pressure Index

(ABPI). There is a delay in arranging the Doppler assessment, as one of the nurses with experience of completing a Doppler is on holiday and the procedure is always done with a health care assistant (as the nurses find it much easier to do in pairs).

Wound assessment

At the end of the month Betty has had a twice weekly dressing change by the community staff nurse with a padding bandage plus crêpe to accommodate the increasing leakage of fluid from a nasty green sticky wound. After the first visit, the dressing is delegated to the health care assistant. The wound seems to be getting more inflamed and when the community staff nurse arrives to do the assessment he thinks the wound looks rather 'angry'. The community staff nurse is unable to do the Doppler as Betty shouts in pain when the blood pressure cuff is inflated. She explains that the wound has been getting more painful over the last fortnight and she has felt rotten in herself. She doesn't like to take painkillers as she does not want to be dependent upon them so she is feeling rather exhausted with it all. The community staff nurse takes a wound swab suspecting the wound might be infected. In order to contain the wound exudate they again pad up the leg while waiting for the microbiology results, and apply a different dressing that has silver in that they have with them to see if this improves the outcome.

This padding, of course, means Betty cannot get her shoes or slippers on and so she becomes more depressed with her situation. The smell from the wound means she now refuses visitors and becomes more isolated than ever. The new dressing, Betty thinks, helped a bit this week. Betty gets antibiotics for the wound and they upset her tummy again – with nausea and diarrhoea.

Her reduction in activity has led to some weight gain and this has meant that Betty has started to notice she has developed some stress incontinence. She is now buying incontinence pads to keep from leaking small amounts of urine down her legs and onto the dressing. She is too embarrassed to tell the nurse.

Finally – two weeks after the first attempt at Doppler assessment the two nurses try to reschedule the test with Betty. The Doppler ultrasound machine, unfortunately, isn't working when they get it out to use it (the cable between the machine and the probe is broken) and they ring around to see if there are neighbouring patches who could lend them one. They arrange to borrow one the following week.

Seven weeks after referral the Doppler assessment is done - the ABPI is 1.00 and there are signs of venous insufficiency with no signs of arterial disease. This means Betty can have compression on her leg. However as the compression requires a prescription the nurses are unable to commence the treatment immediately, additionally they do not feel confident in applying the compression to such a difficult shaped leg (with Betty's badly swollen knee); which has now become increasingly swollen with the delay - another week passes until the next visit.

People living in the most deprived areas are least likely to receive Doppler aided assessment (18). Betty does not live in a deprived area, what might have happened if she did?

Compression bandaging

Betty starts treatment in full compression bandages. Unfortunately the first time that the community staff nurse applies high compression (with a four layer system) Betty finds the bandages too tight and she removes them in the middle of the night as they are 'excruciating'.

When the community staff nurse visits two days later to assess Betty's leg she finds that Betty won't contemplate going back into 'those horrible bandages'. The nurses therefore apply compression using a two layer compression system, which needs replacing every four days or so (she now needs two visits a week) and which is keeping the leg from swelling too much (but doesn't get it back to pre-ulcer size and shape).

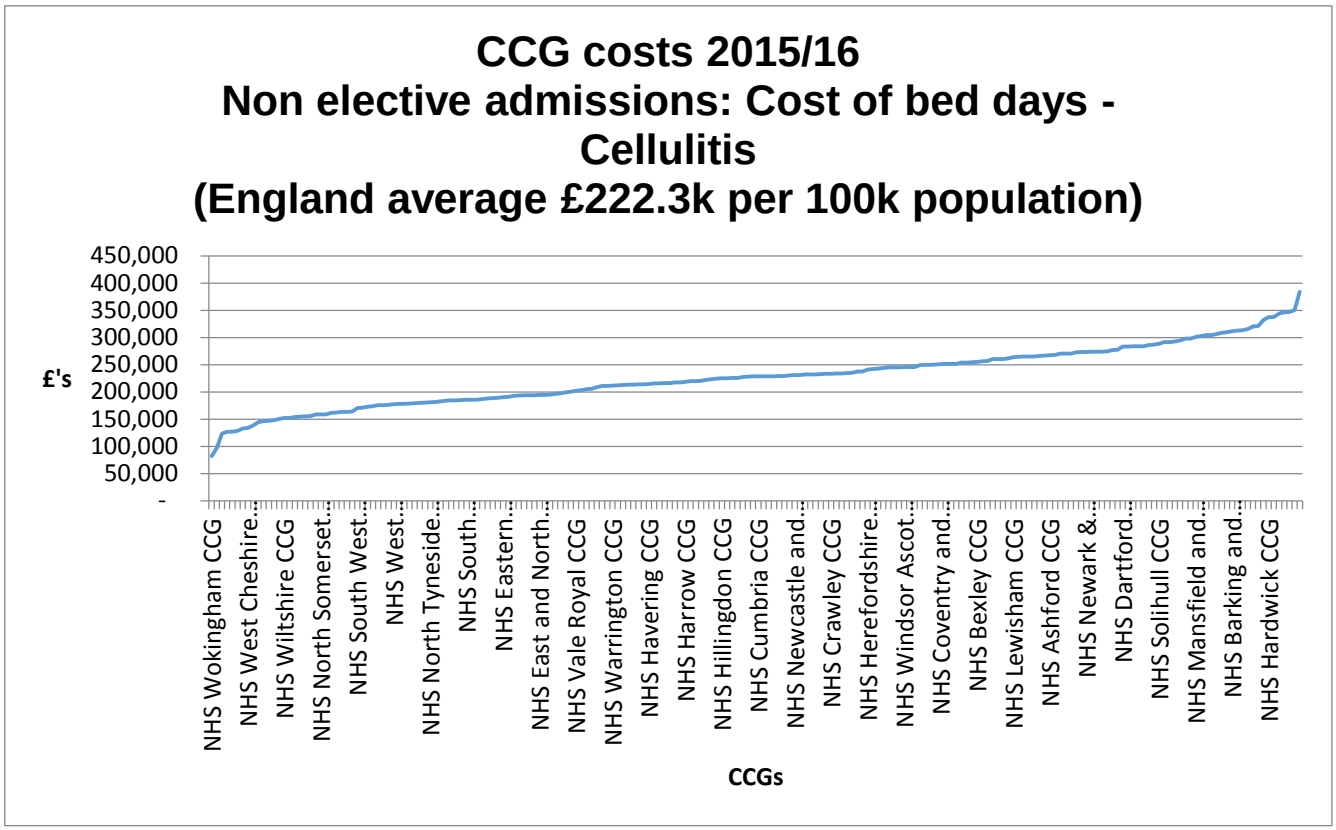
Cellulitis

Betty's leg starts to weep from lots of places in her leg and now requires additional padding and daily visits for two weeks. At the end of the second week the community staff nurse sees that Betty's leg is hot to the touch, swollen and still leaking fluid. Following a discussion with the GP Betty is admitted to hospital for five days in an ambulance for IV antibiotics for cellulitis in early January when there is limited bed capacity.

Cellulitis is an ambulatory care sensitive condition (ACSC). These are conditions for which effective management and treatment should prevent admission to hospital. They can be classified as: chronic conditions, where effective care can prevent flare-ups; acute conditions, where early intervention can prevent more serious progression.

Consider looking at admissions to hospital for cellulitis and lower limb ulcers.

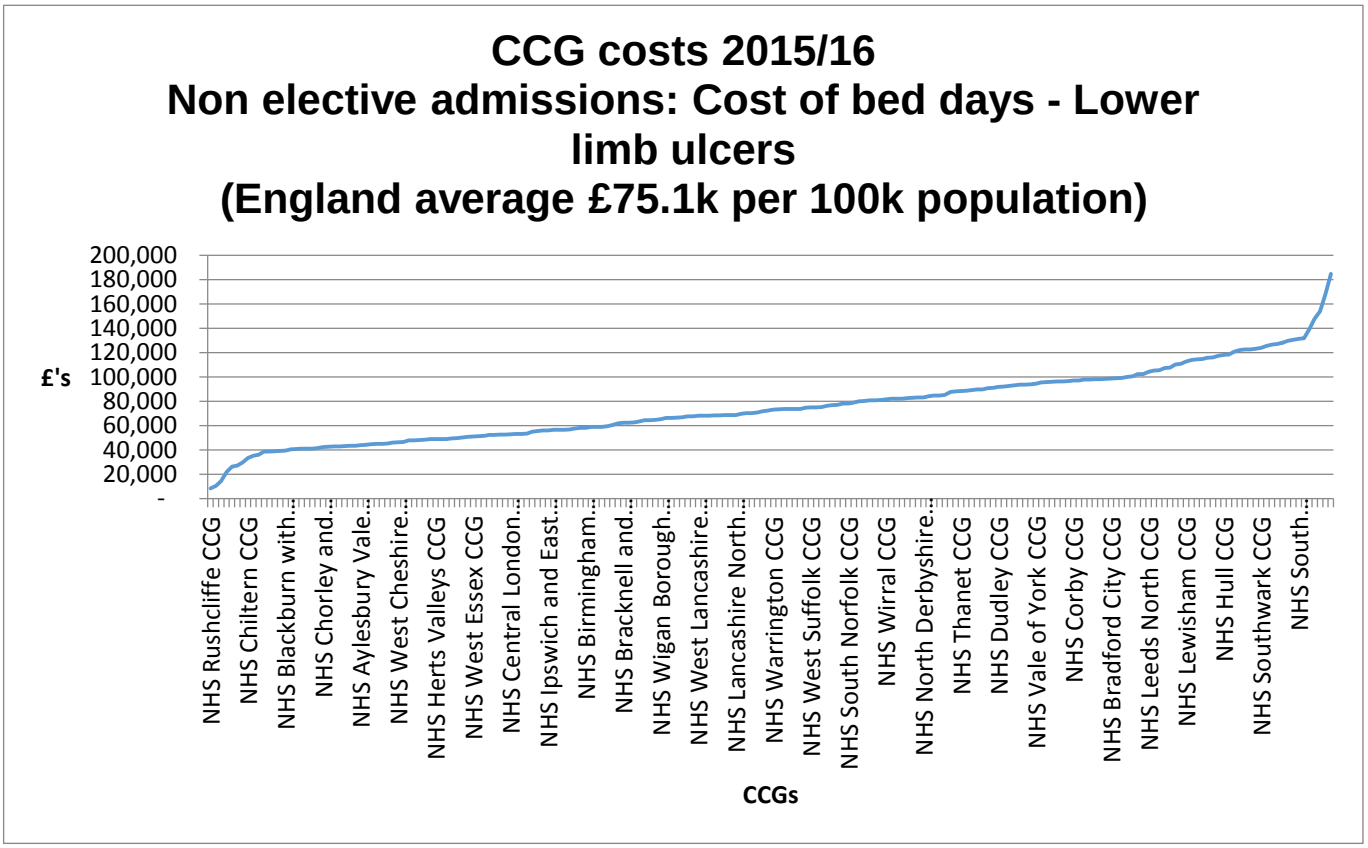
Chart 1: Non elective admissions: Cost of bed days - Cellulitis



Please note the above table includes admissions L03.0 – Cellulitis of finger and toe, L03.1 - Cellulitis of other parts of limb, L03.8 - Cellulitis of other sites, L03.9 - Cellulitis, unspecified. Only some CCG names are shown due to space limitations. (SUS Data Queries 15/16 data)

Most interventions for the treatment and care of leg ulcers will occur in the community but there are large variations in the costs for non-elective admissions per CCG from £8k to £184K.

Chart 2: Non elective admissions: Cost of bed days - limb ulcers



(SUS Data Queries 15/16 data)

On returning home Betty's leg is still sore and weeping and requiring daily visits.

Two years later

It takes two years to heal Betty's ulcer with a reduced compression system that she doesn't find uncomfortable.

Over this time different nurses decide different dressings are better as each nurse has his/her own preference despite there being a wound formulary to follow. Sometimes the pharmacist doesn't have the dressings needed and Betty has to wait. This inevitably leads to a change in dressing type whilst she waits. In the meantime her arthritis is getting worse and the pain in her knee is increasing. She is almost housebound due to the arthritic pain in the year before she gets to her knee replacement.

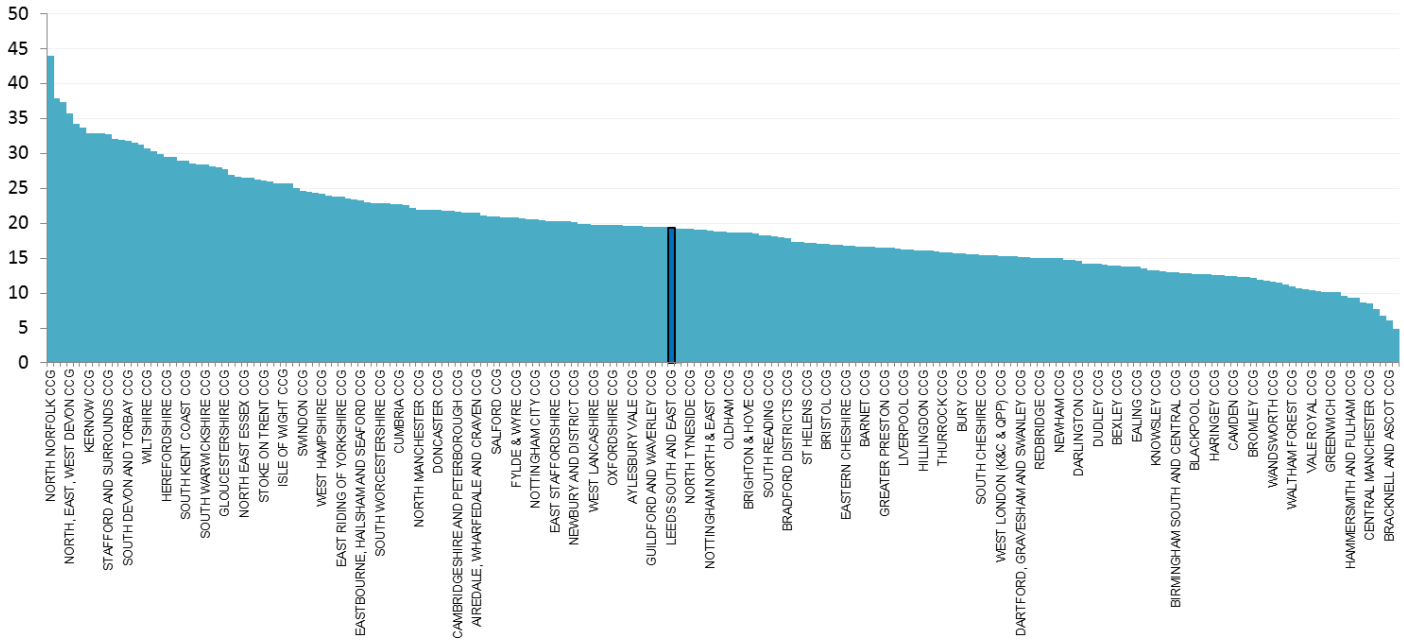
Betty is lucky and does not have reoccurrence of her leg ulcer, despite not being prescribed compression hosiery to wear afterwards.

Compression hosiery is recommended to prevent reoccurrence of a venous leg ulcer once a leg ulcer has healed. (8)

See the chart below to see the variation in spend on compression hosiery across CCGs.

Chart 3: Spend on compression hosiery

Spend in £000s per 100,000 of the population on compression hosiery 2015/16 [2]



Leeds South and East CCG (highlighted) is the CCG that is closest to the average of all 209 CCGs spend, which is £19.3k.

[2] Data relates to the 15/16 financial year from ePACT (Electronic Prescribing Analysis and Cost) . The patient list size field will show the list size as of the final quarter of 2015/2016 financial year. As Compression Bandages do not have their own BNF chapter in MDR, the Compression Bandages data has been compiled by running a report under BNF Section 20,02 and then filtering the results for the BNF name containing the word 'comp'. The data is based on what was prescribed in England and may include items prescribed in England which have been dispensed in England, Wales or Scotland. Please note this means that if a prescription was issued, but not presented for dispensing or was not submitted to NHS Prescription Services by the dispenser, then it is not included in the data provided.

The scale of the issues raised in this scenario

Sadly Betty's case is not unique. Research has shown a lack of evidence-based wound care (lack of differential diagnosis for all wounds), treatment on occasions not meeting approved guidelines (few Doppler tests being performed), lack of senior engagement in wound care delivery and a lack of continuity and consistency of wound care and treatment planning. (7)

Questions for commissioners, GPs, providers and nurses to consider

- Do you know how many venous leg ulcers there are for your population?
- What are the healing rates for venous leg ulcers in your locality?
- Do you know how many of these have had an ABPI measurement to support diagnosis and treatment?
- Who delivers care to people with leg ulcers?
- What is the cost of managing leg ulcers in your locality?
- Is there unwarranted variation in treatment and outcomes? How do you know?
- What are the barriers to seamless care for people with leg ulceration?
- Is investment needed or reorganisation of care needed?
- Has any engagement activity taken place with patients with regards to wound care?
- Do you already have valuable local data around patient experience and outcomes for wound care in your area?
- How could this local data be used to identify and drive improvements?

What are the implications for wound care generally?

- How is wound care commissioned? Is it via a block contract? How is quality demonstrated and reported and improved upon?
- What are the challenges preventing delivery of good evidence-based wound care?
- Do you have an agreed wound care formulary and is it evidence based?
- How are dressings procured and managed?
- How could the savings be reinvested to improve overall outcomes?
- When wounds do not heal in an expected timescale is there sufficient expert resource to refer people to or get advice?
- What other indicators are there that you could use to look at your local economy?
- Can you afford not to look at this to improve outcomes, experience and better use of resources?

Considering these questions will start to identify what needs to change to move towards optimal wound care locally.

CQUIN

The CQUIN scheme 2017/19 is intended to deliver clinical quality improvements and drive transformational change. With these objectives in mind the scheme is designed to support the ambitions of the Five Year Forward View and directly link to the NHS Mandate. One of the areas of focus is on clinical quality and transformational indicators.

13 indicators have been defined which aim to improve quality and outcomes for patients (including reducing health inequalities), encourage collaboration across different providers and improve the working lives of NHS staff. One of these indicators is indicator 10 - for community service to place a greater emphasis on wound care leading to better patient and system outcomes.

To achieve the ambitions both individual provider contributions and cross community collaborations have a part to play. By doing so the NHS will deliver better quality standards for patients.

NHS RightCare focus packs

The NHS RightCare focus packs for cardiovascular disease (CVD) enable CCGs to look in granular detail at the data collected from comparable CCGs for specific parts of the CVD pathway. There are three examples of comparable data that could be relevant to this scenario:

These are:

- Diabetes amputation
- Amputation above knee
- Amputation below knee

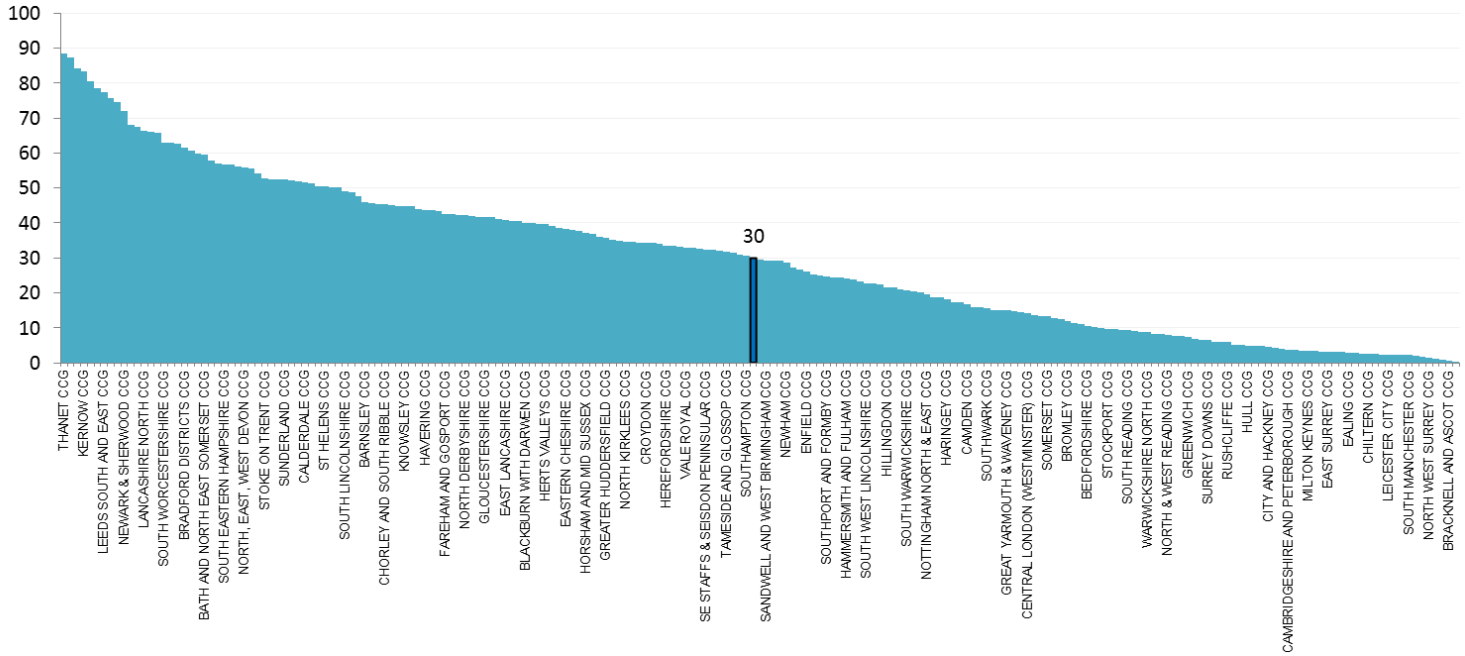
NHS Benchmarking

NHS Benchmarking (8) have reported that in the 2016 annual audit of district nursing activity, 39% of clinical time by the service is spent in wound care. The detail for leg ulcer care is not available. An estimate can be made using additional research which suggested that 20% of the wound care work was venous leg ulcers (6). Therefore approximately 8% of the whole district nursing workforce time is spent on venous leg ulcers and 2.1 million visits annually. (7)

There is also a variation in spend on compression bandaging and hosiery (Chart 3) from prescribing. Some of the spend variation may be due to some CCG areas procuring dressings centrally from a supplier, therefore the costs will not be included here. The highest spend in compression bandaging is £88,000 (Chart 4) and the highest spend in elastic hosiery is £44,000 (Chart 3).

Chart 4: Spend on compression bandages 15/16

Spend in £000s per 100,000 of the population on compression bandages 2015/16 [3]

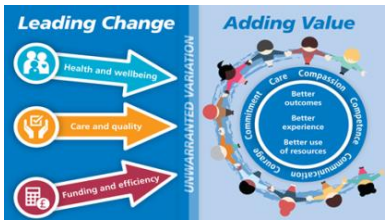


Harrow CCG (highlighted) is the CCG that is closest to the average of all 209 CCGs spend, which is £30.1k.

[3] Note: Data relates to the 15/16 financial year from ePACT (Electronic Prescribing Analysis and Cost). The patient list size field will show the list size as of the final quarter of 2015/2016 financial year. As Compression Bandages do not have their own BNF chapter in MDR, the Compression Bandages data has been compiled by running a report under BNF Section 20,02 and then filtering the results for the BNF name containing the word 'comp'. The data is based on what was prescribed in England and may include items prescribed in England which have been dispensed in England, Wales or Scotland. Please note this means that if a prescription was issued, but not presented for dispensing or was not submitted to NHS Prescription Services by the dispenser, then it is not included in the data provided.

What could have happened differently? Betty's optimal care pathway

The framework for nursing, midwifery and care staff: Leading Change, Adding Value (1) has highlighted unwarranted variation in wound care. Nurses, midwives and care staff have an opportunity to decrease variation and to reduce the health and wellbeing gap, the care and quality gap and the funding and efficiency gap to deliver better outcomes, experience and use of resources through improved wound care.



Betty's journey starts at the same time, but her experience is very different.

NHS health check

When Betty is 70 she is invited by her GP practice to have an NHS health check, where she sees the healthcare assistant (HCA) who asks her questions about her lifestyle and family medical history, the results of which enable her risk of heart disease, stroke, kidney disease and type 2 diabetes to be calculated. She is also told about the signs and symptoms of dementia and made aware of memory services nearby. The HCA then offers Betty a personalised care and support plan, that explains how Betty could maintain a healthy weight, remain physically active and eat a healthy and well balanced diet to help reduce the risk in the future for her developing cardio vascular disease. The HCA also arranges for Betty to be referred to her local leisure centre as part of an 'Exercise on prescription' programme, to offer some additional physical activity on top of her rambling activity.

There is evidence that there is an increased risk of developing chronic venous insufficiency in those with a higher BMI. (12)

Betty is keen to make sure she sticks to this plan as she is keen to stay both well and independent. Small changes to her diet result in a small weight loss which gives her the confidence to continue with the plan. The HCA is however concerned about Betty's tired and heavy legs, she therefore requests her GPN mentor to review Betty. The request is sent electronically to the GPN and as such Betty is seen immediately. The GPN, who is an independent prescriber, assesses for arterial risk factors.

The GPN prescribes compression hosiery for Betty and arranges for a review every six months for two visits then yearly after that.

The graze

At the start of March when Betty is 74, she grazes the inside of her ankle during a walk; she thinks it might have been going over a stile. She first notices it when her tights stick to the skin a few days later and as she is a self-reliant type of person she manages it herself from her first-aid kit. To keep her compression hosiery from sticking to the graze she puts on a little adhesive plaster and changes it every couple of days, but then decides to take off the hose, as she isn't sure if it could be rubbing the wound and stopping it healing, which she then finds more comfortable despite the oedema in her legs. Betty calls at her local pharmacy for advice and the pharmacist refers to the lower leg wound pathway which has been developed by the Clinical Commissioning Group (CCG), advises her to put her compression hose on and to see her GPN. Betty declines to wear the hose due to the pain in her leg from the wound and being anxious about damaging her wound when putting the hose on and off.

GPN assessment

She makes an appointment to see her GPN the following day who works closely with the district nursing (DN) team.

The GPN dresses Betty's wound with a simple foam dressing and prescribes emollients to be used twice a day to both legs and encourages her to use it as a soap substitute to both lower legs when showering. They discuss the hose and decide to leave it off whilst they work on taking the edge off the pain. The GPN carries out a full assessment of the wound and as she has an excellent relationship with the local district nursing team, they have a discussion about this case as part of their joint clinical supervision. It is agreed that Betty should attend the leg ulcer clinic four days later led by the DN leg ulcer service which is part of the locally commissioned leg ulcer pathway, for a full holistic and leg ulcer assessment. There are specific clinics for full assessments, which include a vascular assessment using a handheld Doppler, to record the ankle brachial pressure index. They assess Betty's pain and advise monitoring and managing this. The analgesia plan is implemented and Betty is reassured to know that she is taking painkillers as part of a clear plan of care and that she won't become dependent on these.

Leg ulcer pathway

Within two days of the referral Betty is commenced on the leg ulcer pathway.

A research study in Canada suggests that despite the shift from home based leg ulcer care to clinic based care to improve healing rates the evidence base is not robust. They demonstrate in their study that it is the organisation of the care that is important. This is with a system supporting evidence based care by trained nurses that enables improved healing rates not the setting. (14)

Doppler

A full assessment is completed at the initial visit to the leg ulcer clinic, including an arterial Doppler and due to the findings of venous flare, varicose veins, good arterial supply (the ABPI is 1.00), varicose eczema around the shallow wound, the appearance and position of the wound on the ankle and a lack of other causative conditions such as diabetes, they conclude that this is a venous leg ulcer, which would be best treated using high compression. A photograph of the wound is taken with the patient's consent and the wound dimensions are recorded. There are no clinical signs or symptoms of infection therefore a wound swab is not taken.

They discuss Betty's treatment goals with her and she states she just wants to get rid of the wound so that she can get back to wearing her walking boots without fear of them rubbing it. She says she would love to have a bath; however the nurse suggests that rather than a bath she has a shower. The district nurse prescribes Betty a waterproof appliance, to protect her leg to enable Betty to have a daily shower.

Betty is advised not to attend the Aqua-fit classes at the swimming pool whilst she has the open wound. She is encouraged to remain as active as possible so replaces Aqua-fit and lunch with a walk to the shops before lunch with friends.

At the leg ulcer clinic, the nurse also explains to Betty that the wound will heal quickly if they start compression early. Betty starts treatment and has a multi layered compression bandaging system applied, giving 40mmHg at the ankle, with a simple non-adherent dressing as the wound contact layer. The nurse has chosen a simple dressing because she wants to avoid having any risk of sensitivity or allergic reactions underneath the compression system. She explains to Betty that evidence indicates that it's the compression therapy which is more important than the choice of dressing.

> Simple non adherent dressings are recommended for the management of leg ulcers and compression therapy increases wound healing rates. (10)

Compression

The nurse applies full compression to Betty's leg at the first visit, ensuring that it is comfortable, she also gives her an information leaflet with advice on venous leg ulcer treatment and wearing compression bandages. The information leaflet is discussed and Betty is advised to take her painkillers regularly, and to remove the top layer of bandages if she experiences any undue pain or discolouration of her toes. Betty has capacity to understand, good eyesight and dexterity as well as full sensation in her legs to be able to do this.

> After initiation of compression patients should be assessed for complications within 24 – 48 hours. A person's concordance with treatment is likely to improve if they are properly informed about the disease and its management. (10)

The following day, Betty returns to clinic for a follow up appointment. She has had a comfortable night and has had no problems with the bandages, she says her leg has felt really comfortable and supported.

Betty attends the clinic the following week.

The nurse asks Betty not to remove her bandages for the first couple of weeks so that she can assess if the bandages are slipping, the level of exudate and leaking through the bandages. At each visit the nurse assesses the ulcer and records its dimensions on a wound assessment chart. Betty can see the wound reducing in size at each visit. The two weeks in compression bandages has improved Betty's leg shape and Betty feels happier to wear a dress with opaque tights now, having taken to wearing trousers over her bandages and swollen leg.

After two weeks in compression bandages the nurse measures Betty's legs for compression hosiery and issues a prescription for two pairs of class 2, below knee compression hosiery. The nurse demonstrates the technique for applying compression hosiery then supervises Betty in putting them on and advises Betty to put cream on her leg to keep it moisturised. Betty is advised that she could have a shower using her emollient as a soap substitute.

A further three weeks later with the compression hosiery and a simple dressing, the ulcer is completely healed. At this visit the skin is still intact, the scar being pink in colour.

> People with a history of VLUs may be unwilling to continue using compression stockings after healing (15) (13). This may be related to a belief that wearing compression stockings to prevent VLU recurrence is not worthwhile. (15)

The nurse discusses skin care and the continued use of emollients. An information leaflet is given regarding compression hosiery, care and use, this is discussed and Betty is given an opportunity to ask any questions.

The nurse discusses prevention in the future and advises Betty that she will have to wear compression stockings all the time to prevent lower leg oedema and further risk of leg ulcers, but also discusses with Betty the option of 'having her veins done' to reduce the risk of developing a new ulcer. The nurse explains that treating veins can now be done with smaller incisions in the leg, but that the surgical team would be able to advise whether Betty's veins would be able to be treated in this way.

Ongoing review

> Guidelines indicate the role of radio frequency ablation in the management of varicose veins - ablation/surgery is appropriate in some patients with venous ulceration. Use the NHS RightCare CVD focus packs to look at your CCG area.

Betty is advised to request a repeat prescription for two pairs of compression hosiery in six months which she can request from her GP. She is also advised to contact the nurses to have an annual Doppler test to confirm that the ABPI remains within the normal limits.

When the district nurse sees Betty for her final visit they both reflect on the success of treatment. The district nurse documents the visit in the care records and discharges Betty from her caseload.

As Betty has been struggling with arthritis she is able to have a knee replacement six months later without a delay in treatment due to her wound. Betty now is able to re-join the rambling club and is back to her old self.

The 'bills' and how they compare

What is the cost of Betty's journey to the NHS and the wider social and economic impacts?

For the financial evaluation we performed 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 reference costs and, where there is a hospital stay, average cost per bed day[4]. We have included the wider social impacts and economic impacts but we have not attempted to cost financially outside of the health remit or the social, emotional, physical and financial costs to Betty herself.

This scenario is using a fictional patient. It is intended to help commissioners and providers understand the implications (both in terms of quality of life and financial costs) of changing the lower leg wound care pathway. 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.

[4] An overnight stay in hospital varies according to location and the type of services needed. Data on NHS costs is not collected by bed day but according to the treatment required. However a hospital stay is estimated to cost £400 per day Data.Gov.uk https://data.gov.uk/data-request/nhs-hospital-stay. The excel spreadsheet designed to cost these scenarios includes full details of cost data sources and is available upon request.

Table 1: Summary of financial costs for both pathways by provider

Analysis by Provider	Sub-optimal	Optimal
Acute	£1,703	£0
Ambulance Service	£466	£0
Community teams	£2,167	£12
Primary Care	£1,334	£346
Pharmacist	£3	£3
Leg ulcer pathway	£0	£144
Grand total	**£5,673**	**£505**

Note: Primary Care and Leg Ulcer Pathway costs are made up of dressings & medication and clinical time.

In the sub-optimal scenario:

- Dressings represent £1,353 (24%) of the total costs versus £88 in the optimal pathway.
- Clinical time represents £2,139 (38%) of the total costs versus £195 in the optimal pathway.

Table 2: Summary of financial costs for both pathways by cost category

Analysis by cost category	Sub-optimal	Optimal
Primary care management	£1,337	£349
Community care	£2,167	£156
Non-elective admissions	£2,169	£0
Grand total	**£5,673**	**£505**

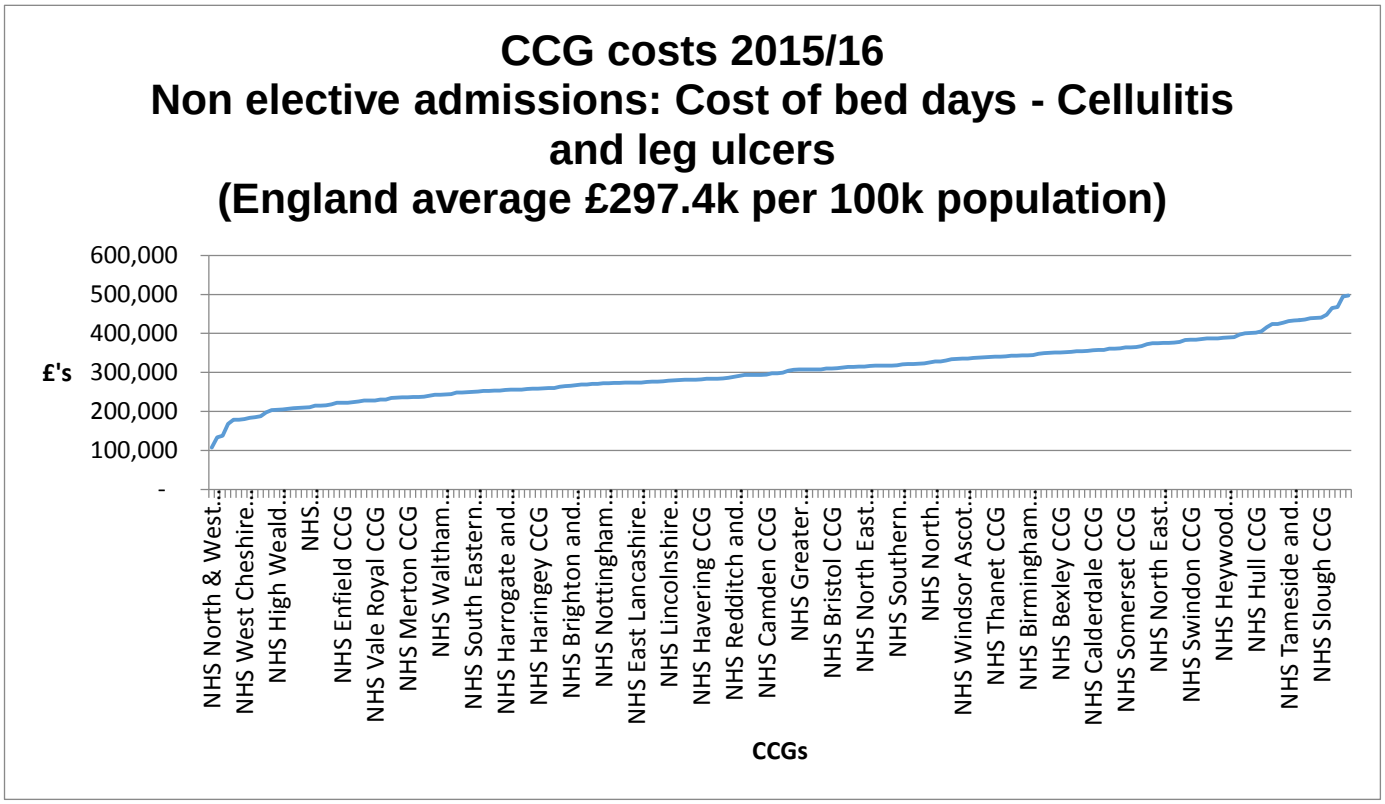
	Sub Optimal Clinical Time	Optimal Clinical Time	Sub Optimal Prevention	Optimal Prevention	Sub Optimal Dressings	Optimal Dressings	Sub Optimal Other
Primary care	£935	£93	£11	£222	£390	£34	£0
Community care	£1,204	£102	£0	£0	£964	£54	£0
Non-elective admissions	£0	£0	£0	£0	£0	£0	£2.169
Total	**£2,139**	**£195**	**£11**	**£222**	**£1,354**	**£88**	**£2,169**

Note: The sub-analysis (Clinical time, Dressings and Prevention) table splits have been estimated by NHS England Community Nurse Lead based on clinical experience and typical scenarios.

Betty's health and quality of life is much better in the optimal scenario and the costs to the health economy are reduced 10 fold. Not only this, but the difference in treatment times, range from just under two years to just a few months in the optimal scenario.

The national data would also suggest unwarranted variation too as there is a large overall variation (between £107,000 to £500,000) in CCGs for the cost of non-elective admissions for leg ulcers and cellulitis combined.

Chart 5: Non elective admissions: Cost of bed days - cellulitis and leg ulcers



This is a story that clearly highlights that proactive planning and correct signposting to well trained (and equipped) teams is incredibly important; there is a significant impact on outcomes, quality and finance.

Care can be improved by investigating the root cause of sub-optimal care and working with clinicians to design an improved evidence-based pathway that is appropriately resourced.

NB: References to arthritis related treatments have not been costed as the focus is on wound treatment and the arthritis happens anyway in both scenarios. However, it is included within the case to reflect the human costs associated with the delays caused by the wound delays within the sub optimal pathway.

Think change, Think NHS RightCare

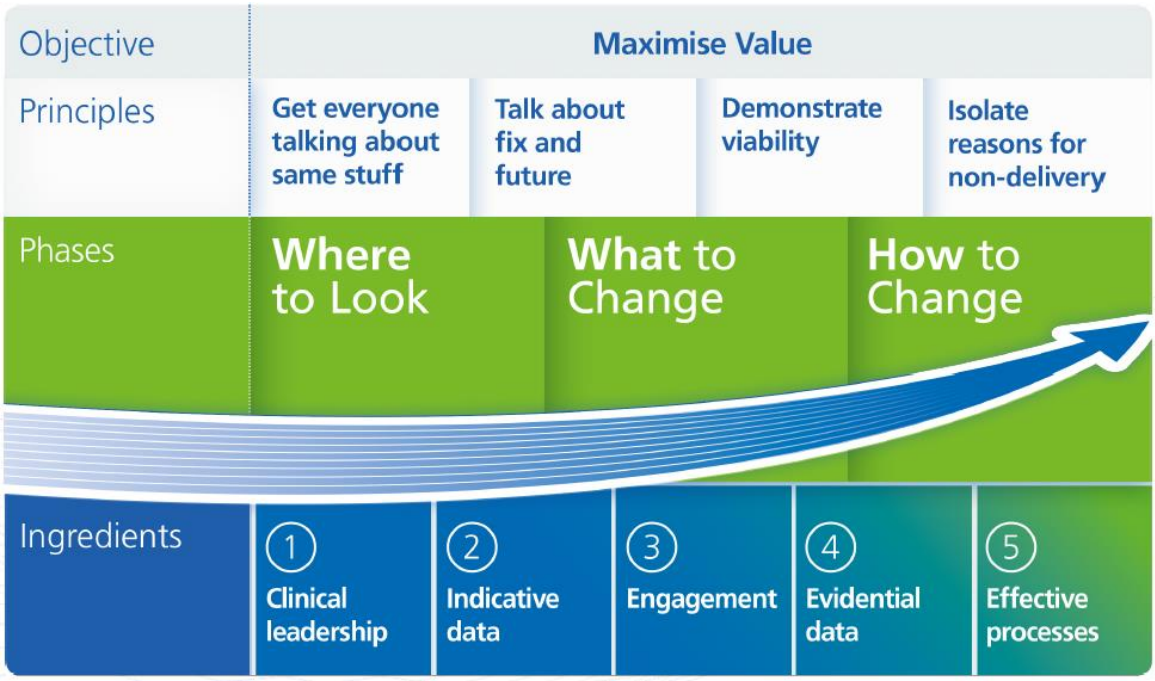
This optimal pathway was understood, tested and created using the proven NHS RightCare approach.

NHS RightCare is a methodology that focuses relentlessly on increasing value in healthcare and tackling unwarranted variation. It is underpinned by intelligence and robust evidence, showing commissioners and local health economies 'Where to Look' i.e. where variation and low value exists. The approach then goes on to support health economies through 'what to change' and 'how to change'. The diagram showing all three key phases is shown below.

NHS RightCare offers facilitation and support to all CCGs and their health economies in implementing the RightCare approach and the developmental thinking, tools and data that enhance population healthcare improvement.

NHS RightCare is a proven approach that delivers better outcomes and frees up funds for further innovation. Please explore our latest Commissioning for Value publications and for more details about our programme visit www.england.nhs.uk/rightcare

You can also contact the NHS RightCare team via email at rightcare@nhs.net



For more information about the Long Term Conditions work at NHS England please contact england.longtermconditions@nhs.net

Leading Change, Adding Value

Leading Change, Adding Value (1) is a framework for all nursing, midwifery and care staff. It can be used by everyone, wherever they work and whatever their role. It has been developed with a wide range of national organisations, staff representatives, people we care for, carers and the public.

Nursing, midwifery and care staff have a crucial role to play in closing the three gaps identified in the Five Year Forward View – the health and wellbeing gap, the care and quality gap, and the funding and efficiency gap, by making sure the activities we do are of high value. The 6Cs remain the value base in all that they do.

The framework highlights the need to focus on unwarranted variation – variations in health and care outcomes, patients' experience and use of resources that cannot be justified by reasons of geography, demography, or infrastructure.

Nursing, midwifery and care staff form the largest proportion of the health and care workforce, they have a key, leadership role in delivering a positive impact on outcomes, experience and better use of resources – the triple aim outcome measures.

Please explore the Leading Change, Adding Value webpages for more details or email england.leading-change@nhs.net

Two slide packs to summarise this scenario – a full length pack and a four page summary – are included as appendices.

This information can be made available in alternative formats, such as easy read or large print, and may be available in alternative languages, upon request. Please contact 0300 311 22 33 or email england.contactus@nhs.net

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