



**THE 20,000 DAYS CAMPAIGN**  
Health System Improvement Guide

# **SKIN INFECTION: Emergency Care/General Surgery /TADU Collaborative**

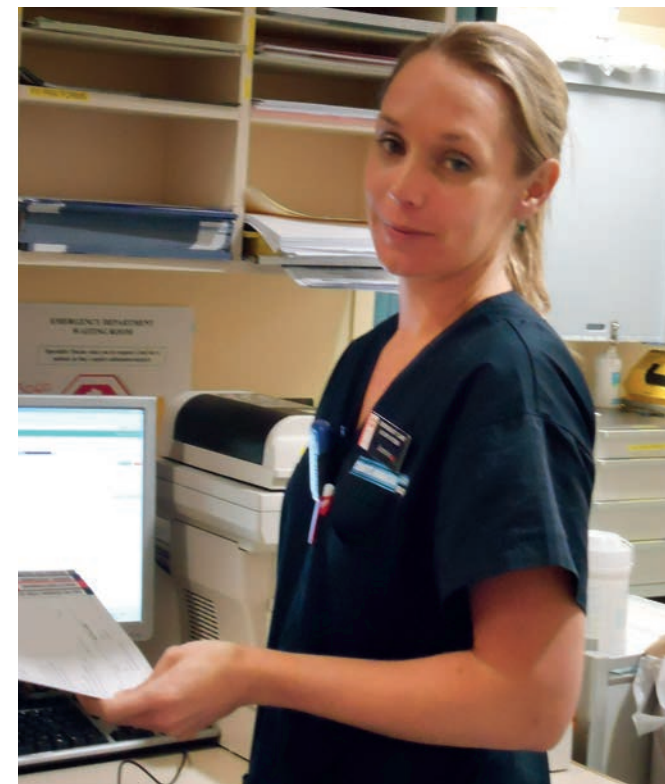
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**Version 1  
December 2013**

**KO AWA TEA**  
HEALTH SYSTEM INNOVATION AND IMPROVEMENT

**COUNTIES  
MANUKAU**  
HEALTH

<b>The 20,000 Days campaign</b> .....	3
<b>Why did we need to do it?</b> .....	6
<b>What was our aim?</b> .....	7
<b>The drivers of change</b> .....	8
<b>What did we do?</b> .....	9
<b>The change package</b>	
Cellulitis Treatment Pathway for adults in Emergency Care .....	10
Clinical specialist nurse for cellulitis and soft tissue infections .....	11
General Surgical Abscess Guideline .....	13
Transfer electronic discharge summary .....	16
Experiences and learning .....	18
<b>The collaborative team</b> .....	19
<b>References</b> .....	20



## Our journey

Health systems worldwide are struggling with rising patient demand and Middlemore Hospital, which serves a growing and ageing population, is no exception. To meet the predicted 5.5% increase in bed days, we needed to save 20,000 days. Counties Manukau Health's 20,000 Days campaign aimed to do this by returning 20,000 well and healthy days to our community.

A whole-of-system approach brought together 13 collaborative teams to build on existing improvement work and deliver care in a different way. The 20,000 Days campaign launched in October 2011, and in May 2012 the collaborative teams came together, using the Institute for Healthcare Improvement's Breakthrough Series Collaborative Model for Achieving Breakthrough Improvement, to test a range of interventions.

By 1 July 2013 the campaign had achieved 23,060 days saved since June 2011, which is a reflection of the difference between the actual bed days used and the predicted growth.

Throughout our journey we also achieved many key successes and learned a lot about the essential collaborative components required to contribute to successful outcomes.

## What worked well for our campaign?

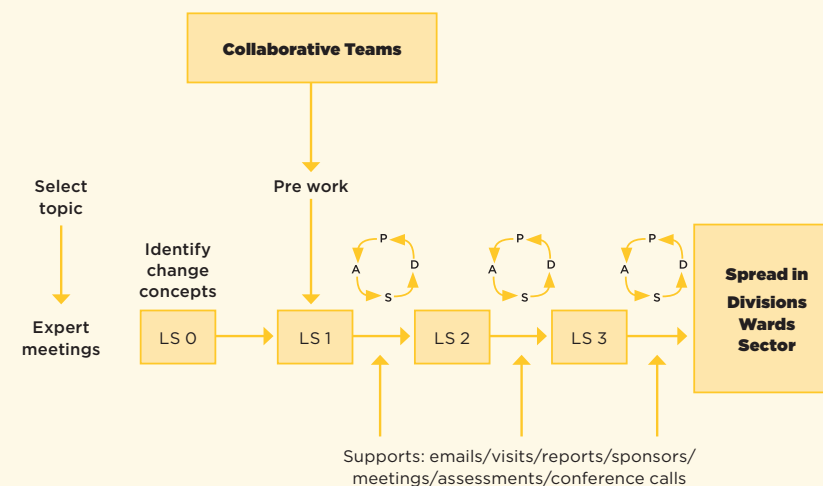
- » Alignment around a common goal
  - › The campaign had a unifying goal to reduce demand on the hospital. This goal recognised we needed to do things differently and all the collaborative teams shared in this goal. In addition, each collaborative had specific aims and change ideas that would ultimately contribute to the overall campaign goal.
- » Leadership and expert support for the collaborative teams
  - › Geraint Martin, CEO Counties Manukau Health, as sponsor and Jonathon Gray, Director Ko Awatea, were involved throughout the campaign to ensure that the vision and milestones were met.
  - › The Ko Awatea campaign team provided support via the campaign manager, campaign clinical lead, collaborative project managers, improvement advisors and a communications co-ordinator.
  - › The campaign partnered with the Institute for Healthcare Improvement and Brandon Bennett, Senior Improvement Advisor at the Ko Awatea faculty, to provide continuous learning and guidance for the collaborative teams.

*What the 20,000 Days campaign has built is a reusable network of skilled, passionate and committed health professionals who have the knowledge, skills and methodology to bring about sustainable change across the health sector.*

**Professor Jonathon Gray**  
Director, Ko Awatea

- » Multi-professional teams working across the health sector
  - › Collaborative teams included health professionals, managers, clinical leaders, project managers, improvement advisors, data analysts and community members.
  - › Teams worked on projects across the sector, including primary care, secondary care and in the community.
- » A structured series of milestones and activities
  - › The Collaborative Model for Achieving Breakthrough Improvement (Figure 1) provided an ongoing series of structured activities to support the teams in their use of the methodology and to promote collaboration between the teams.
  - › During the campaign there were a total of six days of learning sessions attended by 100-120 people. Significant expertise has been built up across the organisation in the improvement methodology.
  - › The collaborative methodology has been proven to work extremely well as a structured way to implement evidence-based practice, and has been enhanced by using local knowledge and skills within the Counties Manukau context.

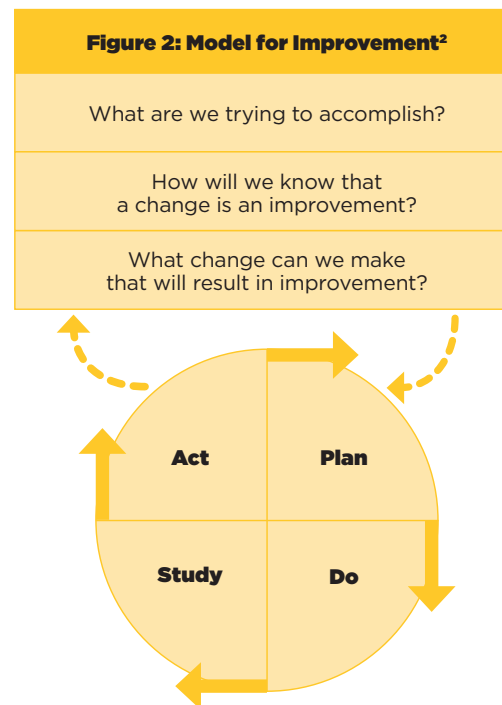
**Figure 1: Collaborative Model for Achieving Breakthrough Improvement<sup>1</sup>**



LS - Learning session

The Breakthrough Series:  
Institute for Healthcare Improvement Collaborative Model  
for Achieving Breakthrough Improvement

- » The Model for Improvement
  - › Each collaborative team applied the Model for Improvement (Figure 2).
  - › Teams then tested their theory of change through Plan, Do, Study, Act (PDSA) learning cycles.
  - › Teams tested many ideas, initially through small tests to gain confidence in their change ideas, then with larger scale tests, before moving to implement changes across the organisation or area of work.
  - › Change packages are captured in the health system improvement guides, to be shared with other health service providers and support improvement initiatives beyond Counties Manukau Health.
  - › Measures have been defined at both the 20,000 Days campaign level as well as for each of the collaboratives. The measures were analysed and displayed monthly on dashboards.
  - › Each collaborative developed a driver diagram showing drivers of change. The driver diagram reflects the team's theories and ideas on the existing system and how it could be improved. This diagram was updated throughout the improvement journey based on lessons learned during the testing of ideas. Some of the ideas failed and were abandoned. Change ideas shown in the final driver diagram (p. 8) reflect successful ideas. These were tested using multiple PDSA cycles before implementation.



## Collaborative Teams

- » Healthy Hearts
- » Safer Medication Outcomes on Transfer Home (SMOOTH)
- » Better Breathing
- » Very High Intensity Users (VHIU)
- » Transitions of Care
- » Early Delirium Identification and Management
- » Enhanced Recovery After Surgery (ERAS)
- » Hip Fracture Care
- » Skin Infection

For further information refer [www.koawatea.co.nz](http://www.koawatea.co.nz)

## What was the problem?

Cellulitis led the top 10 diagnosis-related groups in Middlemore Hospital 2010/2011 for acute bed day utilisation. Every month, an average of 140 adults and 30 children (< 15 years) present to Emergency Care (EC) at Middlemore with this condition. On average, 92 adult patients (66% of presentations) per month are admitted as inpatients. Of these, approximately 52 are admitted to General Surgery Services, which represents 56% of admissions per month. The average number of admissions per month for children with cellulitis is 20. In total, an average of 390 bed days is used each month for cellulitis. This equates to 4,680 bed days per annum for cellulitis patients across all specialties, including 480 bed days for children. It is a predictable and preventable condition that contributes significantly to avoidable hospitalisation and is amenable to better clinical management in the community.



## Initial aims

We established a collaborative that initially aimed to develop and implement a cellulitis pathway within the hospital to reduce the variation in the way antibiotics were used to treat cellulitis and to ensure that Primary Options for Acute Care (POAC) – a service that provides healthcare professionals with access to investigations, care and treatment for patients who can be safely managed in the community – was considered at every opportunity along the treatment pathway. We assumed that improved management of cellulitis patients in primary care could reduce the number of bed days used per year, and could reduce the number of patients presenting to Emergency Care (EC) per year by 5-10%.

However, an audit of cellulitis patient admissions revealed that POAC was already being widely used in general practice to avoid unnecessary presentations to EC, and that patients admitted to hospital were, in the main, appropriate admissions. It became clear that the potential for saving bed days was overstated.

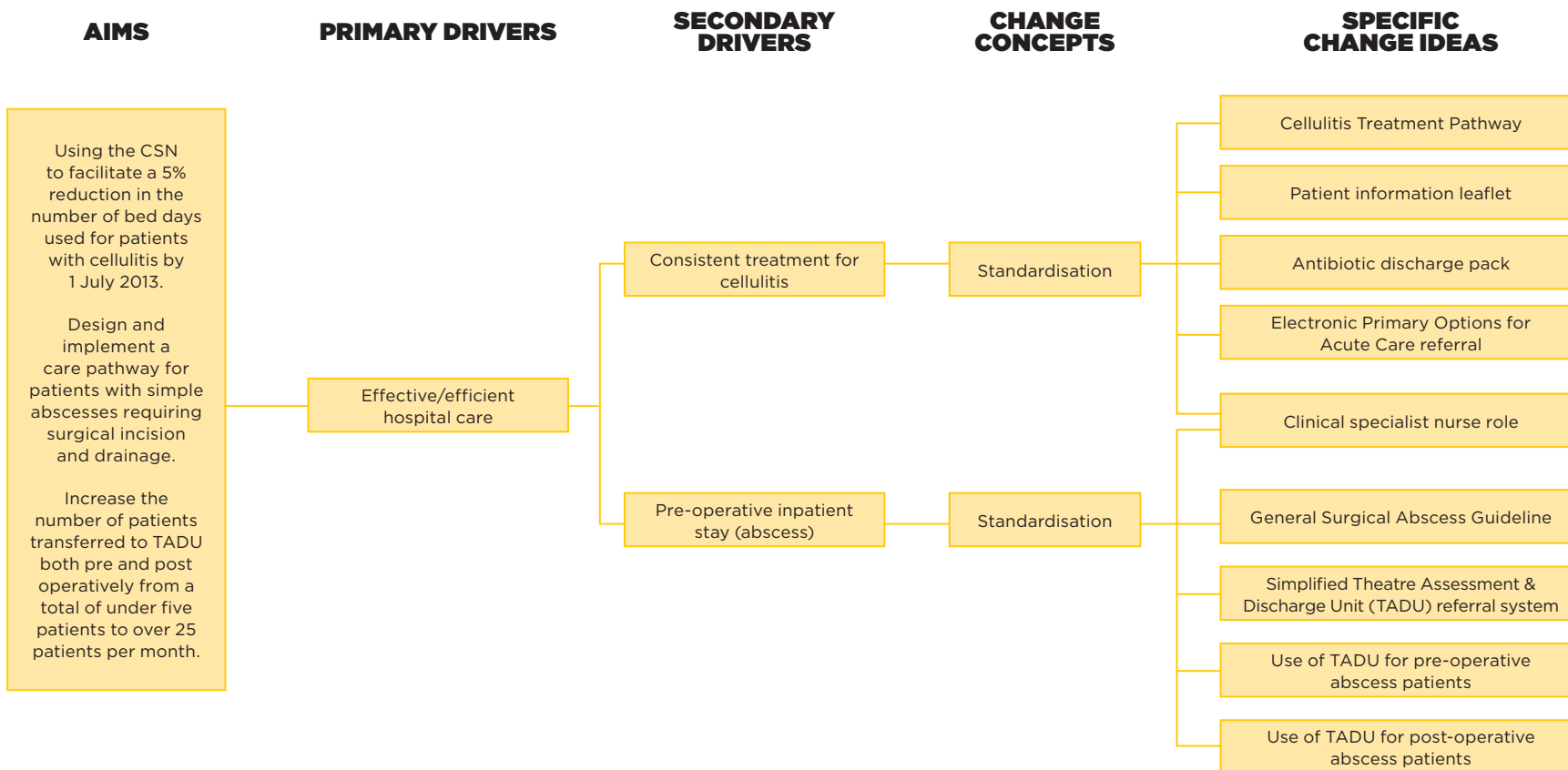
## Division of the collaborative

Data from the audit suggested that some reduction in the average length of stay could be achieved through early discharge to POAC. It also showed that a large number of patients were admitted to hospital for incision and drainage of acute abscesses. We identified potential to reduce inpatient admissions by transferring these patients to the Theatre Admission & Discharge Unit (TADU). This unit was developed to manage all acute and elective day of surgery admissions for all specialities, but was not being utilised effectively for patients with abscesses.

As a consequence, a decision was taken at the beginning of 2013 to divide the original collaborative into two: one to focus on the prevention of skin infections in primary care, and the other on cellulitis inpatients over 15 years of age and the TADU process for patients with simple abscesses. This guide describes the project undertaken by the latter. To reflect the new focus of our collaborative, we changed its name to the Skin Infection: Emergency Care (EC)/General Surgery/TADU Collaborative.

## Revised aims

- » We aimed to design and implement a treatment pathway for patients with cellulitis. The main purpose of the pathway would be to reduce the variation in antibiotics used to treat cellulitis.
- » We aimed to establish a clinical specialist nurse (CSN) in EC to assess and review all cellulitis presentations. Our main objective for the CSN role was to achieve a 5% reduction in the number of bed days used for patients with cellulitis by 1 July 2013.
- » We aimed to increase the number of patients transferred to TADU both pre- and post-operatively from fewer than five to over 25 patients per month, thereby avoiding unnecessary inpatient admissions.





## Cellulitis Treatment Pathway

We developed the Cellulitis Treatment Pathway (p. 10), which introduced a systematic approach to the care and treatment of cellulitis patients at Middlemore Hospital. This drew on the Greater Auckland Integrated Health Network proposals for standardisation of clinical care treatment pathways.

We also developed and implemented a parallel cellulitis pathway incorporating primary and secondary care.

## Clinical specialist nurse: cellulitis and soft tissue infections

We established a clinical specialist nurse (CSN) role for cellulitis and soft tissue infections (p. 11). The CSN was based primarily in the inpatient surgical wards and Emergency Care (EC). The main role of the CSN was to determine whether patients presenting with cellulitis could be most appropriately managed in hospital or through Primary Options for Acute Care.

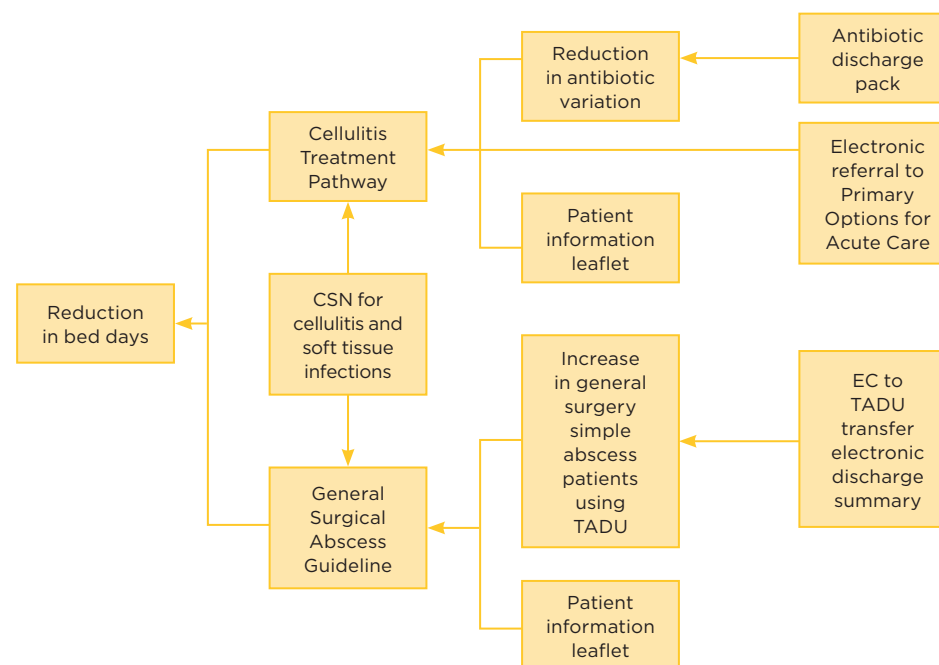
## General Surgical Abscess Guideline

In conjunction with General Surgery Services, we developed an abscess guideline which streamlined the care of patients with simple abscesses requiring incision and drainage (p. 13).

## Transfer electronic discharge summary

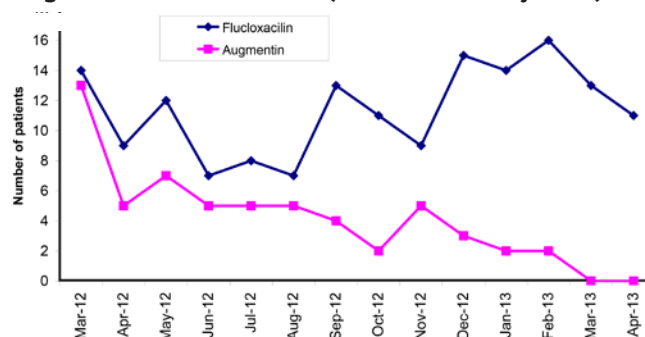
We developed a transfer electronic discharge summary template to facilitate the transfer of patients from EC to Theatre Admission & Discharge Unit (p. 16).

**Figure 3: Skin infection – Emergency Care/General Surgery Services/TADU change package**



# CELLULITIS TREATMENT PATHWAY FOR ADULTS IN EMERGENCY CARE

**Figure 4: Inpatient antibiotics comparing use of Augmentin vs. Flucloxacillin (based on monthly audit)**



## Why the changes were needed

We needed a treatment pathway to streamline the care of patients presenting to Emergency Care (EC) with cellulitis. Variation in the antibiotics prescribed for these patients was a particular problem, with both Augmentin and Flucloxacillin regularly being used. We needed to standardise the antibiotic regime.

## What we did differently

- » We introduced a cellulitis pathway to achieve a reduction in antibiotic variation.
- » We developed a patient information leaflet.
- » We introduced an antibiotic discharge pack.
- » We introduced electronic referral to Primary Options for Acute Care.

## How we know we have made a difference

Variation in antibiotic usage has reduced significantly with the increased use of Flucloxacillin, the drug recommended in the Cellulitis Treatment Pathway (Figure 4).



Cellulitis

## The things that helped

The support of EC staff, particularly the senior doctors, was crucial to the successful implementation of the cellulitis pathway. The pathway was also endorsed by the heads of General Surgery Services and Infectious Diseases.

## The evidence that supports what we did

Campbell *et al.* found that patients treated in accordance with a cellulitis guideline had similar outcomes to those treated otherwise, but at a significantly lower cost.<sup>3</sup> This study shows that efforts to encourage compliance with the guideline are indicated. In addition, the implementation of a guideline for the management of inpatient cellulitis and cutaneous abscess leads to shorter durations of more targeted antibiotic therapy and decreased use of resources without adversely affecting clinical outcomes.<sup>4</sup>

# CLINICAL SPECIALIST NURSE FOR CELLULITIS AND SOFT TISSUE INFECTIONS

## What we did differently

In November 2012, a clinical specialist nurse (CSN) for cellulitis and soft tissue infections was appointed to assist in the management of inpatients with skin infections. Based at Middlemore Hospital, the CSN collaborated with key clinical personnel as the project team developed change ideas and then promoted the changes in the clinical setting.

## How we know we have made a difference

The CSN for cellulitis and soft tissue infections soon began to have a positive impact on the number of patients either discharged to Primary Options for Acute Care or transferred to the Theatre Assessment & Discharge Unit (TADU) pre-operatively or post-operatively following incision and drainage of their abscesses (Table 1). From November 2012 to September 2013, the CSN assisted in the management of care for 416 patients. She was instrumental in saving 107 bed days (Figure 6, p. 12). She also identified a further 77 possible bed days that could have been saved, which suggests there is potential for further savings. We anticipate that the potential for bed day savings will increase as the CSN role becomes more established and links with the general surgical service become stronger.

## The things that helped

The position of clinical specialist nurse for cellulitis and soft tissue infections was funded by the 20,000 Days campaign for one year.

Table 1: Clinical specialist nurse – patients seen/referred/bed days saved

	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	
NP's, EC & Wards	12	37	49	43	6	43	54	51	43	20	58	416
Abscesses	3	15	11	9	2	23	43	42	35	18	46	247
Cellulitis	7	21	37	30	4	16	10	8	8	2	7	150
Other	2	1	1	4	0	4	1	1	0	0	5	19
Follow ups	0	21	53	45	5	27	36	40	26	9	44	306
Referrals to TADU	1	4	3	0	1	6	12	9	11	11	12	70
Referrals to POAC	0	2	4	2	0	4	0	0	1	0	0	13
MDT Referrals	2	13	35	38	6	17	23	13	24	11	29	211
Bed days saved (Inc early DC from Wards)	1	7	5	9	2	16	14	15	13	12	13	107
Abscesses	1	4	1	4	1	13	14	11	11	12	13	85
Cellulitis	0	3	4	5	1	3	0	4	2	0	0	22
Potential Bed days						8	22	16	13	1	17	77
Abscesses						4	16	13	13	1	17	64
Cellulitis						4	6	3	0	0	0	13

## The evidence that supports what we did

The effectiveness of clinical specialist nurses is well established in the literature. LaSala *et al.* sum it up as:

The role of the clinical nurse specialist is critical to improving patient care and staff development and linking professional practice to evidenced-based outcomes at the patient, unit, and organizational levels. Today more than ever, the role of the clinical nurse specialist is vital to insuring the provision of quality patient care. As a member of the leadership team, the clinical nurse specialist is able to directly affect patient care by responding to the needs of the patient, novice clinician, and expert practitioner.<sup>5</sup>



Heather Lewis, CSN for cellulitis and soft tissue infections

Figure 5: Number of bed days saved by the clinical specialist nurse

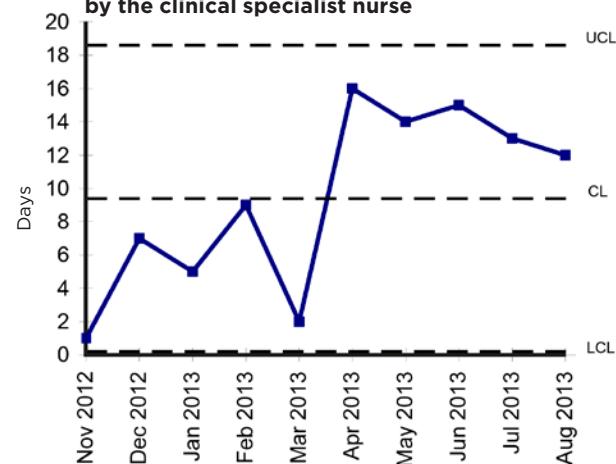
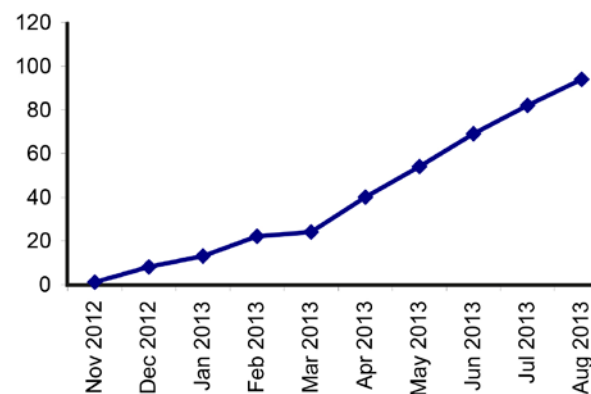


Figure 6: Cumulative bed days saved



## Why the changes were needed

Patients with simple abscesses requiring incision and drainage were being admitted to hospital, primarily as a result of lack of awareness on the part of admitting doctors about the option of using the Theatre Admission & Discharge Unit.

In addition, most patients with simple abscesses were receiving systemic antibiotics, which is rarely necessary.<sup>6</sup> This was not only an inefficient use of resources, but also contributed to the effect of over-prescribing antibiotics and increased the likelihood that patients would remain in hospital for longer.

## What we did differently

We created the General Surgical Abscess Guideline (Figure 7, p. 14) in consultation with clinicians in Emergency Care and General Surgery Services. The guideline advocated the use of TADU for patients who present with simple abscesses requiring surgical incision and drainage. The guideline also discouraged the routine prescribing of antibiotics for systemically well abscess patients. It was approved in April 2013.

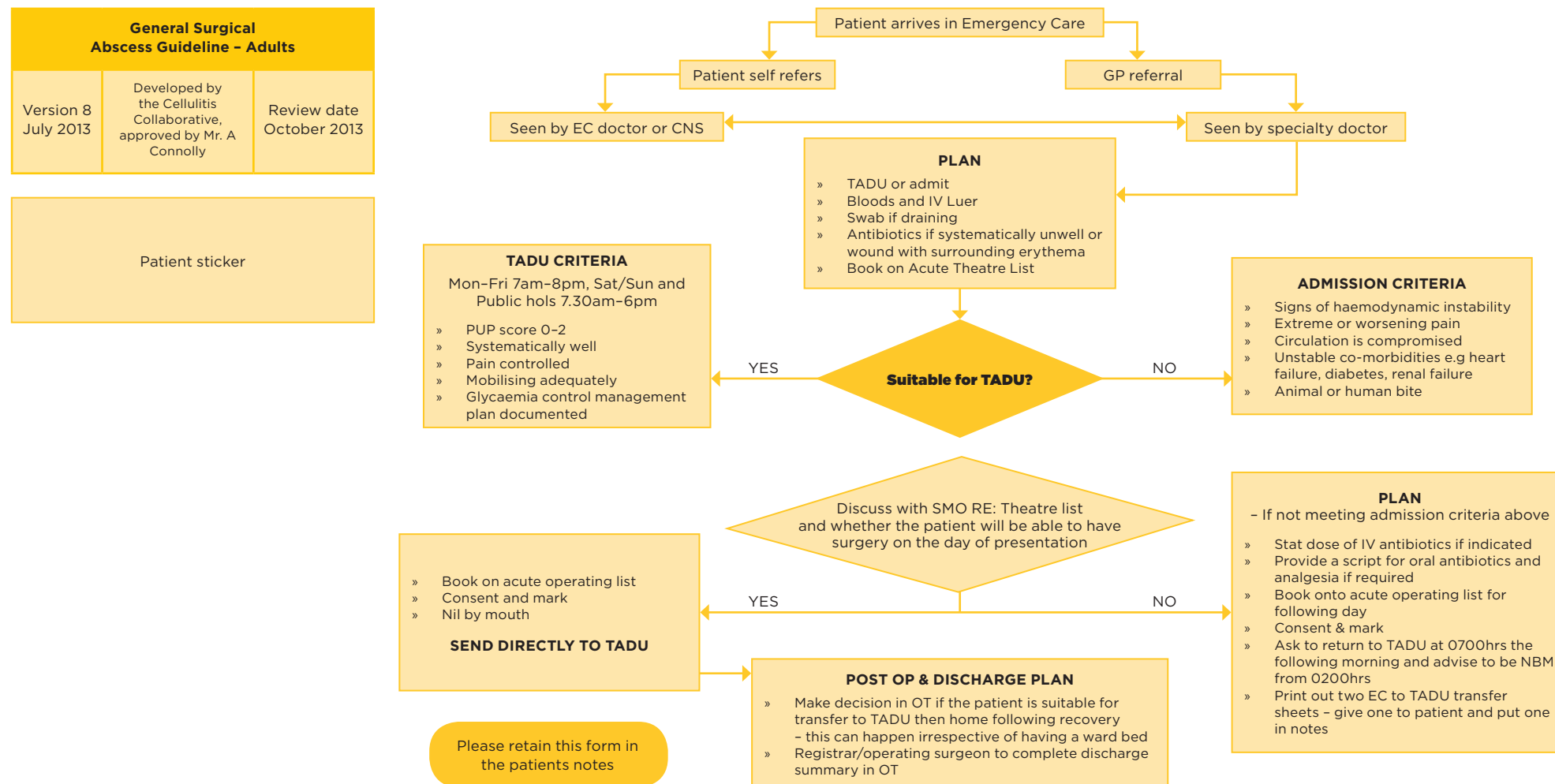
The CSN for cellulitis and soft tissue infections actively promoted the guideline among EC, General Surgery and theatre/recovery staff. Laminated copies of the guideline



*Abscess*

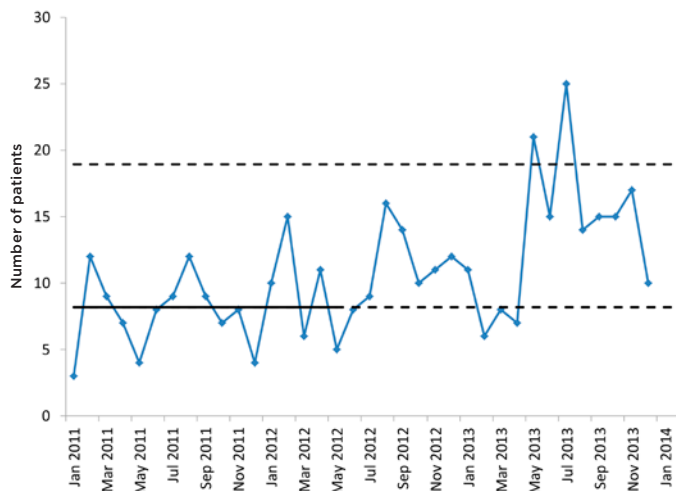
were displayed in areas visible to doctors. We also tested placing a copy of the guideline in patient notes to act as a further prompt, but abandoned this practice as it became evident that placement in the notes was ineffective because the guideline was being lost among other paperwork. The guideline has been embedded successfully in practice.

Figure 7: General Surgical Abscess Guideline





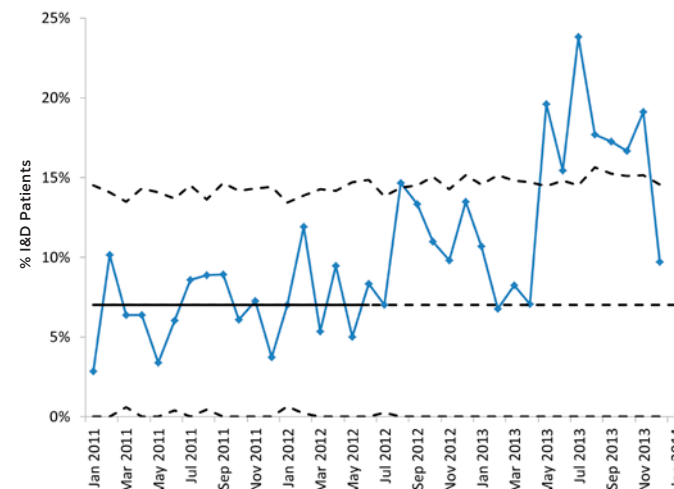
**Figure 8: Number of incision and drainage patients entering operating theatres via TADU or directly from EC**



### How we know we have made a difference

The guideline was introduced in July 2013. There has been a significant increase in the number of patients with abscesses being admitted to theatre via EC or TADU from July 2013 onwards (Figures 8 and 9).

**Figure 9: Percentage of incision and drainage patients entering operating theatres via TADU or directly from EC**



### The evidence that supports what we did

Loftus and and Watkin established a day case service for surgical treatment of superficial abscesses which was found to be efficient and safe.<sup>7</sup> The study concluded that day surgery had important implications for the management of abscesses.

## Why the changes were needed

One of the obstacles we had to overcome in increasing the utilisation of TADU was the need to complete a full electronic discharge summary (EDS) in Emergency Care prior to the patient being sent home, only to return to TADU for treatment the following day.



Operating theatre reception area

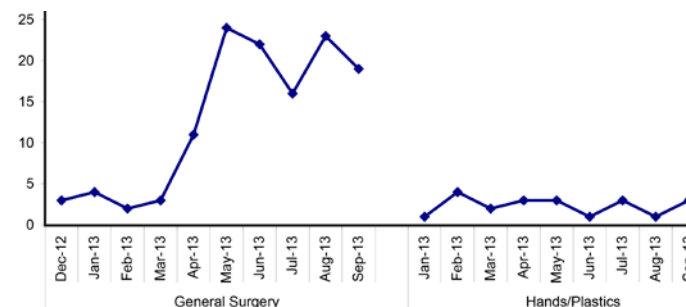
## What we did differently

We streamlined the discharge process by replacing the EDS with a transfer EDS template, which is a simple one page electronic document summarising the patient's diagnosis and treatment plan. This is a more efficient option for doctors than completing a full EDS.

## How we know we have made a difference

Following the introduction of the transfer template and the CSN for cellulitis and soft tissue infections, there was a significant rise in the number of patients with abscesses presenting to TADU (Figure 9).

Figure 9: Total number of patients with abscesses through TADU per month



This template has been so successful that other specialties have now begun using it to document the patient journey from EC presentation to TADU for surgery.

## The evidence that supports what we did

The potential for timely, appropriate and consistent electronic information transfer processes to improve healthcare delivery, support patient care and strengthen the link between acute and primary care is acknowledged in the literature.<sup>8, 9</sup> McKenna identifies a gap that often exists between the evidence needed to support the best informed care decisions and the information available to the clinician at the time and place those decisions need to be made. He argues that improving information 'liquidity' through systems that facilitate the flow of information is a prerequisite for person-centred healthcare: 'This flow of information can then follow patients from care setting to care setting along the patient care pathway, supporting a shared decision-making process that involves patients, clinicians and care teams.'<sup>8</sup>



Figure 10: EC to TADU transfer EDS – quick guide\*

**There is now a 'cut down' version of the EDS available for patients being discharged from EC and who are to return to TADU in the morning:**

The template is available from within your normal template by clicking the [EC - TADU Transfer](#) link on the right hand side

\*\*\*\*\*ATTENTION GP\*\*\*\*\* IF THIS PATIENT IS NOT ENROLLED IN YOUR PRACTICE OR IF YOU BELIEVE THAT YOU HAVE RECEIVED THIS INFORMATION IN ERROR PLEASE RETURN THE LETTER TO OUR CLINICAL RECORDS  
DEPARTMENT FAX NO 09 276 0159 OR 09 276 0236

**Counties Manukau District Health Board**  
Middlemore Hospital  
**Transfer of Care to GP**  
**General Medicine**  
(General Medicine -)

**Mr Cold River Forester POWER**  
[DoB: 01/06/1945] Female  
3 The Link

**To:** Dr Mick (Michael) M Eason  
Cnr Queen & East Streets, Papakura, Auckland 2110  
New Zealand  
Ph: (09) 298 0778

The layout and sections in a document are based on the episode type and the specialty templates are available, they vary by title. It is not possible to select previously been finalized. 3 templates are defined for the document type:

- Deceased Patient
- **EC - TADU Transfer**

Complete the template appropriately and finalise as usual. Give the patient a copy as it contains nil by mouth instructions and directions to TADU.

**Counties Manukau District Health Board**  
Middlemore Hospital  
**Medical Record**  
**General Medicine**  
(EC - TADU Transfer)

**Mr Cold River Forester POWER**  
[DoB: 01/06/1945] Female  
3 The Link  
Howick, Auckland 2010  
Ph: 09 276 4444

**To:** Dr Mick (Michael) M Eason  
Cnr Queen & East Streets, Papakura, Auckland 2110  
New Zealand  
Ph: (09) 298 0778  
**Cc:**  
**Discharged To:**

**First Admitted:** 03/09/2012 10:32  
**Discharged On:** 03/09/2012 10:32  
**Admitted:** 03/09/2012 10:32  
**Ward/Location:**  
**Discharge Method:**

**Advice To Patient**  
Please present to Theatre Admission and Discharge Unit (TADU), Level 1, Galbraith Building (Building 1)

**Instructions**  
**Nil by Mouth Instructions**  
Please do not have any food, water, sweets (lollies) or chewing gum from 2 am

**Arrival Time**  
Please arrive in TADU at 7 am tomorrow morning

\*Patient details used in this figure are fictitious.

Data needs to be accurate and requires ongoing clinical input to validate.

Cellulitis can be categorised as simple or complex. There are not many bed days to be saved in the complex cellulitis group and most simple cellulitis is effectively managed in the community using Primary Options for Acute Care.

There is an opportunity to improve the utilisation of TADU for general surgery patients with simple abscesses requiring surgical incision and drainage.



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