Cellulitis: Length of Stay Project
NSLHD
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Case for Change

- Average Length of Stay (ALoS) for patients with primary diagnosis of Cellulitis (DRG family J64) at RNSH is 4.1 days.
- General Medicine has 44.8% of the total cellulitis episodes, which is 51.4% of total bed days occupied.
- ALOS for General Medicine Speciality is 4.4 days.
- RNSH could save 535 bed days annually.
- Increased risk of adverse events with each additional day.

Hauck K, Zhao X, 2011, How Dangerous is a Day in Hospital? A Model of Adverse Events and Length of Stay for Medical Inpatients, Medical Care, Vol:49, ISSN:0025-7079, Pages:1068-1075.
A 34 year old female, single mother of a 5 year old girl, presents to RNSH with right ear cellulitis. She was discharged from hospital 5 days later following a course of IV antibiotic treatment and a number of investigations from ENT and Rheumatology.

- “I’ve felt well enough to go home since I got here! I wasn’t feeling sick when I came in, I just needed to be here for treatment. It’s not fun being stuck in hospital when you’re not feeling sick! I mean my ear is a bit sore and inflamed but I can still get around!”

- “You know, I was in here last year for gallbladder surgery and they sent me out within 24 hours! I felt really sick and I didn’t even feel well enough to go home. This time I’ve have been sitting in here for quite a few days and I feel fine. There is a large disparity.”
Overview of our Project

Project Objective

• To reduce ALoS for DRG family J64 Cellulitis admitted under the General medicine speciality at RNSH from 4.4 days to 2.3 days by December 2015.

![ALoS for DRG J64 at RNSH](chart_image)
What Diagnostics Tools / Methods did we use?

- Analysis of Health RoundTable Data
- Process Mapping Session
- Patient Interviews (7)
- Patient Tagalongs (4)
- Medical Record Audit (32)
- Stakeholder Interviews (3)
- Staff Surveys (14)
**Issues Prioritisation**

<table>
<thead>
<tr>
<th>Low Ability to Influence</th>
<th>High Impact on Patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unrelated Diagnostic Tests Unrelated Consults</td>
<td>Variable IV Abx Treatment Variable Duration of Treatment In Hospital Variable Routine Diagnostic Tests Determining Eligibility and use of Existing Community Services</td>
</tr>
<tr>
<td>No Type Change Request for PICC line Request for Doppler U/S Availability of Infuser</td>
<td>Time to Consults Time to Wound CNC R/V Missed Blood Requests Wound Care in Community</td>
</tr>
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</table>
## Summary of Issues – from the Diagnostic Phase

<table>
<thead>
<tr>
<th>Issue / Focus Area</th>
<th>Measure</th>
<th>#</th>
<th>Root cause analysis</th>
<th>Impact</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnostic Tests and Course of Treatment</strong></td>
<td>LOS varies by different treatment pathways and diagnostics tests used</td>
<td>1</td>
<td>There is a lack of consensus on the routine diagnostic tests required for cellulitis patients</td>
<td>See table Medical record Audit (Row 3-6)</td>
<td>M</td>
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<tr>
<td></td>
<td>2</td>
<td>Standard guidelines of IV antibiotic therapy are not always used (Due to difference in Clinician training and difference in opinion for treatment , also see No. #5)</td>
<td>41% of patients on different treatments</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>There is no standardised treatment pathway for Cellulitis patients at RNS</td>
<td>65% indicate that no pathway is used</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td><strong>Decision that Patient is Responding</strong></td>
<td>LOS varies based on decision that patient is responding to treatment</td>
<td>4</td>
<td>There is a lack of consensus on the duration of IV antibiotic treatment prior to determining the patients response</td>
<td>57% of Consultants wait over 2 days</td>
<td>M</td>
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<tr>
<td></td>
<td>5</td>
<td>Not all Medical Staff are aware of current therapeutic guideline recommendations for duration of IV antibiotic treatment for Cellulitis patients</td>
<td>24 hours to Full course (varies)</td>
<td>H</td>
<td></td>
</tr>
<tr>
<td><strong>Decision if Eligible Discharge</strong></td>
<td>LOS varies based on decision that patient is eligible for discharge</td>
<td>6</td>
<td>Staff are unaware of infuser options and current processes for patients to facilitate discharge</td>
<td>79% state cause of delay is administration of IV antibiotic</td>
<td>H</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Staff are not aware of admission criteria for APAC services</td>
<td>35% of Medical Staff do not feel informed</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Staff are not aware of services available to treat wounds in community</td>
<td>29% feel patients should not require wound care criteria for discharge</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>
Solution Design Techniques

- Information sessions and pamphlets
- Brainstorming sessions
- Literature review
- Benchmarking

Stakeholders:
General medicine consultants, registrars, Interns, Allied health, ID & AMS team, Haematology, Nursing, APAC, ED Registrars, Executive sponsors, Redesign leader

“We can achieve the project aim well before Dec 2015, we can do it by Dec 2014!”
Solutions Prioritisation

<table>
<thead>
<tr>
<th>Ability to Influence</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0</td>
</tr>
<tr>
<td>High</td>
<td>14</td>
</tr>
<tr>
<td>18</td>
<td>27</td>
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</tbody>
</table>

- Education of Medical students regarding antibiotic TG
- Discharge of patient with VTE prophylaxis to eliminate doppler
- Education of Clinicians (at all levels) regarding antibiotic TG
- Standardisation of IV antibiotic treatment in line with Therapeutic Guidelines (TG)
- Standardisation of Diagnostic test
- Categorisation of Patient on presentation e.g IV vs Oral antibiotics
- Standardisation of patient journey regarding antibiotic response and criteria to discharge

Cellulitis Pathway
“I would have liked to have known how long I would be here and then I could have been more prepared. I have to keep asking people to bring me in clothes and it's very frustrating. I'm also a single parent and I have to arrange care for my 5 year old. What I can't understand is if you know how many days IV antibiotics generally take to treat patients how come you didn’t tell me?”
The Desired patient journey or ‘To Be’

1. Admission
   - Standardisation of Diagnostic test
   - Initial Investigations
   - Treatment Initiated
   - Other Investigations
   - Consults
   - Allied Health

2. Decision that Patient is Responding
   - Standardisation of treatment duration and decision making pathway
   - Decision that Patient is Eligible for Discharge

3. ALoS 2.3 Days
   - Discharge
   - Standardisation of Discharge follow up

   - VTE prophylaxis
   - Doppler U/S Ave. 0.86 Days
Summary of key solutions

- Standardisation of Diagnostic test
- Standardisation of IV Antibiotic treatment in line with Therapeutic Guidelines
- Standardisation of patient journey regarding antibiotic response
- Criteria for eligibility for Discharge

Cellulitis Pathway
First Implementation Steps

- Draft of Pathway out for consultation and approval
- Marketing activities e.g. Poster, news letters, information sessions (Senior Nurses meeting, General Medicine education meeting) etc.
- Maintaining momentum!

![Image](image_url)
Implementation plan

• Elimination of ‘the old way’ by implementing a clinical pathway

• Establish reporting through the Decision Support Unit to monitor benefits

• Applying positive and negative reinforcement

• Competition
Key Learning and Barriers

• Learning
  • Good sponsorship
  • Stakeholder management and communication planning
  • Specialty specific clinical data and feedback (Frame of reference)
  • Benchmarking
  • Multispecialty input/consultation

• Barriers
  • Time required for Consultation stage
  • Approval of multiple committees
Any Questions