An innovative, light-touch approach to clinical change management in a tertiary hospital emergency department

Dr Rob Pearlman1, Dr Therese O’Young2, Dr Caitlin Weston3, Dr Louise Cullen4, 5
Date: 27 September, 2019

1: Newcastle University, Australia
2: Westmead Hospital, Australia
3: Australian Doctor’s Health Advisory Service
4: University of Queensland, Australia
5: The Royal Brisbane and Women’s Hospital, Australia
I have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

J’ai une affiliation (financière ou autre) avec une entreprise pharmaceutique, un fabricant d’appareils médicaux ou un cabinet de communication.
What we did

- Used a mobile app (Resident Guide, by MedApps) to drive significant clinical change in a busy Emergency Department

- Significant reduction in administration time and effort

- Highly scalable
Initial Problem

- Royal Brisbane and Women’s Hospital Emergency Department
  - 987 Bed Hospital
  - 75,000 Emergency Presentations per year
- Technology to Scale Clinical Change
- Funding QLD Government
- 2 aims
  - Shift prescribing behavior from IV to PO Metronidazole, when appropriate
  - Decrease unnecessary aDT injections
Traditionally

• Change through:
  > Posters
  > Education sessions
  > Emails

• Made difficult by:
  > ‘Signal to Noise’
  > Resources (personnel, time)
  > Resident turnover (10-12 weeks in Australia)
Method

- Introduce Resident Engagement Application
  - Orientate incoming Residents (12 week term)
  - Send out clinical pearls related to aims
    » Track, review engagement
  - Close the loop
    » Review medication data & engage again
  - Adjust messages and repeat for second cohort
Platform

- Resident Guide
  - Orientation, Communications & Engagement Platform
  - Used by 5,000 Residents across 34 Hospitals in Australia
Dear {{first_name}},

Welcome to the start of your internship at Central Coast. The team is looking forward to working with you as you embark on the next stage of your medical career. We also hope you are looking forward to Orientation week and your first rotation. This is an exciting time in...
Message received by user...

Dear Rob,

We are looking forward to you joining the team. In preparation for your Orientation with Sydney Children’s Hospital, please view the following articles.

**Important Guides/Numbers/Rules**
- See the Directory in the Resident Guide app for useful phone numbers and pagers
- Discharge Communication
- How to Order...

**Pay Info**

---

Central Coast Intern Welcome 2020

To be signed
Sent 30/04/2019

Dear Roo,

Welcome to the start of your internship at Central Coast. The team is looking forward to working with you as you embark on the next stage of your medical career. We also hope you are looking forward to Orientation week and your first rotation. This is an exciting time in your life and career and we want to make sure you have the support necessary to make it a success.

We use the Resident Guide app to provide quick access to key pieces of information that you might find useful throughout the start of your internship and over the course of your junior medical career.

We have posted the schedule for Orientation week and the schedule for your rotations.

---

Look after your ROVER (Rolling HandOVER)

Posted 11/04/2019 - Duncan from MedApps

As we are approaching the end of the term 1 and commencing Term 2, don’t forget to check your ROVER. Or that you can submit edits for these articles in-app by hitting ⬇️ at the top right of the rotation handover articles (top this message to go to the ROVER) or submit a comment by hitting ⬇️ at the top of any article. Keeping things current means those that come next don’t have to learn things the hard way.

---

Term ROVERs

---

Resident Guide Survey

---
### Track engagement

#### Pre-Vocational Trainee Orientation

**Created 4-4-2019**

<table>
<thead>
<tr>
<th>USER</th>
<th>SENT</th>
<th>VIEWED</th>
<th>SIGNED</th>
<th>VIEW</th>
<th>REMINDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRATT, ADELAIDE</td>
<td>11-4-2019</td>
<td>_</td>
<td>Not Signed</td>
<td></td>
<td>SEND REMINDER</td>
</tr>
<tr>
<td>HUNT, TIMOTHY</td>
<td>15-4-2019</td>
<td>_</td>
<td>Not Signed</td>
<td></td>
<td>SEND REMINDER</td>
</tr>
<tr>
<td>HART, ANDREW</td>
<td>15-4-2019</td>
<td>15-4-2019</td>
<td>15-4-2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRATT, ADELAIDE</td>
<td>15-4-2019</td>
<td>15-4-2019</td>
<td>Not Signed</td>
<td></td>
<td>SEND REMINDER</td>
</tr>
<tr>
<td>DIAMOY, JOSH</td>
<td>15-4-2019</td>
<td>15-4-2019</td>
<td>15-4-2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HUNT, TIMOTHY</td>
<td>11-4-2019</td>
<td>11-4-2019</td>
<td>11-4-2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HART, ANDREW</td>
<td>11-4-2019</td>
<td>11-4-2019</td>
<td>11-4-2019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIAMOY, JOSH</td>
<td>11-4-2019</td>
<td>15-4-2019</td>
<td>15-4-2019</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Platform Uptake

- Excellent uptake and ongoing engagement by both cohorts

<table>
<thead>
<tr>
<th></th>
<th>12 Nov 2018 – 14 April 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
<td>72</td>
</tr>
<tr>
<td>Sessions</td>
<td>699</td>
</tr>
<tr>
<td>Pages of Information</td>
<td>6,414</td>
</tr>
<tr>
<td>Time in App (hrs)</td>
<td>70</td>
</tr>
</tbody>
</table>
# Messages read within 24 Hours

<table>
<thead>
<tr>
<th>Message</th>
<th>Term 1 (12 Nov 18 - 20 Jan 19)</th>
<th>Second Term (21 Jan 19 - 14 Apr 19)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Viewed</td>
<td>Not Viewed</td>
</tr>
<tr>
<td>Welcome to the ETC</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Viewed</td>
<td>30</td>
<td>34</td>
</tr>
<tr>
<td>Total (%)</td>
<td>36 (83.3%)</td>
<td>36 (94.4%)</td>
</tr>
<tr>
<td>Project PAVE Update</td>
<td>Not Viewed</td>
<td>Not Viewed</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Viewed</td>
<td>14</td>
<td>28</td>
</tr>
<tr>
<td>Total (%)</td>
<td>20 (70%)</td>
<td>51 (54.9%)</td>
</tr>
</tbody>
</table>

Source Note
Results - Metronidazole

- Significant reduction in IV Metronidazole usage over project period

<table>
<thead>
<tr>
<th></th>
<th>Baseline (Units/Day)</th>
<th>Project (Units/Day)</th>
<th>Change</th>
<th>p or P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV Metronidazole</td>
<td>2.89</td>
<td>2.49</td>
<td>13.9%</td>
<td>p = 0.017</td>
</tr>
<tr>
<td>(Units/Day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PO Metronidazole</td>
<td>0.40</td>
<td>0.48</td>
<td>20.5%</td>
<td>P = 0.108</td>
</tr>
<tr>
<td>(Units/Day)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Results – Metronidazole Time in Motion**

- Previous TiM showed 22.5 minutes IV dispensing vs 5.3 minutes PO dispensing

<table>
<thead>
<tr>
<th></th>
<th>Dispensed During Project</th>
<th>Absolute change vs BaU</th>
<th>Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV Metronidazole</td>
<td>538</td>
<td>-86.78</td>
<td>1,951</td>
</tr>
<tr>
<td>PO Metronidazole</td>
<td>104</td>
<td>+16.9</td>
<td>90</td>
</tr>
<tr>
<td>Time Reduction (Hours)</td>
<td></td>
<td></td>
<td>1,861 (31 Hours)</td>
</tr>
</tbody>
</table>

Source Note
aDT

- Data only available in weekly samples
- Underpowered – 17 samples over study period (v 216 for Metronidazole)
Summary

• 14% Reduction in IV Metronidazole usage
  > All driven by Dashboard!
• 31 hours nursing time returned to department
• Annualised savings of $30,000 AUD
• Low-touch change management is possible
  > Requires the right equipment!
  > High engagement of platform enabled high engagement with messages and high impact
Next Steps

• Larger Projects
  > Optimising pathology test ordering
  > Reducing unwanted variations
  > Linking in with eMR to ensure targeted messaging
    » ‘High Signal to Noise’

• Measure post-project change
  > ?Return to baseline

• More information
  > rob@medapps.com.au
Help us improve. Your input matters.

• Download the ICRE App, or

• Go to: www.royalcollege.ca/icre-evaluations to complete the session evaluation.

Aidez-nous à nous améliorer. Votre opinion compte!

• Téléchargez l’application de la CIFR

• Visitez le www.collegeroyal.ca/evaluationscifr afin de remplir une évaluation de la séance.

You could be entered to win one complimentary registration for ICRE 2020 in Vancouver.

Vous pourriez participer au tirage d’une inscription gratuite à la CIFR 2020 à Vancouver.