Project Title

Results Management

Project Lead and Members

Project lead: Stephanie Teo

Project members: Shawn Chia, Rudyanna Tan, Shalini Menon, Sim Siew Ngoh, Yeo Shu Qi, Leonard Goh, Annette Aw, Lum Oi Chan, Dr Gerald Chua, Dr Gamaliel Tan

Organisation(s) Involved

Ng Teng Fong General Hospital

Healthcare Family Group Involved in this Project

Allied Health

Applicable Specialty or Discipline

Diagnostic Radiography

Project Period

Start date: Nov-2017

Completed date: Apr-2018

Aims

To reduce the number of unacknowledged results in Epic from 9,780 to 5,000 in 6 months (by Apr 2018), and to maintain it below 5,000 (i.e. 5,000 as the upper limit)

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Lessons Learnt

A suite of IT solutions implemented by Medical Informatics team tighten the process gaps to reduce unacknowledged results. The team is working to tag SOC visits to consultant automatically, so that they can acknowledge results later on.

Conclusion

See poster appended / below

Project Category

Care & Process Redesign, Quality Improvement, Workflow Redesign, Value Based Care, Productivity, Manhour Saving, Technology

Keywords

Results Acknowledgement, Epic, EMR System

Name and Email of Project Contact Person(s)

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RESULTS MANAGEMENT

S TEO (CO); S CHIA, R TAN, S MENON (MI);
SIM SN, YEO SQ, L GOH, (NTFGH SO); A AW, LUM OC (JMC);
G CHUA, G TAN (CLINICAL REPS)

- ☑ SAFETY
- ☐ PRODUCTIVITY
- ☐ PATIENT EXPERIENCE
- ☑ QUALITY
- ☐ VALUE

Define Problem, Set Aim

Opportunity for Improvement

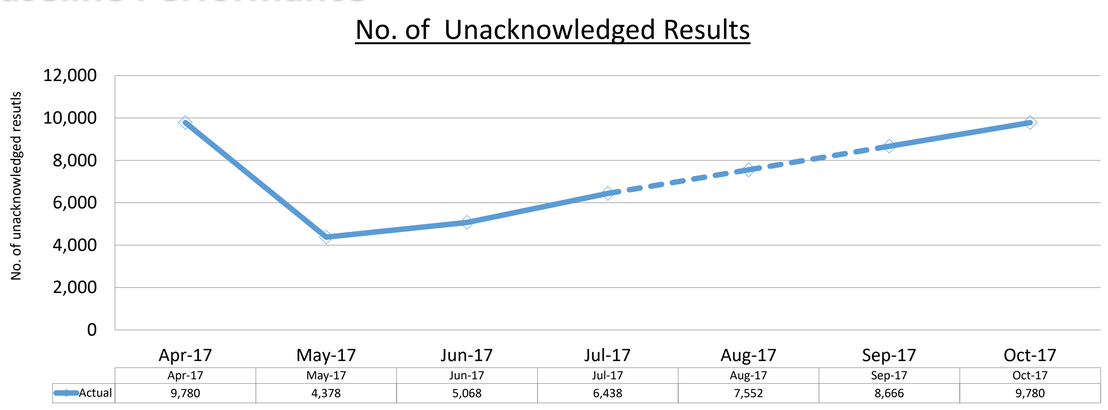
- In February 2017, CMIO reported that there was a large number of unacknowledged abnormal laboratory/radiological results in Epic
- In April 2017, a one-time 'clean up' reduced the numbers of unacknowledged results to 4,378
- However, the number started climbing again. It doubled to 9,780, within 6 months

Aim

To reduce the number of unacknowledged results in Epic from 9,780 to 5,000 in 6 months (by Apr 2018), and to maintain it below 5,000 (i.e. 5,000 as the upper limit)

Establish Measures

Baseline Performance

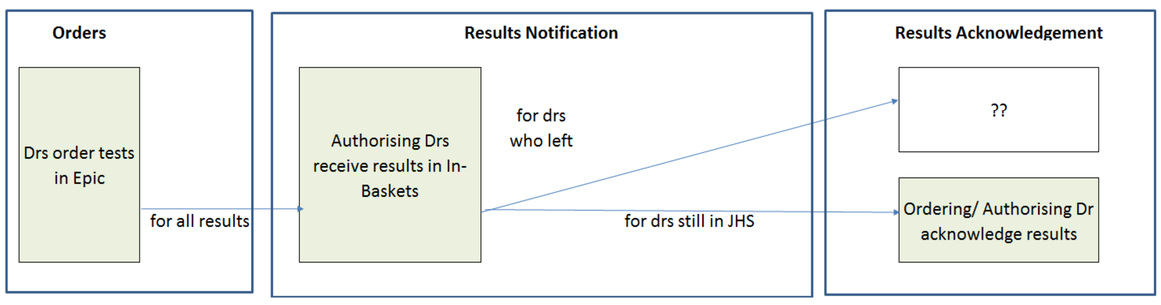


	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17
Actual	9,780	4,378	5,068	6,438	7,552	8,666	9,780

Analyse Problem, Select Changes

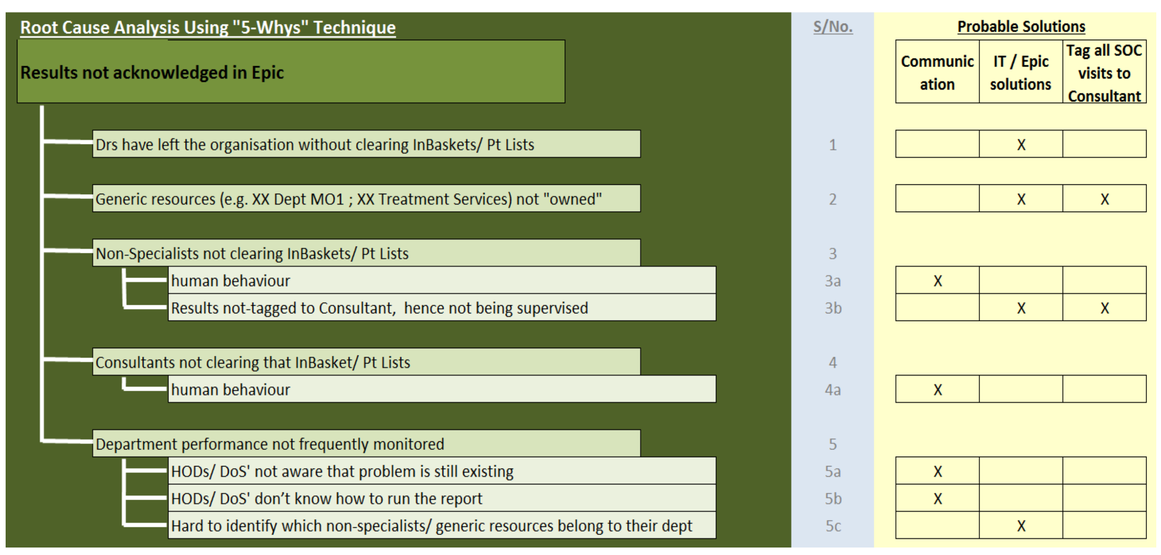
Process Before Improvement

- Each doctor was responsible for acknowledging results he ordered/ authorised in Epic
- If the doctor leaves the organisation, results that were not acknowledged in Epic would stayed unacknowledged



Root Causes & Probable Solutions

- We analysed the root causes using the "5-Whys" drill-down technique (E.g. Why are results not acknowledged in Epic? It's because …."
- We then determined the probable solutions for each of the root causes. The solutions were in 3 categories.



S/No.	Probable Solutions: Communication	IT / Epic solutions	Tag all SOC visits to Consultant
1		X	
2		X	X
3			
3a	X		
3b		X	X
4			
4a	X		
5			
5a	X		
5b	X		
5c		X	

	Solutions	Ease (1=Hard ; 3=Easy)	Impact (1=Low ; 3=High)	Score
A	Communication	3	2	6
B	IT / Epic solutions	2	2	4
C	Tag all SOC visits to Consultants	1	3	3

- We also analysed the priority of implementation based on ease of implementation & impact when implemented. The one with the highest score was implemented first, & the lowest, last

Test & Implement Changes

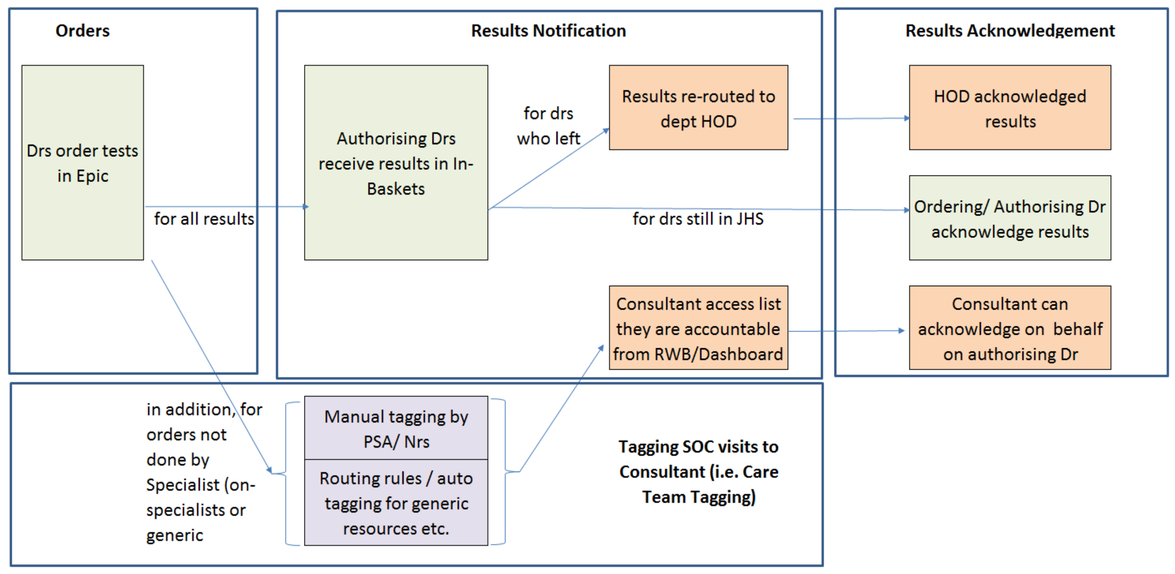
Implementing Changes

(A) Communication

- CMB & clinical representatives of this project met up with the rest of the clinical heads/ directors of services, & shared about the problem, how it could be managed
- Beside being responsible for acknowledging their own results, Consultants are also tasked to ensure that their non-specialists doctors are acknowledging results timely

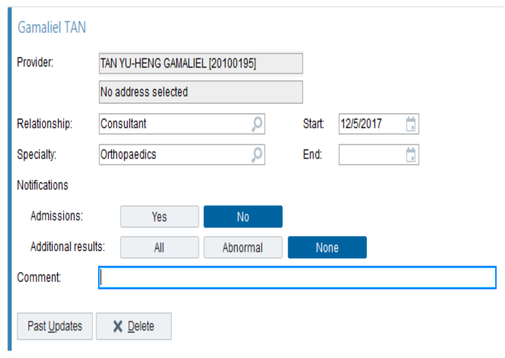
(B) IT/ Epic Solutions

- A suite of IT solutions were implemented by Medical Informatics to plug process gaps, & to tighten process controls (ref: orange boxes in diagram, below)
- PDCA was used. Each solutions implementation was planned for ("Plan-Do"), & fine-tuned ("Check-Act")



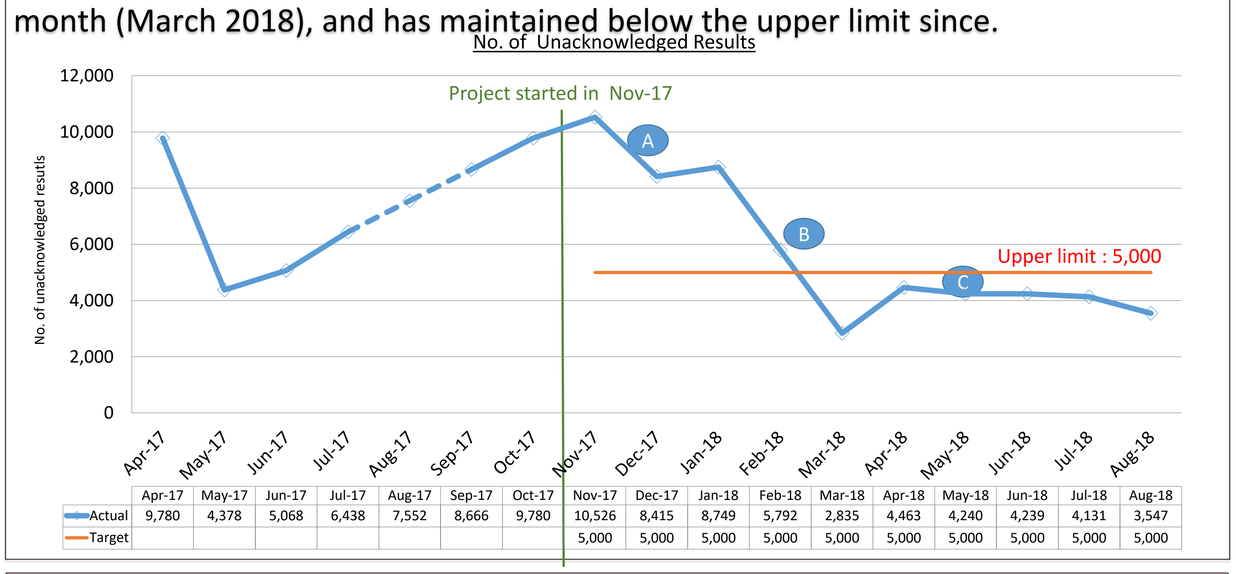
(C) Tag all SOC visits to consultants (ref: purple boxes in diagram above)

- New Epic fields (ref: diagram on right) were built. PSA were to manually tag consultants to SOC visits
- As there were still many omissions & errors despite months of trying, the possibility of automated tagging was explored
- SOC roster schedules were simplified so that the tagging "logic" could be automated
- Automated tagging was implemented in April 2018 for most of the SOC roster schedules



Results

The number of unacknowledged results decreased, and was below 5,000 by the 5th month (March 2018), and has maintained below the upper limit since.



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Actual	9,780	4,378	5,068	6,438	7,552	8,666	9,780	10,526	8,415	8,749	5,792	2,835	4,463	4,240	4,239	4,131	3,547
Target								5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000

Spread Changes, Learning Points

Sustainability

A handful of SOC roster schedules (e.g. SOC sessions shared/run by multiple VCs) could not be simplified & therefore, tagging could not be automated. The project team is working on these, & hopes to achieve 100% automated tagging, which will ensure long-term sustainability of result

Spread

Solutions (B) & (C) are expected to be used by most other Singapore public hospitals as they replace their current EMR system with Epic

Ng Teng Fong General Hospital
Jurong Community Hospital
Jurong Medical Centre

Members of the NUHS