

Project Title

Reduction in Non-Evidence-Based Proton-Pump Inhibitors Prescription on Discharge
(Sustainability Phase)

Project Lead and Members

Project lead: Christina Tan Jiun Yu, Dr Tan Yan Ru

Project members: Dr Lam Ming Ai, Dr Christine Lorraine Balibadlan, Dr Tan Shu Wei,
Geraldine Ng Li Yuen, Selina Cheong, Shanice Goh

Organisation(s) Involved

Tan Tock Seng Hospital

Healthcare Family Group(s) Involved in this Project

Allied Health, Medical, Nursing

Applicable Specialty or Discipline

Pharmacy

Project Period

Start date: January 2014

Completed date: December 2019

Aims

To reduce non-evidence-based proton-pump inhibitors (PPI) prescription in both
inpatient and outpatient settings over a sustained period.

Project Attachment

See poster attached/below

Background

See poster attached/below

Methods

See poster attached/below

Results

See poster attached/below

Lessons Learnt

1. Managing an interdisciplinary team and engaging commitment of team members
2. Multidisciplinary team with involvement of staff at various levels provides a more comprehensive view of barriers and enablers
3. Important to identify and engage stakeholders commitment
4. Story-telling is a useful tool to influence change

Conclusion

See poster attached/below

Additional Information

Accorded the NHG Quality Day 2021 (Category A: Improving and Sustaining Quality & Safety) Best Award

Project Category

Care & Process Redesign

Quality Improvement, Clinical Practice Improvement

Training & Education

Learning Approach, Microlearning

Keywords

Proton-Pump Inhibitors Prescription, CPIP

Name and Email of Project Contact Person(s)

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Reduction in Non-Evidence-Based Proton-Pump Inhibitors Prescription on Discharge (Sustainability Phase)

Ms Christina Tan Jiun Yu ¹ & Dr Tan Yan Ru ²

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Mission Statement

To reduce non-evidence-based proton-pump inhibitors (PPI) prescription in both inpatient and outpatient settings over a sustained period.

Team Members

	Name	Designation	Department/Division
Team Leaders	Christina Tan Jiun Yu	Senior Pharmacist	Pharmacy
	Dr Tan Yan Ru	Associate Consultant	General Medicine
Team Members	Dr Lam Ming Ai	Consultant	Geriatric Medicine
	Dr Christine Lorraine Balibadlan	Resident Physician	General Medicine
	Dr Tan Shu Wei	Medical Officer	General Medicine
	Geraldine Ng Li Yuen	Advanced Practice Nurse	General Medicine
	Selina Cheong	Senior Pharmacist	Pharmacy
	Shanice Goh	Pharmacist	Pharmacy

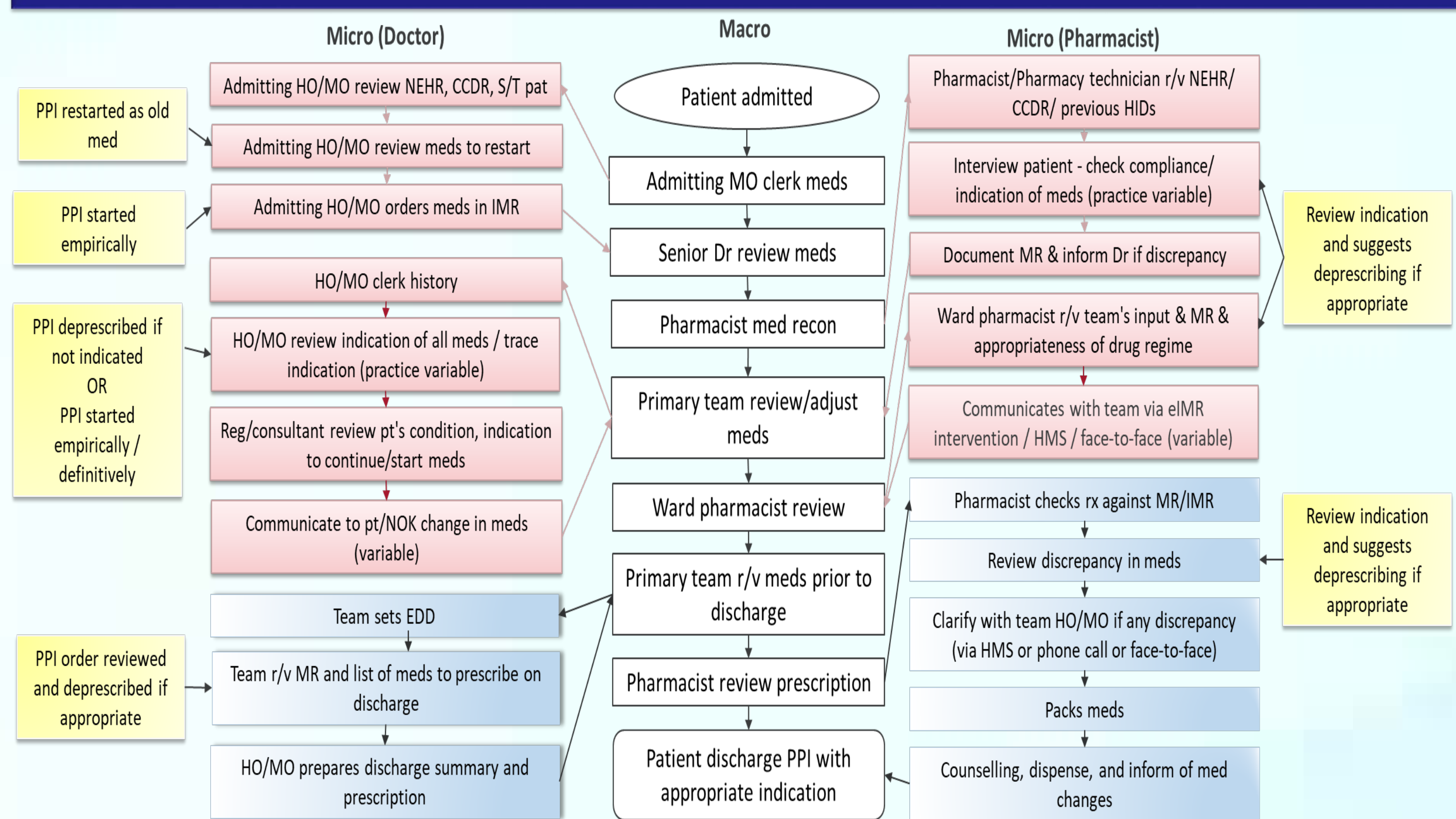
Advisors: A/Prof Thomas Lew, Dr Ng Wee Khoo & Lim Wan Peng

Sponsor: Lim Hong Yee

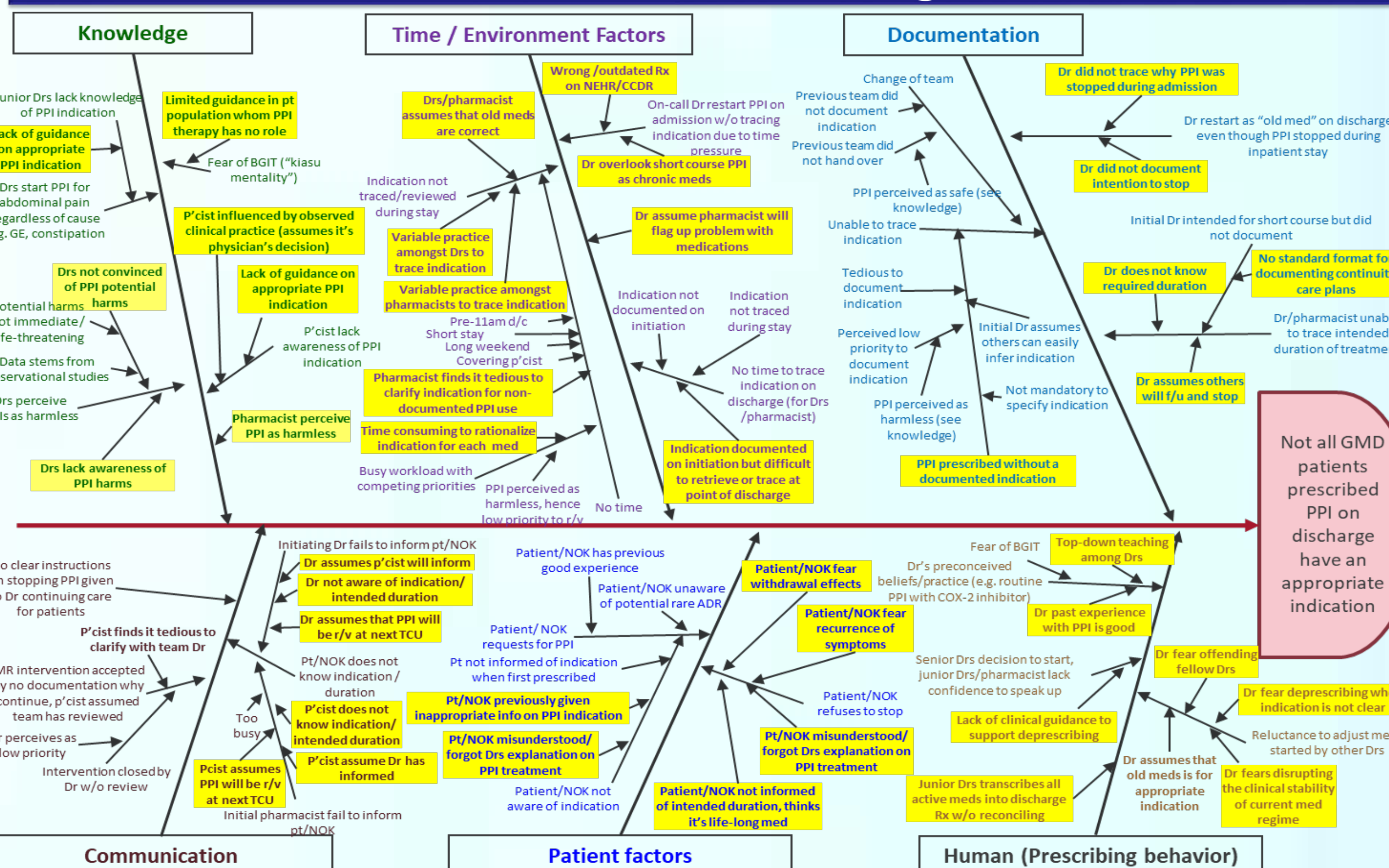
Evidence for a Problem Worth Solving

- PPI utilization in Tan Tock Seng Hospital (TTSH) increased at an alarming rate from 6.63 million units of oral PPI dispensed in Year 2010 to 7.78 million units in Year 2015.
- A point-prevalence survey conducted among TTSH inpatients in Year 2011 found that only 46% of patients on PPI fulfilled FDA-approved indications, 11% had borderline indications based on expert consensus or guideline-recommended indications, and the remaining 43% of patients had no clear indication.
- Overutilization of PPI is concerning given its association with adverse effects such as pneumonia, hypomagnesemia, fractures, Clostridium difficile infection and kidney disease. Unnecessary prescription of medications is also associated with increased pill burden, reduced medication compliance and increased healthcare expenditure.
- A PPI deprescribing guide was developed and disseminated hospital-wide in October 2016, followed by roadshows to selected prescribing departments.
- We embarked on a multidisciplinary Clinical Practice Improvement Program (CPIP) in collaboration with Department of General Medicine to identify targeted strategies to sustain the initial uptake of the deprescribing guide (as previous published studies suggest that possible rebound may occur after the initial 6 months).

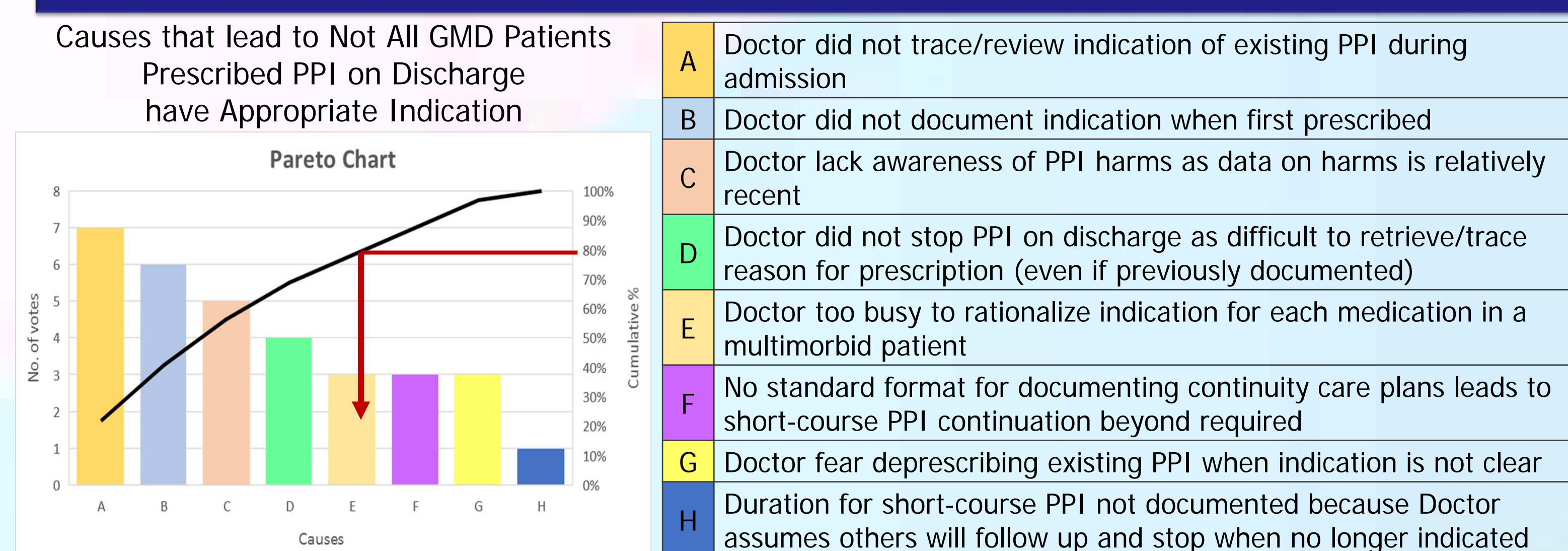
Flow Chart of Process



Cause and Effect Diagram



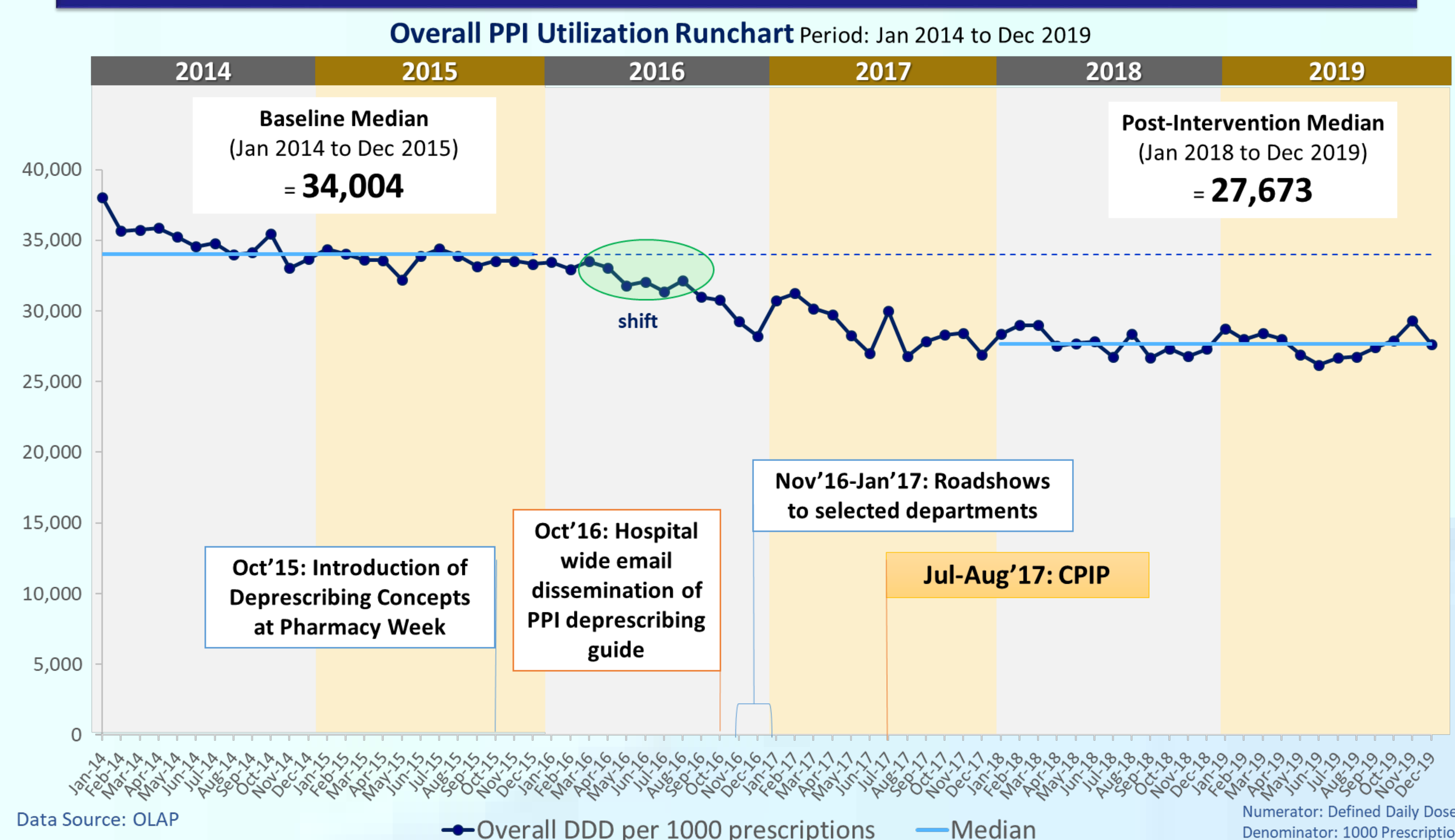
Pareto Chart



Implementation

Root Cause	Intervention	Implementation Date
(A) Doctor did not trace/review indication of existing PPI during admission (B) Doctor did not document indication when first prescribed	Strategy: Mandating documentation of PPI indication in discharge prescription will prompt prescribers to review continued need for PPI and intended duration How? 1. Engaged Doctors of various seniority levels 2. Ward pharmacists to remind prescriber if indication not stated	July 2017
(C) Doctor lack awareness of PPI harms as data on harms is relatively recent (D) Doctor did not stop PPI on discharge as difficult to retrieve/trace reason for prescription (even if previously documented)	Strategy: Knowledge of potential harms will motivate active review and deprescribing when PPI is no longer indicated. How? 1. General Medicine Department CME on PPI-related harms during M&M rounds 2. Embed PPI-related questions into quiz for junior doctors	Aug 2017

Results



Overall PPI utilization refers to the total quantity of oral PPI dispensed in outpatient and inpatient prescriptions. This was used as a surrogate measure of non-evidence-based PPI prescription to monitor the sustainability of the quality improvement initiatives implemented.

- PPI utilization in TTSH decreased following the dissemination of PPI deprescribing guide and roadshows in Oct'16-Jan'17 and the decline was sustained following the CPIP initiatives.
- This decline in PPI utilization effected a cost reduction of \$84,147 per annum (based on a year-to-year comparison of Year 2014 versus Year 2019)

Lessons Learnt

- Managing an interdisciplinary team and engaging commitment of team members
- Multidisciplinary team with involvement of staff at various levels provides a more comprehensive view of barriers and enablers
- Important to identify and engage stakeholders commitment
- Story-telling is a useful tool to influence change

Strategies to Sustain

- Regular reminders and engagement of stakeholders and clinical staff on the ground
- Continued audit on rates of PPI utilization and provide regular feedback to the stakeholders
- Identify platforms for continual education to educate new staff
- Empower patients to be active partners in their health - encourage and promote communication between clinicians and patient during routine clinical encounters
- Explore electronic prescribing systems capability to prompt prescribers to document indication clearly