# **National** Quality Improvement Conference

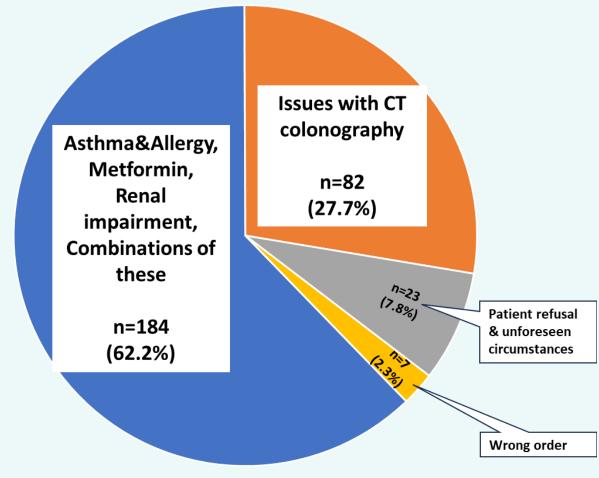
# **Reducing Postponements** and Revamping the CT Scan Service from Year 2014 to 2023

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### **Problem Statement**

Baseline data over preceding 6 months showed that 76.5% (296 patients) had to be postponed (significant majority) or cancelled.



Reasons for Postponement/Cancellation

# **Project Aim**

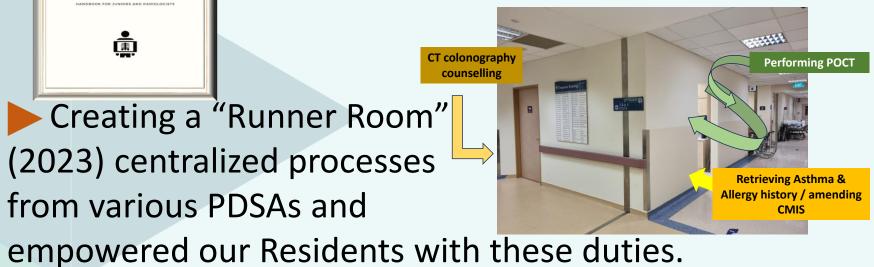
To reduce postponing appointments of outpatients scheduled for Computed Tomography (CT) scans by ≥50% – A sustainability project from Year 2014 to 2023

### Lessons Learnt

Educate and empower: Collation of a handbook (2019) ensured that knowledge TTSH DIAGNOSTIC will be retained and passed down.

Creating a "Runner Room" (2023) centralized processes from various PDSAs and

RADIOLOGY



- Evidence-based enforcement: We collected data throughout our journey and retrospectively analyzed these for proof of efficacy and demonstration of safety.
- We have published 3 articles related to our PDSAs to demonstrate evidence-based clinical improvement and to promote spread (see Outcomes & Impacts).

## **Potential Solutions**

- PDSA 1 (April 2014): Adopted Societal guidelines which stratified patients based on renal function. Not all patients needed to stop metformin, or get postponed.
- PDSA 2.1 (May 2014): Standardized notion of acceptable bowel preparation for patients coming for CT colonography so as to reduce random postponements by Residents.
- PDSA 2.2 (June 2014): Ensured referral clinic sent all patients they ordered CT colonography for, to Radiology for counselling and collecting bowel preparation before going home.
- PDSA 2.3 (February 2018): Implemented "1-stop-shop" where referral clinic counselled and dispensed bowel preparation instead.
- PDSA 3 (June 2014 to January 2015): 1) Tapped onto IT expertise to reconfigure CT ordering screen by enlarging it so as to eliminate "hidden" drop-down lists and 2) Harmonised variance in patient preparation regimens from 56 down to 5.
- PDSA 4 (June 2015): Revised protocol to promote hydration as the primary means to prevent contrast-induced nephropathy, making Fluimicil optional, as the latter was unproven. Used existing Choyke Questionnaire and "piggybacked" on available POCT machine for stratifying patients requiring hydration.
- PDSA 5 (August 2019): All patients with asthma and multiple drug allergies received pre-emptive steroids, an unnecessary measure. Incorporated both the Asthma Control Test and post-CT observation within a new protocol to stratify patients who could proceed even if they were not prescribed or had forgotten to take steroids.
- PDSA 6 (December 2019): Worked with Department of Allergy to institute objective testing for patients with contrast allergy, to decide if they could safely receive contrast (as well as the brand of contrast).

#### Outcomes & Impacts Total Number of CT Postponements Including Sub-Cause PDSA 1 Metformin PDSA 2 Colonography PDSA 4 Renal impairment PDSA 5&6 Asthma & Allergy Combination of causes ·Wrong order Patient refusal Miscellaneous Total postponed Run-chart showing total no. of postponements including those of each sub-cause SMT Singapore Medical Journal Percentage of Postponement of Scheduled CT Appointments 3.00% Percentage %00.2 Asthma, drug allergies and iodinated contrast media: A 1.00% retrospective evaluation and proposed CT workflow 1-APR-21 1-NOV-20 1-JUN-20 1-JAN-20 1-AUG-19 1-MAR-19 1-OCT-18 1-DCT-18 1-DEC-17 Clinical outcomes and management of contrast hypersensitivity in patients Run-chart showing 5 annual readings sustained below the 1.5% mark requiring repeated computed tomography imaging (which is 50% of the baseline of approximately 3%)