

Project Title

QIP to Improve Patient Preparation for Outpatient KUB Ultrasound Scans

Project Lead and Members

Project lead: Dr.Rohit

Project members: Chong Pei Qi, Dr.Nicola Lee Yan Ying, Chua Poh Hai, Tan Hui Wen,
Chen Lifan, Muhammed Hasnul Hakim, Yeo Shu Qi, Melissa Liang Meishi

Organisation(s) Involved

Ng Teng Fong General Hospital

Healthcare Family Group Involved in this Project

Medicine, Allied Health, Operations

Applicable Specialty or Discipline

Radiology

Project Period

Start date: 01 January 2021

Completed date: 29 April 2022

Aims

This project aims to reduce the percentage of unprepared outpatients arriving for US KUB scans at Radiology from 44% to 20% by March 2022. We aim to target outpatients who are under 75 years of age, and are referred from Urology (A64) for US KUB scans performed in Radiology.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

Extending preparation instruction guides to other relevant departments that refer patients for US KUB examinations.

Extending preparation instruction guides to other ultrasound procedures (e.g. ultrasound hepatobiliary system), and eventually other imaging modalities.

Incorporating QR codes (pictorial or video) for preparation instruction guides into the “OneNUHS” app via push notifications and/or appointment reminders.

Refresher sessions with relevant departments as necessary to ensure sustained change.

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Quality Improvement – Clinical Practice Improvement

Keywords

Patient Preparation, Outpatient, KUB Ultrasound Scans

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QIP TO IMPROVE PATIENT PREPARATION FOR OUTPATIENT KUB ULTRASOUND SCANS

- SAFETY
- QUALITY
- PATIENT EXPERIENCE
- PRODUCTIVITY
- COST

MEMBERS:

Dr. Rohit (Project Leader), Chong Pei Qi (Co-lead), Dr. Nicola Lee Yan Ying, Chua Poh Hai, Tan Hui Wen, Chen Lifen, Muhammed Hasnul Hakim, Yeo Shu Qi, Melissa Liang Meishi (Facilitator)

Define Problem, Set Aim

Problem/Opportunity for Improvement

There is a significant number of outpatients scheduled for Ultrasound (US) Kidneys, Ureter, and Bladder (KUB) examinations who arrive unprepared for scans. This results in delayed or suboptimal scans being performed, and longer waiting times, ensuing in poor diagnostic outcomes and patient experiences.

Radiographers also face challenges due to the snowball effect caused by delayed scan times as preparation for KUB examinations was for patients to drink at least 500ml of water an hour prior to the scan for adequate urinary bladder distension so that the examination can be performed with accuracy.

There are up to 60% of patients who arrived unprepared for their US KUB examinations between Jan – Apr 2021.

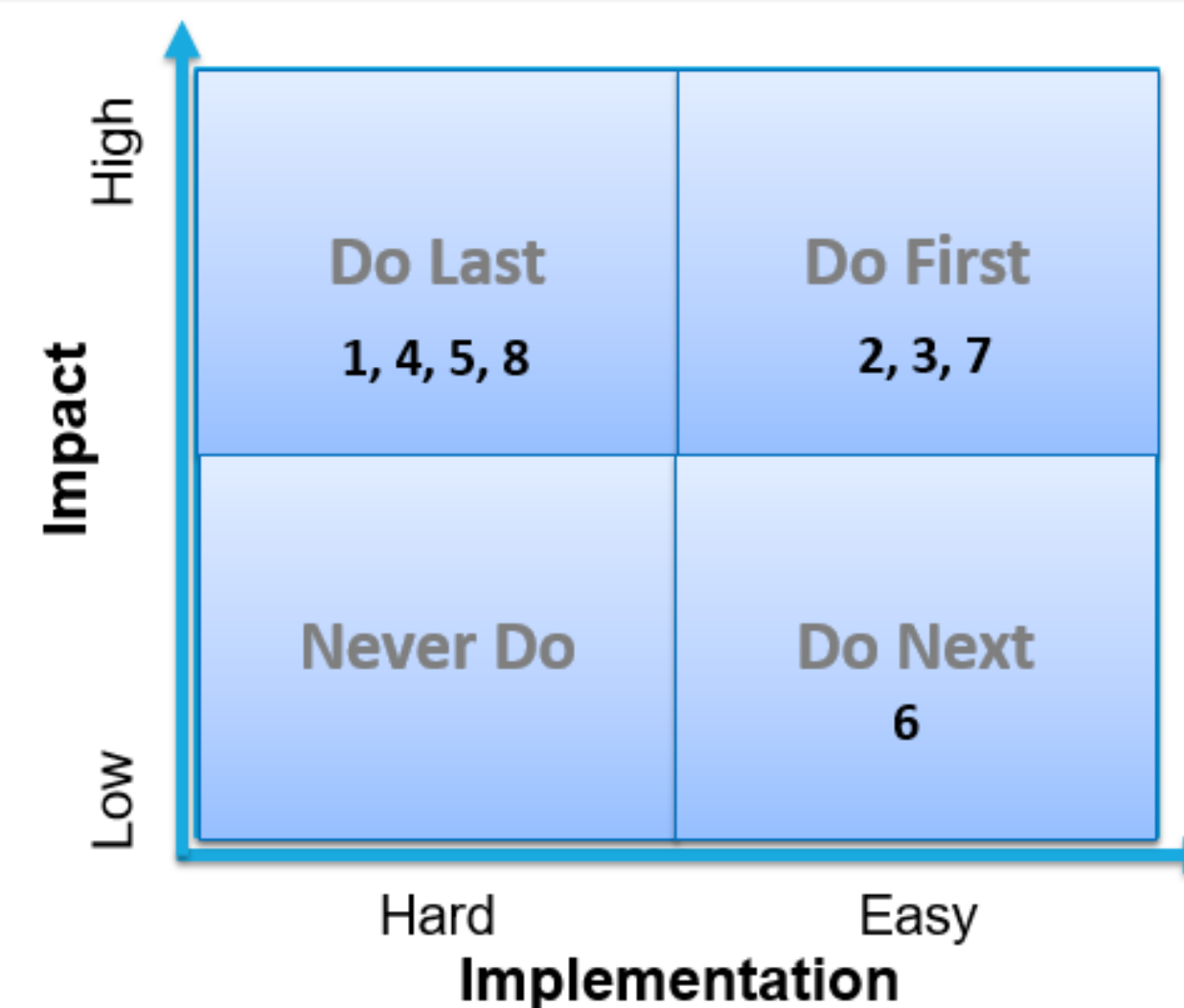
Aim

This project aims to reduce the percentage of unprepared outpatients arriving for US KUB scans at Radiology from 44% to 20% by March 2022. We aim to target outpatients who are under 75 years of age, and are referred from Urology (A64) for US KUB scans performed in Radiology.

Establish Measures

Type of Measure	Aim	Measure	Operational Definition (Formula, if applicable)
Outcome Measure	Reduce the percentage of unprepared patients from 44% to 20% by March 2022.	Percentage of US KUB outpatients (referred from urology) that are unprepared for scan	Numerator: No. of unprepared US KUB outpatient scans (referred from urology) performed in Radiology Denominator: Total no. of US KUB outpatient scans (referred from urology) performed in Radiology. "Unprepared" is defined as the calculated urinary bladder volume of <150ml at the time of scan.
Process Measure	Time taken for Radiology PSA to process registration	Time taken for Radiology PSA to process registration	Time from start of registration to the time patient's request form is time-stamped in ultrasound sub-wait.
Balance Measure	Time taken for Urology PSA to process registration	Time taken for Urology PSA to process registration	Time from start of registration to payment made.

Select Changes



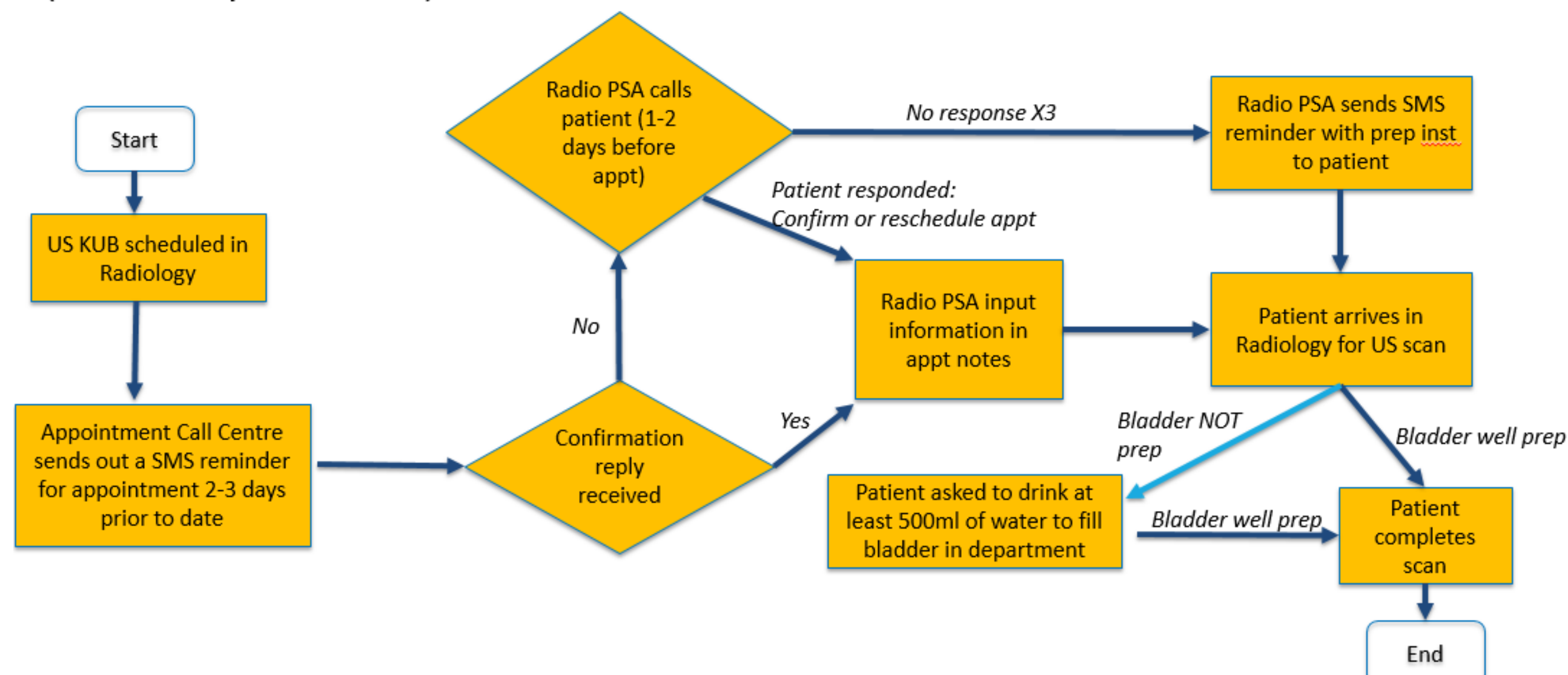
Root Cause	Potential Solutions
Unclear preparation instructions	1 One NUHS app
	2 Paper print out preparation guide
	3 Pictorial guide for preparation
	4 Video aid for preparation
	5 SMS reminder with preparation link sent by Radiology
	6 To have caregiver around when preparation is given (assist reminder)
	7 Provide preparation instructions in multiple languages (English, Mandarin, Malay, Tamil)
	8 Patients to view the instructions video in clinic (instant clarifications of any questions)

Test & Implement Changes

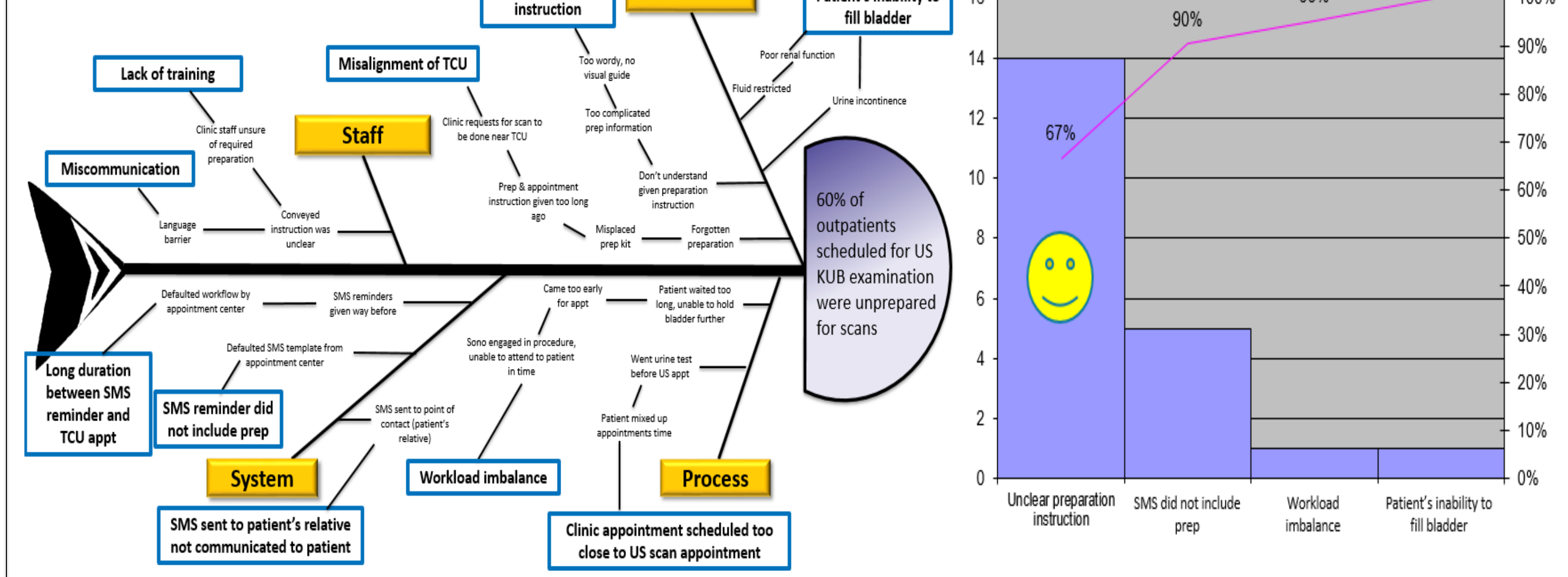
CYCLE	PLAN	DO	STUDY	ACT
1	Providing to patients pictorial hardcopy leaflets guide in various languages (English, Mandarin, Malay, and Tamil). The team believes that the patient will be able to understand the preparation instruction better hence show up prepared for their ultrasound examination. Overall procedure time will be therefore be shortened without the need for patients to wait for their bladders to fill whilst in the department.	Hardcopy pictorial leaflets created by the team with translation in four languages. Change was carried out with the support from Urology clinic PSA counterparts to disseminate the leaflets accordingly to the language of preference for patients at the point of scheduling US KUB appointment.	The hardcopy pictorial leaflet is helpful as more patients showed up prepared for the ultrasound scan. However, the impact of the leaflet can still be improved as patient or their relative who had a hardcopy may need same guide in another language.	✓ Adapt To improve the pictorial hardcopy leaflets with an easy access link to the same guide in other available languages.
2	Improving the patients pictorial hardcopy leaflets with an easy-access QR code to incorporate the guides in other languages (English, Mandarin, Malay, and Tamil). The team believes by incorporating a QR code with an embedded link for the patient to allow easy access to the electronic pictorial leaflet in other languages, therefore can further help to better prepare the patients for the ultrasound scan.	Create a web link with the electronic version of the patient pictorial leaflets to allow easy access of this link using a QR code incorporated into the hardcopy leaflets. Change was carried out with the support from Urology clinic PSA counterparts to disseminate the leaflets accordingly to the patients at the point of scheduling US KUB appointment.	The improvised pictorial leaflet with QR code is helpful as more patients showed up prepared for the ultrasound scan. However, the impact of the leaflet may still be limited as the percentage of unprepared patients rose after an initial decline (refer to Outcome Measure chart).	✓ Adapt To carry out refresher and feedback sessions with Urology to clarify any queries and reaffirm the use of preparation leaflets.
3	Refresher sessions were carried out with Urology representatives on the use of the pictorial hardcopy leaflets so that they can better explain and guide the patients on the use of it. Two-way feedback sessions between the Urology and Radiology departments were also carried out as a platform for discussion to clarify and resolve any issues faced. The team believes that these sessions will help to reinforce the importance of use of the preparation leaflets with our Urology counterparts, and will further help to ensure the compliance of patient preparation for US KUB examinations.	Prediction is confirmed with better sustained compliance of patient preparation as evident in collected data (refer to Outcome Measure chart). Communication between departments and patients is the key to achieve positive outcomes. Scenario based discussions to facilitate problem solving.	Demonstration how to use the pictorial hardcopy leaflets and navigation through the NTFGH website (patient resources section) for the different preparation guides via use of the QR code.	✓ Adopt The refresher sessions with Urology were shown to be effective in increasing patient compliance and maintaining sustained change.

Analyse Problem

Process Map – US appointment workflow in Radiology (before improvement)

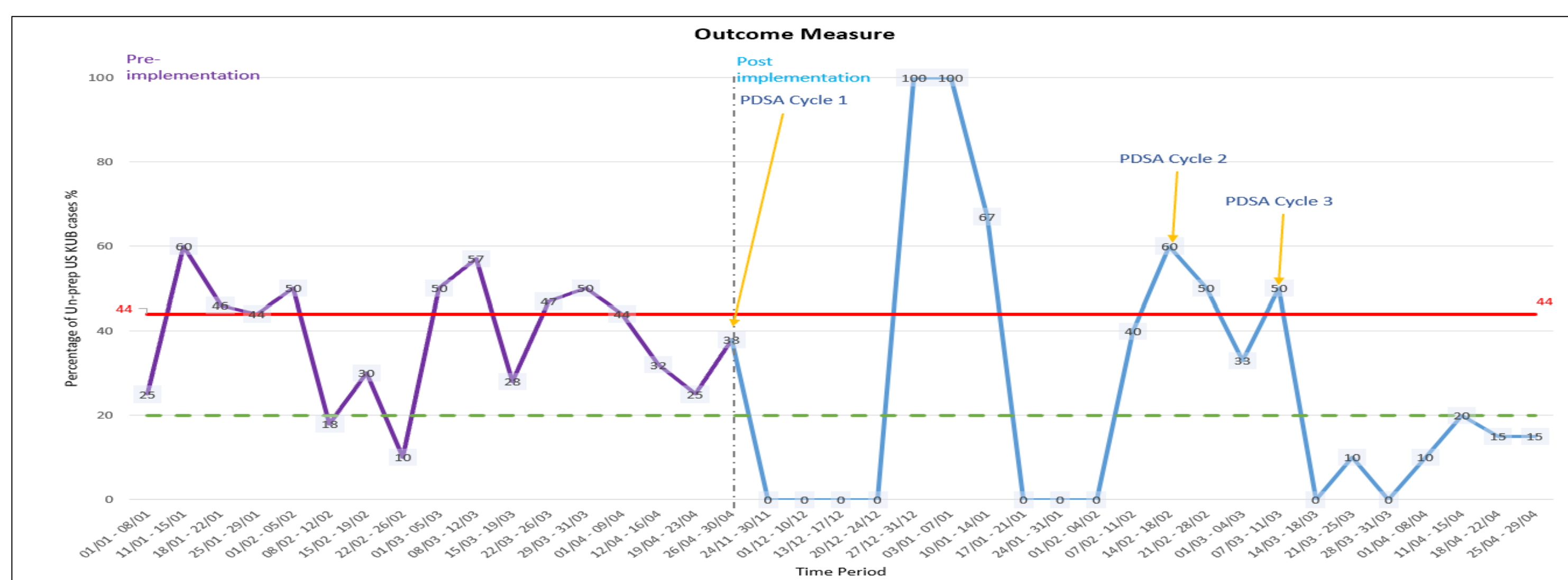


Potential Root Causes



Spread Changes, Learning Points

- Extending preparation instruction guides to other relevant departments that refer patients for US KUB examinations.
- Extending preparation instruction guides to other ultrasound procedures (e.g. ultrasound hepatobiliary system), and eventually other imaging modalities.
- Incorporating QR codes (pictorial or video) for preparation instruction guides into the "OneNUHS" app via push notifications and/or appointment reminders.
- Refresher sessions with relevant departments as necessary to ensure sustained change.



Outcome Measure: Percentage of unprepared US KUB cases referred from Urology