Incredible Care QIX Award (Process Excellence)

National University Hospital | INCREDIBLE care @NUH It starts with me

Project Title 22 : **R**educing **A**rrival to triage wait time for **C**hildren's **E**mergency (R.A.C.E.)		
Department: Children's Emergency	Period: August 2023 – December 2024	Facilitators/Author: Mr Jay Tan, Ms Stacey Leong
Sponsors (HODs): Prof Lee Yung Seng, DDoN Katherine Leong	Team Leader/s: Dr Seo Woon Li, Br Kiren T	
Team Members: Ms Thilagavathy Periyasamy, Ms Anuradha, Ms Kyi Kyi Aung, Mr Elijah Seah Tzu Hui		

A. Define the Problem (PLAN)

Background

In the NUH Children's Emergency, the Arrival to Consult time for a paediatric patient is lagging behind MOH's benchmark of 20min (50th percentile) and 60min for 95th percentile.

One of the focus areas will be on the transit of patients: from Arrival to Triage, looking into ways to **reduce the time to triage for P2 walk-in patients (both Adult and Children)**, which will accelerate the speed of P2 patients' access to timely treatment, the other area being Triage to Consult. There were also negative feedback from patients related to **service level and communications** (e.g. updates, next step) from Q1 and Q2 ePES to explore **uplifting of service experience**, alongside process improvement.

In scope

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B. Goal (PLAN)

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Tiered, progressive target for overall 'Arrival to Consult' timing

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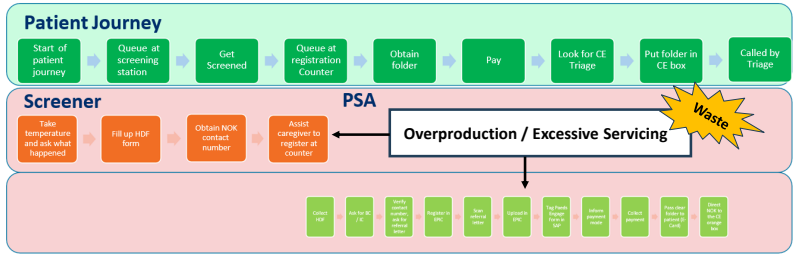
C. Problem Analysis (PLAN) Value Stream Map



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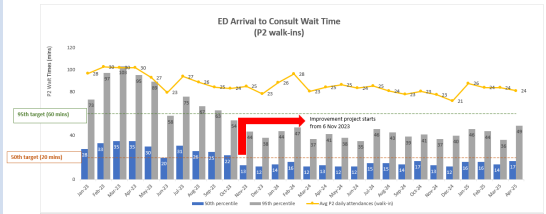
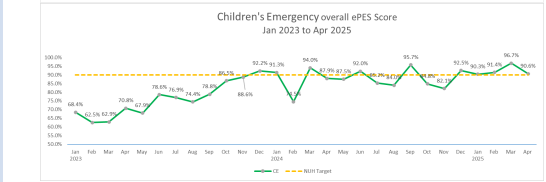
E. Benefits / Results (CHECK)





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CE ePES score has also seen a significant improvement since the start of the Improvement Sprint and has remained stable in the 90s range, achieving the NUH Target. Additionally, unprecedented high scores >95% were seen in 2024 and 2025.

F. Strategy for Spreading/ Sustaining (ACT)

Audit Checks
- **Continuous Improvement:** Use the insights gained from monitoring and analysis to implement changes aimed at reducing wait times
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Presentations
- **Regular Updates:** To review and update the team on any changes in processes or guidelines
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- **Encouragement of Best Practices:** Celebrating successes encourages staff to continue implementing effective practices that contribute to reducing patient wait times and achieving departmental objectives

As part of our continuous improvement initiative, we systematically updated and fine-tuned our materials to reflect operational changes. This comprehensive update delivered two key improvements.

- We enhanced our wayfinding system through the strategic placement of additional directional signages at P3 Triage waiting area.
- We also improved visitor navigation by implementing easily recognisable symbols, such as starfish markers, on the Emergency Department floor premises.

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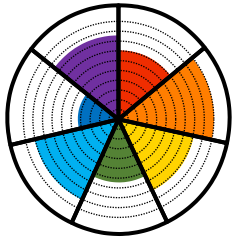

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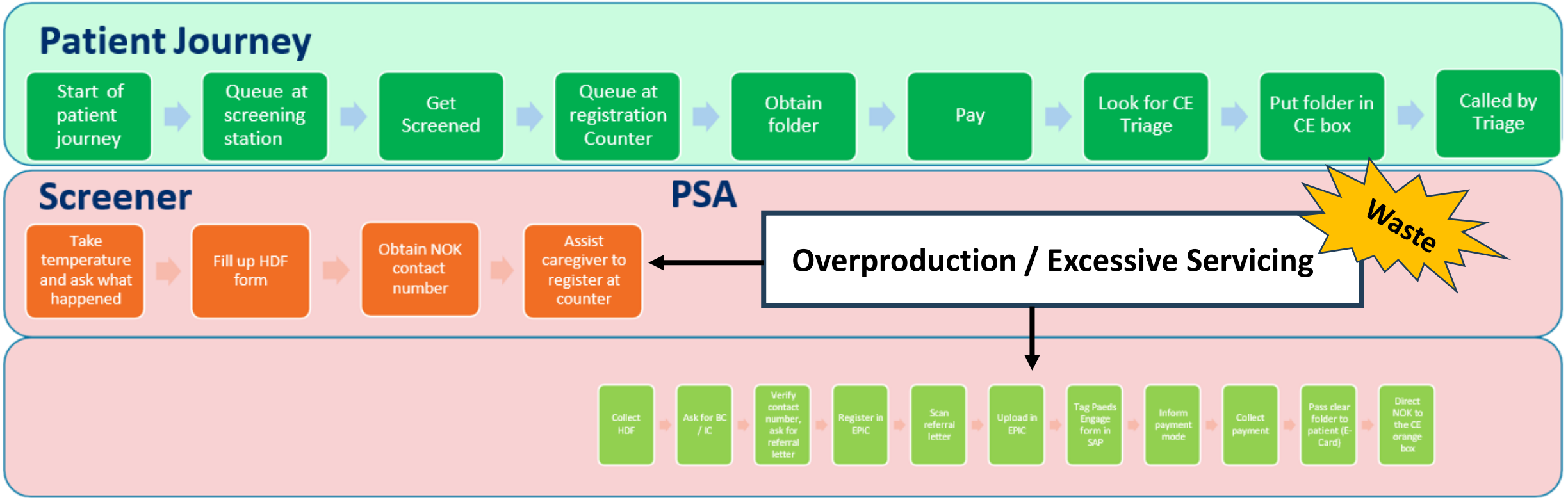
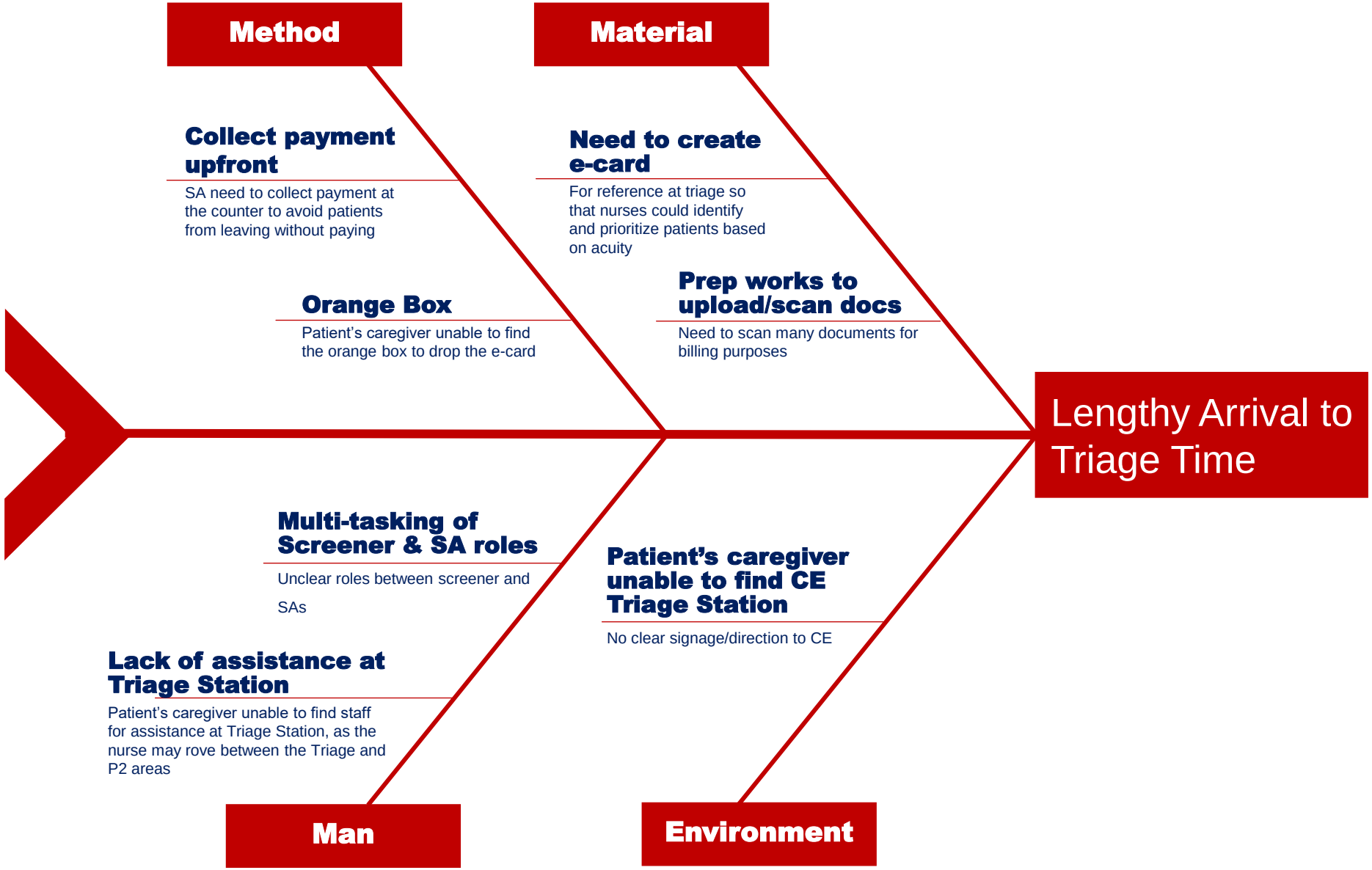


C. Problem Analysis (PLAN) – Gap Analysis



C. Problem Analysis (PLAN)

Paradigm Breaking

	Why can't we...?	Able to shift?
1	Why can't we remove e-card, don't bulk print sticker?	Yes, remove e-card and encourage electronically update PAC in system
2	Why must have mandatory fields in triage (fall risk, HDF, triage pac)	Yes, to review unnecessary fields in the system
3	Why C.E no priority box?	No more folders, refer to system
4	Why don't we have a dedicated triage nurse?	Team to think of ways to minimize interruptions, buddy with PSA
5	Why must nurse transfer patient to P2?	Team to think of ways to minimize interruptions, buddy with PSA
6	Why can't triage vitals flow into EPIC?	To submit to Ops team
7	Why can't we triage first?	Yes, team to explore reg + triage
8	Why can't we have a single point of triage / universal triage?	Pros: - Share resources - Dedicated triage nurse - Staff empowerment - Benefits patients, single contact point Cons: - Staff may not be confident to manage A & C - Have to toggle between ED & CE EPIC view
9	Why do patients need to a doctor? Why can't have nurse-led discharge?	Yes, CE APN led early discharge + follow-up
10	Why must upload referral letter / SCDF form in 2 places?	Team to explore possibility of not having at multiple places
11	Why must collect payment first?	Yes, to move payment to after triage
12	Why must take weight for all patients?	Yes, to only take weight for children <12yo
13	Why can't patients self-report history at triage?	Yes, to explore questionnaires to let them think about the questions while waiting and to report to triage quicker
14	Why can't parents self-collect and dispatch urine?	Team yet to explore

Brainstorming P.I.C.K Chart

Implement - Combine registration and triage station into teamlet/buddy - Eliminate E-Card, encourage use of sytem - Queue Chit to have QR code for NOK to pre-read to prepare for the questions before triage - Patient journey map - Visual floor navigation markings - Move payment to the back of the process - Have escalation workflow to prepare for the surge in workload	**Plan to Do** - Empower patient to register via kiosk or app (part of technology enhancement) - Home triage, tele-consult - Patient movement avatar
Choose to Do - Empower patient to perform some triage e.g. weighing	**Keep-In-View** - Parents upload reference letter One-NUHS App

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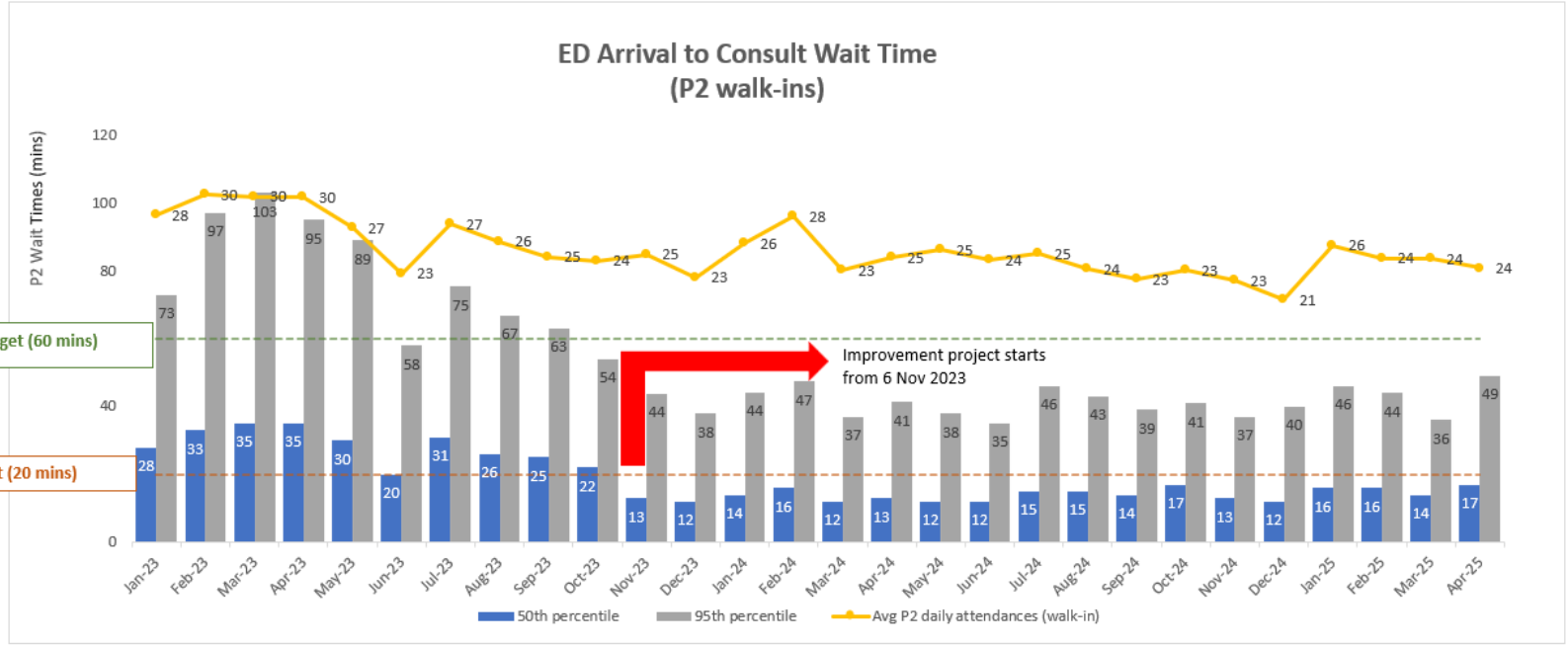

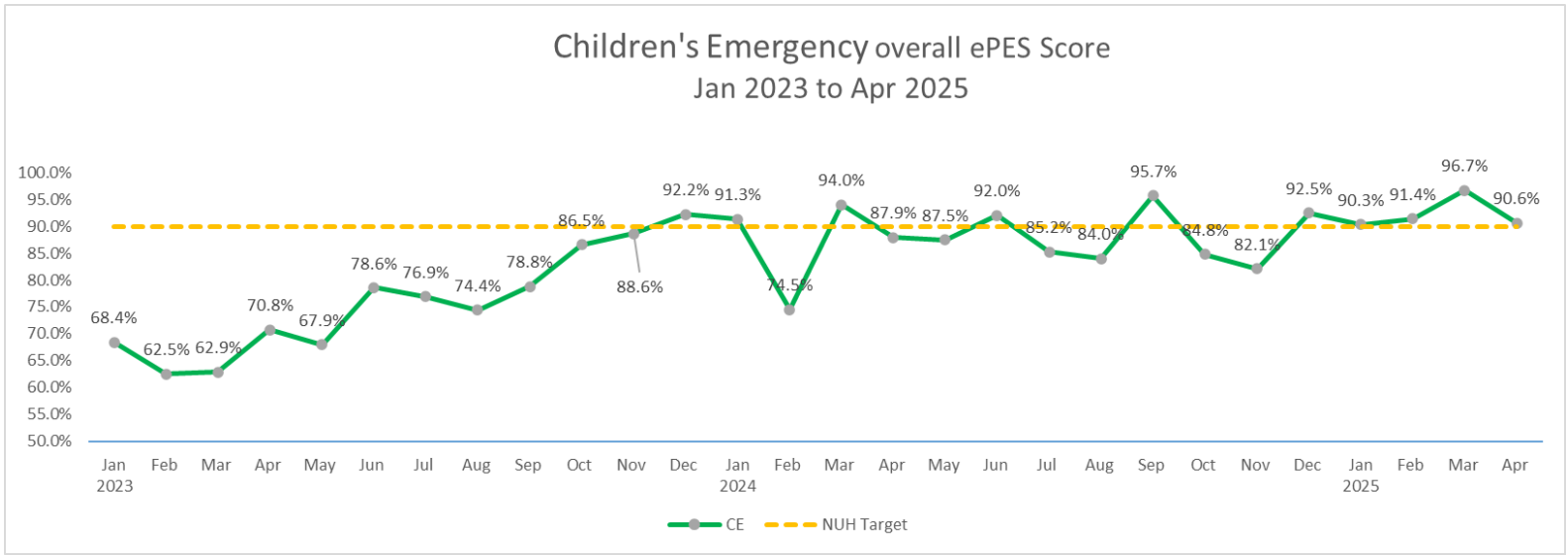

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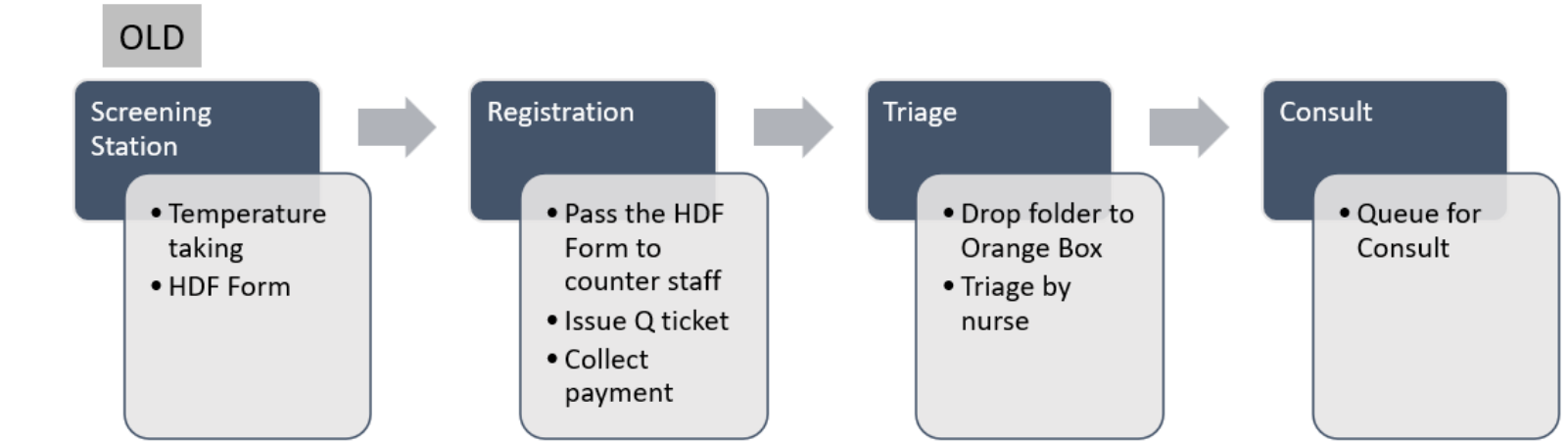
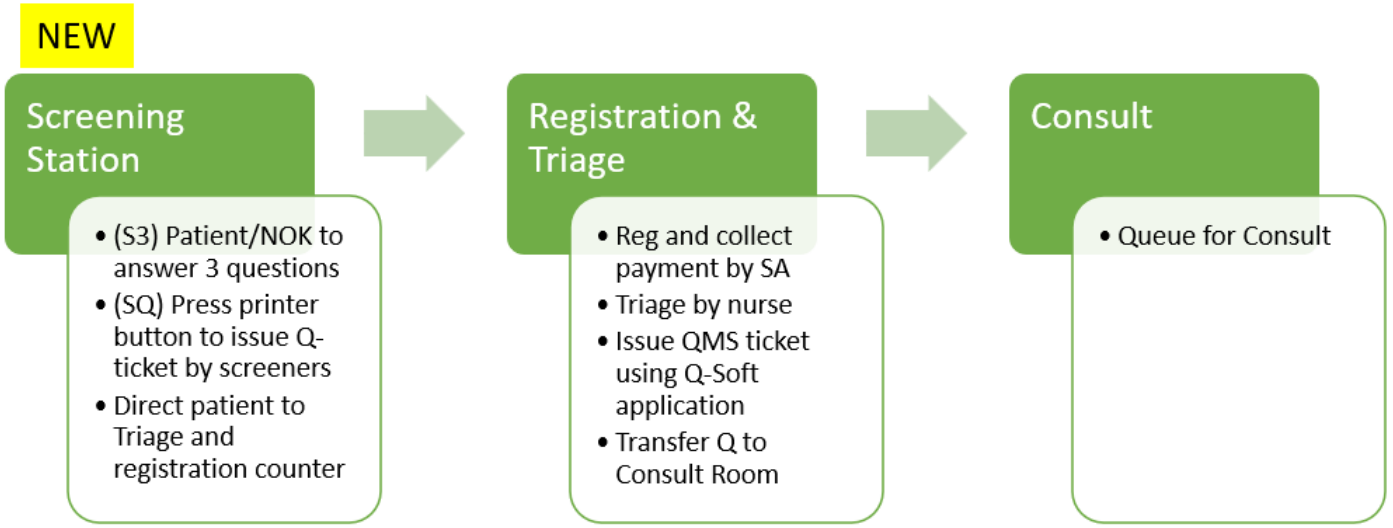
Old vs. New workflow





Appendix

Feedback obtained from caregivers as part of initial prototype

- 90% of caregivers said that this is an improvement to the existing patient journey
- 100% of caregivers were supportive

Caregivers

1. "Better, much faster, prefers this kind of service"
2. "Very good, cuts waiting time"
3. "we like, no need to wait too long with 2 kids"
4. "Triage waiting time is fair"
5. "finds it okay to talk over nurse, while attending to my child, didn't mind"
6. "No difference, but I didn't feel overwhelmed talking to the team"
7. Parents felt no interruption between triage and registration
8. Parents felt that their child's needs (vomitus bag) were immediately attended to, while they settled registration

Staff

1. Observer 1: Concerned about nurse multitasking and about staff talking over each other during registration and triage.
2. Observer 2: Mentioned about where to put the patient sticky labels?
3. Triage nurse: Felt that she could perform her role with no interruptions because of her SA partner

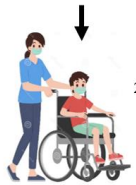
Time Savings

- Current state average (50th percentile) of arrival to end of triage time = 15 mins
- Rapid experimentation average of arrival to end of triage time = 6 mins
- Reduction of 60% !!

Appendix

CE PATIENT JOURNEY < 18 yrs except NSF


1) Patient / NOK approach screener.
Screener issue CE queue number to patient / NOK
(For those ISO and Resus cases no queue number will be given)

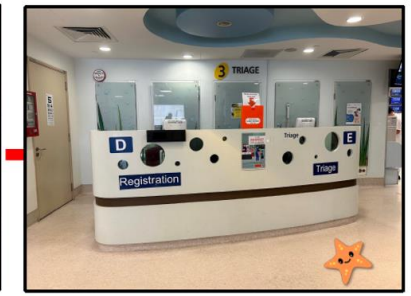


2) Patient /NOK proceed to CE waiting area
(follow CE signage)

3) Patient / NOK waiting area @ CE

4) Registration for CE patient



Visual cues directing patients to Children's Emergency

SA WORKFLOW

Presentation last modified: 12/03/2024

1) View Q number in the pad provided

2) Call patient by pressing next and guide patient to sit next to Triage Nurse

3) Concurrent happening
- SA to get patient's identification for registration and doing patient identifier
- Triage Nurse to assess

4) Upon successful registration, SA will proceed
- Issue **new** Q number via QMS upon completion of
- Print sticky label x 1 set & wrist tag x 1
- Paste 1 sticky label on pharmacy slip
- Collect payment

5) Pass to patient / nok
- New QMS Q number
- Pharmacy Slip
- Payment Invoice

6) Scan & upload referral letter etc into EPIC / SAP

SA DUTIES

- ❖ Managed Queue pad
- ❖ Registration
- ❖ Collect payment/tagging
- ❖ Scan referral letter and upload
- ❖ Assist patient / NOK on any enquiry
- ❖ FC for Scans / Admission
- ❖ Any other adhoc duties

Appendix

The team identified the waste/gaps and implemented effective workflows from arrival to consultation

S/N	Waste/Gaps	Team's idea
1.	HDF form is deemed unnecessary to proposed CE flow	• Quick CE screening tool for screeners
2.	Prolonged time to 1st medical staff contact Decreased patient experience Caregivers' unpreparedness at registration and triage stations	• Direct CE Q counter system • Merging of Registration and Triage stations and having R and T Teamlets • Patient journey signage and posters
3.	Motion waste from E-card transport	• PAC Escalation workflow
4.	Motion waste from triage nurse transferring patient and moving to and fro to CE Resus	• Supplementing R & T station with support care staff • Surge workflow

Appendix

1 Screening cum QMS recipe cards

Patient's journey

- Quick screening/assessment by screener using S3
- Obtaining Q-ticket
- Follow footsteps signs to CE to R&T counter

S3 screening questionnaire (verbal)

Upon patient arrival, please ask:
S1. Presence of rash
S2. Travel history
S3. Any contact with persons with HFMD, Chickenpox and Measles

If yes to any of the above, please bring them to Fever Facility.

If patients need to be fast tracked*, please bring them to CE Treatment room

**Drowsy, active fitting/ongoing seizure, severe respiratory distress*

Q-ing for R&T

Pt arrives at CE Q machine → Pt pressed for Q → Translated to CE QMS pool → SA calls for Q (@R&T counter) → Pt walks to R&T counter

2 R & T Teamlet Recipe card

Patient Service Associate/PRO

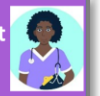
Call via QMS
↓
Receive BC/ID
↓
Registration
- 2 Pt identifiers
- Verify Address / Contact numbers
- Scan relevant documents
- Print wrist tag/stickers
- FC for scans/U/S

↓
Transfer Q to consult

Triage Nurse

Start Triage
- Verify 2 pt identifiers
- Chief complaints
- Vital signs
- Taking weight (only for 12 years and below)
- Serve pre-ordered paracetamol following reference guide

Healthcare Assistant Basic Care Assistant



- Assist with weight taking
- Transfer to CE Resus
- Render Simple First Aid

3 PAC escalation workflow between Triage Nurse and Snr Dr

Triage Nurse

- ✓ Allocates PAC status
- ✓ May further highlight cases for especially urgent review in "comments" dashboard
- ✓ To use ED track board for comms with regards to procedures (urine samples, medication etc)

Senior Doctor

- ✓ Picks up suitable P2 cases
- ✓ Assigns suitable P2 and P3 patients to junior doctor in relevant order

- ❑ **Allows suitable P2 cases to be seen ahead of P3 cases via EPIC dashboard**
- ❑ **Removes need for Triage nurses to transfer physical E-card to CE Resus**

4 Surge workflow

Registration & Triage waiting time > 30 mins (8 pax or more waiting in Q)

→ Triage Nurse activates 2nd nurse from CE resus to come over (if required)

→ If CE nurses are engaged in Resus, CE Charge nurse will activate help from EMD coordinator/Paeds coordinator