Khoo Teck Puat Hospital
NHG Health

Yishun Community Hospital
NHG Health

Increase Uptake of Elastomeric Infusion Pumps (EIP) for Suitable Patients in KTPH@Home

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Background

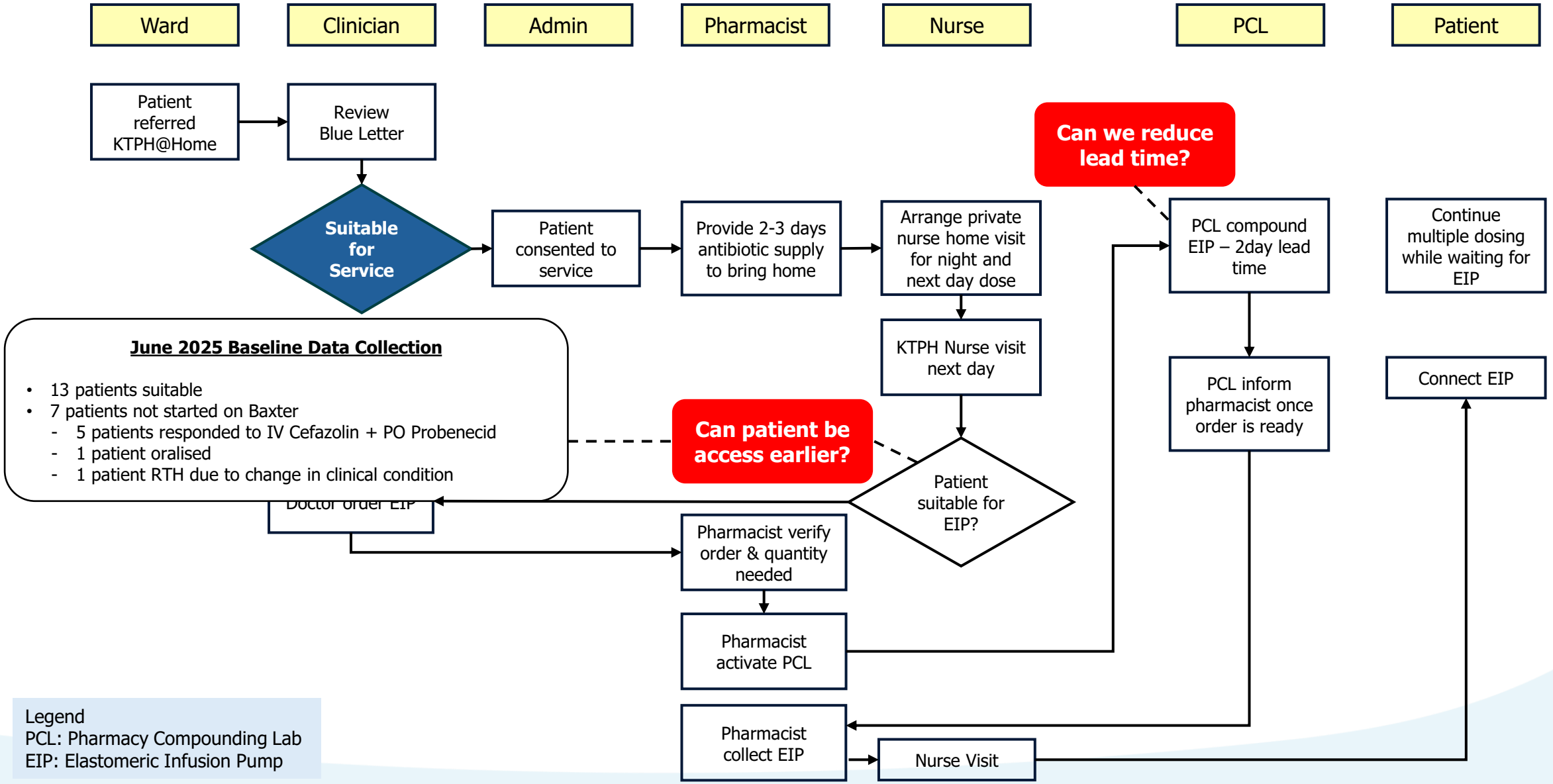
At KTPH@Home, the introduction of **elastomeric infusion pumps (EIP)** has transformed the administration of selected intravenous antibiotics from multiple daily doses to a single daily dose, thereby reducing both nursing manpower requirements and operational costs while maintaining optimal patient clinical outcomes.

Reason for Action

As such, we would like to examine the processes involving EIP usage and identify opportunities for improvement and optimisation, with the aim of increasing utilisation rates.

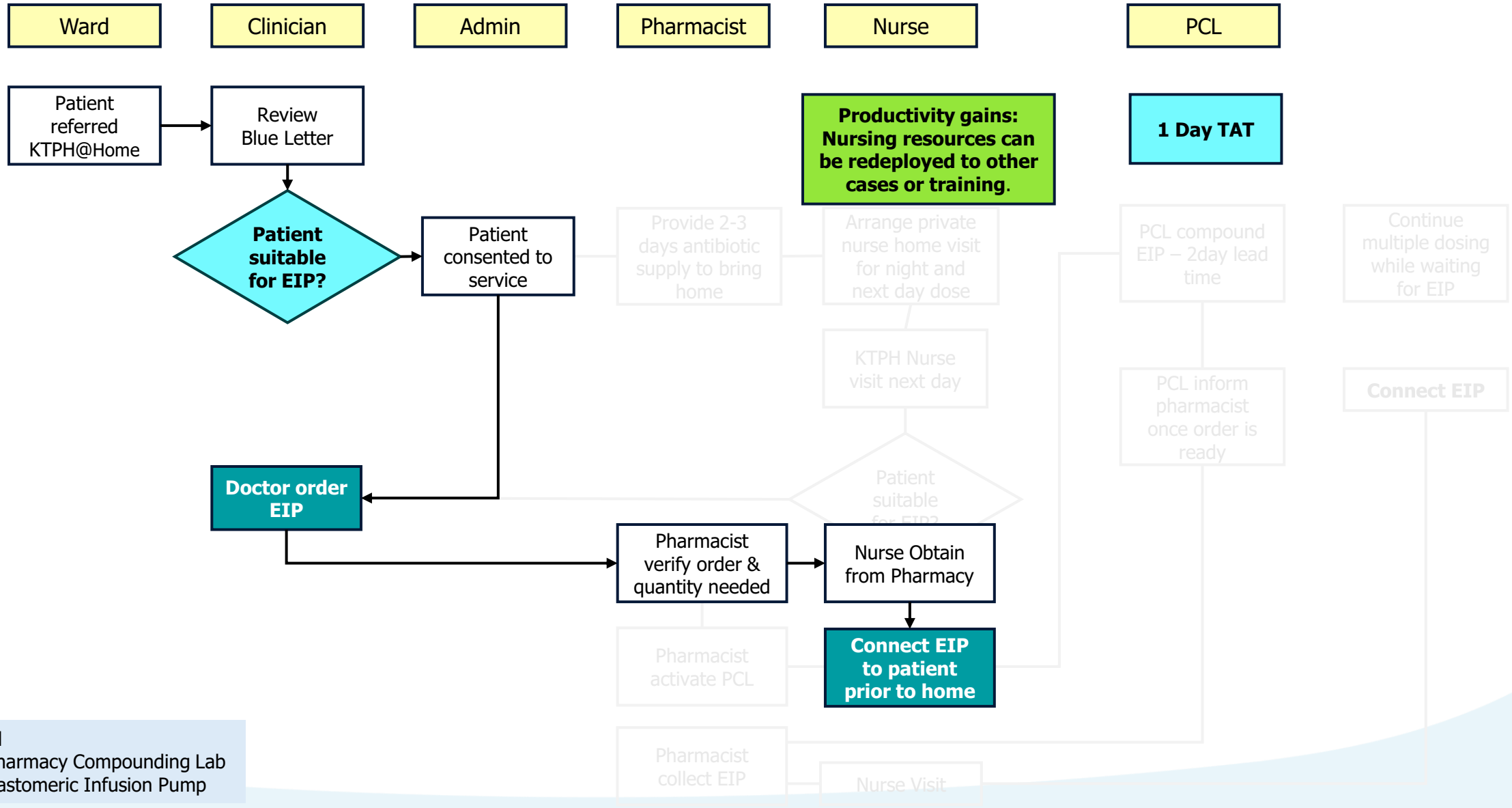
By increasing utilisation rate, we can further reduce operational cost and increase efficiency.

Initial state



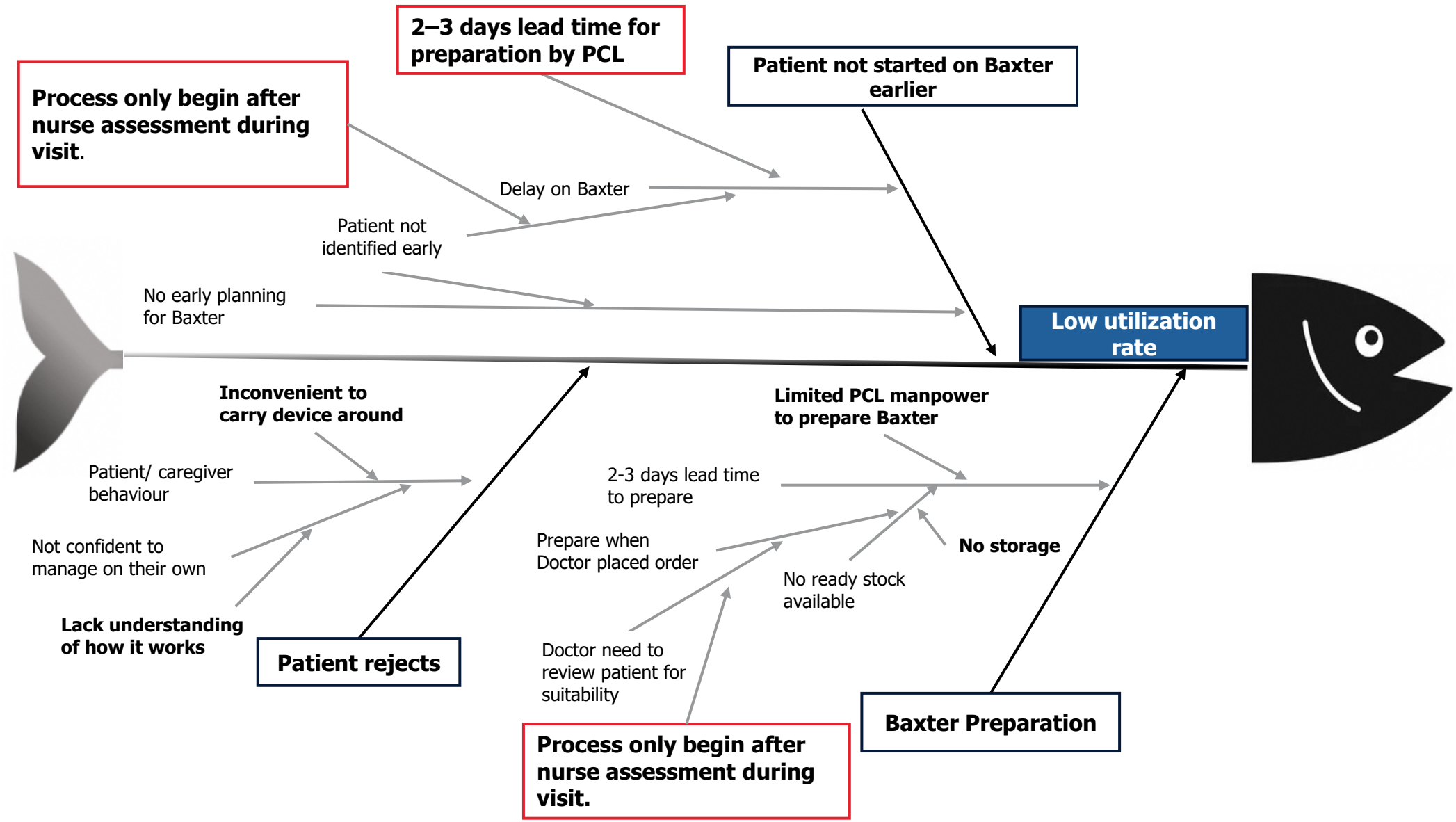
Legend
PCL: Pharmacy Compounding Lab
EIP: Elastomeric Infusion Pump

Target state



Legend
PCL: Pharmacy Compounding Lab
EIP: Elastomeric Infusion Pump

Gap Analysis – Fish Bone



Solution Approach

Gap identified	Proposed Solution
• Patient not started on EIP earlier	Early identification of suitable patient and assessment for EIP prior to KTPH@Home transfer
• PCL 2-3 days Lead Time	Pharmacy to prepare ready stock to reduce TAT

Rapid Experiment

Experiment 1

Plan
- Early Identification of suitable patients by MIC Consultants on duty.
- Work with Pharmacy for ready stock to reduce turnaround time (TAT).

Do
- Trial early patient identification in July-August 2025.
- Pharmacy to prepare ready stock to reduce TAT.

Challenges
- Low BOR in Jul-Aug, unable to carry out Trial.
- Risk of potential wastage due to short lifespan of EIP (7 days) if unused.

Adjust
- Adjust plan for PCL preparation to 1 day TAT instead of ready stock.

Experiment 2

Plan
- Early Identification of suitable patients by MIC Consultants.
- Appoint lead doctor to oversee trial.
- **Pharmacy agreed to shorten TAT to 1 Day.**

Do
- Continue trial early patient identification and 1 day TAT from **29 Sep-12 Oct 2025.**
- Assigned leads – Dr Ranjeev & Dr Boh.

Dataset
- 4 patients benefited from early identification process.
- 1 existing patient activated.

Analyse
- Outcome analysis for further improvement.

Outcome

Rapid experiment conducted from 29 Sept to 12 Oct 2025.

Solution	Outcome	Man-hours Saved	Cost Avoidance
Early identification of suitability for EIP	4 patients identified - 2 started on EIP - 1 patient rejected - 1 patient changed of treatment plan	Time saved: 2 patients x 2 days = 4 days No. of home visits (HV) avoided: 2 HV per day x 4 days = 8 HV **Man-hours saved:** 8 HV x 2 hours = **16 hours**	**Cost Avoided for 2 patients:** 8 HV x $93 (Cost of HV) = **$744**
One day turnaround for EIP	1 existing patient activated	Time saved: 1 patient x 2 days = 2 days No. of home visits (HV) avoided: 2 HV per day x 2 days = 4 HV **Man-hours saved:** 4 HV x 2 hours = **8 hours**	**Cost Avoided for 1 patient:** 4 HV x $93 (Cost of HV) = **$372**

Insight

	Key Points
What went well?	• Early identification of suitable patients enable early start on EIP. • Pharmacy achieved 1-day TAT for preparation. • Reduced nurse visits and achieved cost savings. • Smoother transition and continuous antibiotic delivery.
What did not go well?	• Low BOR during experiment period limited trial data collected. • Rotating consultants made it challenging to have consistent process of patient assessment and identification.
Learning Points	• Timely planning and consistent workflow ensure continuity of patient care. • 1-day TAT preparation is more sustainable currently than maintaining ready stock as it helps reduce potential wastage during low BOR period. • Patient rejection reason can be a potential area for exploration and improvement.

Future Plan

Goal: Achieve **zero lead time** through ready stock availability in pharmacy.

Q1 2026

Review feasibility of ready stock

Work with PCL to assess feasibility and access for maintaining ready stock.

Q2 2026

Test limited ready stock

Start with small volume to align with patient load (BOR) to optimize use and reduce wastage.

Analyse utilization and wastage

Analyse utilisation rate and any wastage data.

Q3 2026

Evaluate impact of implementation

Evaluate workflow process and outcomes.

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Thank You