

Improving Lumbar Puncture Success with Ultrasound Guidance

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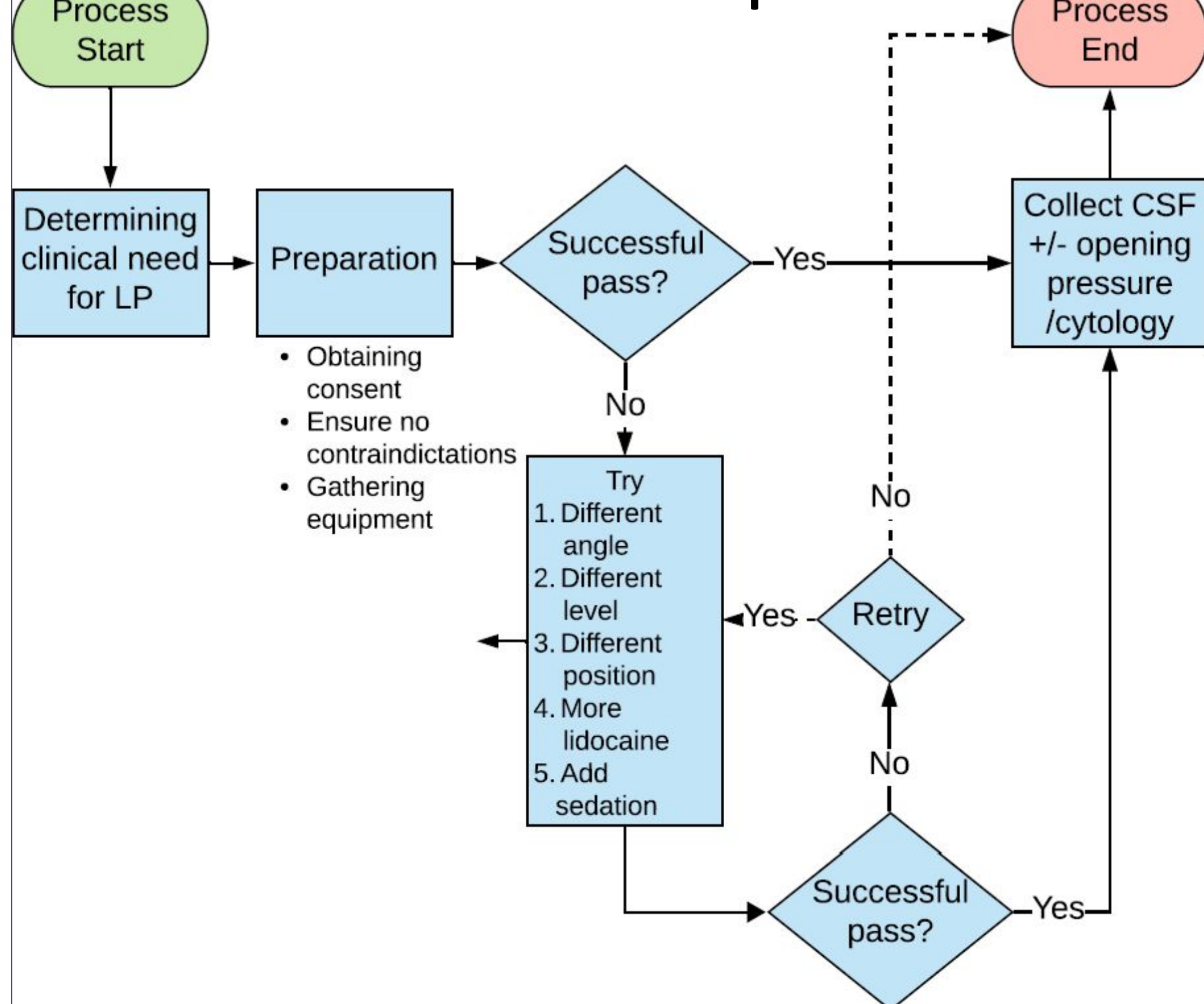
AIM: By December 2026, reduce the number of unsuccessful lumbar punctures in CNS inpatients by 30%

PROBLEM DEFINITION

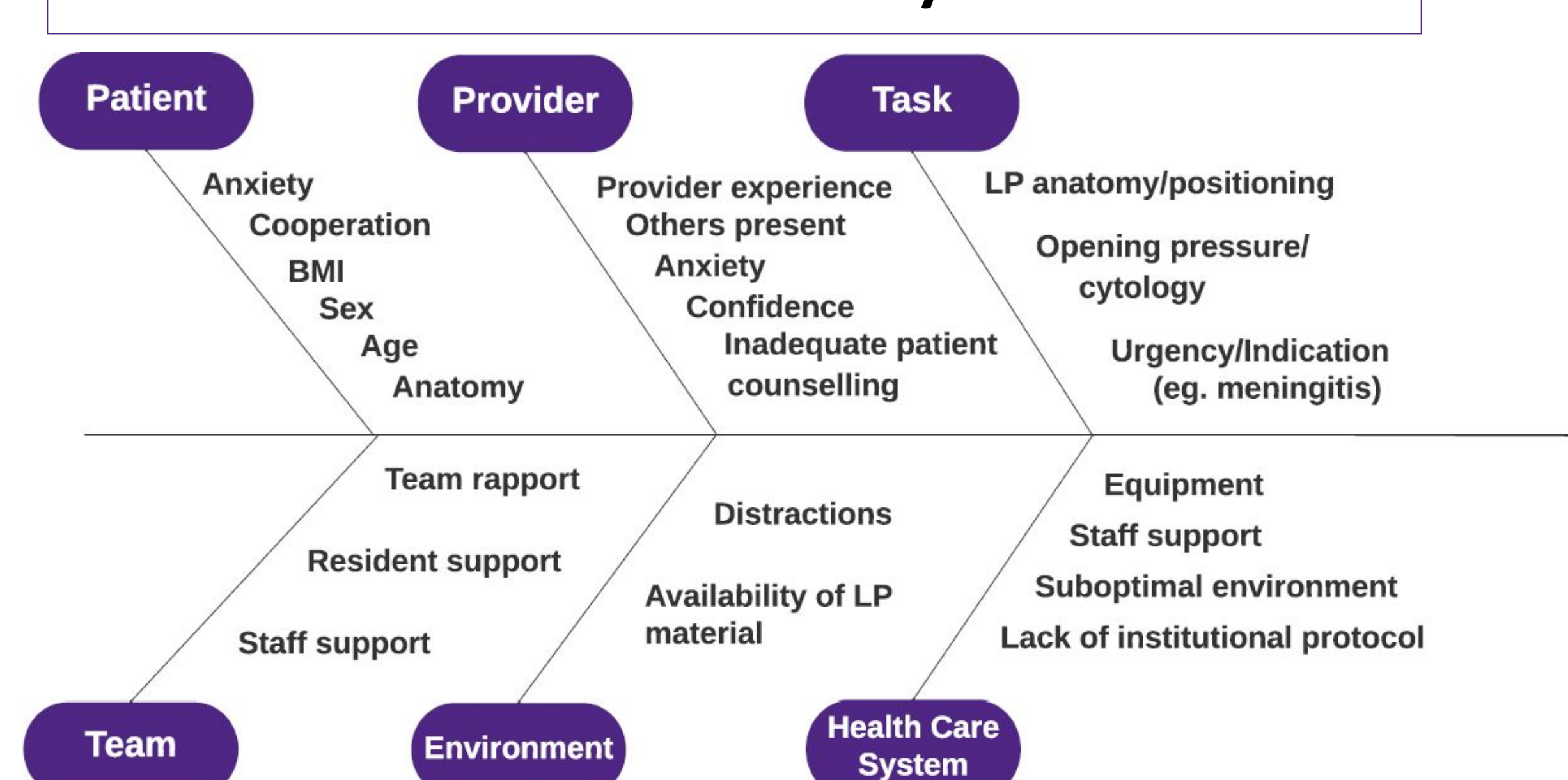
Chart Review Data

	Inpatient UH CNS, N= 38 2024 Jan-Aug	Outpatient LP clinic, N=32 2024 Jul-Oct
% Successful	86.8%	87.5%
% requiring >1 attempt	55%	50%
% requiring >1 physician	32.3%	31.3%

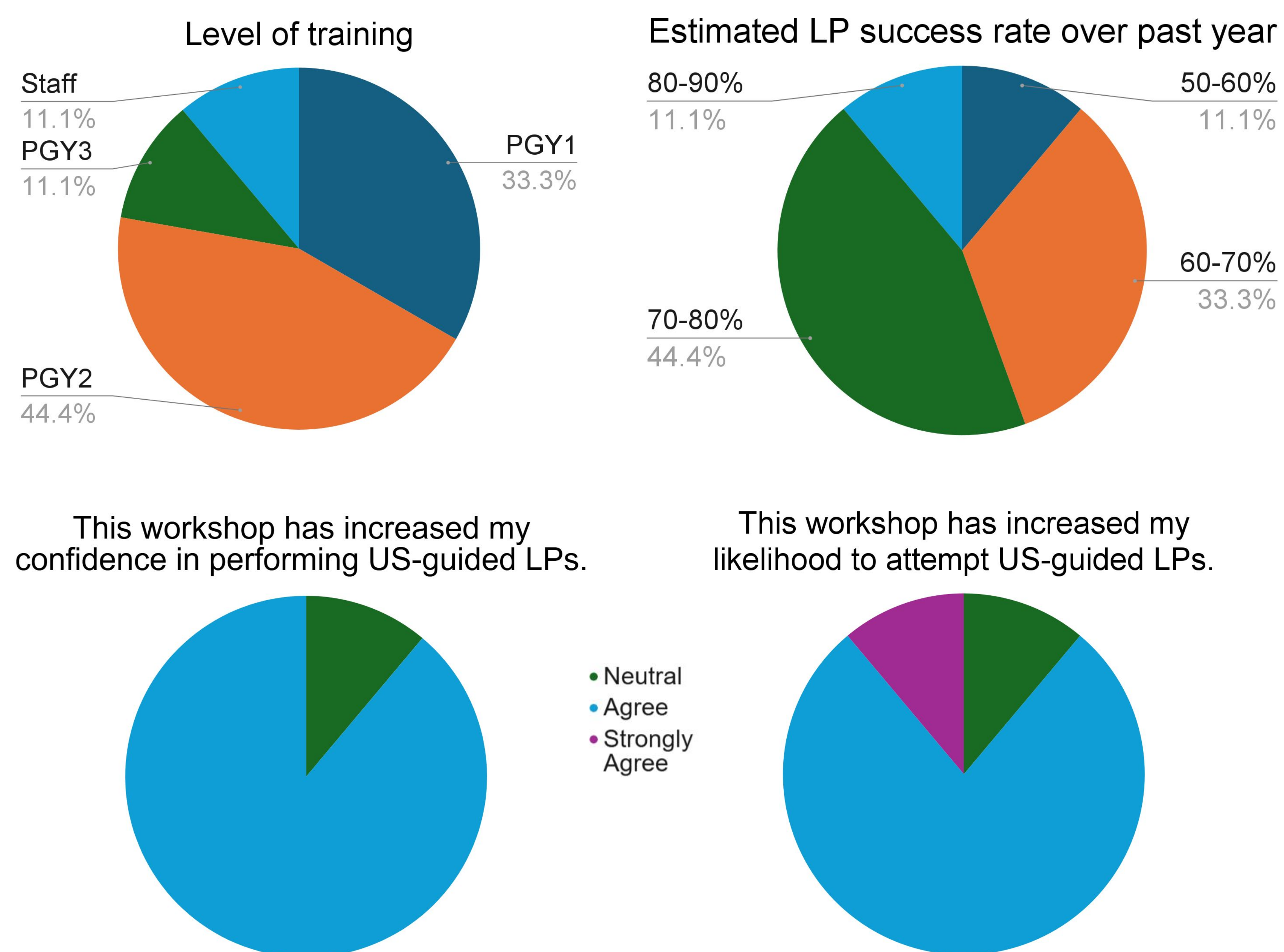
Process Map



Root Cause Analysis



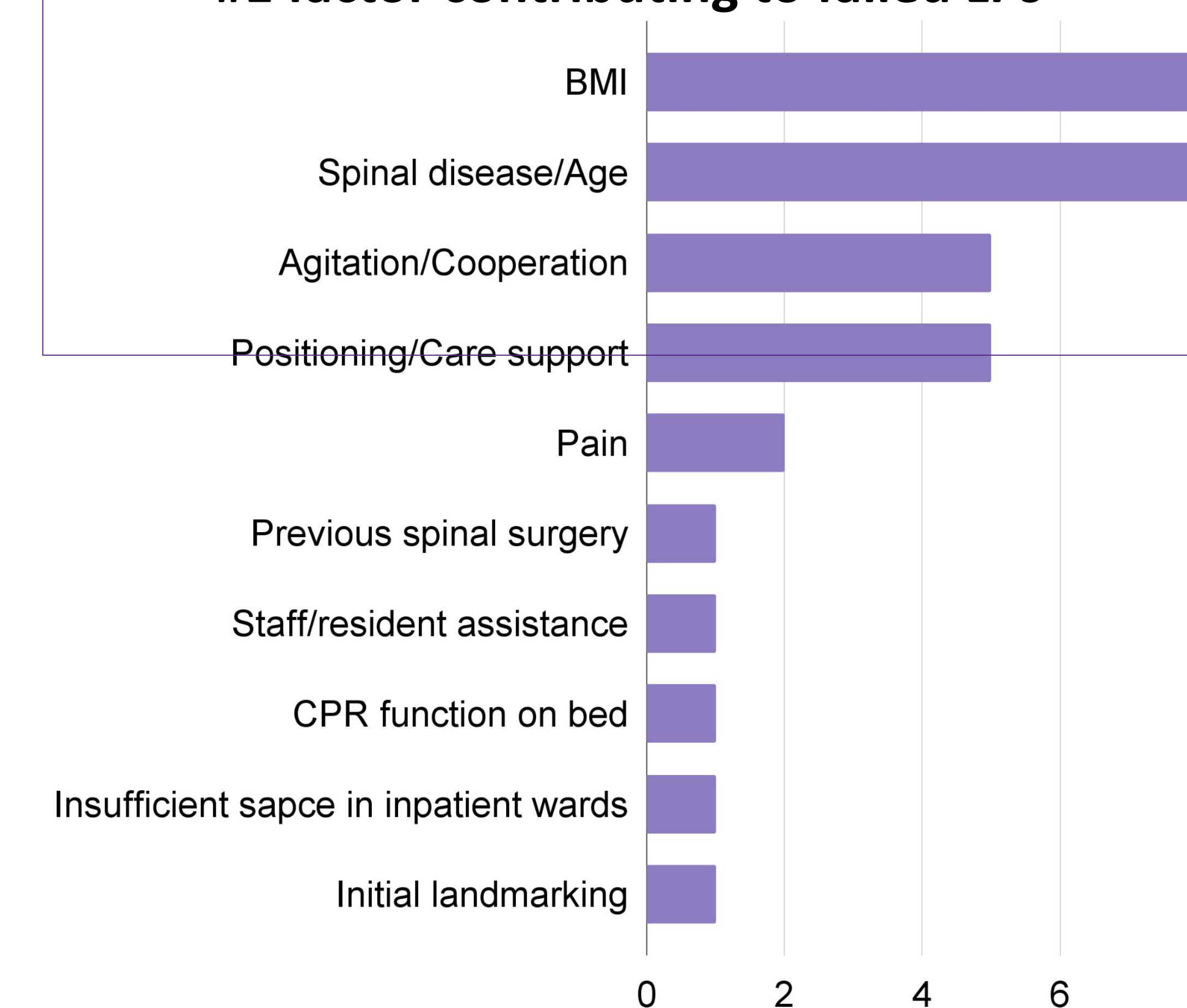
Post workshop survey (N=9)



PRE-INTERVENTION SURVEY

Resident survey (N=13)

#1 factor contributing to failed LPs



INTERVENTION

Ultrasound guidance to improve visualization for LP anatomy (BMI and spinal disease)

IMPLEMENTATION

Ultrasound-guided LP workshop 03/11/2025

- Attendance: 12 residents, 1 fellow, 4 staff
- 1 hour didactic + 1 hour small group

MEASUREMENT & RESULTS

SUSTAINABILITY

- Process owner: Kai Qing Xiong
- New standard: Annual ultrasound-guided LP workshop as part of academic half day

Process Measures

Survey Post-Workshop

- Improved confidence in USLP skills
- Improved likelihood to use USLP
- Suggestions for improvement

Outcome Measures

Chart Review Data

- Outpatient (LP clinic) LP success rate
- Inpatient (CNS) LP success rate

Balancing Measures

6 months Post-Workshop Survey

- More time spent with preparation
- More time spent with patients
- Suggestions for improvement

NEXT STEPS

- 1-3 additional workshops for unavailable faculty/residents
- Mandatory workshop with LP clinic faculty
- Implementation of ultrasound use in LP clinic