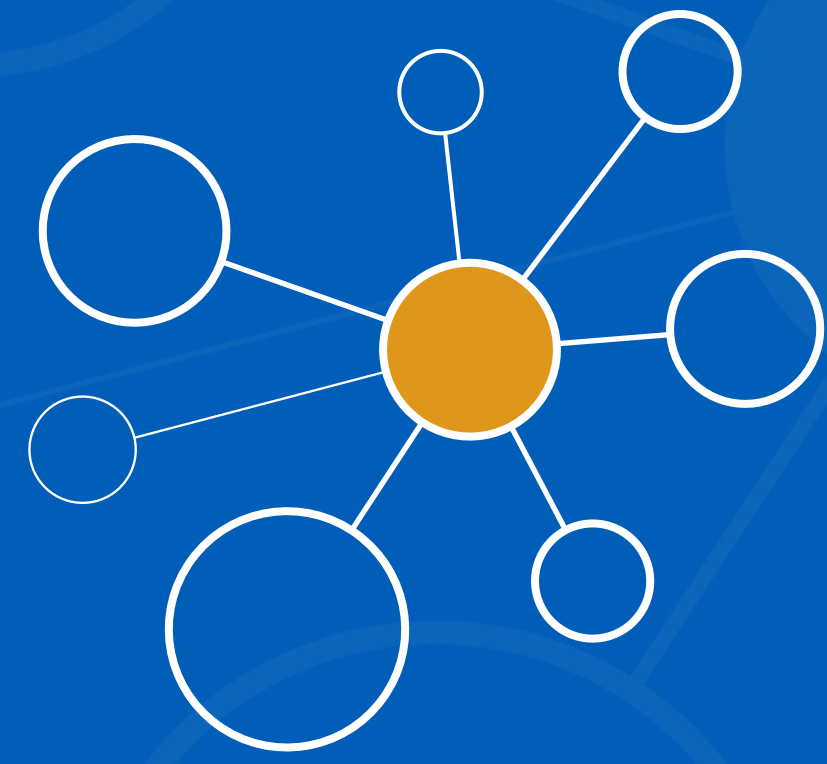




Gloucestershire Safety and Quality Improvement Academy 2026

Improving Day-Case Nephrostomy Exchange Efficiency by Reducing Post-Procedure Observation Time: a Silver QI Project

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Background and Reason for Project:

- Long term NHS and Trusts own Fit for the Future plans both focus on reducing waiting times for planned surgical procedures, as part of the NHS 2022 delivery plan for tackling the covid backlog of elective care.
- Part of this plan is to procedure high volume planned care making efficient use of taxpayer's resources and to create extra capacity.
- Royal College of Radiologists recommends expanding day case facilities for IR departments to help reduce covid backlogs and to increase capacity for IR patients.
- IR can help reduce surgical waiting lists as IR procedures require shorter hospital stays by 50% compared to surgical alternative and are 23% cheaper.
- 5 bed day case unit CGH and 4 bed at GRH
- Nephrostomy exchange procedure selected as routine day case procedure.

SMART aim

To reduce the average length of stay for nephrostomy exchange patients from two hours to maximum 45 minutes within six months.

Measures

- Outcome measure:
 - Average post op stay under two hours.
- Balancing measures:
 - Patient pain levels
 - Patient satisfaction questionnaire

Baseline Data

- 173 patients sampled over 6 months.
- 107 patients required 2 hours post op stay.
- 66 patients stayed maximum 45 minutes post op.
- 61% Patients require two-hour post op stay
- Prescribed Opioid (Fentanyl) pain relief cause of two-hour post op stay.

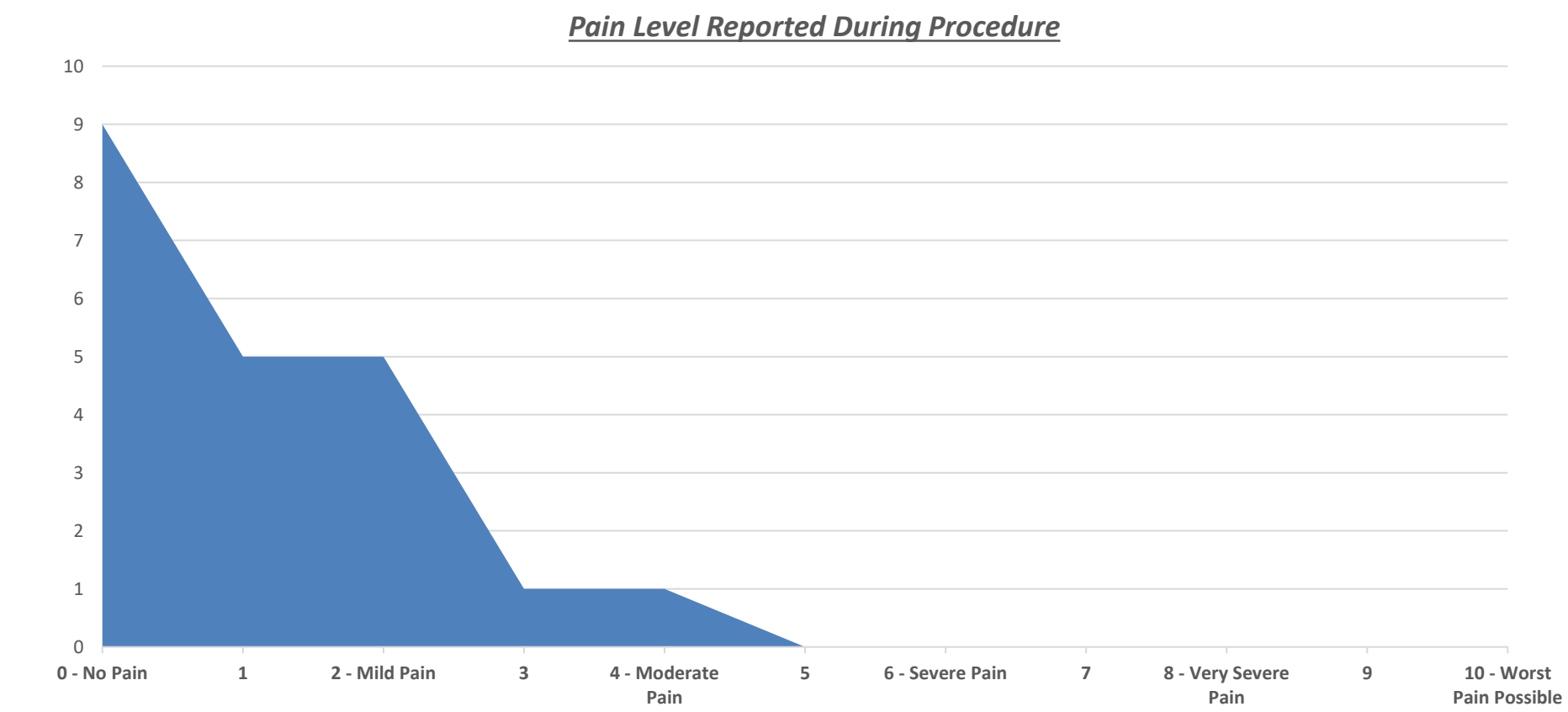
Average cost of planned nephrostomy exchange

- Contrast Fluoroscopy procedure with duration of up to 20 minutes: **£63.07***
- Day case stay: **£331.02**** (with IV fentanyl)
- Total: £394.09**
- (*Contrast Fluoroscopy procedure costing Provided by National Schedule of NHS costs)
- (The Kings Fund 2023)
- (HRG code for Percutaneous, Attention to or Removal of Nephrostomy: **£443**)

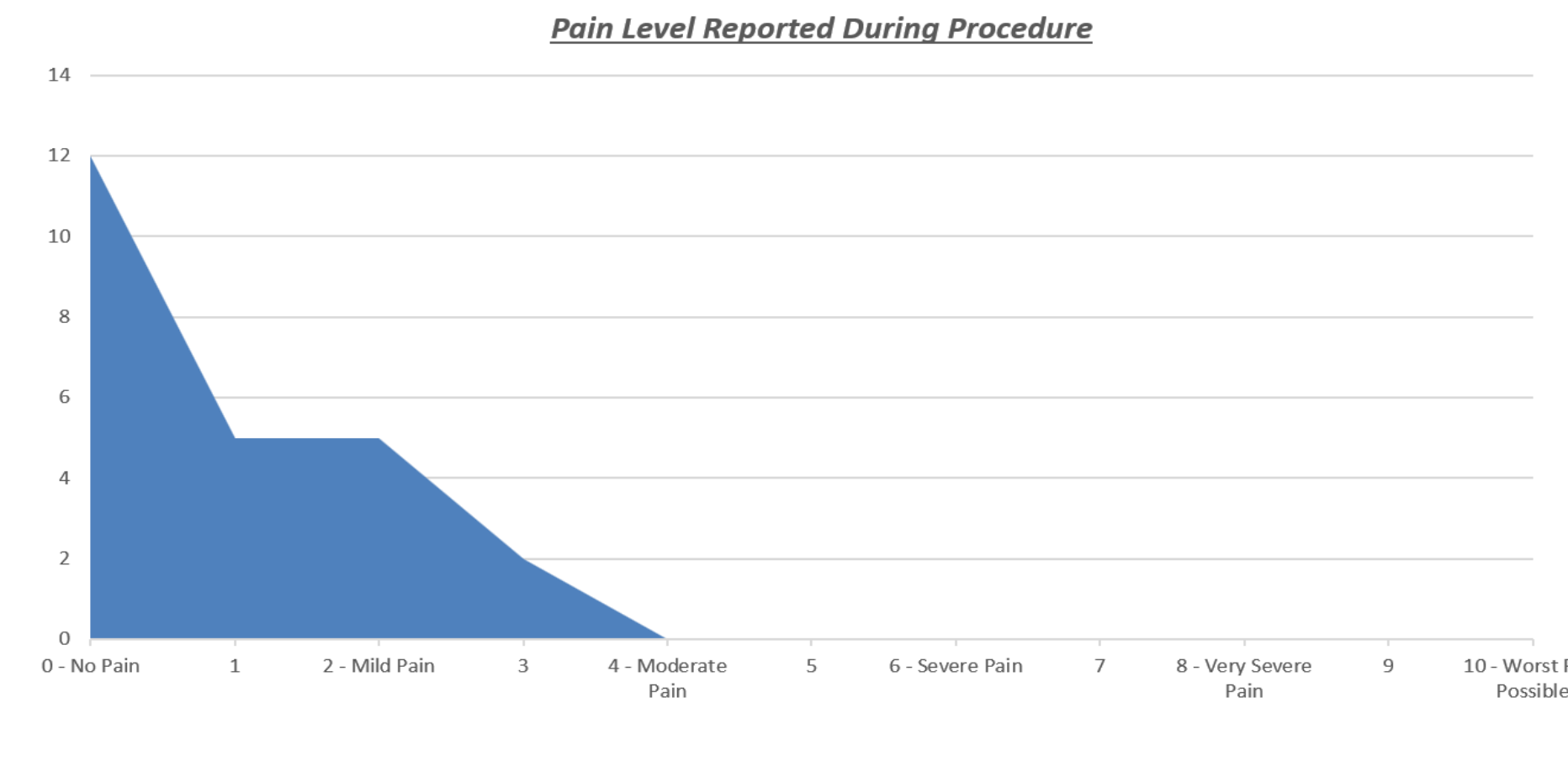
PDSA

Plan	- To offer OraMorph to patients instead of Fentanyl - After six months review patient pain levels during the procedure. - Predicated outcome: - No change to patients pain levels. - Decrease in the number of patients staying for two hours.
Do	- Research OraMorph PGD - Inform Patients of the change - Inform Nursing team
Study	- After six months collect data: Patient pain levels and number of patients staying for two hours. . - Display in graphs and tables. - Do the results match the predicated outcome?
Act	If the service is comparable continue for a further six months.

Pre- Change: Pain Levels Reported During Procedure:



Post Change: Pain Levels Reported During Procedure:



Changes:

- Morphine 10mg/5ml Oral Solution
- Dose: 5mg-10mg (2.5-5ml) Pre-procedure
- Peak Levels 15 minutes post administration
- Bioavailability: 25%
- One third of morphine is protein bound
- 1 hour post administration stay due to lower potency and drug predictability.
- Patient Discharged 1 hour 15minutes post administration. (30minutes post procedure)

Additional changes:

- Stress balls given to patients as a distraction technique.
- Music played during procedures .
- Patients recommended to take oral paracetamol 1-2-hours pre-procedure.
- Increase in patients not requiring any pain relief.
- Day case stay: **£132.02*** (No pain IV pain relief) (*Day case costings provided by GHFT costing team)
- £199** saving per patient

Quantitative Data:

- 173 patients sampled over 6 months.
- 23 patients required 2 hours post op stay.
- 150 patients stayed maximum 45minutes post op.
- 86% Patients require maximum 45minutes post op

Reasons for two hour stay:

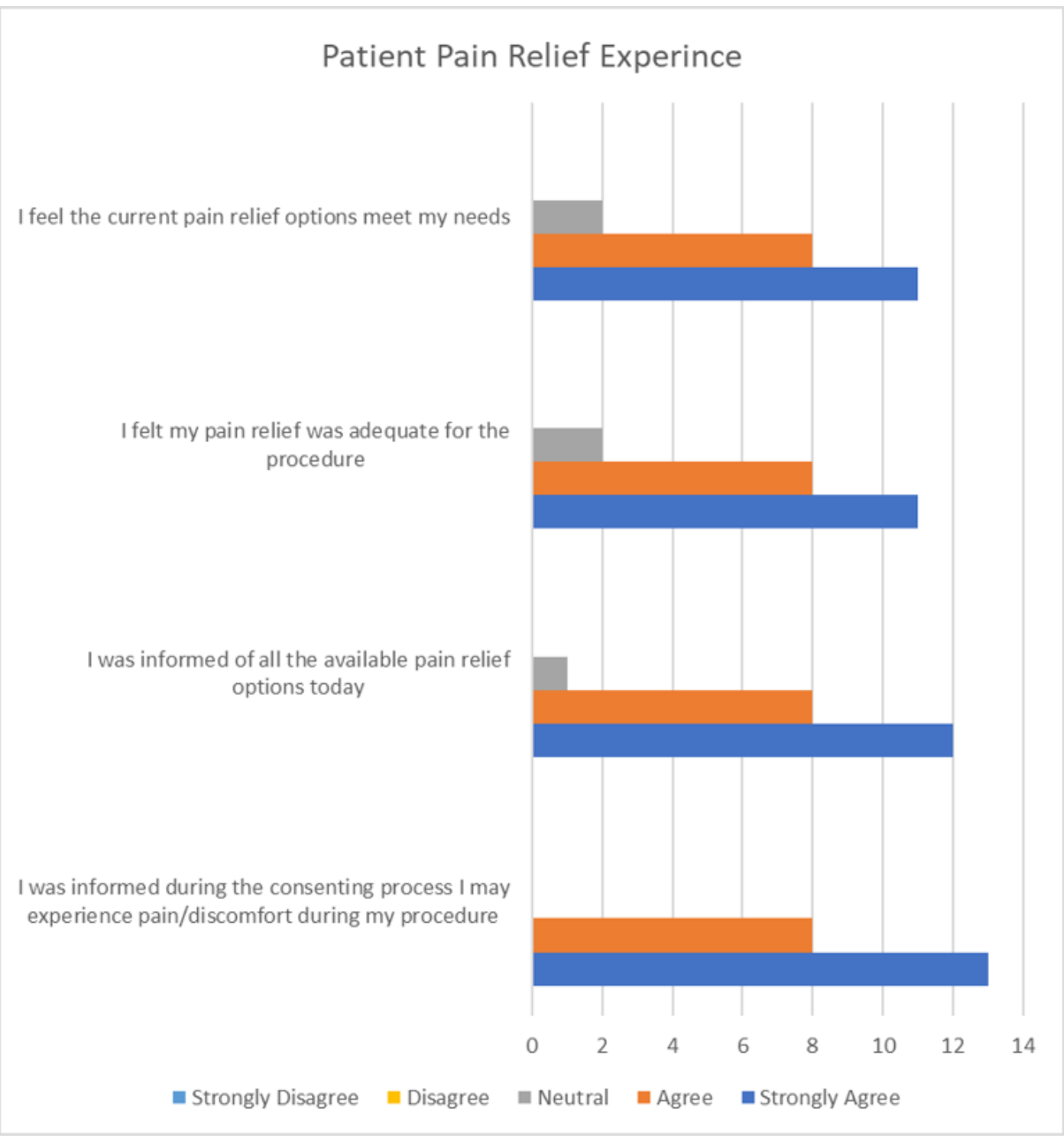
- Blocked/non-draining nephrostomy
- High opioid tolerance
- Other conditions

Supporting Evidence:

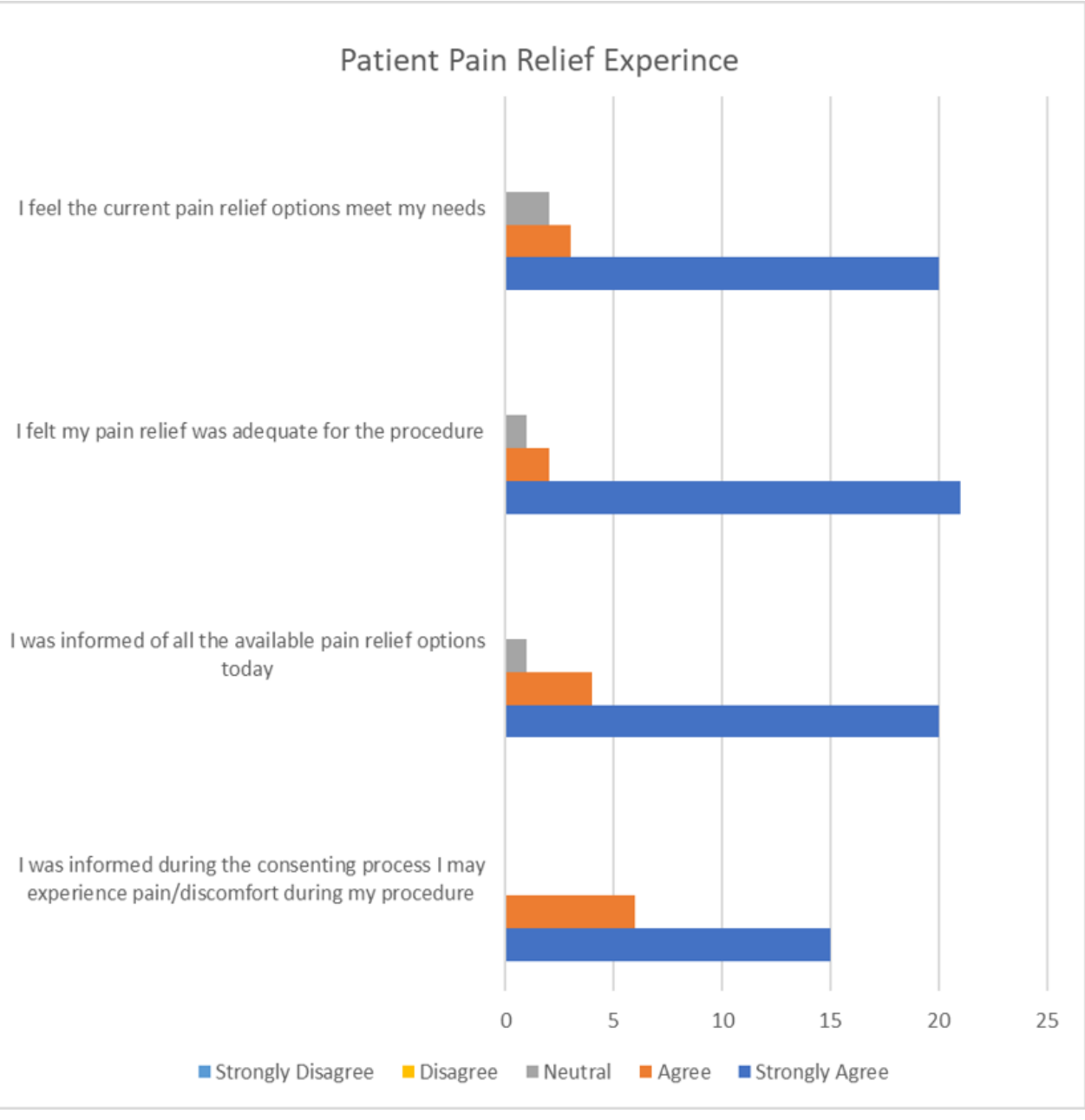
- Fentanyl is a synthetic opioid that is 50-100 times stronger than morphine. Fentanyl is an agonist and produces strong analgesia reaction through its activation of opioid receptors. It has a duration of action of several hours and a wider therapeutic index as patients develop tolerance to opioids.
- Respiratory depression is a major concern with opioid analgesics, and it may be treated by artificial ventilation or be reversed by naloxone. Narcosis occurs when the lungs fail to exchange carbon dioxide and oxygen efficiently. This dysfunction leads to a build-up of carbon dioxide in the body. This build-up of carbon dioxide will cause acid to build up in the body, leading to respiratory acidosis.
- 100% bioavailability (IV)
- 80% of Fentanyl is protein bound
- Requires 2 hours post op stay due to drug potency

Supporting Evidence:

Patient Questionnaire Pre-Change

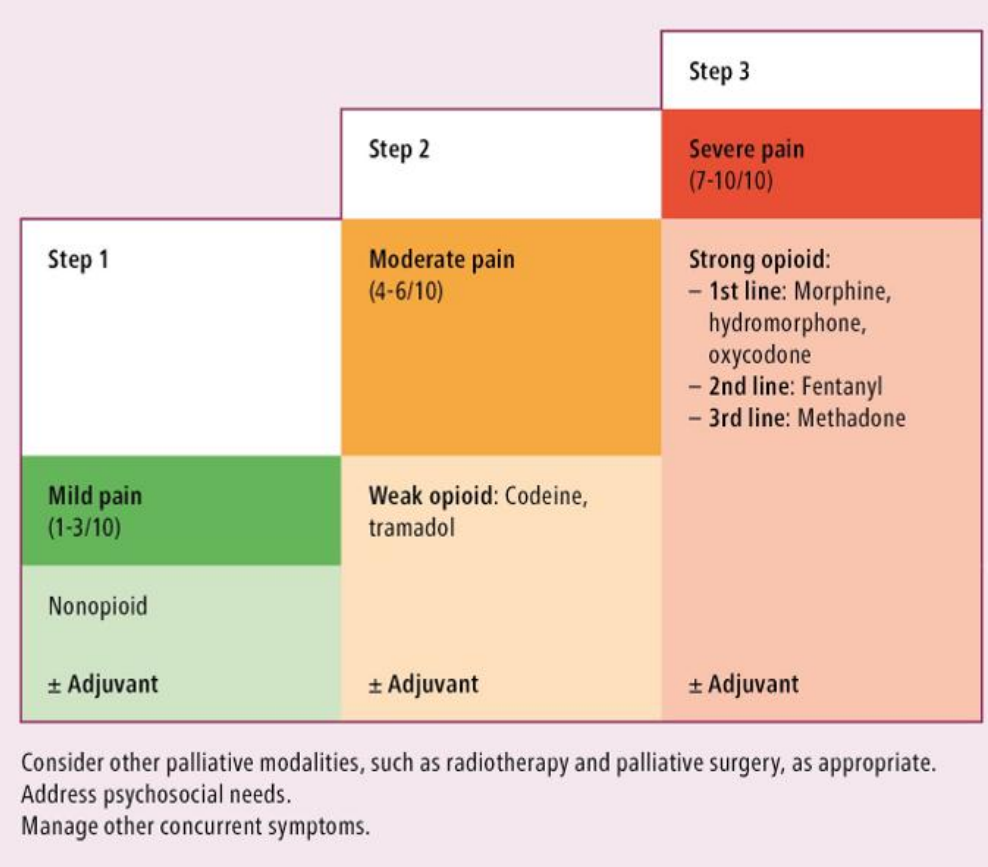


Patient Questionnaire Post-Change



Supporting Evidence:

WHO Analgesic Ladder



- Ladder demonstrates when to prescribe analgesia.
 - Mild to moderate pain non to weak opioid medication
 - Fentanyl is classed as strong opioid drug.
 - Fentanyl recommend for severe pain relief.

Next Steps:

- Implement OraMorph PGD to radiology
- Add pharmacology advice to patient leaflet.
- Scale up service:
 - Increase number of slots
 - Review other interventional procedures pharmacology.

#TheGSQIAWay