

# ANALGESIA IN ENHANCED RECOVERY AFTER CARDIAC SURGERY

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## INTRODUCTION

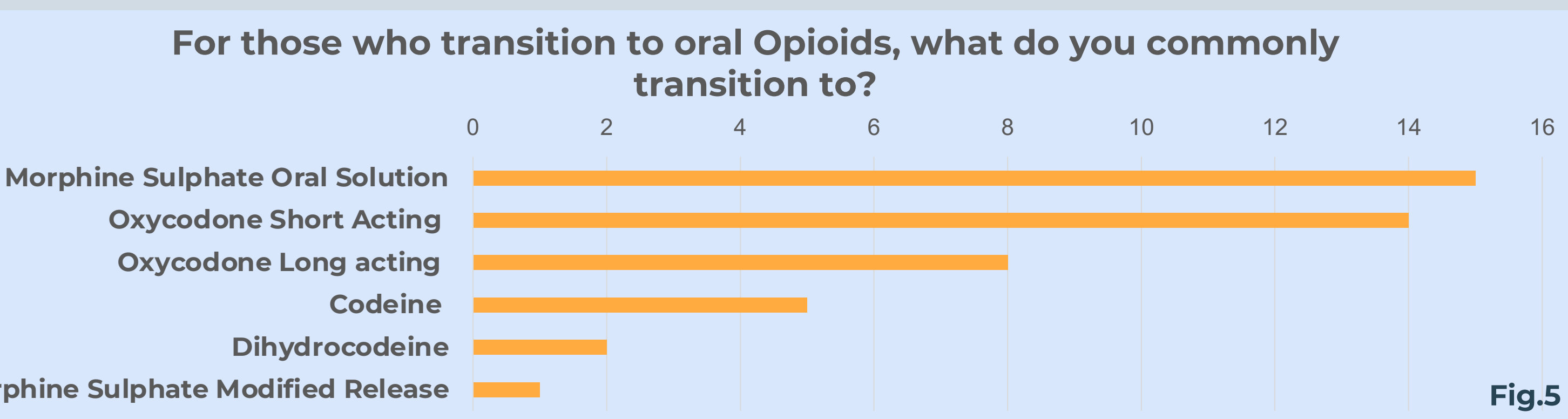
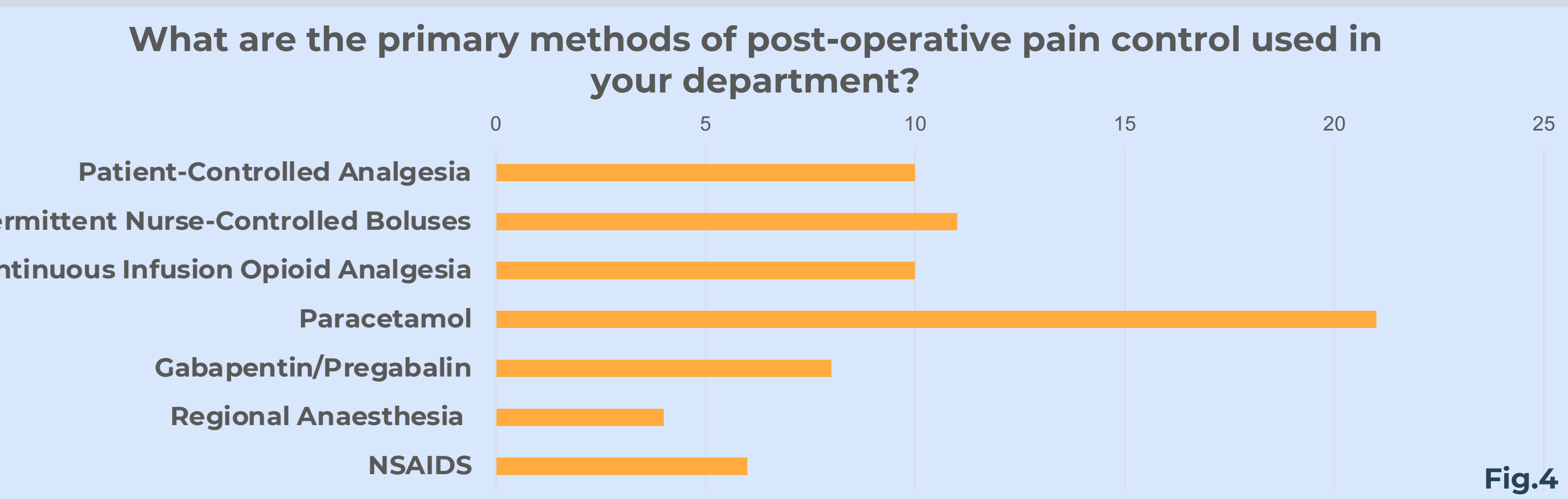
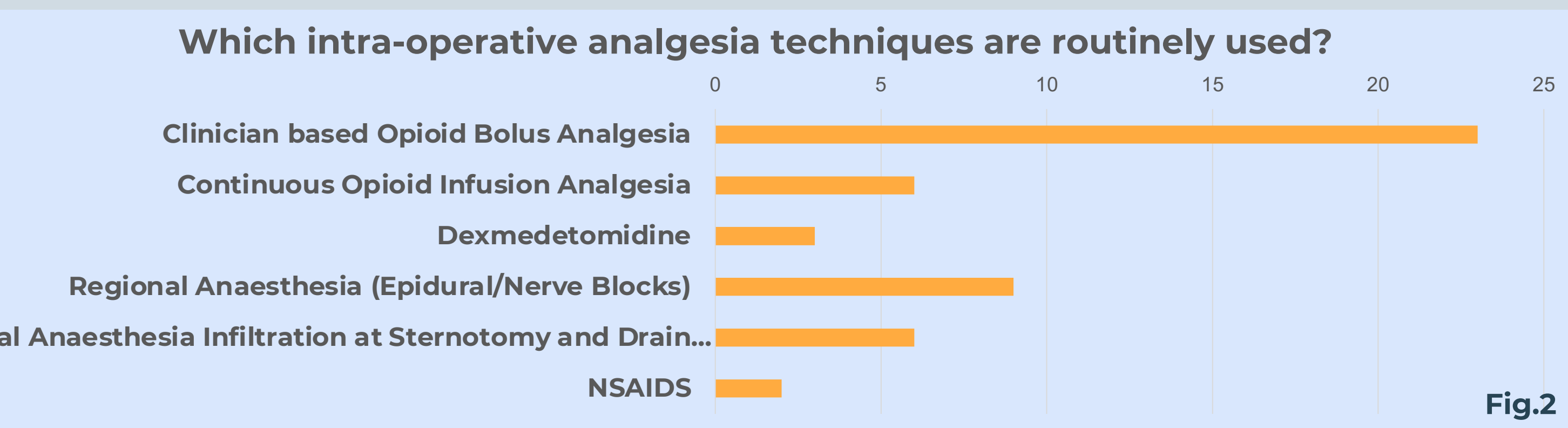
Enhanced Recovery After Cardiac Surgery (ERACS) is multifaceted, with effective analgesia being a vital component. As part of developing a comprehensive ERACS pathway, we aimed to design a simple, effective and standardised analgesia strategy to support early rehabilitation and recovery to facilitate other vital components of the pathway.

## RESULTS

The findings to ascertain current practice from the initial snapshot audit revealed that administration of analgesia was variable, being clinician-dependent and non-standardised. Regional anaesthesia was not often utilised and there was scope to create a standardised analgesia protocol to act as a framework towards developing a comprehensive pain management pathway.

From the initial snapshot audit the main findings were; (Figure 1)

- Average Intra-operative analgesia was Fentanyl at an average dose of 400mcg
- Regional Anaesthesia was used in 3/30 patients
- IV opioid usage was highest on D1 and D2 post operatively
- Morphine dosages were higher than that of Oxycodone
- All IV Opioid usage ceased by D3
- Between D1 and D2 both IV and PO routes were utilised



## CONCLUSION

From the initial audit and the ACTACC national survey, we were able to create a clear, standardised analgesia protocol. The intention of this protocol is to provide an initial framework with potential for further development, while also offering a structured and holistic approach to delivering an appropriate amount of analgesia, all the while maintaining clinician autonomy. The protocol also needed to reflect the recent MHRA publication, which removed the recommendation for prolonged-release opioids in post-operative pain management due to the risks of persistent post-operative opioid use (PPOU) and opioid-induced ventilatory impairment (OIVI).<sup>1</sup>

The poster opposite represents an abbreviated version of the detailed protocol. Within the full protocol, we emphasise the importance of:

- Patient education to help patients understand what to expect during the post-operative phase of their recovery.
- Utilisation of regional anaesthesia, where appropriate, in addition to multimodal analgesia.
- Regular review and minimisation of immediate-release opioid use upon discharge to the ward.
- If necessary, discharge home with a limited supply of immediate-release opioids, with clear communication to primary care.

This project forms part of a larger initiative to create an Enhanced Recovery After Cardiac Surgery (ERACS) pathway within the Trent Cardiac Unit. The next phase will assess adherence to the analgesia protocol and evaluate changes in Opioid usage following the introduction of this standardised approach and the use of regional/local anaesthetic infiltration.

## REFERENCES

1. <https://www.gov.uk/drug-safety-update/prolonged-release-opioids-removal-of-indication-for-relief-of-post-operative-pain>

## METHODS

The initial steps were to ascertain our current practice and so we performed a snapshot audit, collecting retrospective data on 30 recent and consecutive patients. We collected data on pre-, intra- and post-operative analgesia from anaesthetic charts and Electronic Prescribing and Medicines Administration (EPMA). To gain knowledge on wider practice, a national survey was distributed through the Association for Cardiothoracic Anaesthesia and Critical Care (ACTACC). We consolidated data from our audit and the national survey to develop a well-defined, standardised protocol. This protocol was then incorporated into the comprehensive ERACS pathway, which was implemented in the Cardiac Intensive Care Unit (CICU).

| Analgesia     | D0     | D1    | D2   | D3    | D4     | D5    |
|---------------|--------|-------|------|-------|--------|-------|
| IV MORPHINE   | 12.5mg | 18mg  | 20mg | 0     | 0      | 0     |
| IV OXYCODONE  | 6.6mg  | 14mg  | 7mg  | 0     | 0      | 0     |
| ORAL MORPHINE | 0      | 11mg  | 15mg | 30mg  | 10.5mg | 22mg  |
| PO OXYCODONE  | 0      | 7mg   | 13mg | 15mg  | 12.5mg | 14mg  |
| CODEINE       | 0      | 0     | 0    | 0     | 0      | 0     |
| GABAPENTIN    | 0      | 250mg | 0mg  | 200mg | 250mg  | 250mg |
| PARACETAMOL   | 2g     | 4g    | 4g   | 4g    | 4g     | 4g    |

Figure 1: Average 24 hour analgesia dose

### ACTACC SURVEY

The ACTACC survey was created using MS Forms, a link was kindly distributed to UK cardiac centres. The survey had a good response rate of 25, with very useful contributions to the survey. The figures here illustrate some of the main findings.

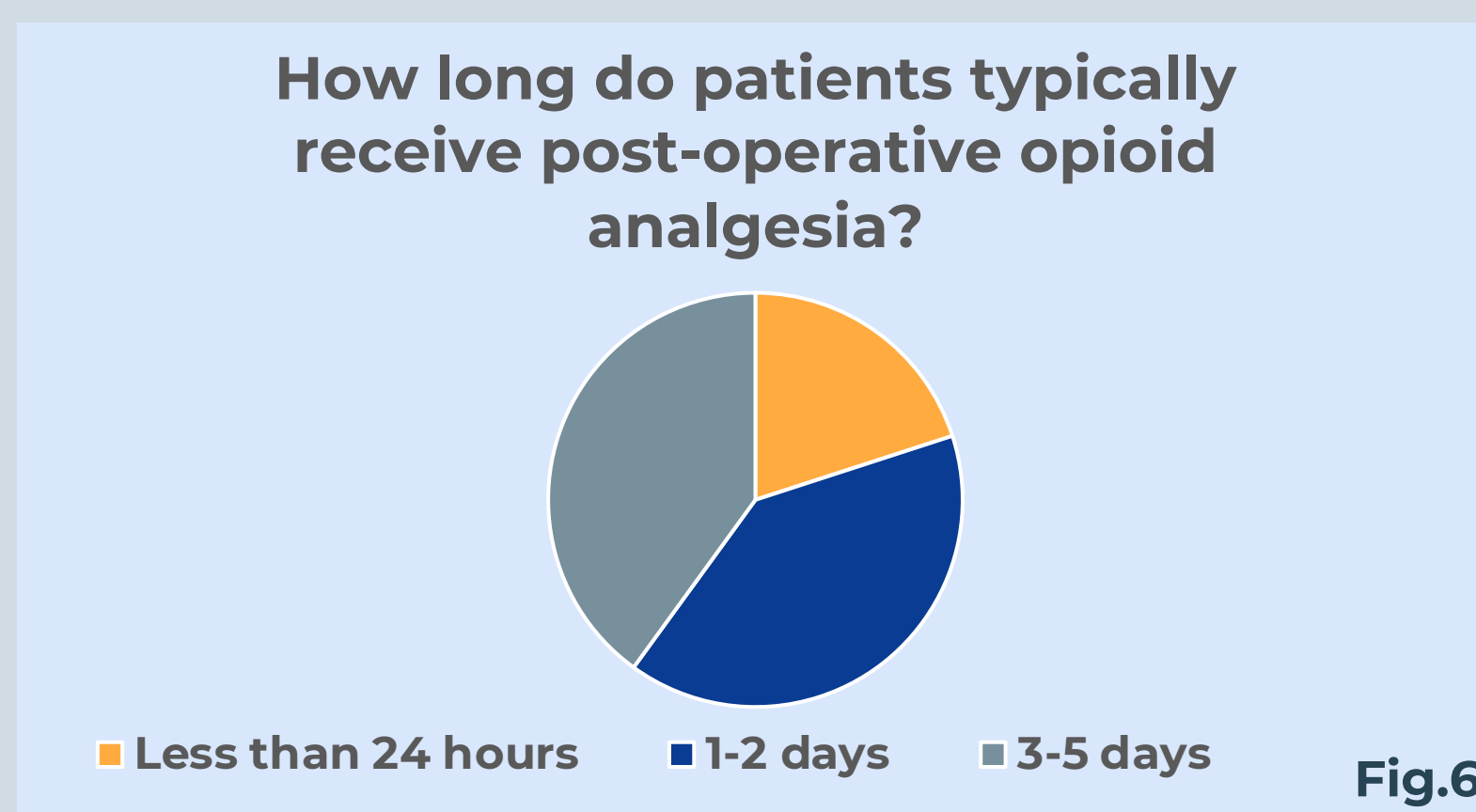
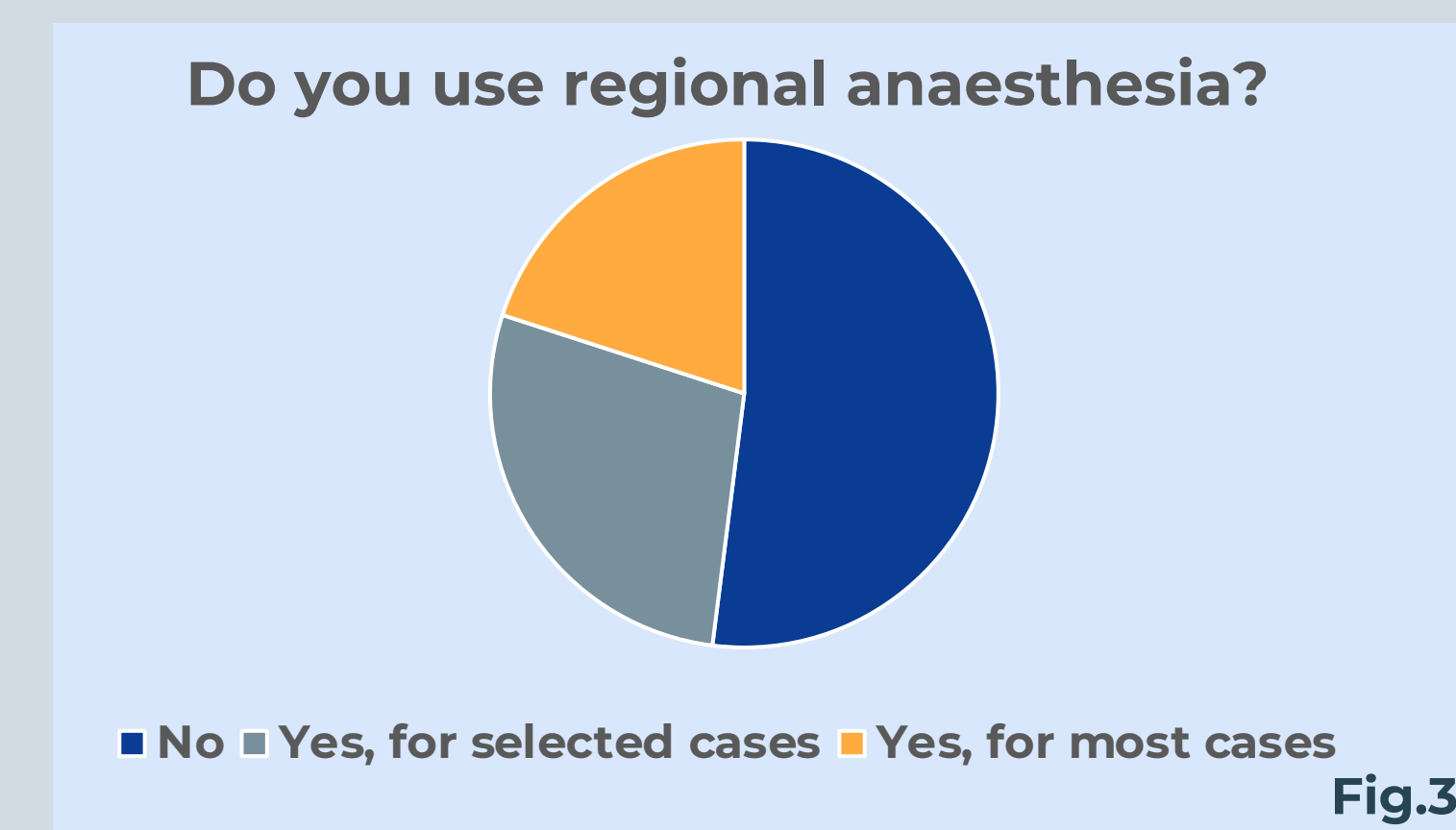
The majority of units provide intra-operative analgesia in the form of clinician-based boluses with some use of Dexmedetomidine (Fig.2). Approximately a quarter routinely used regional anaesthesia and a quarter for selected cases only (Fig.3).

Post-operatively, either patient-controlled analgesia (PCA) or continuous-infusion opioid analgesia with intermittent nurse-controlled analgesia appears to be the mainstay alongside regular Paracetamol. In some centres Gabapentinoids and NSAIDS are also used (Fig.4).

Conversion to oral analgesia is commonly to Morphine Sulphate oral solution or immediate and prolonged release Oxycodone (Fig.5). Over a third of centres find their patients are on opioid analgesia for 3-5 days (Fig.6).

Within the form we created a free text section for suggestions on what centres would like to see in their analgesia pathway, common themes were;

- Greater use of regional anaesthesia techniques
- Dexmedetomidine
- Standardised protocol
- Patient education



## CARDIAC ERAS Analgesia Protocol

### Intra-Operative

Clinician based opioid analgesia - Titrated to effect  
40ml 0.25% Levobupivacaine to sternotomy and drain sites

### Cardiac Intensive Care Unit

- INTUBATED** { Paracetamol 1g IV QDS  
'CICU Oxycodone IV Dose Sentence 1-5mg Hourly' Utilise max 10mg if required
- EXTUBATED DRAINS IN** { Shortec 5mg QDS + hard review on EPMA with pain scores  
IV Oxycodone as rescue analgesia
- DRAINS OUT** { Stop IV Oxycodone, switch to Shortec 5-10mg PRN

### Morris Ward

- Paracetamol 1g PO QDS (Add to TTO)
- Codeine Phosphate 30mg PO QDS (Add to TTO)
- Rescue Analgesia: SHORTEC 5mg PRN