

Background & Aims

Remifentanil is a short-acting, strong μ -opioid. It is rapidly metabolised through non-specific tissue esterases in adults and newborns. Remifentanil patient-controlled analgesia (PCA) is an analgesic option in labour offered by many maternity units in the United Kingdom, but with limited data on usage.

The RESPITE trial [1] challenged pethidine as the standard of care for analgesia in labour, with conversion rates to epidural of 41% with pethidine and 19% with remifentanil PCA.

Warwick Hospital is a district general hospital with a maternity unit that has $\approx$ 3500 births per year. Since 2017, we have offered remifentanil PCA to women in labour.

A first service evaluation (2020-2021) highlighted areas for improvement. We increased education across the multi-disciplinary team, incorporated a remifentanil PCA scenario into PROMPT, and attached aide-memoires to every PCA pump. Following these interventions we have now re-evaluated our practice.

Methods

We retrospectively reviewed maternity electronic records (BadgerNet), medication charts and the controlled drugs record books for the period 1st September 2023 – 29th February 2024. From that six-month period 106 patients were included for analysis (vs. 110 patients over 12 months in cycle 1).

Approval was obtained from the local audit committee.

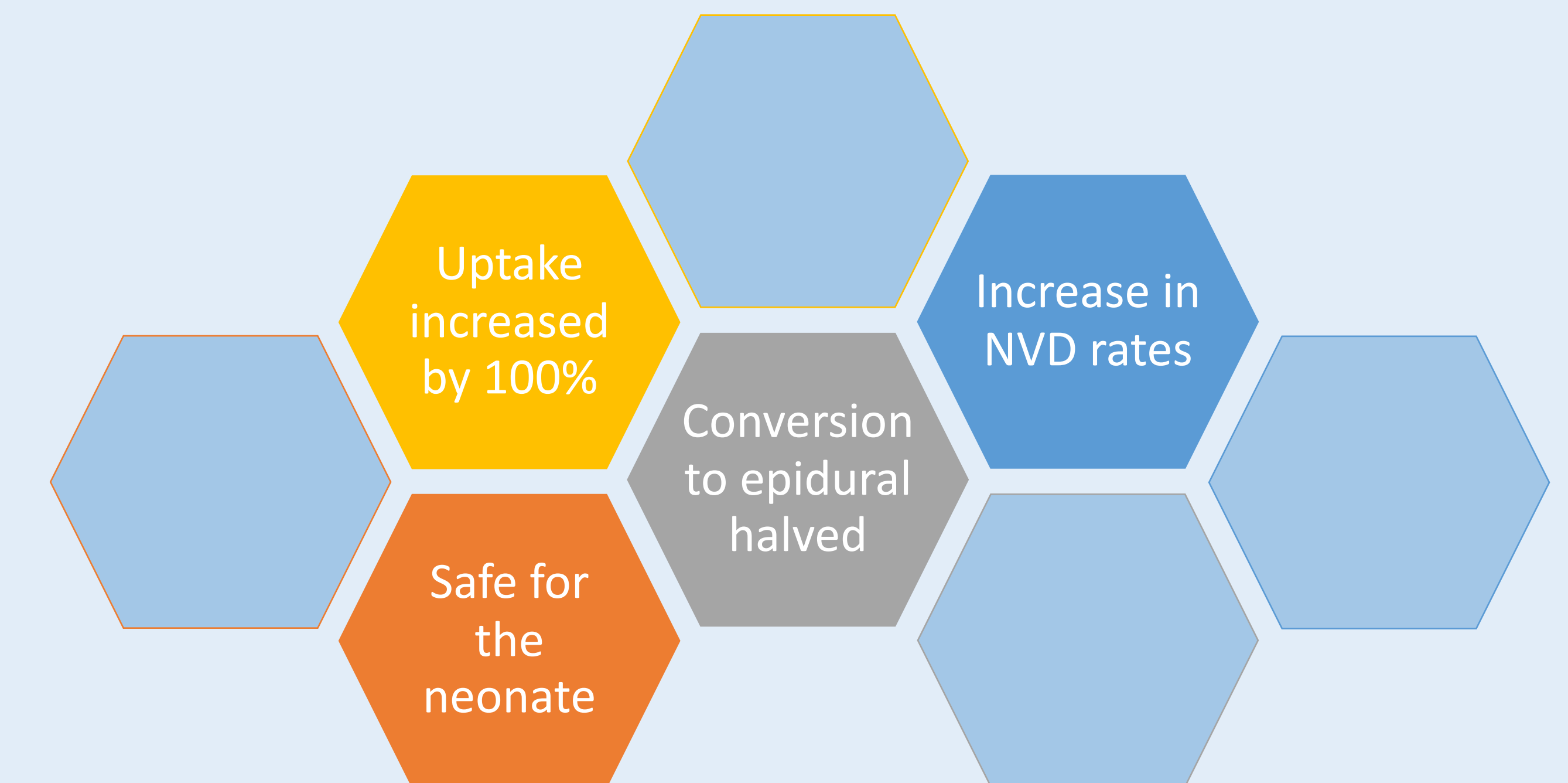
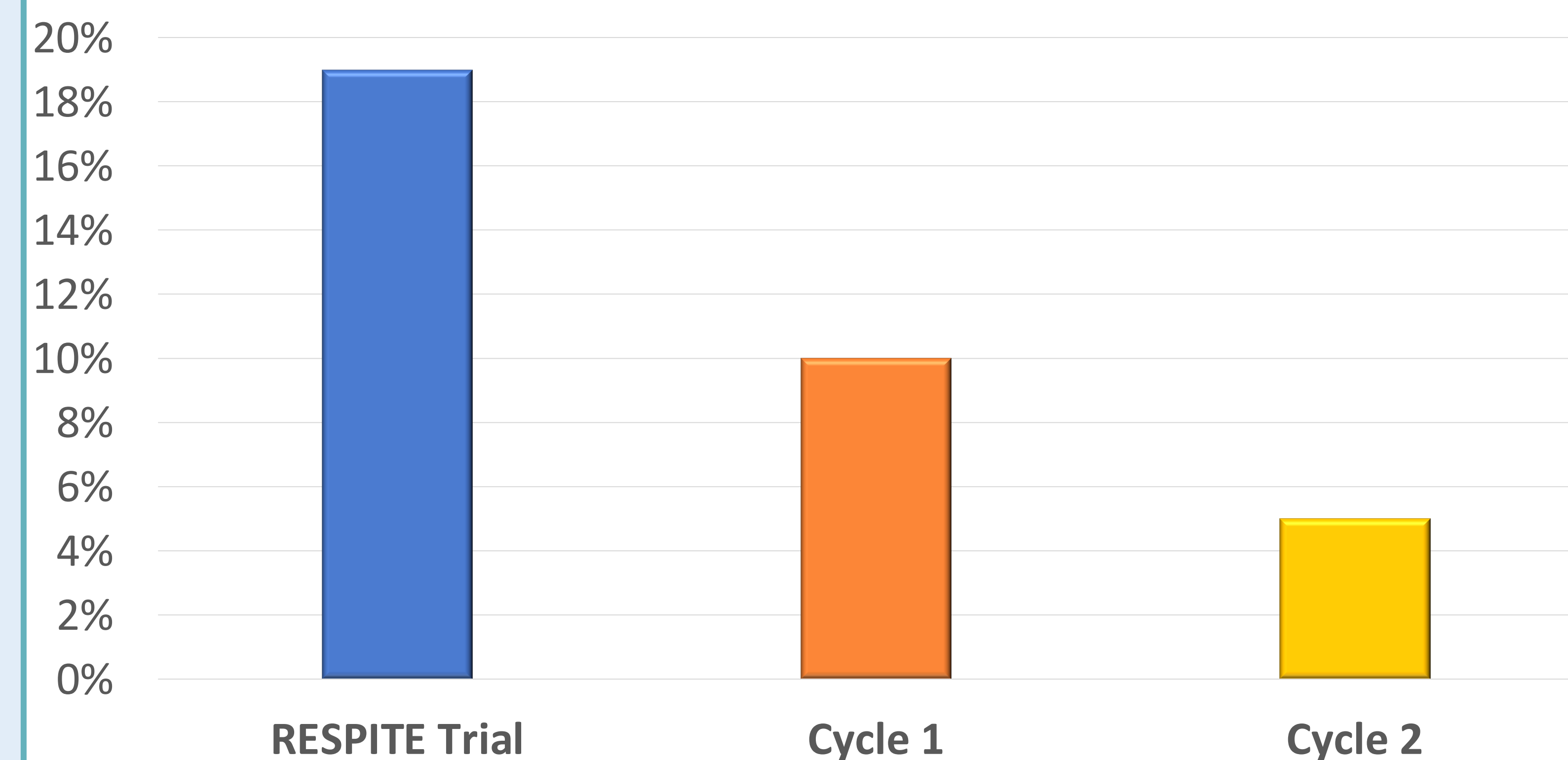
References

1. Wilson M, MacArthur C, Hewitt C, et al. Intravenous remifentanil patient-controlled analgesia versus intramuscular pethidine for pain relief in labour (RESPITE): an open-label, multicentre, randomised controlled trial. *The Lancet*. 2018; 392: 662-72.

Results

- 1716 births across 6 months, of these labourers (1357), remifentanil PCA was used by 106 (8%).
- Conversion rates to epidural halved (5% vs 10% in cycle one, compared with 19% in the RESPITE trial).
- Rates of neonatal resuscitation decreased in this period (3% vs 10% in cycle one). In both cycles, these episodes were all attributable to causes others than remifentanil PCA.
- Eighty-eight percent of cases were recorded in electronic notes (vs. 51% in cycle one), however only 78% had a valid prescription (vs. 86% in cycle one).
- Most were primips and the duration of use was evenly spread.
- Supplemental oxygen use increased (44% vs 36% in cycle one).
- Sixty-six percent of women using remifentanil PCA went on to have a normal vaginal delivery (NVD) compared with NVD rates of 56% for all births at the trust.

Conversion Rate to Epidural (%)



Discussion & Conclusion

Remifentanil PCA uptake increased by 100% since cycle one and conversion rates to epidural halved. Understanding this incredible increase in uptake and success, we believe, lies in the information given beforehand to women, confidence in advocating a service that is largely led by our midwives and empowering patient choice regarding labour analgesia.

We found no association with parity or limitation to duration of use, suggesting the patient experience is largely individual. Reassuringly, remifentanil PCA did not impact labour outcomes and was actually associated with increased NVD rates. Supplemental oxygen use increased which may reflect greater vigilance following on from local education initiatives.

Interventions Planned

With our growing service it is important to make documentation and prescribing easier and more compliant. This has been raised with BadgerNet. Future review being considered is a prospective and retrospective patient feedback study.