



2021 exceptional surveillance of caesarean birth – diamorphine (NICE guideline NG192)

Surveillance report

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Surveillance decision

We propose to update [recommendation 1.6.9](#) in NICE's [guideline on caesarean birth](#). Recommendations 1.6.5 to 1.6.7, which cover monitoring requirements may also need updating. In the interim, we will also make an editorial amendment to highlight the supply issue with diamorphine.

Exceptional surveillance review summary

Reason for considering this area

An enquirer contacted NICE to highlight the reoccurring issue with low dose diamorphine ampoule supply that affects the NHS. They noted that the NICE guideline on caesarean birth currently recommends diamorphine for use in spinal injection for analgesia during caesarean birth but explained that recurrent supply issues of diamorphine results in frequent changes to prescribing practice and the potential for patient safety risks. As such, they felt that the NICE guideline should be updated to consider alternatives to diamorphine.

Methods

To review the impact of this query on NICE guidance we took the following approach:

- Considered the evidence used to develop the NICE guideline on caesarian birth related to recommendation 1.6.9.
- Considered NHS supply issues with diamorphine and expert advice related to this.
- Considered approaches to resolve this issue with the commissioning manager, medicines adviser, NICE safety lead and clinical adviser.

It was concluded that full updated literature searches were not needed because the information we obtained was enough to establish whether an amendment to the guideline was needed.

For further information see [ensuring that published guidelines are current and accurate in](#)

developing NICE guidelines: the manual.

Information considered in this exceptional surveillance review

How the guideline was developed

The guideline has the following recommendation on using diamorphine for spinal analgesia:

Recommendation 1.6.9: Offer women diamorphine (0.3 to 0.4 mg intrathecally) for analgesia to reduce the need for supplemental analgesia after a caesarean birth. Epidural diamorphine (2.5 to 5 mg) is a suitable alternative where intrathecal diamorphine has not been given.

In March 2021, this was an off-label use of diamorphine (both intrathecal and epidural). See NICE's information on prescribing medicines. **[2004, amended 2021]**

This recommendation was developed in 2004 based on a review of the evidence indicating that diamorphine has fewer side-effects than morphine, and that intrathecal analgesia post-caesarean birth reduces the need for morphine analgesics.

In the 2021 update of the guideline, the committee agreed to retain the 2004 recommendation as they considered that giving spinal or epidural diamorphine in this way reduces the need for additional opioids and other rescue medications during surgery, and it remains effective for up to 12 hours (when pain is likely to be most severe).

Previous surveillance

The 2017 surveillance review prompted an update in 2020 but not of recommendation 1.6.9. With regards to this recommendation, the surveillance review found 16 randomised controlled trials and a systematic review that assessed a range of intrathecal or epidural drugs, including fentanyl, ketamine, midazolam, tramadol, and buprenorphine. None of the studies used diamorphine as a comparator and some studies had small sample sizes and limitations. As such, the surveillance review concluded that the evidence was unlikely to have an impact on recommendations.

New intelligence

An enquirer contacted NICE to highlight the reoccurring issue with low dose diamorphine ampoule supply that affects the NHS. They noted that the NICE guideline on caesarean birth currently recommends diamorphine for use in spinal injection for analgesia during caesarean birth. However, they explained that the UK is the only country that routinely uses diamorphine and that in their view there is a lack of robust evidence that diamorphine is significantly less likely than morphine to cause opioid-induced clinically significant respiratory depression. They also explained that recurrent supply issues of diamorphine results in frequent changes to prescribing practice and the potential for patient safety risks. As such, they felt that the NICE guideline should be updated to consider alternatives to diamorphine.

The [Specialist Pharmacy Service released a shortage of diamorphine injection 5 and 10 mg memo](#) (last updated 26 May 2021), which included an obstetric anaesthetists response to NICE guidance on the use of diamorphine in caesarean birth. This highlights that diamorphine may be substituted with morphine and fentanyl but warns that care is needed when substituting one opioid analgesic for another to ensure equipotent dosage.

The memo refers to the [Obstetric Anaesthetists' Association commentary on alternatives to intrathecal and epidural diamorphine for caesarean section analgesia](#), which provides further considerations on alternatives to intrathecal/epidural diamorphine, including a need for a training package to ensure correct mixing of drugs and ways to help mitigate drug and dosing errors.

The enquirer was contacted again to better understand if this supply issue could be resolved. Representatives from the Department of Health and Social Care and NHS England explained that this situation was recurring and would not improve as 1 manufacturer had ceased supplying low dose diamorphine, leaving only 1 manufacturer. They provided data that clearly showed the use of diamorphine has already reduced in the UK.

Expert feedback

Internal clinical feedback highlighted a significant risk of dose errors with morphine use. Furthermore, injections given spinally or epidurally must be preservative-free (as the preservative would cause toxicity). Diamorphine comes only as preservative-free, freeze-dried powder in ampoules that are reconstituted with sterile water for injections. Morphine

comes as solution for injection, which may be preservative-free or contain preservatives. Thus, careful protocols need to exist to ensure preservative-containing morphine is not accidentally used.

As part of this process, feedback was also sought from 3 NICE associates and 5 topic experts, with expertise in pharmacy, anaesthetics, and obstetrics. The feedback highlighted that all services (that responded) are experiencing supply issues with diamorphine. However, the approach to managing it was variable, with some using preservative-free morphine alone (possibly with levobupivacaine if required), some using preservative-free morphine plus fentanyl, and others using diamorphine alone (making up/buying in syringes) or using fentanyl plus a diamorphine top up (using a daily prepared bag of intravenous quality 0.9% sodium chloride plus 5 mg diamorphine). The experts highlighted a number of safety issues and considerations with the different approaches (some to primarily avoid overdosing, others to avoid medication errors or risks of using preservative-containing drugs).

How we will handle this issue

There is a clear issue with diamorphine supply that is affecting the NHS maternity services, but how trusts are managing this is variable. The different substitution approaches (morphine, fentanyl, other types of diamorphine use) all carry safety risks but need different risk management techniques, as well as differing onset and duration of action and side effect profiles. Given this complexity, an update of recommendation 1.6.9 is needed by committee. Recommendations 1.6.5 to 1.6.7, which cover monitoring requirements may also need updating as the monitoring requirements with drugs other than diamorphine may be different.

In the interim, we will also make an editorial amendment to highlight the supply issue with diamorphine.

Equalities

No equalities issues were identified.

Overall decision

We propose to update recommendation 1.6.9 in NICE's guideline on caesarean birth.

Recommendations 1.6.5 to 1.6.7, which cover monitoring requirements may also need updating. In the interim, we will also make an editorial amendment to highlight the supply issue with diamorphine.

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