consider when comparing different units in addition to numbers of deliveries, for example, availability of obstetric anaesthetists with fibreoptic and difficult airway skills and equipment, thorough preoperative airway assessment to detect difficult cases early, the number of awake intubations performed and the overall GA vs regional rates, etc. We need to look carefully at the impact of our management of general anaesthesia on the risk of failed intubations in obstetrics and the risk factors of the patients. This is an interesting area for future research and further understanding could help to reduce and eliminate this most serious anaesthetic complication.

Declaration of interest

None declared.

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Prehospital analgesia

Editor—The paper by Albrecht and colleagues provides a fascinating insight into factors affecting the administration of analgesia to trauma patients in prehospital settings. We would like to raise two points.

First, the authors note in the discussion the possibility that unrelieved pain may be a consequence of patients themselves not requesting analgesia. However, this factor should be minimized by a competent prehospital practitioner. Trauma patients are likely to be anxious or confused, and may not think to ask for painkillers due to other distractions around them in an unfamiliar and potentially noisy environment. Indeed, they may not even realize that analgesia is available, appropriate, or both. Recognizing this and asking about pain in order to subsequently offer appropriate analgesia to a patient should therefore be part of our role as prehospital physicians.

Secondly, the authors commendably provide a breakdown of the details of patients whose Glasgow coma score decreased before prehospital assessment and arrival at hospital. Reading this table, it is clear that some patients seem to have received large doses of i.v. fentanyl, ketamine, or both. The i.v. anaesthetic induction dose of the latter drug is 1–2 mg kg\(^{-1}\). Assuming a normal range of body habitus, it is not surprising that the four patients who were given ketamine in the range 100–200 mg (in addition to fentanyl 50–300 \(\mu g\)) had a measurable fall in conscious level.

It could be argued that some of these patients were inadvertently anaesthetized, but without (as the study excluded intubated patients) appropriate airway protection in a cohort of unfasted trauma patients. We would highlight the role that prehospital emergency anaesthesia has in providing analgesia and amnesia for severely injured patients. This small group of patients requiring such large doses of narcotic and dissociative analgesia may have benefited from formal anaesthesia and intubation, ensuring a protected airway and adequate ventilation during transfer.

Declaration of interest

None declared.

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Reply from the authors

Editor—We thank Drs Maddock and Ferris for their pertinent comments and their interest in our study. As correctly pointed out by these authors, a significant proportion of patients with moderate-to-severe pain do not in fact receive any form of analgesia, because of the absence of request or refusal of analgesics. These factors were not documented in our database and therefore we could not assess if they account for oligoanalgesia. However, our residents and physicians are continuously reminded to assess pain scores upon arrival at the emergency site and to provide safe and effective analgesia, even if individual physician practice differs in offering analgesia.

The recommended ketamine dose in our prehospital protocol is 0.2 mg kg\(^{-1}\), and the dose in Appendix 2 represents the cumulative titrated dose given during the entire mission: in these 14 patients, the mean average mission duration was 44 (13) min (sd). It is difficult to retrospectively assess if these patients should have received immediate formal induction of anaesthesia with intubation, as nine out of 14 had to be first extricated from their vehicle. Nevertheless, the fact that our study collected data from over 1200 patients over a period of 10 yr attests to the safety of our protocol. In addition, severe pain alone does not belong to our intubation criteria even though we concur that induction of anaesthesia with
intubation may represent a valuable option in prehospital medicine when facing special circumstances.

Declaration of interest
None declared.

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Prehospital analgesia: multimodal considerations

Editor—I read with interest the recent article by Albrecht and colleagues1 regarding undertreatment of acute pain (oligoanalgesia) in adult trauma patients in the prehospital setting. Pain scores were examined retrospectively and oligoanalgesia was defined as a numeric rating scale >3 on hospital admission. The authors identified that oligoanalgesia occurred in 518 of 1202 patients (43%). This study adds significantly to the developing area of prehospital pain management; however, I would like to raise the following points.

The primary analgesic interventions assessed by the authors were the administration of fentanyl, ketamine, or both.

There are non-pharmacological variables which have not been recorded. Spinal boards have been associated with prolonged immobilization and the risk of pressure sores.2 This may represent a confounding factor for patient discomfort and could contribute to increased pain scores, particularly on arrival at the trauma centre. The option of limb splinting for analgesia has not been discussed. This is especially significant as limb injuries occurred in the majority of the study population (66%).

Albrecht and colleagues comment on a group of 10 patients who were ‘over-sedated’ on arrival at hospital. These patients were excluded from the study. It is apparent from Appendix 2 that nine of these 10 patients had been treated with a benzodiazepine. This may highlight a potential safety issue with polypharmacy in the prehospital setting. This is difficult to comment on further as benzodiazepine dosages used are not provided.

Data regarding the use (or omission) of benzodiazepines in the main study population are not presented. This information may have been useful, especially when considering the safety of these drugs. Furthermore, psychological factors such as anxiety are associated with increased acute pain.3 Any anxiolytic drugs administered have the potential to influence not only pain scores but also the dosages of any other pharmacological agents used.

Albrecht and colleagues conclude that variations in individual practice contribute to oligoanalgesia. This may well be the case. However, the assessment of that practice should extend beyond investigating the use of single agents. An ideal study design might consider the multi-factorial nature of pain and prospectively evaluate a multimodal approach to prehospital analgesia, considering both non-pharmacological and pharmacological interventions.

Declaration of interest
None declared.

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Reply from the authors

Editor—We thank Dr McCarthy for his comments on our study,1 and his points are well taken. As our database does not contain non-pharmacological interventions, we were not able to adjust our analyses for the co-intervention of splinting. However, our rescue helicopters are almost exclusively equipped with full-body vacuum mattresses which provide greater stability and cause minimal pain when compared with spinal boards.2 We therefore believe that this factor is not a confounder of our results. Regarding benzodiazepines, they were administered to 9.1% of patients in the oligoanalgesia group and to 12.1% in the analgesia group, a difference which was not statistically significant (P=0.09).

However, in the multivariable model, the administration of benzodiazepines significantly lowered the probability of oligoanalgesia, with an odds ratio of 0.6 (95% confidence interval: 0.3–0.9; P=0.022), but it did not change the coefficients of the other variables. The administration of benzodiazepines acts as another predictor of oligoanalgesia, but not as a confounder. The retrospective design of our study leaves a significant amount of unexplained practice variation as shown...