

SPECIAL ARTICLE

Cross-sectional study of perioperative drug and allergen exposure in UK practice in 2016: the 6th National Audit Project (NAP6) Allergen Survey

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Abstract

Background: Details of the current UK drug and allergen exposure were needed for interpretation of reports of perioperative anaphylaxis to the 6th National Audit Project (NAP6).

Methods: We performed a cross-sectional survey of 356 NHS hospitals determining anaesthetic drug usage in October 2016. All cases cared for by an anaesthetist were included.

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Results: Responses were received from 342 (96%) hospitals. Within-hospital return rates were 96%. We collected 15 942 forms, equating to an annual caseload of 3.1 million, including 2.4 million general anaesthetics. Propofol was used in 74% of all cases and 90% of general anaesthetics. Maintenance included a volatile agent in 95% and propofol in 8.7%. Neuromuscular blocking agents were used in 47% of general anaesthetics. Analgesics were used in 88% of cases: opioids, 82%; paracetamol, 56%; and non-steroidal anti-inflammatory drugs, 28%. Antibiotics were administered in 57% of cases, including 2.5 million annual perioperative administrations; gentamicin, co-amoxiclav, and cefuroxime were most commonly used. Local anaesthetics were used in 74% cases and 70% of general anaesthetics. Anti-emetics were used in 73% of cases: during general anaesthesia, ondansetron in 78% and dexamethasone in 60%. Blood products were used in \approx 3% of cases, gelatin <2%, starch very rarely, and tranexamic acid in \approx 6%. Chlorhexidine and povidone-iodine exposures were 74% and 40% of cases, and 21% reported a latex-free environment. Exposures to bone cement, blue dyes, and radiographic contrast dye were each reported in 2–3% of cases.

Conclusions: This survey provides insights into allergen exposures in perioperative care, which is important as denominator data for the NAP6 registry.

Keywords: allergen exposure; anaesthesia; audit; drugs

The Royal College of Anaesthetists National Audit Projects (NAPs) study major complications of anaesthesia to improve patient care. The 6th NAP (NAP6) of the Royal College of Anaesthetists is a large-scale prospective service evaluation of perioperative anaphylaxis across hospitals of the UK. During the NAP6 project, a 1 yr registry was established to collect reports on all suspected cases of perioperative anaphylaxis in 2015–6. This provides a numerator, but requires a denominator to enable the interpretation of registry results, including overall incidence of anaphylaxis and use of individual drugs and agents. The denominator requires contemporary knowledge of drug use and exposure to other relevant substances (such as antiseptics and dyes).

In 2013, the 5th NAP (NAP5) reported a similar activity and drug survey,¹ which provided information on aspects of anaesthetic activity and some drug uses, but insufficient for the needs of NAP6. Published Hospital Episode Statistics² show an increase in inpatient and day case procedures since 2013, but do not give detailed information on anaesthetists' involvement. The NHS Maternity Statistics show a slight decrease in deliveries in NHS hospitals since 2013, of which 60% involved anaesthetic intervention.³ Such changes over time mean that figures collected for NAP5 are not necessarily applicable for NAP6. In addition, the NAP5 survey did not collect sufficient detailed information on perioperative administration of drugs and other potential allergens. National data for hospital drug usage are collected by IQVIATM and recorded in the Hospital Pharmacy Audit Index database.⁴ This records all medications that are issued by pharmacies for use on wards, in operating theatres, and on patient discharge. It does not, however, record what is administered to the patient nor in what context a certain drug is delivered, so does not provide information on actual perioperative drug use.

An Activity Survey provides contemporary information about anaesthetic care and the population undergoing anaesthesia care in participating hospitals. This is reported separately.⁵ The current paper describes a cross-sectional observational survey of anaesthetic drug use and perioperative allergen exposure. Therefore, the aims of this study were to: (i) describe drug use and perioperative allergen exposure to

provide a context for the NAP6 registry, and (ii) highlight any changes in use of drugs or allergen exposure since the NAP5 survey in 2013.⁴

Methods

The general structure of the NAP6 project and detailed methods are described in an accompanying paper.⁶ Here, we restrict to describing relevant methods for this section of the project.

The NAP6 project was defined as a service evaluation by the Health Regulatory Authority; therefore, it did not require National Research Ethics Service approval. All NHS hospitals, Trusts, and Boards in the UK believed to undertake surgery were invited to and did volunteer a Local Coordinator who supervised all aspects of the study at that location. This part of the project was a cross-sectional observational study of drug use and allergen exposure in NHS hospitals. Every NHS Trust performing surgery under the care of an anaesthetist in the UK was identified from the database of hospitals of the Royal College of Anaesthetists. Each Local Coordinator was invited, by email from the NAP6 administrator, to organise data collection from every perioperative case involving care by an anaesthetist.

Inclusion and exclusion criteria

All adult and paediatric cases requiring general anaesthesia (GA), sedation, regional or local anaesthesia, involving an anaesthetist, were included. Perioperative cases in intensive care, radiology suites, and emergency departments were included if under the care of an anaesthetist. Obstetric cases included epidural pain relief in labour. Any cases where sedation or local anaesthesia was delivered by a non-anaesthetist were not included. Routine sedation in intensive care was also excluded.

Data collection

The majority of data collection took place between October 13 and 31, 2016, during which time there were no public holidays; seven sites collected data between January and June 2017 for

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