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Original Article

Patient characteristics, anaesthetic workload and techniques in the UK: an analysis from the 7th National Audit Project (NAP7) activity survey

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Summary

Detailed contemporary knowledge of the characteristics of the surgical population, national anaesthetic workload, anaesthetic techniques and behaviours are essential to monitor productivity, inform policy and direct research themes. Every 3–4 years, the Royal College of Anaesthetists, as part of its National Audit Projects (NAP), performs a snapshot activity survey in all UK hospitals delivering anaesthesia, collecting patient-level encounter data from all cases under the care of an anaesthetist. During November 2021, as part of NAP7, anaesthetists recorded details of all cases undertaken over 4 days at their site through an online survey capturing anonymous patient characteristics and anaesthetic details. Of 416 hospital sites invited to participate, 352 (85%) completed the activity survey. From these, 24,177 reports were returned, of which 24,172 (99%) were included in the final dataset. The work patterns by day of the week, time of day and surgical specialty were similar to previous NAP activity surveys. However, in non-obstetric patients, between NAP5 (2013) and NAP7 (2021) activity surveys, the estimated median age of patients increased by 2.3 years from median (IQR) of 50.5 (28.4–69.1) to 52.8 (32.1–69.2) years. The median (IQR) BMI increased from 24.9 (21.5–29.5) to 26.7 (22.3–31.7) kg.m^{-2}. The proportion of patients who scored as ASA physical status 1 decreased from 37% in NAP5 to 24% in NAP7. The use of total intravenous anaesthesia increased from 8% of general anaesthesia cases to 26% between NAP5 and NAP7. Some changes may reflect the impact of the COVID-19 pandemic on the anaesthetic population, though patients with confirmed COVID-19 accounted for only 149 (1%) cases. These data show a rising burden of age, obesity and comorbidity in patients requiring anaesthesia care, likely to impact UK peri-operative services significantly.

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Introduction

The world in which anaesthesia practice takes place is constantly evolving, and the global COVID-19 pandemic has impacted healthcare delivery worldwide. In the UK, the impact of COVID-19 on healthcare has been far-reaching, including significant pressure on critical care infrastructure, staff and resources, and concomitant reductions in operating activity during COVID-19 waves [1]. Despite lower rates of hospital admissions and critical care admissions with COVID-19, waiting lists in the UK continue to rise [2].

The National Audit Projects (NAP) of the Royal College of Anaesthetists (RCoA) investigate rare and serious complications and events associated with anaesthetic practice [3]. One component of these large collaborative projects is the activity survey, which provides detailed patient-level denominator data for the project on a national scale. Activity data enable the incidence of the complications and events relevant to the project theme (e.g. peri-operative cardiac arrest for NAP7) to be contextualised to the whole peri-operative population [4–6]. However, these surveys also offer an in-depth picture of the current state of the nation in terms of the number of anaesthetic procedures, the characteristics of the anaesthetic population and the anaesthetic techniques used. Whilst the activity survey has questions tailored to the overall theme, a core set of questions has been kept since NAP5 in 2013. Now that three iterations of the survey have been performed, we can report the current situation and trends over time. Here, we present critical trends in patient characteristics and anaesthetic techniques in the UK over the last three activity surveys: NAP5 in 2013; NAP6 in 2016; and NAP7 in 2021.

Methods

Detailed general methods and regulatory approvals of the NAP7 activity survey have been described previously [5]. In brief, all UK NHS hospitals delivering anaesthetic care were invited to participate. Sites were assigned randomly a continuous 4-day data collection period, with an equal chance of starting on any day of the week between the dates of 8 and 24 November 2021. All cases requiring general anaesthesia, regional anaesthesia/analgesia, sedation, local anaesthesia or monitored anaesthesia care were captured. Sedation or anaesthesia solely for critical care or procedures on critical care, newborn resuscitation and patient transfers were excluded.

Local co-ordinators were provided with a link to the survey via SurveyMonkey (Surveymonkey Inc., Palo Alto, CA, USA) for distribution at their site, and a QR code on the help sheet provided direct access. Respondents were advised to complete the survey at the end of each case. Data were exported for analysis. These data were reformatted and analysed using pivot tables. Original data files from the NAP5 [7] and NAP6 [4] activity surveys were reinterrogated according to the same methodology as the NAP7 activity survey data. An annual caseload was estimated as previously described [4, 8]. Estimates for the median age and BMI of the populations were based on where the median value was expected to be within a group, assuming that the population was distributed evenly within it. These values were collected as categorical variables in ranges to reduce the risk of reverse identification and treated as ordinal variables for analysis. The distribution of patients by age, BMI and ASA physical status was compared between NAP projects using the chi-squared test (GraphPad version 5, San Diego, CA, USA), with the null hypothesis that there is no difference between NAP projects. The chi-squared (χ^2) value was calculated and statistical significance was accepted when $p < 0.05$.

To reduce the impact of erroneous data (so-called `careless data´), low-frequency high-impact events were examined by two reviewers (two of AK, RA, MD) for internal consistency [5, 9]. Where there was disagreement between the reviewers, a further review occurred (JS or TC). Records were removed if considered false or fabricated. In cases where data fields were inconsistent (i.e. illogical), but the overall record was judged authentic by two reviewers, the case was modified.

Results

Of 416 NHS sites across 182 NHS Trusts or Boards across the UK invited to the study, 352 (85%) sites participated. From these sites, the NAP7 activity survey received 24,177 individual forms. Following screening for careless data, five cases were removed due to high suspicion of containing false data. Twelve forms were modified after being judged as authentic but containing an illogical misclick (see online Supporting Information Appendix S2). This process left 24,172 cases in the final database, equating to an estimated annual caseload of 2.71 million (see online Supporting Information Appendix S2).

Of the total activity, 21,629 (89%) cases occurred during weekdays and 2543 (11%) during weekends (see online Supporting Information Appendix S3). The daily activity of cases classified as urgent or immediate, according to the NCEPOD classification, was similar across the week. In contrast, between 2536 (10%) and 3116 (13%) elective procedures (day-case and planned inpatient stay) were recorded daily during weekdays, with 408 (2%) on Saturday and 113 (<1%) on Sunday. Weekend elective work represented 4% of the total elective activity. Of total anaesthetic activity, 90% occurred during the daytime (08.00–17.59), 6% during the evening (18.00–23.59) and 5% at night (00.00–07.59) (Table 1 and online Supporting Information Appendix S4 and S5).

Of total activity by specialty, elective orthopaedic surgery, general surgery and orthopaedic trauma were the three largest by workload (Table 1 and online Supporting Information Appendix S5). During the evening, the greatest caseload moved from orthopaedics to obstetrics, with this effect more pronounced overnight (Table 1 and online Supporting Information Appendix S5).

There were 149 (1%) COVID-19-positive patients and 794 (3%) had an unknown COVID-19 status at the point of surgery. Of those who were COVID-19-positive undergoing surgery, 87 (58%) were not hospitalised with COVID-19 and 55 (37%) were hospitalised with COVID-19 at the point of surgery (see online Supporting Information Appendix S6). By specialty, obstetrics, general surgery and orthopaedic trauma had the highest burden of COVID-19 patients by absolute numbers (see online Supporting Information Appendix S6).

Of the 24,172 patients, 14,077 (58%) were female, 10,082 (42%) were male and sex was reported as unknown in 13 (<1%) cases (see online Supporting Information Appendix S7). After removing patients undergoing obstetric procedures, there were 10,907 (52%) female and 10,078 (48%) male patients in the survey.

Across the whole patient cohort, there were: 5910 (24%) ASA physical status grade 1 patients; 11,819 (49%) ASA physical status 2; 5508 (23%) ASA physical status 3; 869 (4%) ASA physical status 4; 49 (<1%) ASA physical status 5; and 17 (<1%) ASA physical status 6 patients (Fig. 1a and online Supporting Information Appendix S8). The proportion of patients recorded as ASA physical status 3–6 or more was highest at the extremes of ages (70% of neonates and 81% aged > 85 y) and lowest in early adulthood (7% aged 19–25 y).

In adult patients where BMI was reported: 431 (2%) were underweight (BMI < 18.5 $kg.m^{-2}$); 7635 (38%) were normal weight (BMI 18.5–24.9 $kg.m^{-2}$); 5673 (28%) were overweight (BMI 25.0–29.9 $kg.m^{-2}$); 3613 (18%) were obese class 1 (BMI 30.0–34.9 $kg.m^{-2}$); 1655 (8%) were obese class 2 (BMI 35.0–39.9 $kg.m^{-2}$); and 1019 (5%) were obese class 3 (BMI ≥ 40.0 $kg.m^{-2}$). The proportion of patients in each category varied with age. Young and old patients had lower BMI scores than patients in middle age ranges (Fig. 1b and online Supporting Information Appendix S9).

Within the activity survey population, excluding obstetric patients, the estimated median (IQR) age of patients increased from 50.5 (28.4–69.1) to 52.8 (32.1–69.2) y between NAP5 in 2013 to NAP7, with this increase being similar in females and males (Fig. 2a and online Supporting Information Appendix S10). The distribution of patients by age group was significantly different between NAP5, NAP6 and NAP7 ($p < 0.001$).

The estimated median (IQR) BMI increased between NAP5 and NAP7 from 24.9 (21.5–29.5) to 26.7 (22.3–31.7) $kg.m^{-2}$, while the proportion of patients classified as at least overweight increased from 49% to 59% (Fig. 2b and Online Supporting Information Appendix S11). Within the obstetric population requiring anaesthetic intervention, the increase in obesity was more pronounced. The estimated median (IQR) BMI increased from 24.8 (21.6–29.8) to 27.1 (22.7–32.4) $kg.m^{-2}$, and the proportion classified as at least overweight increased from 46% to

Table 1 Anaesthetic workload by specialty and time of day.

Specialty	Daytime 08.00–17.59	Evening 18.00–23.59	Night 00.00–07.59	Total
Orthopaedics – elective	2466 (11%)	26 (2%)	4 (<1%)	2496 (10%)
General surgery	1969 (9%)	191 (14%)	82 (7%)	2242 (9%)
Orthopaedics – trauma	1982 (9%)	102 (8%)	25 (2%)	2109 (9%)
Urology	1931 (9%)	79 (6%)	27 (2%)	2037 (8%)
Gynaecology	1893 (9%)	55 (4%)	14 (1%)	1962 (8%)
Obstetrics – caesarean section	1178 (5%)	203 (15%)	300 (25%)	1681 (7%)
ENT	1323 (6%)	20 (1%)	13 (1%)	1356 (6%)
Abdominal – lower GI	992 (5%)	103 (8%)	43 (4%)	1138 (5%)
Ophthalmology	1029 (5%)	14 (1%)	3 (<1%)	1046 (4%)
Obstetrics – labour analgesia	445 (2%)	214 (16%)	351 (30%)	1010 (4%)
Others combined	6436 (30%)	343 (25%)	316 (27%)	7095 (29%)
Total	21,644 (90%)	1350 (6%)	1178 (5%)	24,172

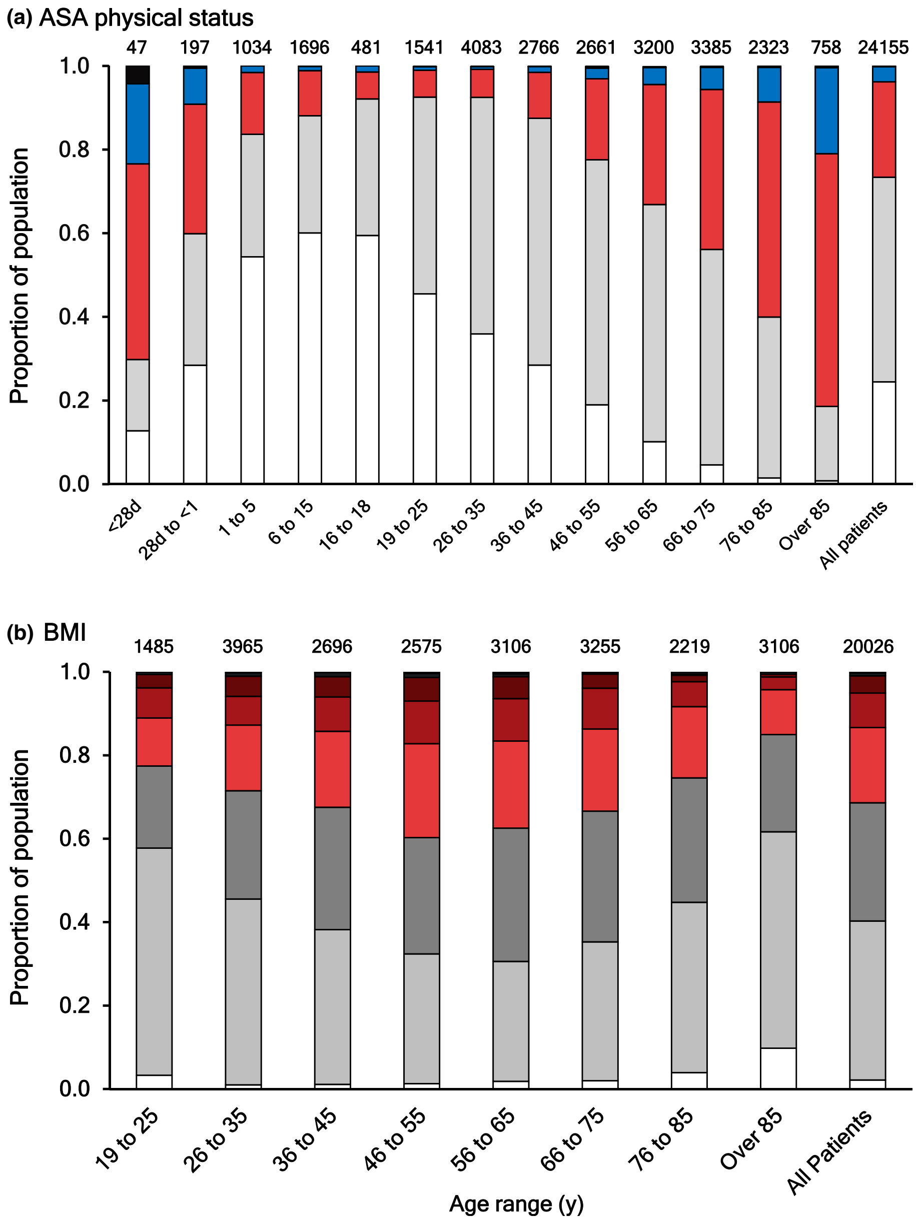

Figure 1 ASA physical status distribution by age in the NAP7 activity survey population. Data show the proportion of patients by age for: (a) ASA physical status (1 □, 2 □, 3 ■, 4 ■, 5 ■, ASA 6 not included, n = 24,155); and (b) BMI (<18.5 kg.m^{-2} □, 18.5–24.9 kg m^{-2} □, 25.0–29.9 kg.m^{-2} ■, 30.0–34.9 kg.m^{-2} ■, 35.0–39.9 kg.m^{-2} ■, 40.0–49.9 kg.m^{-2} ■, 50.0–59.9 kg.m^{-2} ■, ≥60 kg.m^{-2} ■ where BMI was reported and patients aged 19 and over, n = 20,026). Values above the bars show the number of patients in each group.

62% (Fig. 2c and online Supporting Information Appendix S11). The distributions of BMI in non-obstetric and obstetric patients were significantly different between NAP5, NAP6 and NAP7 (non-obstetric, $p < 0.001$; obstetric, $p < 0.001$).

In the non-obstetric population, between NAP5 and NAP7, the proportion of ASA physical status 1 patients decreased from 6807 (37%) to 5075 (24%), which was a 13% drop. Patients reported as ASA physical status 2 increased by 5% from 7206 (39%) to 9410 (45%) and ASA physical status 3 increased by 6% from 3345 (18%) to 5172 (25%) (Fig. 3a). These trends were seen in elective and non-elective work (Fig. 3b–e and online Supporting Information Appendix S12). The distribution of patients by ASA group was significantly different between NAP5, NAP6 and NAP7 ($p < 0.001$).

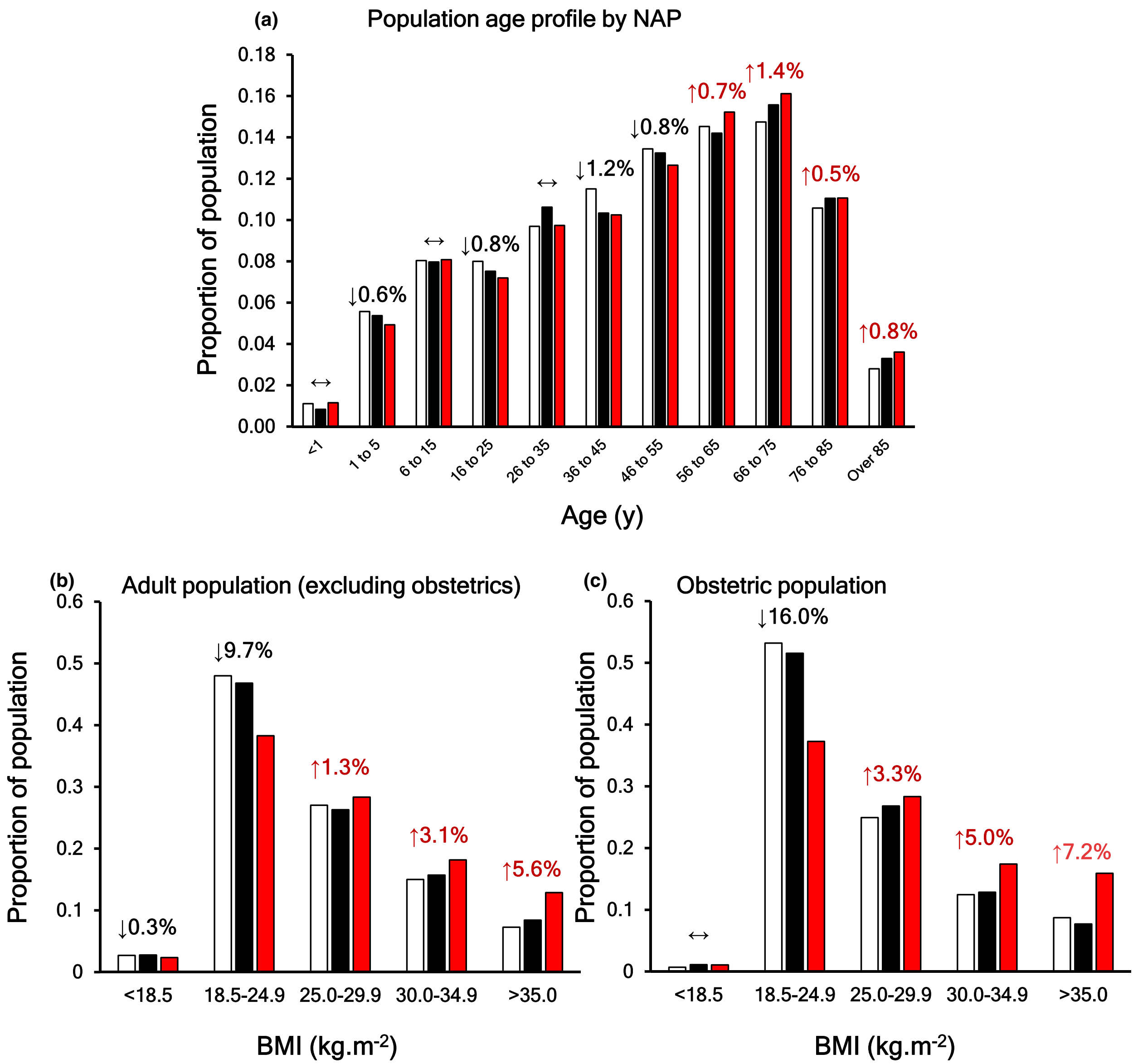

Figure 2 Trends in age and BMI over time in the NAP5–7 activity survey populations. Trends in age and BMI between NAP cycles. Data show (a) proportion of the activity survey population by age in non-obstetric patients and the BMI distribution in the (b) non-obstetric and (c) obstetric populations. NAP5 □; NAP6 ■; NAP7 ■. Proportions show the relative change in the population proportion within the group between NAP5 and NAP7. ↑, increase; ↓, decrease; ↔, no change. Percentages may not total 100 due to rounding.

Of the total non-obstetric anaesthetic workload, the rate of general anaesthesia reduced from 14,790 (84%) to 16,604 (82%) (Table 2). Of these, the proportion of cases performed as total intravenous anaesthesia (TIVA) or propofol as a maintenance drug rose more than three-fold, from 1217 (8%) during NAP5 to 4414 (26%) in NAP7 (see online Supporting Information Appendix S13). Between NAP5 and NAP7, there was an increase in the use of processed EEG (pEEG) during general anaesthesia from 429 (3%) to 3223 (19%) of cases. This was more pronounced as a proportion of TIVA/propofol as a maintenance drug, 175 (14%) to 2799 (62%) (see online Supporting Information Appendix S13). A regional anaesthetic block (with or without other anaesthetic techniques) was used in 2811 (14%) of cases in the NAP7 activity survey compared with 2290 (13%) during NAP5 (Table 2).

Discussion

Large-scale data about national anaesthetic practice and the overall surgical population are sparse in the UK and

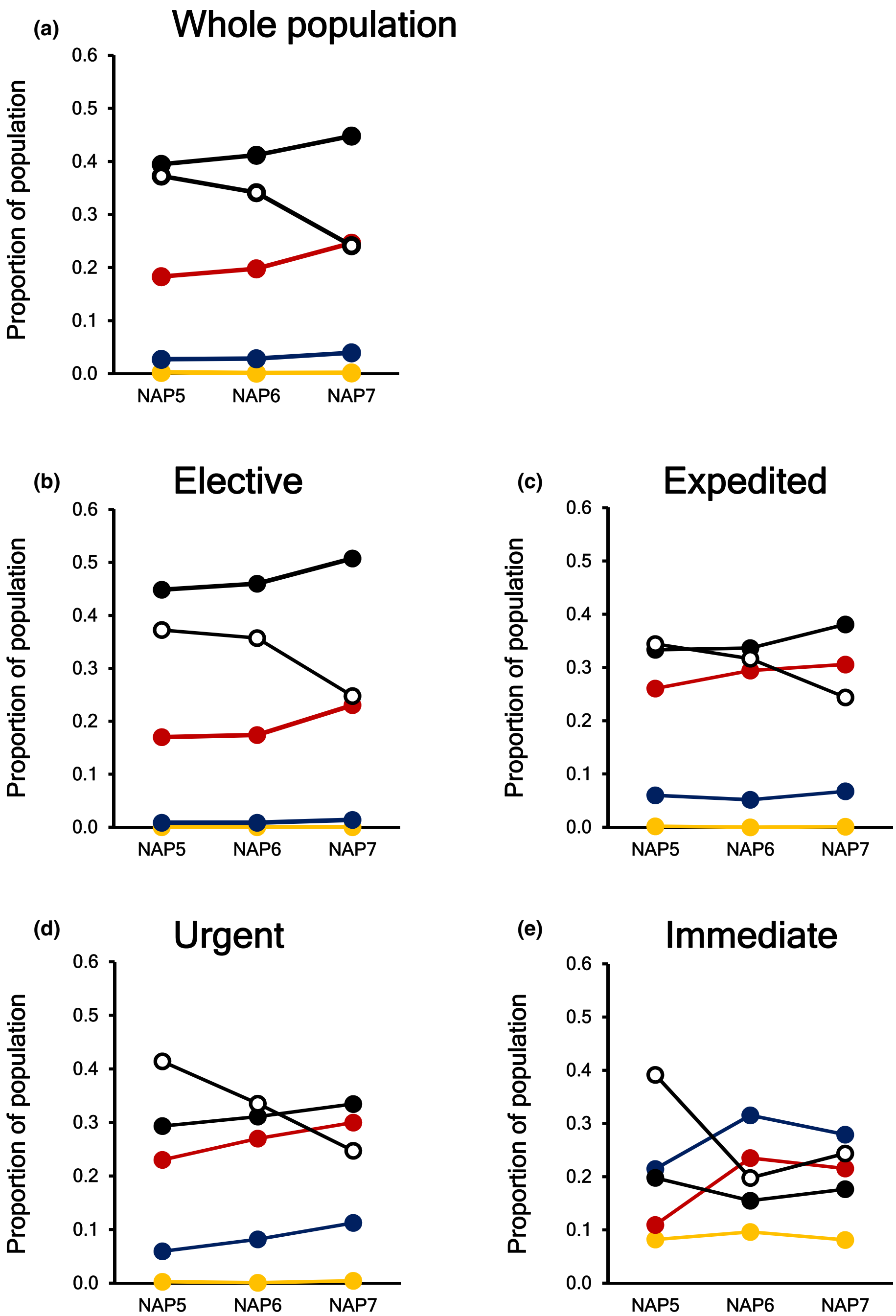

Figure 3 Proportion of population in ASA physical status by NCEPOD classification and over time in the NAP5–7 activity survey populations. Trends in ASA physical status in (a) the whole activity survey and (b–e) by NCEPOD category between NAP cycles. ASA 1 ○, ASA 2 ●, ASA3 ●, ASA 4 ●, ASA 5 ●, ASA 6 not shown.

have been provided intermittently by the NAPs of the RCoA on a 3–4 yearly cycle [4, 7]. The NAP7 activity survey initially planned for the summer of 2020 was delayed until the end of 2021 due to the COVID-19 pandemic. These data show increasing age, obesity and comorbidity trends leading to an increasingly complex peri-operative workload. The extent to which these trends would have occurred without the pandemic is unclear, but they must be addressed in this new post-pandemic era.

The fact that the peri-operative population is 2.3 y older than 9 y ago has important implications. All-cause mortality in the general population increases approximately 10% for each year of advancing age and doubles as age increases 6–7 y [10]: a 2.3-year increase in age equates to an

Table 2 The distribution of anaesthetics given by intended conscious level and with or without regional or neuraxial anaesthesia.

Intended conscious level	Anaesthetic technique	NAP5	NAP7
General anaesthesia	General anaesthesia alone	12,737 (72%)	14,253 (70%)
	With regional anaesthesia	1455 (8%)	1579 (8%)
	With neuraxial anaesthesia	556 (3%)	709 (3%)
	With regional and neuraxial anaesthesia	42 (<1%)	63 (<1%)
Sedation	Sedation alone	643 (4%)	954 (5%)
	With regional anaesthesia	179 (1%)	257 (1%)
	With neuraxial anaesthesia	730 (4%)	816 (4%)
	With regional and neuraxial anaesthesia	61 (<1%)	228 (1%)
Awake	Awake alone	373 (2%)	374 (2%)
	With regional anaesthesia	544 (3%)	623 (3%)
	With neuraxial anaesthesia	310 (2%)	371 (2%)
	With regional and neuraxial anaesthesia	9 (<1%)	61 (<1%)
Total		17,639	20,288

approximately 27% increase in all-cause mortality. This increase in age is likely to interact with peri-operative risk, most notably for those patients who are elderly, meaning that morbidity, mortality and healthcare costs might all be expected to have risen [11].

The trends in BMI are also important, with both the prevalence and severity of obesity in the peri-operative population increasing. During NAP5, the median BMI of the surgical population was at the top of the `normal´ BMI category, and now in NAP7 it is `overweight´ – such that it is hard to argue that normal weight is indeed normal. While the proportion of overweight patients in this survey is no greater than in the population as a whole (using most recently available English population data) [12], the proportion of obese patients is higher: patients with BMI > 30 kg.m^{-2} now represent one in three patients presenting to anaesthetists. Particularly notable are the proportionate increases in obesity at different severities between NAP5 and NAP7. For obesity class 1, the relative rise is < 20%, whereas with the prevalence of obesity class 2 (BMI ≥ 35 kg.m^{-2}), the proportion of patients has almost doubled. However, most recent national data from 2019 pre-date the COVID-19 pandemic, and the impact of various interventions, including lockdowns, home working and restrictions on outdoor exercise, are yet to be determined on national levels of obesity. The increase in obesity in this study appears to be larger than the trends in the UK population. Obesity is well documented to be associated with anaesthetic complications, not least complications of airway management [13] and accidental awareness during general anaesthesia [8], highlighted during previous NAP projects. Further, obesity is associated with comorbidities (e.g., obstructive sleep apnoea, hypertension, ischaemic heart disease, diabetes, etc.) and multimorbidities, which increase the risks of anaesthesia [14]. Multimorbidities require expanded peri-operative services to manage [15]. The impact of obesity may extend well beyond the physical challenges of the obese patient to the operating theatre team.

The trends in BMI in the obstetric population are even more pronounced, although it should be noted that the activity surveys capture only obstetric patients who interact with an anaesthetist and not the whole obstetric population. Nevertheless, given that obstetrics is an area where much care is delivered out of hours and by junior anaesthetists [4], obstetric units need to have appropriate escalation strategies to support more junior anaesthetists caring for patients with an elevated BMI, as was highlighted in the Ockenden report [16]. Individual units will need to consider the impact on staffing. Further, increased augmentation rates during labour and increased caesarean section rates in obese patients are likely to increase the anaesthetic workload in this group [17, 18].

While the ASA physical status grade may be considered a crude measure of comorbidity, it is still strongly associated with complications, morbidity and mortality rates during and following surgery [15, 19]. Here, we show that the profile of ASA physical status grades in the surgical population is shifting towards higher scores indicating that patients are more complex with more comorbidities. The ASA physical status scoring system was updated in 2014 and, more recently, in 2020, with the addition of several examples requiring specific scores. Following the 2014 update, there were minimal, if any, alterations in the rates of under-classification of ASA physical status scores noted over the following 6 y [20]. Whilst it is possible the 2020 update may alter clinician assessment of ASA physical status performance scores, it is unlikely that any impact is of the same order of magnitude as the effects seen in this study. Therefore, it is plausible that the observed changes represent actual alterations in the patient population presenting to NHS hospitals for surgery.

The increased comorbidity burden will increase demand on all aspects of the peri-operative pathway, from pre-assessment to complexities on the day of surgery and increased demand for postoperative level 1.5 (enhanced care) and level 2 or 3 (critical care) beds [21, 22]. Targets for entry into enhanced care beds based on pre-operative risk are now in place [21]. The Royal College of Anaesthetists Peri-operative Quality Improvement Project has recently shown that there are already shortfalls in achieving these targets [23]. The increase in patients who are older, more obese and with high ASA physical status scores will place additional demand on enhanced care and critical care beds that may not be able to be met. It is also likely that this will lead to reductions in operating theatre efficiency as all these factors contribute to increased anaesthetic and surgical time and prolonged turnaround time on a population level [24, 25]. Therefore, in the context of our data, the increase in the UK national waiting list from 4 million (late 2019) to 7 million (Nov 2022) patients not only represents an increase in absolute number but is an older, more obese and more comorbid cohort of patients. Efforts to impact the waiting list must increase operative theatre capacity and upscale peri-operative services from referral to discharge, including pre-assessment services and enhanced and critical care beds.

The overall patterns of surgical activity by specialty, time and day of the week and urgency are similar to historical data [4, 8]. The top five specialties by volume (orthopaedic trauma, general surgery, elective orthopaedics, urology, gynaecology and obstetrics) represent more than half of all surgical procedures requiring an anaesthetist. These data suggest that overall activity patterns have largely returned to pre-pandemic levels. This activity is an achievement, given that the system was under significant pressure in early 2021 during the second and third waves of the pandemic [1]. In early 2021, one in three anaesthetic staff were unavailable to work, 42% of operating theatres were closed, and those open were running considerably below normal activity: overall national surgical activity was < 50% of normal activity [1].

In addition to changes in patient characteristics, activity survey data offers insights into anaesthetic practice. The most striking change in behaviour is a three-fold increase in the proportion of general anaesthetics given by TIVA from 8% during NAP5 to 26% in NAP7. The drivers of this are unknown but may include concerns over environmental impact [26], proposed benefits for cancer recurrence [27], increasing equipment availability and the technique now being embedded within the new UK postgraduate curriculum. The use of pEEG monitoring has also increased. In cases delivered using TIVA, the rates of pEEG use have increased from 17% in NAP5 to 62% in NAP7. Again, this is likely to be a combination of an increased understanding of the risks of accidental awareness when pEEG monitoring is not used [28], along with growing equipment availability and adherence to guidelines advocating the use of pEEG when TIVA is used with neuromuscular paralysis [8,29]. With emerging evidence that targeted pEEG scores may reduce rates of postoperative delirium, it may be that pEEG is used increasingly with volatile anaesthesia [30].

In contrast, the activity survey showed that the rates of use of regional anaesthetic techniques increased from 13% to 14% between NAP5 and NAP7, with only a 1% absolute increase but a 7% relative increase in regional blocks. These data may be confounded by NHS work that has transferred to the independent sector, which is known to include large volumes of orthopaedic surgery, and so may be masking more significant increases.

The NAP7 activity survey was the first NAP undertaken in the COVID-19 era. Data were collected during November 2021, when there was a relatively constant burden of COVID-19 due to the Delta variant and before the Omicron variant became dominant in December 2021, leading to substantial disruption in January 2022. The 149 confirmed COVID-19 cases in the survey account for 1% of the database or around 1 in 160 anaesthetic cases. Of the cases that were COVID-19-positive, most were non-elective and over half were not hospitalised due to COVID-19. Most of the burden of COVID-19-positive patients was in obstetrics, general surgery and orthopaedic trauma. Given the disruption caused by the pandemic, the estimated annual caseload of 2.72 million is subject to higher uncertainty than in previous survey iterations, but is similar to previous NAPs.

The pandemic provided logistical challenges. Due to COVID-19 waves, the volume of surgical work undertaken has been fluctuating, and, resultantly, this activity survey only really represents a snapshot of November 2021. Further, partly driven by COVID-19 precautions, we moved away from the paper version of the survey used in NAPs 4–6 towards the electronic capture of cases. This method eased the burden of data collection for local co-ordinators but may have resulted in reduced case capture and may have reduced confidence in the case reporting rate. Despite this, these data appear to have high fidelity and are consistent with previous surveys in key features (e.g. cases by time of day, specialty mix, age and sex profiles). Even if the response rate is lower, the high number of cases (>24,000) and working with proportions rather than absolute numbers allows a consistent comparison over time. The median values for age and BMI are based on where the median would be if the distribution of values within a group (e.g. age 46–55 y) were evenly distributed within that group. This method adds some uncertainty to these values, but given the large numbers in each NAP survey, we believe these represent real changes over time. It does not allow the reporting of a range as the absolute values within the lowest and highest groups (e.g. age < 28 d) are unknown.

In summary, these data describe an increasingly complex population of patients that anaesthetists care for in the UK alongside an increase in TIVA and pEEG use. These data may be helpful for future planning of peri-operative services on local and national levels.

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Supporting Information

Additional supporting information may be found online via the journal website.

Appendix S1. NAP7 local co-ordinators.

Appendix S2. Flow chart of cases in the NAP7 activity survey.

Appendix S3. Anaesthetic workload by weekday and NCEPOD classification.

Appendix S4. Anaesthetic workload by time of day and NCEPOD classification.

Appendix S5. Anaesthetic workload specialty and time of day.

Appendix S6. COVID-19 within the activity survey population.

Appendix S7. The NAP7 activity survey population.

Appendix S8. The distribution of age and ASA in the NAP7 activity survey population.

Appendix S9. The distribution of age and BMI in the NAP7 activity survey population.

Appendix S10. Age profiles of the activity survey populations in NAP5, NAP6 and NAP7.

Appendix S11. Distribution profiles of BMI in non-obstetric and obstetric patients.

Appendix S12. Distribution profiles of ASA by NCEPOD category in non-obstetric patients.

Appendix S13. Total intravenous anaesthesia and processed EEG use.