17 Managing the aftermath and learning from perioperative cardiac arrest


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Key findings

- Perioperative cardiac arrest events may cause a 'second victim' effect on the anaesthetists involved in resuscitation. The impact on the individual anaesthetists' ability to work effectively after the event has short- and long-term consequences, with a potential impact on future patient care described as 'the fourth victim' effect.
- Consistent with this, among 881 reports of perioperative cardiac arrest to NAP7, in 30 (3.4%) an anaesthetist reported that the experience directly impacted on their ability to deliver future patient care and 5.1% preferred not to answer this question.
- In these cardiac arrest cases, the lead or most senior anaesthetist at the time of arrest was a consultant or specialist, associate specialist and specialty anaesthetist in 29 (97%) of cases.
- Risk factors that predisposed an anaesthetist to increased psychological impact following a perioperative cardiac arrest included paediatric, obstetric and patients with ASA scores of 1–2.
- Among all cases, there was good provision of informal wellbeing support to anaesthetists from colleagues, with most lead anaesthetists (62%) receiving informal support.
- Conversely, formal wellbeing support for anaesthetists was uncommon. Approximately half of involved anaesthetists did not receive formal departmental or hospital support and more than one third reported that it was not needed.
- Among 30 anaesthetists who reported psychological impact, 29 (97%) received informal colleague support.
- Among 30 anaesthetists who reported psychological impact, formal departmental or hospital support was provided to less than one third of involved anaesthetists.
- A debrief following perioperative cardiac arrest took place or was planned in 53% of NAP7 reports. 'Hot' debriefs were more common than 'cold' debriefs (61% vs 20%).
- Actual or planned debrief was more common in cases that led to impact on the anaesthetist's wellbeing (80% vs 53%) and this debrief was more often formal or semi-formal (formal, group, one to one, 'other').
- Following a perioperative cardiac arrest, the operating theatre list or on-call shift was either terminated early or the team stood down from clinical activity in 22% of all cases and in 67% of cases that led to a psychological impact on the anaesthetist.

What we already know

A perioperative cardiac arrest is a potentially catastrophic event for the patient and their family, but also for the anaesthetist and the wider team involved in the resuscitation. The patient may suffer significant harm or death, while healthcare professionals may experience the 'second victim' effect (Wu 2000).

'Second victims' have been described by Scott (2009):

Healthcare providers who are involved in an unanticipated adverse patient event, in a medical error and/or a patient related injury and become victimised in the sense that the provider is traumatised by the event. Frequently, these individuals feel personally responsible for the patient outcome. Many feel as though they have failed the patient, second guessing their clinical skills and knowledge base.

The aftermath following catastrophic events may carry an emotional burden for healthcare professionals and have an increased impact on future clinical performance and patient care (Gazoni 2008, 2012, Ozeke 2019). Patients who may consequently be affected by a decreased level of clinical performance are described as 'fourth victims' (Ozeke 2019). Meta-analyses have demonstrated that burnout in healthcare professionals is associated with poorer quality of care (Salyers 2017, Tawfik 2019).

The negative emotional impact following anaesthetic catastrophes, including critical incidents and intraoperative death, on anaesthetists varies and the recovery phase may be short or long term, with approximately 20% of anaesthetists never fully recovering (Gazoni 2012). Emotional recovery may be prolonged or hindered if adequate psychological and professional welfare support is not provided (Gazoni 2008). Perioperative cardiac arrests are usually unexpected; thus, the burden of trauma to the whole perioperative team and the impact on patient care delivery may be more significant. A survey on resuscitation care providers (medical and nursing staff) showed that 10% of staff exhibited post-traumatic stress disorder (PTSD) symptoms following their experience of in-hospital cardiac arrests (Spencer 2019).

The Association of Anaesthetists' (2005) guidelines on managing the aftermath of catastrophic events include recommendations on communication with relatives, debriefing, theatre and on-call list management, internal review processes, and welfare support. However, a survey investigating suicide among anaesthetists showed that the provision of welfare support systems is low across organisations, and even if such systems exist, clinicians lack awareness (Yentis 2019). Following this study, Shinde (2019) produced guidelines recommending that all anaesthetic departments have a welfare lead to support staff at risk of mental health and a policy to manage staff-related crises, including suicide. The welfare of healthcare staff has become increasingly a concern because of the impact of the COVID-19 pandemic on the NHS workforce burnout crisis (Iacobucci 2023). Intensive care healthcare staff had higher rates of poor mental health outcomes during the peak of the pandemic potentially affecting workforce resilience and patient care (Hall 2022).

What we have found

Baseline Survey

Departmental survey

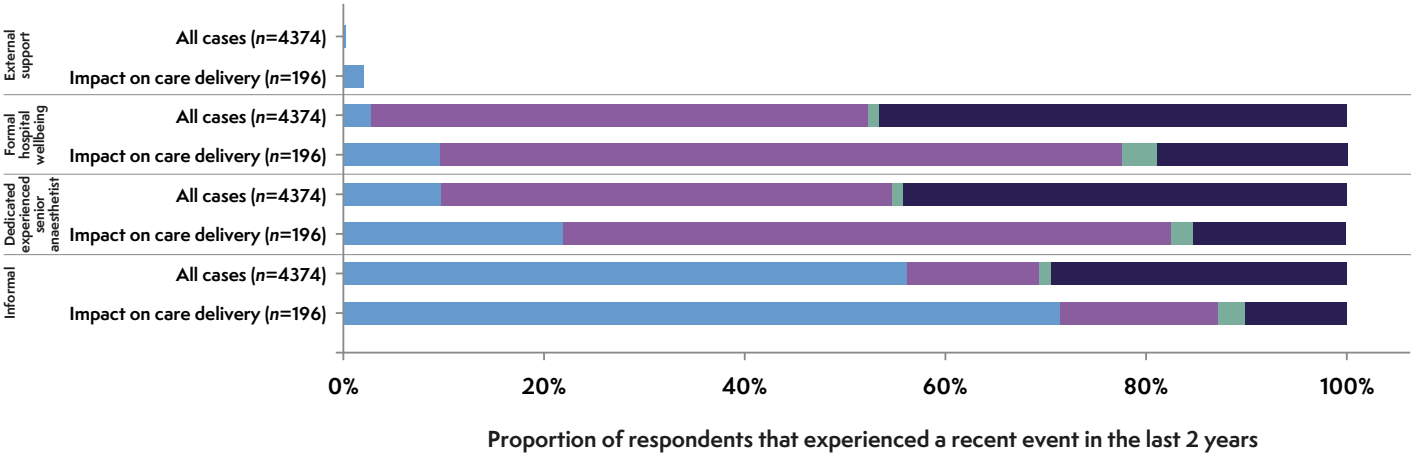
In the NAP7 Baseline Survey of UK anaesthetic departments, 106 (54%) of 195 departments had a lead for wellbeing and 81 (42%) had a local policy to manage staff wellbeing and support. Debrief sessions were available in 154 (79%) departments and specialist peer-led interventions in 57 (29%) departments (Chapter 9 Organisational survey). Specialist peer interventions included specialist support programmes: trauma risk management (TRiM), and psychological debriefing led by psychologists soon after the event: critical incident stress debriefing (CISD; Brooks 2019).

Wellbeing of anaesthetists following most recent perioperative cardiac arrest experience

The individual anaesthetists' Baseline Survey conducted in June 2021 (Chapter 10 Anaesthetists survey), showed that 4806 (46%) of responding anaesthetists had attended or managed a perioperative cardiac arrest in the previous two years. The immediate management of the theatre or on-call list and the subsequent debrief process following their most recent perioperative cardiac arrest experience are explored in detail in Chapter 10 Anaesthetists survey. A total of 4,374 (91%) of these 4,806 anaesthetists responded to questions on wellbeing support and impact on future patient care delivery following their most recent event. Informal support from colleagues was received by 2,458 (56%) and 472 (11%) received formal support. Six individuals who had formal support stated that they sought external psychological support (eg private therapy). Of those anaesthetists that did not receive formal support, approximately half reported that it was 'not needed' (Figure 17.1).

In total, 196 (4.5%) of 4,374 anaesthetists reported that their most recent experience of cardiac arrest had a direct impact on their ability to deliver future patient care but most respondents (89%) reported no impact. The impact on future care delivery was more

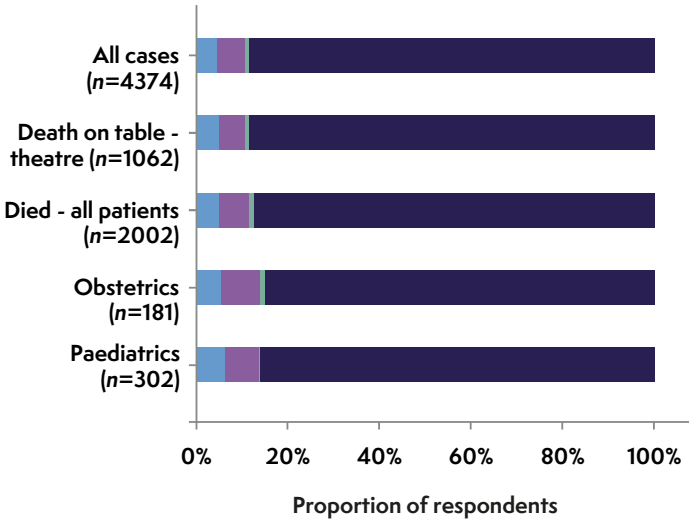
Figure 17.1 Proportion of anaesthetists receiving informal and formal wellbeing support following their most recent experience of perioperative cardiac arrest (Chapter 10 Anaesthetists survey). The different wellbeing support strategies are provided for all of the cases (*n*=4,374) and for those where the anaesthetist reported an impact on their ability to deliver future care (*n*=196). Yes ■, No ■, Prefer not to stay ■, Not needed ■.



frequently reported by anaesthetists if they had resuscitated a child (6.3%) or obstetric patient (5.5%) and in cases of intraoperative death (4.9%) (Figure 17.2). There was no difference observed among the different grades and level of experiences of anaesthetists. Examples of various individuals' perspectives and psychological impact are shown in Box 17.1.

Although anaesthetists that have reported psychological impact were more likely to have received informal and formal wellbeing support, the overall provision of support was lacking (Figure 17.1). Of 196 anaesthetists who reported an impact on care delivery, 140 (71%) received informal support and 48 (25%) formal support. Of those that did not receive formal support, only around one in five anaesthetists stated that it was 'not needed' (Figure 17.1).

Figure 17.2 Proportion of anaesthetists reporting an impact on future patient care delivery following their most recent experience of perioperative cardiac arrest (Chapter 10 Anaesthetists survey). Yes ■, Not sure ■, Prefer not to stay ■, Not needed ■.



Box 17.1 Free-text examples describing psychological impact from most recent and career experiences of perioperative cardiac arrest (Chapter 10 Anaesthetists survey)

'I wouldn't tackle this kind of case on my own again in the remote interventional radiology theatre.' (Paediatric case)

'I was really anxious about giving complex anaesthetics and this made me for a short period risk adverse. After talking it through with colleagues I was finally able to come to terms with my own conduct of anaesthesia and recover my confidence.'

'I can have panic attacks and flashbacks at work now.'

'I almost quit my job.'

'I was a responder to this case rather than the primary anaesthetist but found it harrowing and tremendously upsetting. It made me question my ability to keep dealing with tragedy.'

'I do not think I will be able to continue in this career until retirement.'

'I was terrified of delivering anaesthesia again after the event. I had significant doubts about my abilities and safety.'

'Anxiety for a good 18 months after and lower threshold to cancel patients if deemed unfit and in need of optimisation.'

'I had to continue straight away with other cases. There was no one to help. I got a phone call the next day but it seemed accusatory rather than supportive. I felt guilty and responsible even though I did nothing wrong. I took months to feel comfortable in obstetrics. Actually, I think it made me a better anaesthetist…' (Obstetric setting)

'In the immediate 2–4 weeks after the case, I experienced flashbacks and symptoms of severe stress and anxiety. These have resolved with time.'

'I experienced an acute stress reaction and following it I now find providing general anaesthesia significantly more stressful experience where I re-experience the events. Although I now appreciate that I did not do anything wrong and apparently handled the incident very well I absolutely thought I was responsible for killing that woman and her baby. I am not a typically risk adverse anaesthetist.' (Obstetric setting)

'Very disappointed in processes to debrief well-being of staff. A very stressful event - managed poorly in the aftermath. This includes both immediately after the event and then the period of review afterwards. In retrospect, staff should be given a period of time off to check over documentation and to process events. Not just business as usual.'

'Negative impact lasted about two years for me.'

'This significantly affected me, and I nearly quit training. I wasn't able to sleep, had panic attacks.'

'I tried to speak to the consultant involved in the last one, and was brushed off to go and figure it out. It took a long time to recover from these.' (Paediatric setting)

'I did not seek support but massively impacted my own personal wellbeing. Sleepless nights, stress and anxiety.'

'Patient had a cardiac arrest but survived. I felt terrible afterwards and was very down as felt guilty and thought it was my fault. I could not sleep well for a while and felt quite down, which affected my personal and social life for a while, as I was perhaps a bit withdrawn.'

'Never got any support. Particularly in the early years as a trainee. It probably did have a big impact on me … had a knock-on effect on my wife and kids.' (Paediatric setting)

Free-text qualitative analysis from the 196 responses relating to impact on patient care delivery demonstrated varying themes (Figure 17.3) and subthemes. Of 260 sentiments reported, 198 (76%) were negative and 62 (24%) positive. Of these 196 anaesthetists, 79 (40%) responses related to 'increased anxiety around work' – of which respondents most specifically mentioned feeling *anxious* (45), *more cautious* (28), *more vigilant* (8), having *prolonged reflection* on the incident (3) or *scared* (3) when working with similar cases. Some 72 (37%) respondents mentioned feeling 'less confident'; 30 (15%) described a negative impact on their own 'personal mental health', such as feeling more *emotional* (12), feeling *stressed* (12), experiencing *PTSD* (9) and *worry* (2). Needing to take 'time off work' was mentioned by 11 (6%) respondents, with one anaesthetist almost resigning their job. Six (3%) anaesthetists complained that there was a 'lack of formal support'. Conversely, 62 (32%) sentiments described a 'positive experience', including respondents reporting that they had *learned* from their experience (51), some specifically indicating *increased confidence* (10) and some expressing that they felt the experience had *improved their overall ability at work* (10).

Career experience of perioperative cardiac arrest

In terms of entire career experience, 8,654 (85%) of 10,131 responding anaesthetists had previously been involved in the management of a perioperative cardiac arrest as the primary anaesthetist or as a helper. Free-text examples of career experiences and the psychological impact are shown in Box 17.1.

Negative and positive impacts on their professional life were reported by 1,961 (23%) and 2,630 (30%) anaesthetists, respectively (Figure 17.4). Negative impacts included work-related anxiety and stress (76%), loss of professional confidence (53%), impact on relationship with colleagues (12%) and many other factors (Figure 17.5). Other affected aspects of professional life are shown in Figure 17.5. Comments on positive impacts, by 1,837 respondents, are shown in Figure 17.6.

Figure 17.3 Themes identified from qualitative analysis of free-text responses from anaesthetists reporting an impact on future patient care delivery following their most recent experience of cardiac arrest (*n*=196) (Chapter 10 Anaesthetists survey)

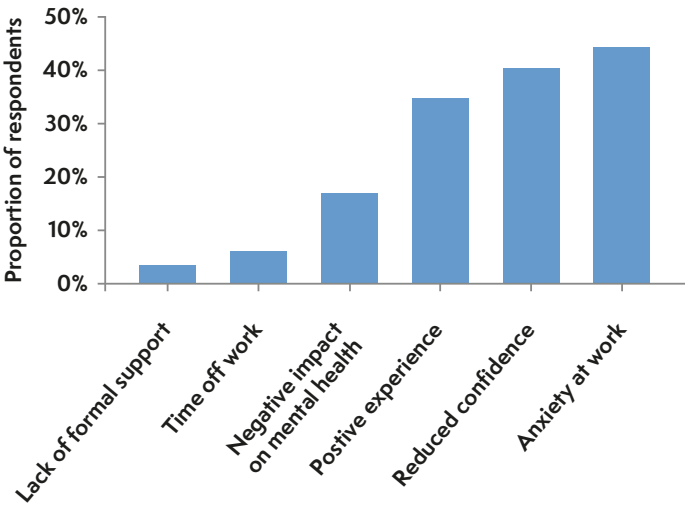


Figure 17.4 Proportion of anaesthetists reporting positive or adverse impact on personal and professional life following career experiences of perioperative cardiac arrest (Chapter 10 Anaesthetists survey). Unclear responses not included. Yes ■, Not sure ■, Prefer not to stay ■, No ■.

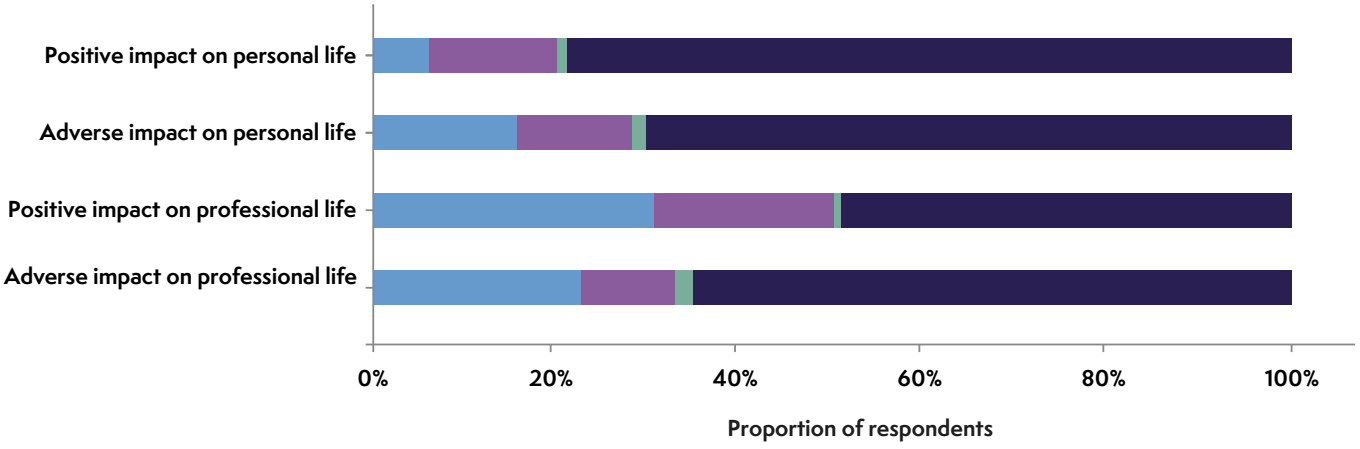


Figure 17.5 Adverse professional impacts of career experience of perioperative cardiac arrest among anaesthetists in NAP7 Baseline Survey (*n*=1,961). GMC, General Medical Council.

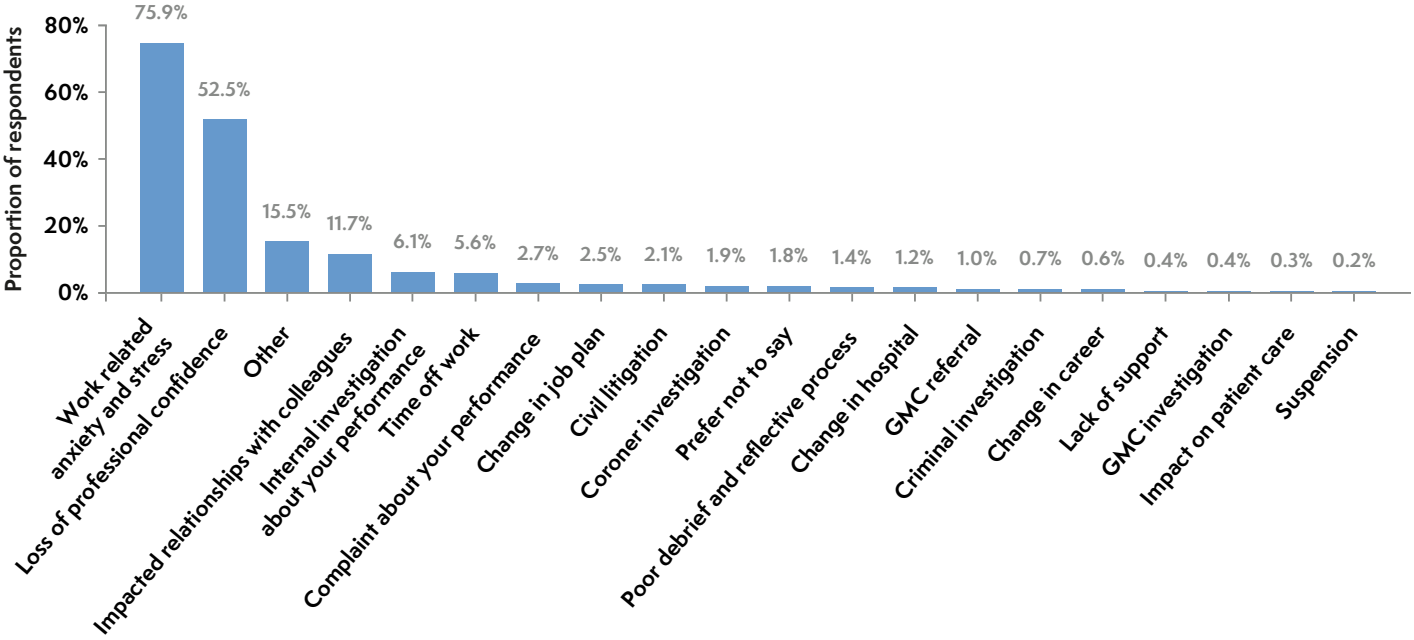


Figure 17.6 Positive professional impacts of career experience of perioperative cardiac arrest among anaesthetists in NAP7 Baseline Survey (*n*=1,837)

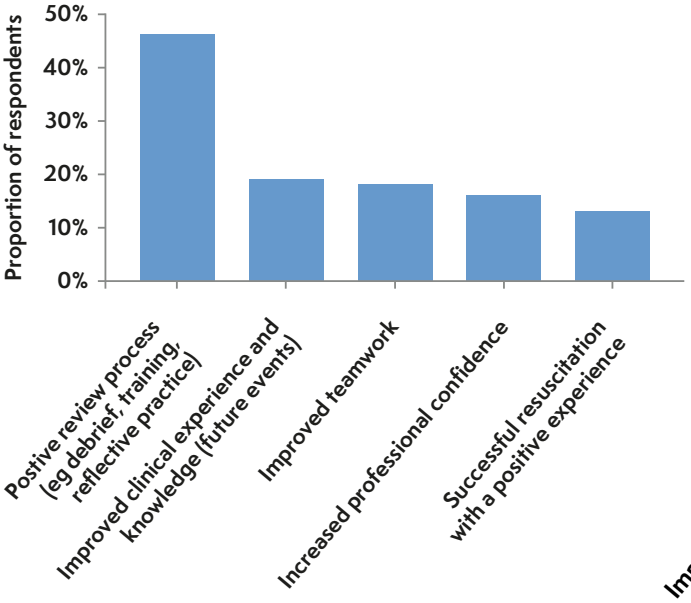
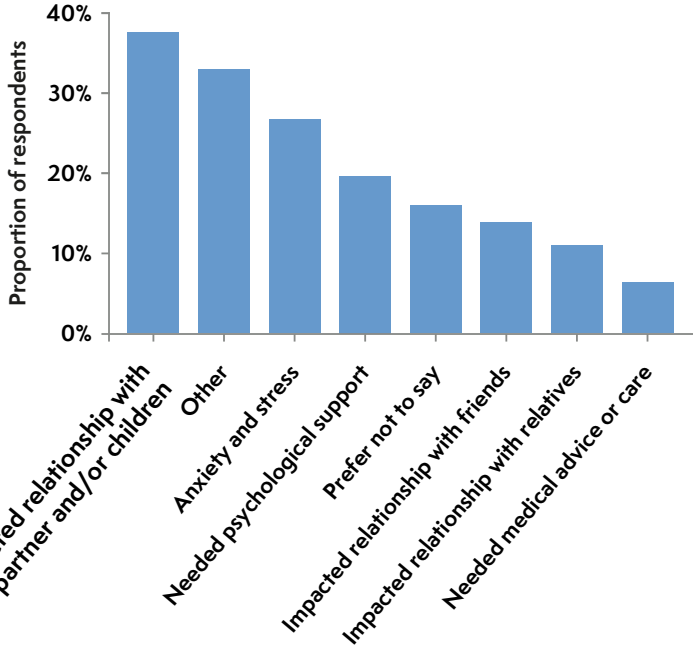


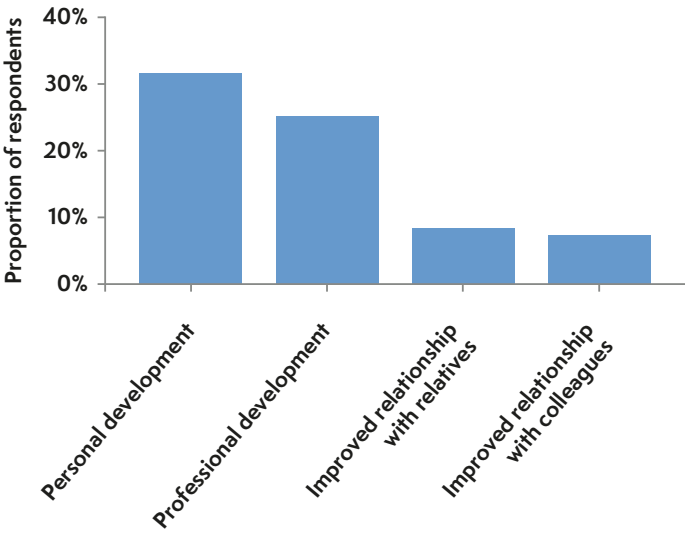
Figure 17.7 Adverse personal impacts of career experience of perioperative cardiac arrest among anaesthetists in NAP7 Baseline Survey (*n*=1,348)



Negative and positive impacts on their personal life were reported by 1,348 (16%) and 528 (6%) anaesthetists, respectively (Figure 17.4). Among negative impacts were, a direct impact on the relationship with a family member (49%), anxiety and stress (27%) and needing psychological support (20%) (Figure 17.7). Comments on positive impacts, by 302 respondents, are shown in Figure 17.8.

In summary, more than 20% of anaesthetists have complained of symptoms of anxiety and stress as a result of their previous career experience of perioperative cardiac arrest, affecting either their personal or professional life.

Figure 17.8 Positive personal impacts of career experience of perioperative cardiac arrest among anaesthetists in NAP7 Baseline Survey (*n*=302)



Cases registry

Psychological impact on the anaesthetist and their future patient care delivery

In 30 (3.4%) of 881 cases of perioperative cardiac arrest reported to NAP7, it was reported that the event had an impact on the ability of the lead anaesthetist to deliver future patient care and in 45 (5.1%) cases the reporter stated that they 'prefer not to say' with regards to this question.

Consistent with the results of the Baseline Survey, an impact on the anaesthetist was more likely if the cardiac arrest included resuscitation of a child, an obstetric patient or if the patient did not survive initial resuscitation. Frequency of psychological impact was increased in patients scoring ASA 1–2 and less evident in those at ASA 4–5 but appeared not to be affected by the seniority of the anaesthetist, case priority or grade of surgery (Table 17.1).

Qualitative analysis of free-text comments in the case registry

Of the 30 anaesthetists who reported psychological impact in the NAP7 case reviews, comments included (Box 17.2):

- subsequent work stress and anxiety (9)
- impact on their ability to deliver effective patient care (11)
- too many distractions in the theatre (2)
- residual trauma, increased vigilance, reluctance to undertake similar work, heightened awareness of risk and a change in work pattern, difficulty sleeping, flashbacks, self-blame (1 each).

The top 50 common 'keywords' cited by the anaesthetists reporting impact on patient care delivery is shown in Figure 17.9.

In answer to a question about any other factors that anaesthetists wanted to share in relation to the reported case, there were 436 (49%) free-text responses. Of these 436 responses, 58 (13%) mentioned how team dynamics acted to reduce or exacerbate the impact of the cardiac event on the anaesthetist (28 positive impact, 13 negative, 12 neutral, and 5 ambiguous). Eighty-two responses (19%) mentioned how hospital processes and patient complexity may have affected the patient outcomes (eg challenging cases for anaesthetists due to the patient's age and multiple comorbidities impacting confidence and stress levels). Fifty-one (12%) responses described positive impacts on the wellbeing and efficiency, being able to manage high-risk cases

Table 17.1 Patient and anaesthetist characteristics and frequency of psychological impact on anaesthetists involved in perioperative cardiac arrest. SAS, specialist, associate specialist and specialty.

Characteristic	Cases with psychological impact (*n*)	Denominator of all cases in the case registry (*n*)	Proportion of cases leading to psychological impact (%)
Patient			
All patients	30	881	3.4
Child (0–18 years)	10	117	8.5
Obstetric patient	2	28	7.1
ASA 1 or 2	15	235	6.4
ASA 3	14	324	4.3
ASA 4 or 5	1	322	0.3
Death on table	10	209	4.8
Death, overall hospital outcome	12	348	3.4
Most senior level of anaesthetic experience			
Consultant, SAS anaesthetist at induction	27	771	3.5
Non-consultant, non-SAS anaesthetist at induction	1	70	1.4
Consultant, SAS anaesthetist at time of arrest	29	664	4.4
Non-consultant, non- SAS anaesthetist at time of arrest	1	106	0.9

Box 17.2 Case registry: examples of anaesthetists reporting impact on wellbeing and future patient care delivery

'Stress from event still lingers.'

'The anaesthetist involved reports feeling hypervigilant and anxious while doing solo anaesthetics.'

'Informal support from colleagues which often happens after adverse events in the department did not occur as the anaesthetist had to self-isolate due covid contact.'

'Changed my life.'

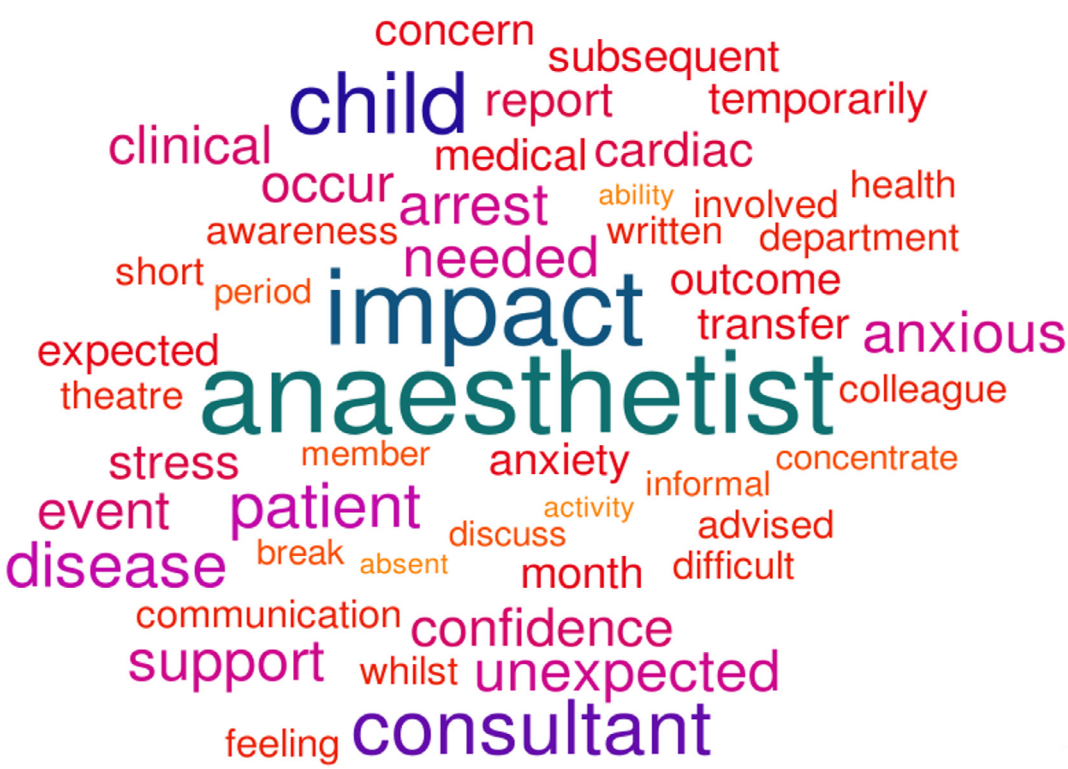
'Depression and anxiety. Time off due to stress.'

'Required a single on call commitment to be covered as felt needed a short break from high stress emergency activities. Now back on full clinical duties without a problem.'

'Occupational health support needed and the anaesthetist took several months off work and remains off the on-call rota approximately 6 months later.'

'Okay now, but it happened two months ago and I am only just feeling able to report.'

Figure 17.9 Word cloud of the most common 50 keywords in free text responses from anaesthetists (*n*=30) on the impact on patient care delivery



with the help of senior staff, boosting confidence, reducing stress, and positively impacting their efficiency in future similar cases. Thirty (7%) responses described a negative impact on mental health, where anaesthetists shared a sense of failure or guilt due to the patient's death. Fifty-five (13%) responses referred to complex cases, where rapidly changing situations were seen to increase stress levels and impact the anaesthetist's mental health. Some scenarios seemed to test team cohesion due to urgency of decisions, potential conflicts in decision-making or power dynamics. Fifty-two (12%) responses suggested potential stressors such as delay in transfer, lack of clear briefing and uncertainty about the cause of the cardiac arrest. Thirty-five (8%) responses indicated good teamwork and efficient handling of the situation. Seventy-four (17%) responses described positive impact on both wellbeing and efficiency, where a successful handling of the cardiac arrest was shared.

Overall, a qualitative analysis of the free-text responses to this broad open-ended question sharing additional information on cases of perioperative cardiac arrest suggested that the potential impact on a patient can vary depending on each case and the individual anaesthetist's perspective and experiences. Factors, such as teamwork and equipment availability may impact anaesthetists' mental wellbeing, efficiency and team cohesion. While most of the statements in this subanalysis fit within the remit of assessing the impact of events on anaesthetists, some responses contained overlapping criteria, which meant that summarising the analysis as clearly fitting within positive or negative impact was not clear cut. Without follow-up questions, it is hard to give a full indication of each individual anaesthetist's perspective and experiences.

The provision of wellbeing support

Among 881 cases, 547 (62%) lead anaesthetists received informal support from colleagues, 163 (19%) stated that such support was not needed, 18 (2%) stated they preferred not to answer this question and 137 (16%) did not receive informal support (Figure 17.10). Formal support was notably less frequently provided (Figure 17.10). Support from an experienced dedicated anaesthetist was provided in 106 (12%) of cases, hospital wellbeing in 26 (3%) and occupational health support in 5 (0.6%) of cases.

In cases with report of psychological impact on the anaesthetist, the anaesthetists involved were more likely to have received both informal and formal wellbeing support compared with other cases: 29 lead anaesthetists received informal support from colleagues and 1 did not. Fewer than one third received formal psychological support (Figure 17.10).

Of 291 cases fully reviewed by the panel, in 167 (57%) the provision of wellbeing support to individual anaesthetists was judged to be appropriate, in 27 (9%) cases inappropriate and in 97 (33%) cases it was unclear or judged not applicable.

Debrief

Debrief occurred in 403 (46%) cases, was planned for the future in 66 (7%) and no debrief occurred in 308 (35%) cases. Of these 403 cases, the process was performed immediately after the event (hot debrief) in 246 (61%), after a delayed period (cold debrief) in 80 (20%) and both before and delayed in 68 (17%) cases. The types of debriefs conducted are shown in Figure 17.11. Use of the peer support programme TRiM was reported in 2 (0.2%) of 881 cardiac arrests.

Among the 30 cases with psychological impact on the anaesthetist a debrief was conducted in 22, was planned for the future in 2 and no debrief was planned in 5. Of the 22 cases where a debrief took place, this was a hot debrief in 12 cases, a cold debrief in 3 and both in 7. The types of debriefs conducted are shown in Figure 17.11. Compared with all cardiac arrests, the types of debrief conducted in this cohort of cases were more commonly formal or semi-formal (formal, group, one-to-one, 'other'; Figure 17.11). Of the cases fully reviewed by the panel, in 59 (45%) of 132 cases in which a debrief did not occur it was judged by the panel that one should have taken place.

Figure 17.10 Provision of informal and formal support to the lead anaesthetist in all cases reported to NAP7 (*n*=881) and in those that led to pscyhological impact on the anaesthetist (*n*=30). Yes ■, No ■, Prefer not to stay ■, Not needed ■, Unknown ■.

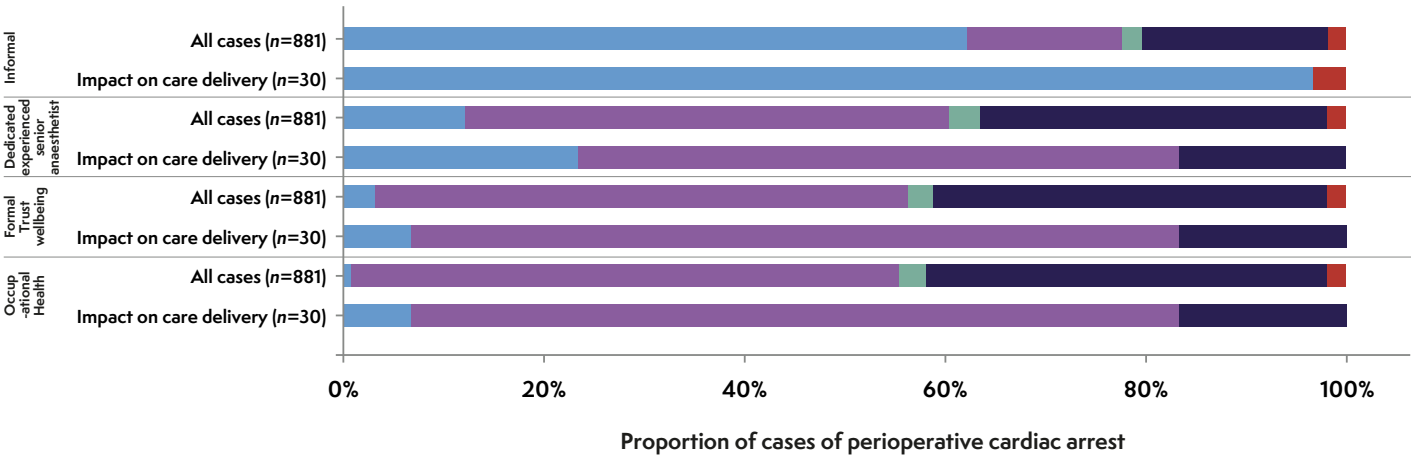
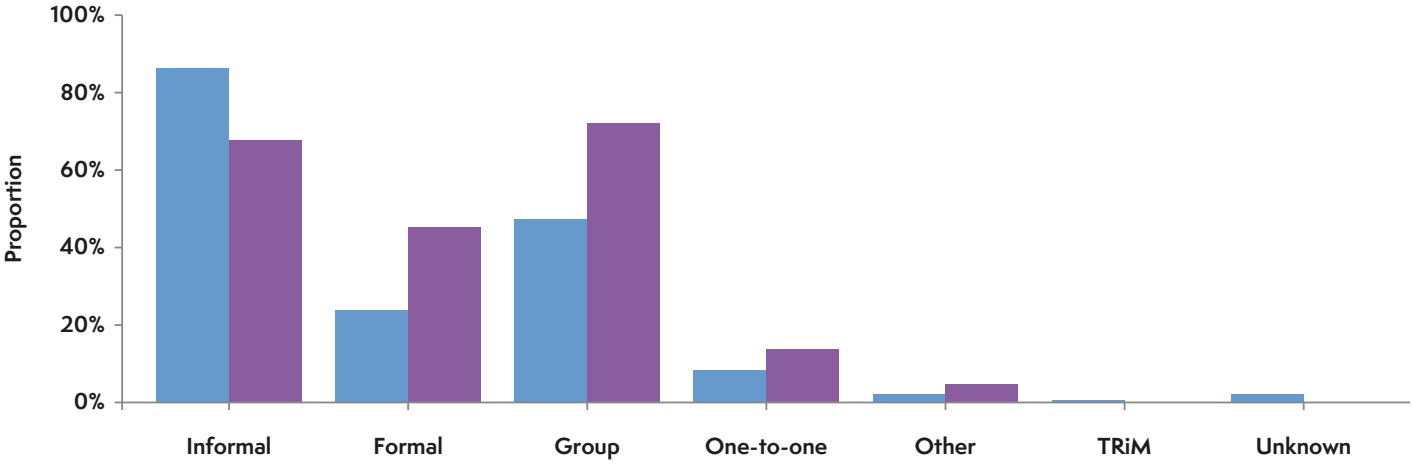


Figure 17.11 Proportion of types of debrief among 403 debriefs conducted in all perioperative cardiac arrest cases and among 22 debriefs in cases which led to an impact on the anaesthetist. All cases ■, Cases with impact on anaesthetist ■.



Theatre list and on-call shift management after cardiac arrest

The theatre list or on-call shift was terminated early in 70 (8%) of all the 881 cases of cardiac arrests, and in 126 (14%) cases the team stood down from clinical activity (eg taking a short or sustained break). Among 30 cases of cardiac arrests leading to psychological impact on the anaesthetist, the theatre list or the on-call was terminated early in 7 and in 13 the team stood down immediately from clinical activity. We do not know in how many cases there was no need to stand down or terminate the list (eg because it was the last case on the list).

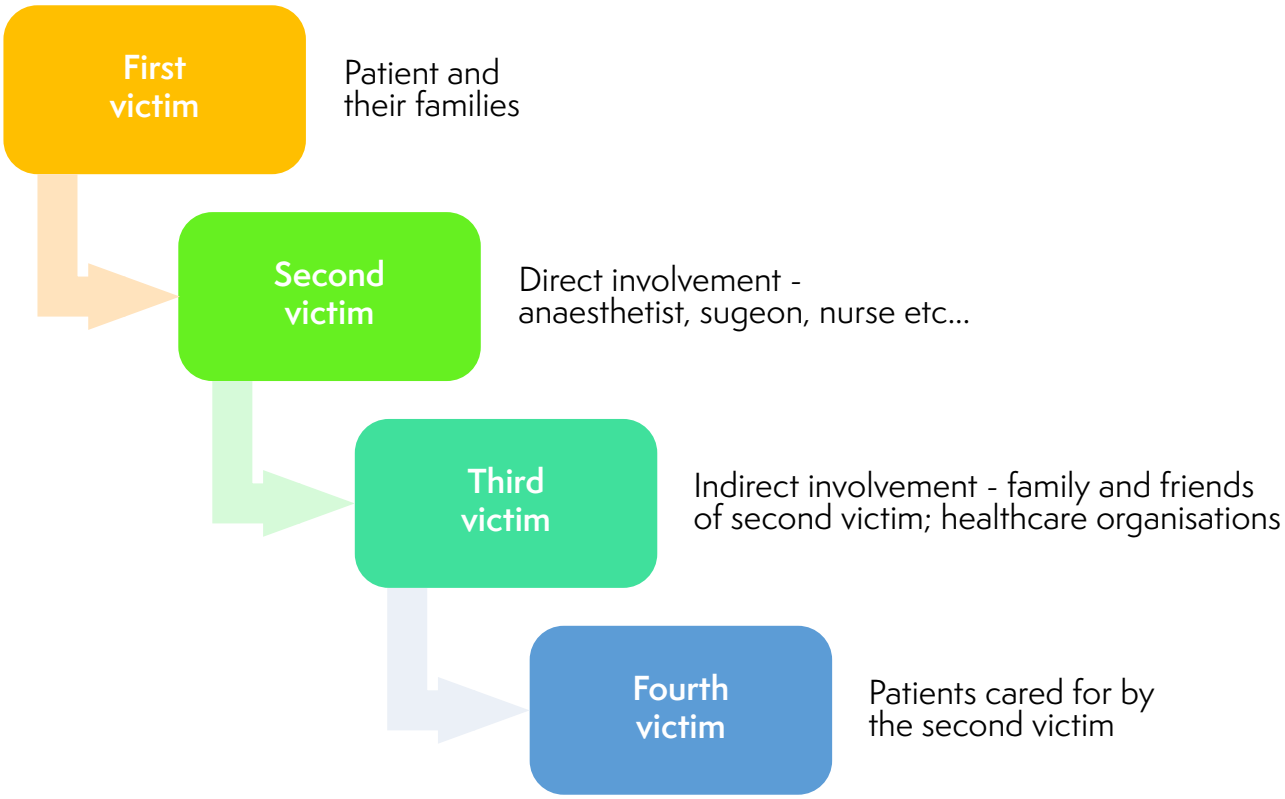
Discussion

An intraoperative cardiac arrest, particularly if the patient dies, can be harrowing for an anaesthetist and other staff involved. Consistent with previous surveys, the NAP7 Baseline Survey and case review found that the subsequent impact on an anaesthetist may be profound and long-lasting, demonstrating the 'second victim effect' (Figure 17.12). It is in the nature of this project that we have focused on the anaesthetist, but we acknowledge that we are likely to have missed impacts on other members of the care team.

Limited research exists on the psychological impact on the anaesthetist and the whole team following critical events such as perioperative cardiac arrests. Gazoni (2012) showed that 84% of American anaesthetists surveyed were involved in a perioperative unanticipated perioperative death or serious patient injury during their career. The study showed that more than 70% experienced feeling of anxiety, guilt and reliving of the event with a potential impact on future clinical performance. A systematic review revealed that involvement of surgeons in the perioperative death of a patient led to burnout and stress-associated disorders, particularly identifying that unexpected death was more likely to lead to an increased emotional burden on the surgeon (Joliat 2019).

Approximately 85% of all anaesthetists who responded to the NAP7 Baseline Survey reported previous involvement in a perioperative cardiac arrest and more than one third of these stated a direct impact on their professional or personal life, both positively and negatively. The impact on professional and personal life can affect clinical performance and thus carrying potential significant implications on the individual anaesthetist to deliver future patient care. More than 20% of anaesthetists in the Baseline Survey reported feelings of anxiety and stress following a previous perioperative cardiac arrest experience. It is well documented that sustained periods and untreated stress can lead to burnout in healthcare professionals. A meta-analysis has demonstrated that burnout in staff can lead to poorer clinical performance affecting quality of care and patient safety (Salyers 2017, Tawfik 2019). However, it is notable that in the Baseline Survey more anaesthetists reported career experience of cardiac arrests had a positive impact on their professional life (30%) than a negative impact (23%), so the impact is nuanced.

Figure 17.12 The relationships between different victims after a catastrophic event



Catastrophic events in anaesthesia can lead to many succeeding victims (Figure 17.12). The first victim is the patient directly involved in the incident and their relatives (Ozeke 2019). The second victim may be any member of the multidisciplinary team experiencing psychological harm or trauma as a result of the incident. Third victims are healthcare organisations that are indirectly involved by means of managing the aftermath, including investigating the incident (Holden 2019). Finally, patients affected by reduced clinical performance of involved clinicians are fourth victims (Ozeke 2019).

The NAP7 case registry showed that 1 in 30 (3.4%) cases impacted on future patient care delivery due to psychological impact on the anaesthetist involved. In a further 5.1% of cases, the respondent declined to answer this question, which suggests that the 3.4% may be a considerable underestimate. The emotional burden has been shown to affect the anaesthetist's ability to work both in the short and long term (Gazoni 2012). All these 30 NAP7 cases resulted in the involved anaesthetist reporting a negative impact on their wellbeing, with respondents citing psychological symptoms including increased feelings of failure, guilt, hypervigilance, stress, anxiety and PTSD.

The individual anaesthetists' Baseline Survey was more nuanced. Recent cardiac arrest had a generally negative impact on wellbeing and future patient care delivery; among the approximately 90% of respondents who provided comments on this question, around 1 in 20 reported an impact on future patient care delivery with three quarters of these citing a negative experience (eg anxiety and stress, PTSD, time off work) and one quarter a positive impact such as improved clinical confidence. Conversely, career impact of attendance at cardiac arrests was viewed more benignly, with slightly more respondents stating a positive impact on their professional life than a negative one, although this positive interpretation of impact did not extend into personal life impacts, which were more than twice as often negative in nature.

It is recognised that attending cardiac arrests as a healthcare provider can lead to development of PTSD, with approximately 10% of those attending intrahospital cardiac arrests screening positive for this condition and those who are more junior being at greatest risk (Spencer 2019). In terms of perioperative cardiac arrest, the impact on anaesthetists was found to be greater if the perioperative cardiac arrest was unexpected and in a healthy patient (Chapter 16 Deaths in low risk patients). Events that occurred in ASA 1–2, children and obstetric patients were associated with higher risk of impact on individuals. Notably, the frequency of psychological impact was not altered by seniority of lead anaesthetist, highlighting that level of experience does not mitigate psychological impact from catastrophic events.

Wellbeing support

Evidence suggests that if healthcare professionals are not adequately supported in the aftermath of catastrophic events, it can harm their wellbeing and prolong their recovery (Gazoni 2012). Thus, in turn, the potential impact on patient care may be even more significant if this is not addressed effectively.

The NAP7 data demonstrate that, overall, the provision of formal wellbeing support following a perioperative cardiac arrest in the UK is low. Positive informal support from colleagues was seen in more than 60% of cases, but formal support even from dedicated experienced senior anaesthetists was only reported in 12% of cases. Even in cases where lead anaesthetists reported psychological impact, informal support (97%) was overwhelmingly more common than even experienced trained senior anaesthetist support (23%). Formal support through psychological services or TRiM services were vanishingly rare. The data from the Baseline Survey also support this analysis.

The Royal College of Anaesthetists (2023a) and the Association of Anaesthetists (2005) recommend that UK anaesthetic departments should have a wellbeing lead and a wellbeing policy. However, our Baseline Survey showed that just over half of all UK anaesthetic departments had a departmental wellbeing lead and fewer than half a wellbeing policy. Association guidance also states that an anaesthetic department is required to support any anaesthetist who may be distressed or traumatised after a catastrophic event and organisations should provide access to a trained counsellor within three days of an event (Association of Anaesthetists 2005); based on our Baseline Survey, it is likely that many departments will lack capacity to do this.

Debriefing and peer support programmes

Debriefing after a serious incident allows those involved to discuss and reflect on the event. This is intended to help the individual by allowing learning through discussion as well as potentially improving clinical performance and patient care by reflecting on what had gone well and gone badly. The Resuscitation Council UK recommends (Soar 2021) that a debrief should occur after all cardiac arrests and thus it should not be viewed as an optional extra but as an important opportunity for employers to promote an open culture, discuss team performance, learning and to look after the mental wellbeing of their staff. In cardiac arrests captured in NAP7, a debrief had already occurred or was planned in 53% and this increased to 80% in cases where the anaesthetist identified an impact on their wellbeing. Access to psychosocial support after a traumatic event is crucial. Data demonstrate that trauma-exposed employees who receive adequate support have fewer psychological sequelae and are likelier to perform better at work (Brooks 2019). Several psychological interventions exist, some of which are being questioned regarding efficacy (Brooks 2019).

When debriefs took place most were immediately after the event (hot debriefs, 61%) rather than sometime later (cold debriefs, 20%), while in 17% both took place. This may not represent

best practice, as there is concern that hot debriefing can lead to more psychological trauma. A randomised controlled trial of burn victims reported that those in the rapid psychological debriefing group had a higher incidence of PTSD (26%) at follow-up than those in the control group (9%; Bisson 1997). What is preferable to a hot debrief is an immediate team 'check in' or 'diffusion meeting' conducted straight after a catastrophic event, which provides a structured opportunity for the whole team to normalise the event on an emotional level, provide an open support structure and generate a list of staff involved in the event to help in the follow-up period through a form of a peer support programme (Kelly 2023). Such, meetings can be used to reassure staff that a trauma stress reaction is normal after a critical incident and that this reaction usually resolves with time. The Resuscitation Council UK recommends an 'operational debrief' following a cardiac arrest that includes checking up on colleagues and active monitoring of team members, and referral for formal support only for those who require it (RCUK 2023).

Several peer support programmes exist. A form of support for those who experience trauma has been developed in the British armed forces. TRiM is a peer support system that aims to recognise those who are at increased risk of suffering psychological stress and offer appropriate timely support. There is evidence that TRiM interventions are beneficial by creating support within an organisation whereas CISD conducted by trained personnel efficacy is now debated (Brooks 2019, Rose 2002). Given the numbers of those involved in cardiac arrests who report PTSD, providing a peer support service such a TRiM may assist in reducing the long-term harm that can occur and may help promote an open culture within these organisations that normalises this necessary assistance. Peer support tools also enable identification of staff who may benefit from professional psychological help and can direct them to such services. Peer support programmes could help to maintain the mental wellbeing of staff across the healthcare sector.

Theatre list and on-call shift management

In cases reported to NAP7, clinical activity was either terminated early or the team stood down in slightly less than one quarter of cases, but in two thirds of cases in which the anaesthetist reported psychological impact; this latter fact perhaps hinting at a wider impact on the healthcare team in these cases. Gazoni (2012), within their survey of anaesthetists, showed that following their 'most memorable' catastrophe during their career, their ability to deliver anaesthesia was compromised in approximately 70% in the first 4 hours after the event and 50% in the first 24 hours. Only 7% were given time off after their most memorable event, despite most (70%) stating they would have benefited from time off clinical work (Gazoni 2012). In the UK, the Royal College of Anaesthetists (2023b) recommends that after a team is involved in a critical incident, clinical commitments of those involved in an emergency setting should be reviewed. Kelly (2023) drive the recommendations further, stating that when a patient comes to harm following a critical incident (eg unexpected intraoperative death) it should be assumed that the team may not be fit to continue working.

Recommendations

Institutional

- Each organisation providing anaesthesia and surgery should have a policy for the management of an unexpected death associated with anaesthesia and surgery. Such a policy should include the allocation of a senior individual to oversee care. The policy should include care of the deceased patient, communication with family and provision for staff involved to be relieved from duty and subsequently provided with appropriate support mechanisms.
- Due to the severity of its nature, all cardiac arrests should be reviewed to understand the cause, discover potential learning and support staff. Learning should be shared across the whole perioperative team.
- An 'operational debrief' should be offered immediately after a perioperative cardiac arrest highlighting on the team's performance and any learning. A form of structured immediate team 'check in' tool should be incorporated to identify members of staff who may be at risk of psychological impact and provide a source of referral to a peer support programme.
- Organisations should support and facilitate use of peer support tools, such as TRiM to support teams after perioperative cardiac arrest.
- A debrief after delayed period ('cold debrief') should be offered but not mandated, and could be triggered by the anaesthetic department or external to it.
- Organisations should have a departmental wellbeing lead to support anaesthetists.
- Organisations should support operating theatre teams to stop working after an unexpected death in theatre or critical event where a patient comes to harm if at all possible or practical. To maintain the safety of other patients, staff should be assumed to be not fit to work for the rest of their shift.
- Organisations should make sure that staff members are safe and stop clinical duties as soon as safe to do so. It is the leader's role in coordinating how the list is managed following a critical incident or death, and not the individual staff members affected.

Individual

- After a perioperative cardiac arrest, the operating list should be halted temporarily so that all theatre team members can decide whether to continue operating; departments should draft in additional personnel if required.
- When non-consultant grades are involved in a perioperative cardiac arrest, the responsible consultant should attend in person and provide immediate support. For consultants, the decision about whether to continue with the list or on-call should be made after assessing the situation with a senior colleague (eg the clinical director).

Research

- Further research is required to understand the nature and extent of the psychological impact on anaesthetists (and other healthcare staff) from critical incidents such as perioperative cardiac arrest, the effect of such impacts on healthcare delivery and to identify strategies to mitigate these impacts.

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