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Advance care planning in the perioperative setting: a mixed methods study of anaesthetists' knowledge, attitudes and practice

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ABSTRACT

Background Advance care planning (ACP) allows patients to detail their wishes in case they lose capacity. Despite low mortality rates, the high volume of surgery means that thousands of people die in the weeks and months following an operation. Perioperative ACP may benefit patients at high risk of complications and death by allowing them to discuss and document their priorities.

Objectives To assess UK anaesthetists' knowledge, attitudes and practice regarding ACP and explore perceived barriers to perioperative ACP.

Design Explanatory sequential mixed methods study, comprising a national online survey followed by qualitative interviews and observations. Data were integrated by using survey findings to shape the qualitative component, analysing both components for convergence and synthesising results into an explanatory narrative.

Setting The quantitative survey was distributed to anaesthetists across the UK. The qualitative component (interviews and direct observations) was conducted at a single central London teaching hospital.

Participants For the survey, 534 anaesthetists were invited, with 184 (34%) responding. A minimum sample of 94 was required, determined by Cochran's formula. 14 consultant anaesthetists participated in semistructured interviews, and 40 hours of observations were conducted in preoperative assessment clinics and multidisciplinary meetings.

Primary and secondary outcome measures The quantitative outcome was anaesthetists' knowledge, attitudes and self-reported practice of ACP. The qualitative outcome was identification of barriers and facilitators to perioperative ACP through thematic analysis of interviews and observations.

Results Most survey respondents (92%) endorsed ACP and 54% reported having an ACP discussion at least once every 6 months. Knowledge of ACP was found to be high with eight out of 10 questions answered correctly by the majority of respondents. While 78% indicated the run-up to major surgery is an appropriate time to discuss ACP, these conversations were not routinely integrated into practice. Qualitative findings highlighted three core reasons why treatment limitations are often not enacted perioperatively: (1) relatively low perceived postoperative mortality risk; (2) reversible nature of many surgical complications; and (3) the notion that if a patient truly requires treatment limitations, surgery may be inappropriate. Additional barriers included the focus on physical optimisation in pre-assessment clinics; a lack of clarity over the anaesthetist's role in leading these discussions; and an unclear role of the anaesthetist in the surgical pathway.

Conclusion This study is the first to systematically describe UK anaesthetists' ACP knowledge, attitudes and practice. Barriers include perceptions of low mortality risk, reversible complications, pre-assessment focus on physical health and cancellation avoidance, and an unclear role of the anaesthetist.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Mixed methods approach provided both national survey data and in-depth qualitative insights.
⇒ Focused ethnography verifies self-report behaviour.
⇒ Multiple coding of qualitative data and wave analysis of survey non-response enhanced methodological rigour and reduced bias.
⇒ Low internal consistency of the knowledge (α=0.4) and attitudes (α=0.55) questionnaire components limits interpretation of composite scores.
⇒ Single-centre qualitative sample and 34% survey response rate may limit generalisability of findings.

INTRODUCTION

The nature of illness is one that often causes cognitive impairment and/or unconsciousness resulting in a lack of capacity to make treatment decisions.[1 2] Advance care planning (ACP) has been consistently recognised as a mechanism for ensuring the goal of person-centred care and that communication and decision-making between patient and health professionals is made more effective. ACP is supported in the General Medical Council guidance 'Treatment and Care Towards End of Life'[3] and is recommended by the National Institute for Health and Care Excellence.[4] Within this article, the term ACP is used to describe the process of discussion, which may or may not result in a written document. The

term advance decision (AD) shall refer to any documentation of values, goals, concerns and/or preferences.

Despite low mortality rates (0.5%–3.6%),[5 6] high surgical volumes mean that many patients die postoperatively. In the UK, around 100 000 people die each year within 90 days of having a surgical procedure involving either general or regional anaesthesia.[7] A 'high-risk' population comprising 12.5% of surgical patients accounts for 84% of perioperative deaths.[8] This group is characterised by advancing age, having a greater number of co-morbidities, having major or complex surgery and being more likely to have emergency surgery.[8] Given that these patients will often lack capacity if they suffer a major complication, preoperative ACP is a means to embed patients' values and priorities in postoperative decisions.

The Royal College of Anaesthetists (RCoA) vision 'Perioperative Medicine: The pathway to better surgery' emphasises multidisciplinary shared decision-making.[9] This has been driven by an understanding of the different needs of the high-risk surgical patient and an appreciation that their number will continue to grow.[9] While surgeons may be experts at performing the operation, anaesthetists may have additional knowledge of the risks relating to frailty, comorbidities and recovery following major surgery.[10] Over 80% of those undergoing planned operations are being seen at an anaesthetic preoperative assessment clinic (PAC),[11] and this moment, where the patient is engaged and actively considering their current health, their goals, values and priorities, could be ideal for discussing and documenting these via a concurrent process of ACP. In recognition of this, the Association of Anaesthetists has recently published guidelines specifically for ACP in the perioperative period.[12] One recommendation is that, following discussion with the patient, it is usually appropriate to suspend a Do Not Attempt Cardiopulmonary Resuscitation (DNACPR) during the perioperative period. Similar guidance on 'required reconsideration' has been issued by the American Society of Anaesthesiologists[13] and the American College of Surgeons.[14] The Seventh National Audit Project (NAP7) found DNACPR orders in 2.9% of surgical patients, yet fewer than half were suspended intraoperatively.[15] This suggests that even in some of our highest risk patients the opportunity for discussion and ACP may be being missed.

Despite growing recognition of perioperative ACP's importance, little is known about anaesthetists' perspectives. This study addresses this gap by systematically evaluating UK anaesthetists' ACP knowledge, attitudes and practice to identify barriers specific to the perioperative setting to help inform better implementation.

METHODS

An explanatory-sequential design[16] was used collecting quantitative data first and then conducting qualitative interviews and observations. This sequential design reflects our understanding that healthcare implementation challenges are inherently complex and contextual. We anticipated that quantitative methods would reveal patterns but not mechanisms. The qualitative component was designed from the outset to capture the nuanced reality of clinical practice, including unspoken assumptions, institutional pressures and the unique characteristics of the perioperative environment. This approach enabled us to elaborate on quantitative findings with contextual richness while identifying areas of convergence and divergence between stated attitudes and observed practice.

The study was approved by the University College London Research Ethics Committee (study reference number: 12469/001).

Knowledge, attitudes and practice national survey

Questionnaire development

We developed a 31-item KAP (Knowledge, Attitudes, and Practice) questionnaire ('KAP-ACP') based on systematic review findings,[17] comprising true-false, Likert scale, multiple choice and open-ended questions.

Content validity

Content validity was established using the content validity index (CVI).[18] An eight-person expert panel from critical care, anaesthesia, palliative care, survey research and nursing assessed question relevance, clarity and comprehensiveness.[19] All questions achieved CVI >0.78 with minor modifications made based on feedback (online supplemental material).

Sampling

The sample comprised members of the RCoA Membership Engagement Panel (RCoA-MEP) (n=534) who had agreed to be contacted for future ACP research. The RCoA-MEP aims to represent the diversity of grades, ages, gender and geographic distribution of anaesthetists in the UK. There were no exclusion criteria. The benefits of engagement and usable contact details were felt to outweigh concerns of representativeness.

Sample size

A minimum sample size of 94 was calculated using Cochran's formula (95% confidence level, ±10% margin of error, p=0.5) for the study population.[20] As there was no disadvantage in terms of cost or time, given this was an electronic survey, the entire sampling frame was surveyed.

Survey administration

The survey ran from July to September 2019 with two reminders sent using the online platform SurveyMonkey (SurveyMonkey Inc., San Mateo, CA, USA).

Analysis of non-response error

Non-response bias was assessed by comparing respondents with known population characteristics[21–23] and wave analysis.[24] We compared late with early respondents to assess potential differences which may approximate non-response bias given an assumption that late respondents are 'almost' non-respondents.[25]

Incomplete submissions/missing data

The number of non-respondents for each question is presented with the results.

Reliability

Cronbach's alpha assessed internal consistency for each component: knowledge, attitudes and practice.[26] The 95% CI is presented with alpha.[27] The R package 'psych' was used to calculate alpha.[28]

Data analysis

Data were exported from Survey Monkey and analysis conducted using the R Statistical Computing language (R V.3.5.0; R Foundation for Statistical Computing, Vienna, Austria). Results are presented as count (%).

Analysis of free text answers

Respondents were allowed to comment on each question in the attitudes and practice sections. There was also a 'general' free-text open-ended question asking respondents to share any further thoughts on ACP. Free text answers were compiled in a single list for each item and analysed using thematic analysis[29] to allow for the identification of patterns across the data set.

Qualitative interviews and observations

The reporting of the qualitative component of this study conforms to the Standards for Reporting Qualitative Research (SRQR) guidelines[30] as recommended by the EQUATOR network.[31]

Qualitative approach

The qualitative approach was a *generic qualitative study using ethnographic methods*. Generic qualitative studies can integrate quantitative findings, accommodate researchers who already have subject-specific expertise and do not strictly adhere to traditional methodological frameworks.

Reflexivity

Researcher background and assumptions inevitably influence the research process. In this case, the primary researcher conducting the interviews and observations was DB. DB is male and had attended formal training to conduct interviews and perform participant observation. Most importantly, DB was an 'insider' (a practising clinician and anaesthetist within the institution studied). Insider research can facilitate access and trust but may also introduce biases through shared language and implicit understandings. Efforts were made to remain reflexive by acknowledging how existing knowledge and experiences shaped data collection and interpretation.

Context

The limited scope suited the techniques of focused ethnography. Focused ethnographies are characterised by being selective and specific, and looking at a particular situation, interaction or activity as opposed to a group or organisation in its entirety.[32]

Sampling strategy

Participants were purposively sampled[33] based on exposure to 'high-risk' surgical patients across different perioperative stages. They were approached via email and nobody who was approached refused to take part. No repeat interviews were performed. One 'key informant', external to the main institution, who is a national leader in SDM and perioperative medicine was also included.[34]

For this study, an initial sample of 12 semistructured interviews was chosen given this was a homogeneous sample with focused objectives.[35] Following the conclusion of the initial 12 interviews, a further two interviews (n=14) were conducted. By the 14th interview, no new themes were emerging, and so saturation was considered achieved.[36]

Forty hours of focused ethnographic observations[37–39] were conducted concurrently using shadowing of clinics and multidisciplinary meetings. Observations verified self-reported practice and captured routine behaviours in context.

Data collection methods

Semistructured interviews and participant observations were conducted by DB.[40 41] Interviews were conducted at a time and place convenient to the participant, and no non-participants were present during the interviews.

Data collection instruments

The semistructured interviews were based on an interview guide (online supplemental material). The interview guide was refined following a 'pilot' interview.[42]

Accurate, complete and detailed field notes of the participant observation were kept. DB would initially take mental notes of certain details and impressions, 'headnotes', which would later be written down in fuller detail as 'fieldnotes' using a structured template.[43]

Units of study

Data comprised 14 interviews with consultant anaesthetists (13 from the same central London teaching hospital) and 40 hours of observations over 4 months. Observations occurred in general and specialty-specific PACs (thoracic, cystectomy, maxillo-facial, ear, nose, and throat (ENT), bariatric) and multidisciplinary meetings.

Data processing

Audio-recorded interviews were professionally transcribed and analysed with the fieldnotes from observations using NVivo software (V.12.6; QSR International Pty Ltd.; Melbourne, Australia).

Data analysis

The qualitative data were analysed using thematic analysis as planned.[29] The data were examined through repeated readings, initial coding followed by theme allocation by DB. DB then reviewed the collated data extracts for each theme to ensure there was coherence between them. These themes were assessed in relation to the data set as a whole to ensure that the themes adequately represented

the interviews and observations.[18] The themes were then clarified, named and summarised into a coherent account with an accompanying narrative.[29]

Techniques to enhance trustworthiness

A review of the coding of the dataset, including the cross-checking of codes and the interpretation, was conducted by CVP with minor changes made. This strategy is termed multiple coding and is recommended as a way of reducing the subjectivity of qualitative analysis.[44] Any disagreements were resolved by discussion.

Integration of quantitative and qualitative

Integration occurred at multiple points. First, the interview guide was heavily informed by the survey results, particularly the free-text comments. This was so that emerging themes, gaps or unexpected responses could be explored in depth. Second, during analysis, we considered both components side by side, looking for areas of convergence and distinction. Finally, we have woven quantitative and qualitative insights into a single explanatory narrative to provide a nuanced understanding of anaesthetist's views of perioperative ACP.

RESULTS

Knowledge, attitudes and practice national survey

Response rate

The invitation was sent to 534 potential respondents and 184 (34%) completed the questionnaire. Respondent characteristics are shown in table 1

Non-response error

The RCoA's Medical Workforce Census Report from 2015[23] estimates that around 68% identify as male compared with 58% (95% CI 50% to 64%) of respondents. It also estimates that around 53% are consultants compared with 71% (95% CI 64% to 78%) of respondents.

Wave analysis showed no significant differences between early and late responders (online supplemental material).

Reliability

Cronbach's alpha values for each component were knowledge 0.40 (0.27–0.53); practice 0.55 (0.45–0.65); and practice 0.78 (0.73–0.83) (online supplemental material). Only the practice component achieved acceptable reliability ≥0.70,[45] limiting interpretation of knowledge and attitudes composite scores.

Anaesthetists' advance care planning (ACP) knowledge

The results demonstrated that respondents' knowledge of ACP appears high. All questions were answered correctly by a majority of respondents with the exception of K3 (39% answered correctly) and K6 (46% answered correctly) (figure 1).

Anaesthetists' attitudes towards advance care planning (ACP)

Respondents appear to be strongly in favour of ACP with 43% saying they are supportive and 49% very supportive.

Table 1 Demographic and professional profile of respondents KAP-ACP

	n=184
What is your sex?	
Male	106 (57.9%)
Female	77 (42.1%)
No answer	1
What is your age?	
0–24	0 (0.0%)
25–44	73 (39.9%)
45–64	96 (52.5%)
65–74	12 (6.6%)
75+	2 (1.1%)
No answer	1
Are you currently practising in the UK?	
Yes	156 (84.8%)
No	28 (15.2%)
In what speciality (specialties) do you work?	
Anaesthesia	93 (50.5%)
Anaesthesia and Intensive Care Medicine	46 (25.0%)
Anaesthesia, Intensive Care Medicine and Perioperative Medicine	12 (6.5%)
Anaesthesia and Perioperative Medicine	11 (6.0%)
Intensive Care Medicine	7 (3.8%)
Other	4 (2.2%)
Anaesthesia, Intensive Care Medicine, Perioperative Medicine and Pain Medicine	4 (2.2%)
Anaesthesia and Pain Medicine	2 (1.1%)
Anaesthesia and Other	2 (1.1%)
Anaesthesia, Intensive Care Medicine and Pain Medicine	2 (1.1%)
Intensive Care Medicine and Perioperative Medicine	1 (0.5%)
What grade is your current post?	
Consultant	131 (71.6%)
Trainee	39 (21.3%)
SAS	9 (4.9%)
Other	4 (2.2%)
No answer	1
How is your health in general?	
Very good	114 (62.0%)
Good	65 (35.3%)
Fair	5 (2.7%)
Bad	0 (0.0%)
Are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months?	
Yes, limited a lot	0 (0.0%)
Yes, limited a little	23 (12.5%)
No	161 (87.5%)

Continued

Table 1 Continued

	n=184
Do you look after, or give any help or support to family members, friends, neighbours or others because of either; long-term physical or mental ill-health/disability or problems related to old age?	
No	136 (73.9%)
Yes, 1–19 hours per week	42 (22.8%)
Yes, 20–49 hours per week	4 (2.2%)
Yes, 50 or more hours per week	2 (1.1%)
What is your ethnic group?	
White: Scottish/English/Welsh/Northern Irish/British	124 (67.8%)
Asian/Asian British: Indian	16 (8.7%)
White: any other white background	11 (6.0%)
Other	8 (4.4%)
White: Irish	5 (2.7%)
Asian/Asian British: Chinese	4 (2.2%)
Black/African/Caribbean/Black British: African	3 (1.6%)
Asian/Asian British: any other Asian background	2 (1.1%)
Mixed-multiple ethnic groups: White and Asian	2 (1.1%)
Black/African/Caribbean/Black British: Caribbean	2 (1.1%)
Mixed-multiple ethnic groups: White and Black Caribbean	2 (1.1%)
Asian/Asian British: Pakistani	1 (0.5%)
Arab	1 (0.5%)
Mixed-multiple ethnic groups: any other mixed/multiple ethnic background	1 (0.5%)
Mixed-multiple ethnic groups: White and Black African	1 (0.5%)
No answer	1
What is your religion?	
Christian	87 (47.3%)
No religion	79 (42.9%)
Hindu	11 (6.0%)
Muslim	2 (1.1%)
Other	2 (1.1%)
Buddhist	2 (1.1%)
Jewish	1 (0.5%)

ACP, advance care planning; SAS, Specialist, Associate Specialist, and Specialty.

91% report being in a clinical situation where they believe an AD would have been useful (figure 2).

Anaesthetists' practice of advance care planning (ACP)

Most respondents' report having at least one ACP discussion with a patient every 6 months. They also report that they feel comfortable having ACP discussions, have sufficient knowledge and training, and that it is a responsibility as part of their job (figure 3).

In regard to perioperative ACP, there was a high level of agreement with the idea that the run-up to major surgery is an appropriate time to have an ACP conversation (78%). 82% report having cared for a patient who would have benefitted from a preoperative ACP discussion. However, most do not routinely have ACP discussions in the run-up to major surgery (figure 4).

Free text answers

When answering the 'general' free text qualitative question, 40 respondents provided a usable answer. The main themes which arose are described in table 2. A summary of comments on individual attitudes and practice questions is in online supplemental material.

Qualitative interviews and observations

Four major and two minor themes emerged which are summarised in table 3.

Advance care planning

The theme 'advance care planning' explores the low prevalence of perioperative ACP and the reasons for this. Most patients and doctors operate under the assumption that surgery, even high-risk surgery, will generally lead to recovery and improved quality of life.

> I think people really do feel that you go in especially for an operation and an elective operation to get better…

During DB's observations, there were no witnessed examples of an ACP discussion involving end of life (EoL) wishes or treatment preferences. Respondents agreed that this sort of discussion was not unheard of but was unusual. It is often only broached with a minority of patients who are deemed particularly unfit.

> I've only actually had that conversation with probably two people, because I think those two people were adamant that they wanted surgery and I thought oh my God, they're really not very fit and I did have that conversation…

The nature of the perioperative period and the implications of undergoing surgery and anaesthesia mean that discussions revolving around treatment limitations are believed to be inappropriate.

> Some people say I do not want to have my life artificially sustained…Well, you know any period of post-operative ventilation is artificial life support, isn't it? There isn't a number where it says that was post-operative ventilation. This is now artificial life support…is a bit of noradrenaline … life support? Well, yeah…but, we say well they're on a bit of propofol for their sedation. Their blood pressure's low anyway. When we wake them up, that will go away…it just doesn't seem to fit well

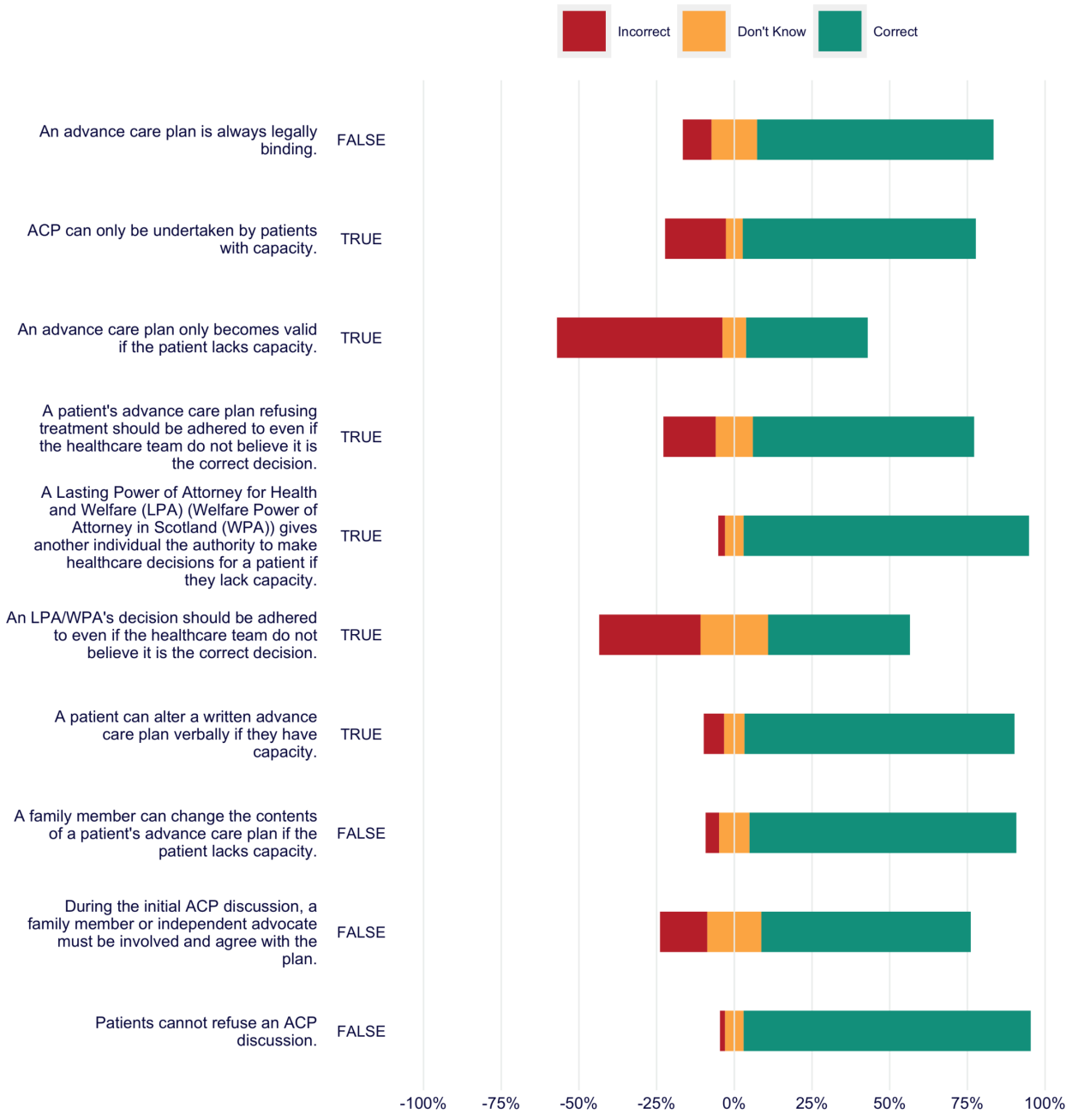

Figure 1 Anaesthetists' advance care planning (ACP) knowledge.

It was felt that if a patient is unsuitable for high-intensity medical treatments, then it would likely be inappropriate for the patient to have surgery in the first place. In such circumstances, the discussion should revolve around a 'go/no-go' discussion, with this acting as a proxy for decisions about high-intensity medical treatments.

Go/no-go

This theme, 'go/no-go', explores the SDM process between patient and anaesthetist when deciding whether or not to proceed with surgery. This decision has to balance the risk of proceeding vs the outcome of not having the operation. For cancer surgery, this can be challenging because regardless of the risk of operating, the only alternative may be death, and this creates a pressure to proceed.

> Thoracic pre-assessment it's a bit like normal pre-assessment but someone's holding a revolver to your head…the patients have just got to come and have their operations and they're terrible.

Even in situations where the operation is not life-saving, the benefits of proceeding with an operation may outweigh the, sometimes substantial, risk.

> If it's a go/no-go type decision, again, it depends a lot on what the alternatives are…some bloke had an awful stoma, just like terrible high output stoma, so, you know…He was not going to have his life saved by

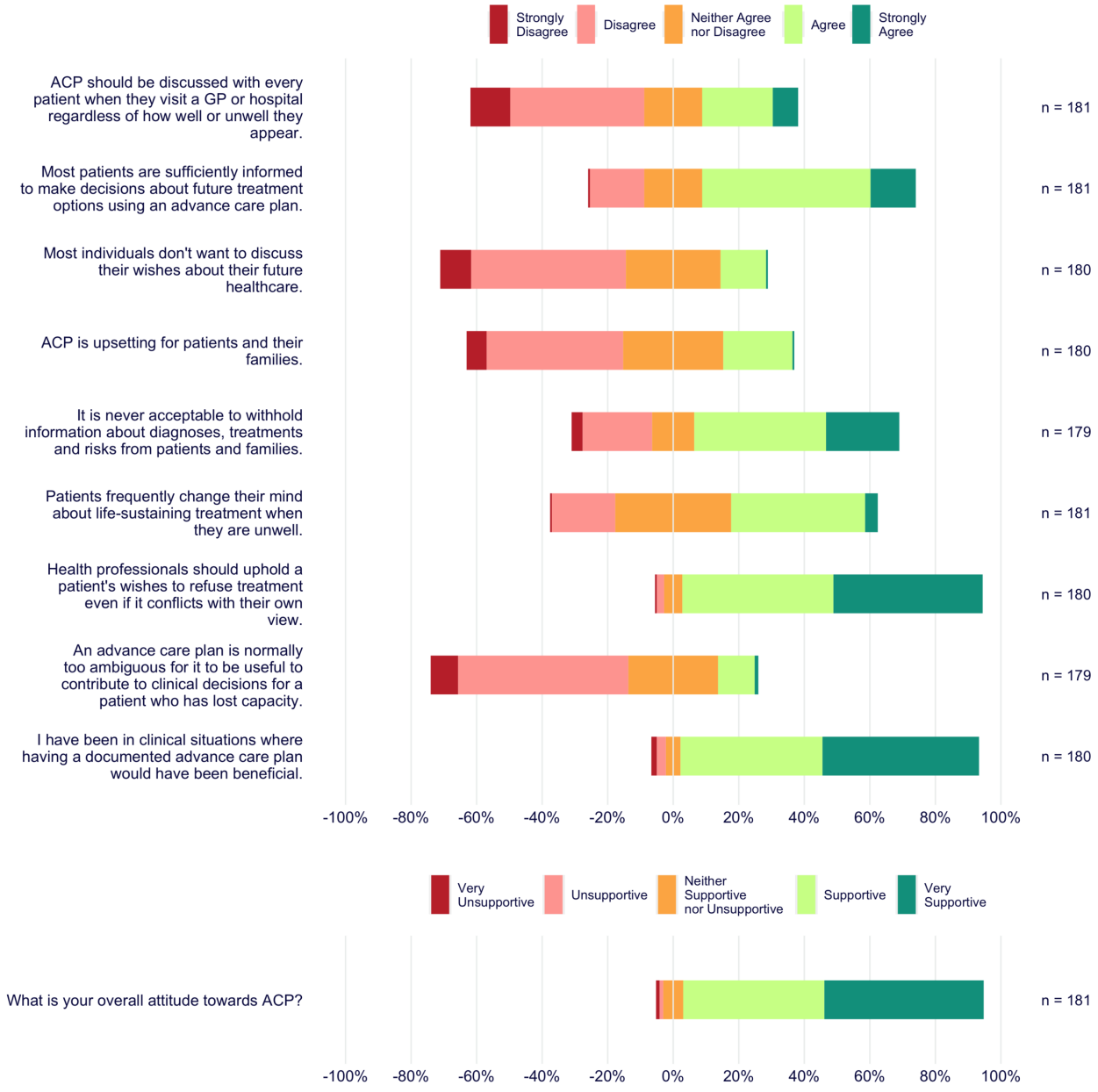

Figure 2 Anaesthetists' attitudes towards advance care planning (ACP).

having this surgery but he said his life was not worth living. Couldn't leave the house…he was quite happy to take his risks of death.

Conversely, on occasion, this discussion can be swayed by how information is delivered to the patient. For example, during DB observations, there was an occasion where a surgeon had prebriefed the anaesthetist. The surgeon was not keen on operating on a particular patient because he felt the surgery was unlikely to be successful. During the consultation, it seemed greater emphasis was placed on the risks of proceeding to help guide the patient to opt for non-surgical treatment.

Pre-operative assessment clinic

The structure and organisation of PAC has a huge impact on SDM discussions. There are multiple roles of PACs: risk assessment; optimisation of co-morbidities and 'flagging up' of concerns; consent of the patient for anaesthesia as well as counselling SDM and 'go/no-go' decisions.

An opportunity to look at the patient both from kind of a hard biological standpoint…But also as a chance to take a wider look at that particular patient

However, it is felt that the focus of PAC is primarily on aspects of physical health and that SDM is less prevalent. This is because of the underlying ethos which drives PAC.

The pre-assessment sees its role as making sure there are no on the day cancellations

The risk assessment normally starts before the consultation has begun as the anaesthetist will review the patient's notes to have an idea about comorbidities, the

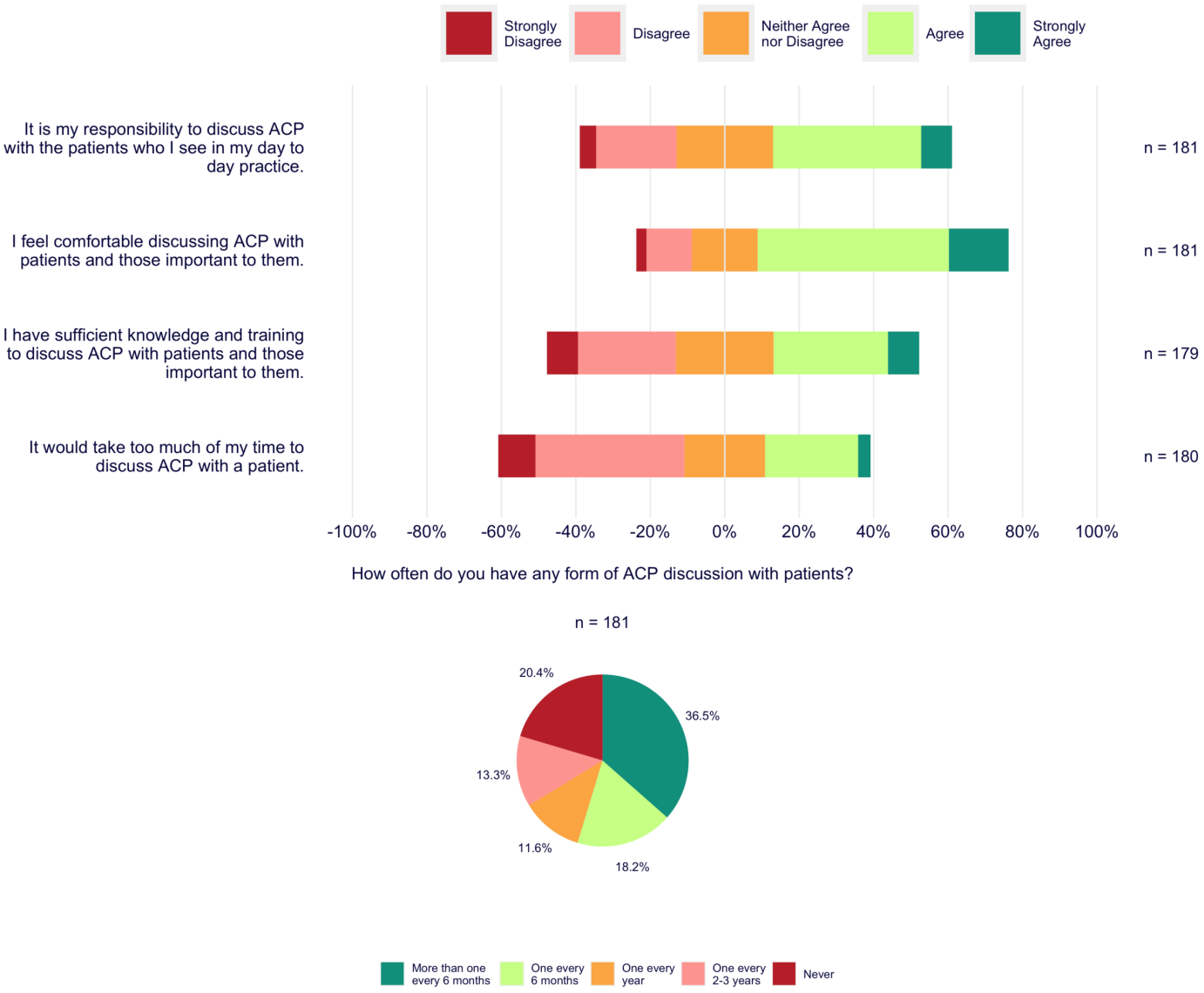

Figure 3 Anaesthetists' practice of advance care planning (ACP).

type of operation planned and other risk factors. This is felt by most to be a combination of 'numbers' from, for example, a risk scoring system like the Surgical Outcome Risk Tool orPhysiological and Operative Severity Score for the enUmeration of Mortality and Morbidity and a 'feeling'.

> It's probably a combination of both. Certainly the numbers will make me start to think like that but sometimes the feeling from the patient

DB observed an anaesthetist spending considerable time reviewing notes for a high-risk septuagenarian scheduled for hysteroscopy. However, when she arrived, it was noted she 'actually looks quite good', and she proceeded to surgery with only some minor medication adjustments.

This focus on individualised risk contrasted sharply with a 36-person multidisciplinary team meeting DB attended. Discussion centred on disease characteristics: type; location; spread; and treatments, with minimal attention to patient fitness beyond occasional mentions of 'performance status'. Only one case prompted deeper risk-benefit discussion: a young man with two significant genetic disorders in whom major head and neck surgery was proposed. An anaesthetist raised concerns by saying that he was clearly at significant risk perioperatively, triggering a wider debate. This was the sole instance of a comprehensive risk discussion, occurring only due to the obvious nature of his diagnoses. No similar stratification occurred for elderly patients or those with multiple comorbidities.

Finally, patients are often not seen until very close to their operation date, and this minimises the opportunity to have meaningful discussions.

> For every aspect of pre-assessment the pathway is not ideal, if you want to optimise somebody, if you want to have a proper conversation about whether or not to go ahead doing it after the operation date's been set if you've only got a week to go it's ridiculous.

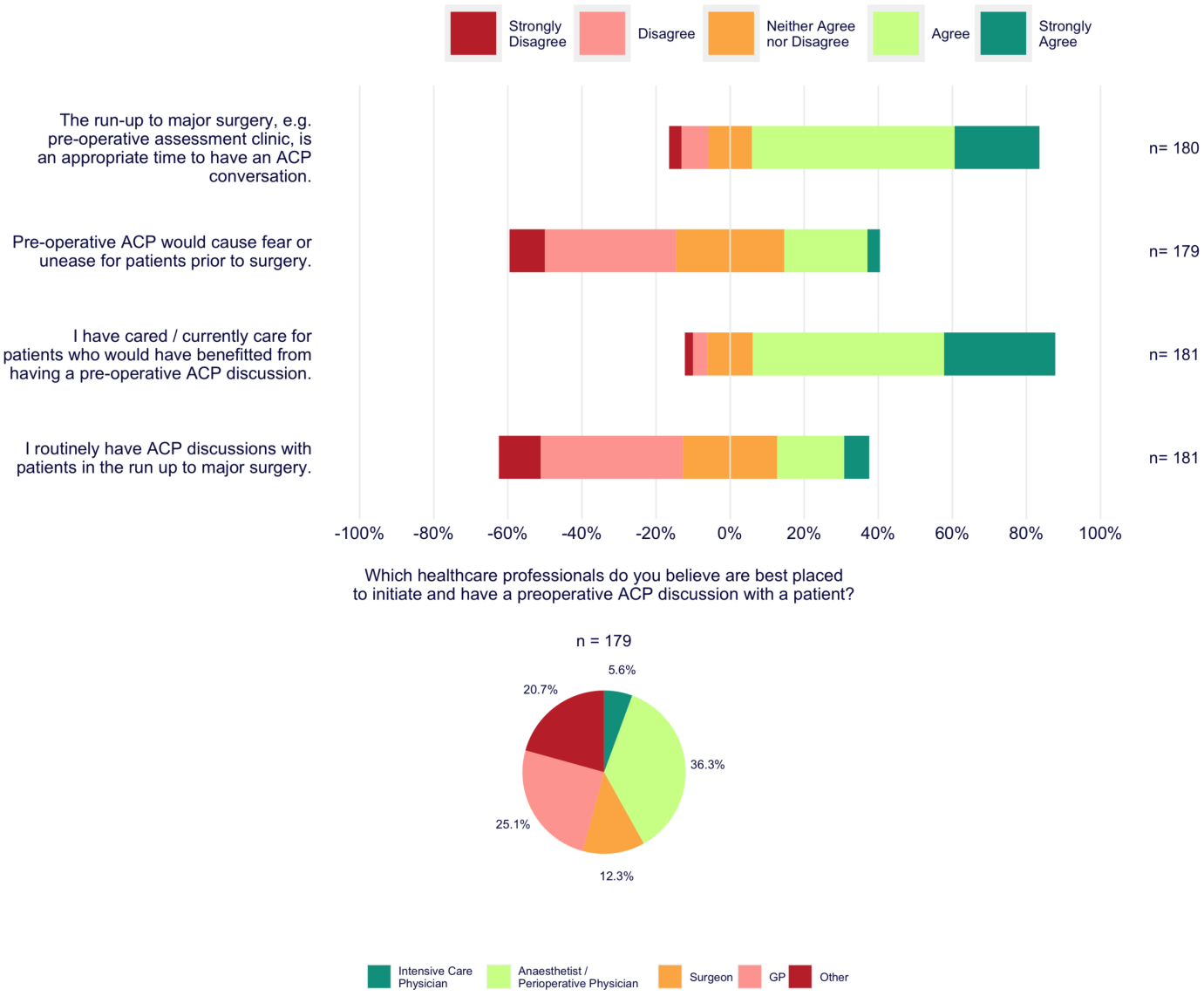

Figure 4 Reported practice of perioperative advance care planning (ACP).

Role of the anaesthetist

The theme 'role of the anaesthetist' explores a lack of clarity over the involvement of anaesthetists in SDM. Anaesthetists believe themselves to bring an objective and holistic approach which would be helpful for these discussions. However, a lack of a pre-existing relationship with the patient and the surgical team as well as not understanding alternative options to surgery can lead to a reluctance to 'get involved' in these discussions.

> Then they see an anaesthetist who then sort of says, hold on do you really want this, have you thought about something else…you don't want to step on the toes of your colleagues, or similarly kind of lose the trust of the patient and their family that they are having the surgeons and the surgical teams that they work with. You know you can't be a bull in a china shop and just kind of sort of spoil the preparations that have been done so far.

This means anaesthetists will often only 'step in' if they see something which they believe is very ill-advised.

The organisation of PAC reinforces this. DB observed that patients are not referred or scheduled to see a specific anaesthetist; rather, they are booked to a nurse-led PAC and then may, or may not, be referred to see whichever anaesthetist happens to be there on that day. Because of this, it is uncommon for the anaesthetist in PAC to be the same person who will be anaesthetising the patient.

Integration of quantitative and qualitative

Table 4 presents abridged findings of both quantitative and qualitative components and how they were integrated. The full table can be found in online supplemental material.

DISCUSSION

With over 310 million annual surgeries globally[46] and ageing populations with increasing comorbidities,[47] the

Table 2 Main findings from 'general' free-text question KAP-ACP

Question	N	Theme	Main issues mentioned in each theme	Illustrative quotation
Is there anything else about your understanding of ACP that you would like to share?	40	Challenges	There is a lack of time to adequately have these discussions and no ability to have multiple discussions over time.	*Shared decision-making is time-consuming, often takes more than one visit*
			The documentation of ACP needs to be easily found and communicated among HSCPs.	*We need a national electronic ACP that both clinicians and patients can access and that the patient signs off. Paper just gets lost or isn't available at the time of need/crisis*
		Timing	The discussion should happen far in advance of patients presenting for surgery and therefore needs to take place in the community by GPs.	*Timing of the ACP would be best before an operation date is set but that would mean the GP would need to be involved and they often don't feel they have enough relevant information about risks and benefits.*
		Education	Patients need to be well informed and educated.	*Important to be positive when facing major surgery, people also need to have a realistic picture painted for them.*
			More training, particularly about legalities of ACP for HSCPs.	*I have little understanding of the laws surrounding it but suspect it's unknowingly part of my and many colleagues' everyday practice but not recognised as such.*
		Nuances of perioperative ACP	The nature of surgery and the post-operative period necessitates a different approach to issues such as treatment limitation.	*Myself and my consultant were of the opinion (and explained this to the patient) that we would reverse something that occurred acutely intraoperatively. A colleague disagreed with this approach*
		Negativity	ACPs seem to be inherently focused on the refusal of treatment.	*ACPs always seem so negative—the emphasis seems to be about NOT receiving treatment. They almost persuade people that they are a burden.*

ACP, advance care planning; GP, General Practitioner; HSCP, Health and Social Care Professional.

absolute number of complications and even death will continue to rise.[8] Despite this, there has been relatively little research on perioperative ACP. A systematic review in 2018[48] found only seven articles which reviewed the knowledge, attitudes and practice of healthcare professionals towards perioperative EoL discussions. A more recent scoping review evaluating the evidence of ACP and DNACPR documentation in the perioperative setting found 41 studies, of which only five involved a qualitative methodology.[49]

The KAP-ACP questionnaire has been developed, validated and used to describe anaesthetists' knowledge, attitudes and practice of ACP. Following this, we have conducted the largest qualitative study assessing health professionals' views of ACP in the perioperative setting and the first conducted in the UK. Prior to this study, anaesthetists have been largely absent from similar research despite anaesthesia being the largest in-hospital specialty accounting for 16% of all hospital consultants in the UK.[50]

Our findings indicate that anaesthetists have good knowledge about legislation surrounding ACP and hold positive attitudes towards it. However, despite this, the qualitative component found little evidence of ACP being a routine part of perioperative practice. This is in keeping with US data showing that, at most, only one-third of high-risk patients have documented ACP in the perioperative period.[51–53] Previous research[54] and the KAP-ACP survey highlighted a concern that the nuances of the perioperative setting necessitate a different approach to issues such as treatment limitations.

There are three main reasons why treatment limitations, often considered inherent in ACP, are rejected in the perioperative period. First, the general positivity of the anaesthetist, and often patient, arises from the relatively low risk of death following surgery even for high-risk patients. The KAP-ACP did not find widespread support for the idea that preoperative ACP would induce fear or unease in patients, but this was a concern of some respondents, and this was repeated in the qualitative component. Second, the causes of deterioration in the perioperative period are often reversible. Anaesthesia and surgery may precipitate deterioration, for example, bleeding, allergic reaction or cardiovascular instability, requiring significant medical intervention. These interventions may well be appropriate in the perioperative setting because the cause is believed to be temporary and reversible. Finally, there is a belief that the presence of treatment limitations is indicative that surgery itself is inappropriate. Anaesthesia and surgery often necessitate

Table 3 Summary of themes identified in qualitative interviews and observations

Theme	Subtheme	Description
Advance care planning	'Maybe two people'	The rarity of ACP discussions in the perioperative period.
	'I don't want to terrify everybody'	The concern that ACP discussions may produce unnecessary fear and anxiety.
	'You go in for an operation, get better'	The focus is on positive outcomes from surgery by both the patient and HSCPs.
	'I'm not talking about artificial ventilation'	The inappropriateness of treatment limitations in the perioperative period.
	'Sometimes the clinicians need the ITU support'	The needs of clinicians to have the 'backup' of high-intensity treatments if undertaking high-risk procedures.
	'They should be get betterable'	The feeling that if an individual is well enough to undergo an operation then they should be well enough for high-intensity medical treatments should they run into complications.
	'I saw a great one from an old female'	The attributes of a useful AD.
'Go/no-go'	'I want the patient to get what they want'	The importance of ascertaining the patients overarching goals when making a 'go/no-go' decision.
	'You would like the patients to come into the procedure with their eyes open'	How risk is communicated to patients.
	'Some people get it'	Whether patients truly understand risk of proceeding with surgery.
	'A different spin'	How the delivery and emphasis of information impacts patient understanding.
	'Language barrier'	The challenges of language and cultural barriers when having difficult discussions.
	'Want to just bury their head'	Desire for some patients to minimise what they are told.
	'Obviously this is a very big operation'	How go/no-go discussions are introduced to patients.
Pre-Assessment clinic	'A number of levels'	The multiple aspects and goals of PAC.
	'Risk assessment'	The role of risk assessment in PAC and how this is performed.
	'Get everybody ready for theatre'	The role of optimisation and consent of patients prior to their operation.
	'Patient priorities'	The role of addressing patient concerns and how these may not always focus on what the clinician deems most important.
	'Thumbs up, thumbs down guys'	The view of PAC held by anaesthetists, other specialties and patients in relation to go/no-go decisions.
	'Physical health…massively dominates'	How physical health rather than SDM predominates in PAC.
	'What's the question'	The structure of PAC and how this impacts SDM discussions.
	'At least half an hour'	The expected duration of SDM discussions and how time must be rationed in PAC.
	'You require some extra information'	The challenges of time management in PAC.
	'If you've only got a week to go, it's ridiculous'	The timing of PAC in relation to surgery and how this limits its effectiveness as a place for SDM.
	'Day of surgery'	The inappropriateness of having 'go/no-go' discussions on the day of an operation.
Role of the Anaesthetist	'I wasn't invited…'	The lack of overall responsibility for patient management that anaesthetists have and how this impacts their willingness to engage in SDM.
	'It's not really the anaesthetic that is going to be the trouble'	The 'ownership' of risk and how this is felt to lie primarily with the surgeon.
	'I think as anaesthetists'	The benefits anaesthetists can bring to SDM.
	'The person who is best to do it'	The role other specialties can and should play in having SDM discussions.
Misc.	'Emergencies'	The differences between having ACP or go/no-go discussions in emergency situations as opposed to elective.
	'Training and experience'	Views over training and experience of clinicians in relation to having these discussions.

ACP, advance care planning; AD, Advance Directive; HSCP, Health and Social Care Professional; ICU, Intensive Care Unit; PAC, Pre-Assessment Clinic; SDM, Shared Decision Making.

Table 4 Abridged integration of quantitative and qualitative findings

Theme	Quantitative survey (n=184)	Qualitative interviews and observations (n=14; 40 hours)	Integration
Frequency of ACP discussions	► 54% reported discussing ACP at least once in past 6 months. ► 36% have discussions more than once every 6 months.	► No ACP conversations were witnessed during 40 hours of observations. ► *Only…two people…out of 150–200 patients*	Survey respondents interpret 'ACP' broadly, including informal discussions. Formal ACP exceptionally rare.
Support for ACP	► 92% 'supportive' or 'very supportive' of perioperative ACP. ► 91% have been in situations where beneficial.	► Support is is evident but*: If someone's intubated…and they arrest on the table, not do anything is just foreign to me*	High philosophical support contrasts with belief that treatment limitations are inappropriate perioperatively due to reversible complications.
Format of ACP	► 60% disagree ACPs are too ambiguous to be useful.	► *Useful: list of things she likes doing… If doctor thinks no likelihood of returning to these, please don't let me suffer* ► *Strict black and white plans never quite seem to fit*	Focus on quality-of-life outcomes rather than specific treatment limitations is most helpful.
Patient understanding	► 65% agree patients are sufficiently informed to make ACP decisions ► 45% agree patients frequently change minds when unwell	► *Some do, some don't. Maybe some that I think do, don't* ► *Bombarded by… information… blown away by shock* ► *I've had too many patients tell me if I'd known what was going to happen I would never have had this*	Survey confidence contrasts with interview scepticism, especially regarding understanding of postoperative death realities.
Time constraints	► 50% disagree that perioperative ACP would take too much time. ► 28% agree it would take too much time.	► *At least half an hour… to gauge their medical history and delve into hopes"* ► Observed discussions >45 min, clinics overran	Theoretical acceptance conflicts with practical reality of extended consultations.
Timing of discussions	► 78% agree preoperative assessment is appropriate time. ► 25% routinely have discussions before major surgery.	► *"Often they've been given a date… fixed in their mind* ► *It's almost a fait accompli* ► *"Day of surgery…waste of time*	Agreement on PAC appropriateness is undermined by late referrals creating 'fait accompli'.
Fear and anxiety	► 45% disagree pre-op ACP causes fear/unease. ► 25% agree it would cause fear/unease.	► *"Don't want to absolutely terrify everybody* ► *"You want to be positive…not harbinger of doom* ► *"Nine times out of 10 we sneak away with it*	Survey minimises distress concerns; interviews reveal anxiety about destroying hope.
Role of the anaesthetist	► 48% agree it's their responsibility to discuss ACP. ► 36% believe anaesthetists are are best placed.	► *I don't want to say it's a service specialty* ► *Don't want to step on toes…bull in a china shop* ► *But: [anaesthetists are] generalists… exposed to wider clinical scenarios*	Role tensions are evident with feeling anaesthetists competent but 'uninvited' to participate in decisions.
Structural barriers	► Not directly assessed, although free text comments did mention time, timing and documentation as potential barriers.	► *Getting the patient through the operation, not…quality of life* ► No assigned rooms observed. ► Nurse-led clinic with anaesthetist 'troubleshooting'.	Institutional focus on throughput over SDM creates physical and organisational barriers.
Training and experience	► 39% feel they have sufficient knowledge and training. ► 8/10 knowledge questions answered correctly by majority.	► *It's not trainable… it's experience* ► No formal ACP training reported. ► Prefer *role play…interactive approach*	Little formal training was reported. Experience was valued over formal training.
Clinician needs	► Not addressed.	► *Clinicians need the ITU support* ► Describing a family withdrawal request: *I still feel…I would like to have done another 48 hours*	Unique finding describing tension between patient autonomy and clinician psychological needs.

ACP, advance care planning; PAC, Pre-Assessment Clinic; SDM, Shared Decision Making.

the use of multiple high-intensity medical treatments. If there is genuine concern that a patient would be unable to recover from such treatments, then it follows that they may be unlikely to recover from surgery. In these situations, the discussion should revolve around whether or not to proceed with surgery. These were termed 'go/no-go' decisions and require a process of SDM.

While these 'go/no-go' discussions are more common than ACP discussions, they are not routine. It was lamented that the holistic element of PAC, which included SDM, was undervalued and less prominent than that of physical health. The reasons for this appeared to be cultural and logistical as opposed to a lack of knowledge or training or the negative attitudes of participants.

The attitudes of participants towards their own specialty of anaesthesia are interesting. The KAP-ACP and qualitative components found that respondents supported the idea that ACP was a responsibility of anaesthetists. It was felt anaesthetists could bring an objectivity; a broader, more holistic viewpoint; and an experience and understanding of high-intensity treatments. However, there was a lack of clarity over their role in the patient pathway which limits their involvement. There is a concern that the anaesthetist has not been 'invited' to the decision-making process, and this can result in a hesitance to become involved. Additionally, the lack of a long-term or longitudinal relationship with the patient was highlighted as a potential barrier in both the survey and qualitative components. These findings are similar to those highlighted by Allen *et al* in a review of US ethical guidelines for the care of patients with DNACPR orders. They called for anaesthesiologists to lead *goal-directed*, patient-specific resuscitation planning well *before* the day of surgery[55] but acknowledged that time constraints; lack of longitudinal relationships with patients; and difficulty translating goal-focused discussion into concrete clinical plans.[56] While this study focused on the UK, it provides evidence for recurring themes across the developed world.

None of these issues are absolute blocks to engaging in these discussions. It is rather that these all raise the bar to entering such a discussion a little higher. One participant described only opening these discussions 'when I see something that really stands out to me as a terrible idea'. It is likely that there are patients who would benefit from these discussions even if the surgery does not meet the high bar of being 'a terrible idea'.

Limitations

This study should be interpreted with its limitations in mind. The response rate for the KAP-ACP survey was 34%. This is lower than the average response rate of ~38% for online surveys involving HSCPs[57] but in keeping with the average of ~34% for online surveys involving the general population.[58] There is a risk of non-response bias given that this is a subsample of the RCoA-MEP. The self-selecting RCoA-MEP sample may also represent more engaged practitioners with positive ACP attitudes, limiting generalisability. To address this, respondents' characteristics were compared with known population characteristics.

The low Cronbach's alpha scores for the knowledge (0.4) and attitudes (0.55) components were disappointing. The reason for this is likely that the precondition of unidimensionality was not met. Low alpha values cast doubt on whether the total (sum) score of the knowledge component is a fair reflection of a respondents' knowledge of ACP. However, responses to the different questions can be analysed and interpreted individually despite the low alpha.

The qualitative component has documented the attitudes, opinions and experiences of anaesthetists' use of perioperative ACP in a single central London teaching hospital. It may not be possible to infer these findings to anaesthetists and other health professionals in different institutions, settings or countries. The use of a national survey in a mixed methods approach was an attempt to address this.

A potential limitation of this study is that it focuses solely on anaesthetists. This was a pragmatic decision to limit the scope of the study to make it manageable and practicable. However, many individuals are involved in a single patient's journey through surgery, including the patient, their family, the surgical team and multiple members of the multidisciplinary team. Future research should focus on the unique viewpoints of all stakeholders.

CONCLUSION

This study has provided the first systematic description of UK anaesthetists' knowledge, attitudes and practice of ACP. Anaesthetists appear to have a good understanding of the legislation surrounding ACP; hold positive attitudes towards the idea of ACP; and feel they have responsibility to perform it within their practice. There are three main reasons why the focus on treatment limitations and EoL care is rejected in the perioperative period: the general positivity created by the low risk of death; the often-reversible nature of surgical complications; and the presence of treatment limitations is often indicative that surgery itself is inappropriate. There are two major barriers which prevent anaesthetists engaging in 'go/no-go' discussions: the cultural focus of PACs on physical health and a lack of clarity over the role of the anaesthetist in the patient's journey towards surgery.

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