

# Smoking Cessation Care in Cardiothoracic Surgery: A Qualitative Study Exploring the Views of Australian Clinicians



Nia A. Luxton, MAppSc<sup>a\*</sup>, Ross MacKenzie, PhD<sup>a</sup>, Patti Shih, PhD<sup>b</sup>

<sup>a</sup>Department of Psychology, Macquarie University, Sydney, NSW, Australia

<sup>b</sup>Australian Institute of Health Innovation, Macquarie University, Sydney, NSW, Australia

Received 11 November 2017; received in revised form 2 April 2018; accepted 18 April 2018; online published-ahead-of-print 8 May 2018

## Background

Smoking cessation (SC) care in the perioperative period of cardiothoracic surgery is important to reduce surgical risk and help achieve long-term smoking abstinence in patients who continue to smoke. The implementation of clinical guidelines for SC care in the perioperative period has proved challenging, yet little is known of what influences the inter-disciplinary team involved in the cardiothoracic area. This qualitative study explored the views of the clinicians involved in perioperative period of cardiothoracic surgery in Australia on their SC advice and support.

## Methods

Semi-structured interviews were conducted with 52 cardiothoracic surgeons, anaesthetists, nurses and physiotherapists in three public tertiary referral hospitals and three private hospitals in New South Wales (NSW). Data was thematically analysed, and categorised using the Behaviour Change Wheel “Capabilities, Opportunity, Motivation & Behaviour” (COM-B) analysis framework to understand the factors that influence clinicians’ views and perceived abilities to provide SC care.

## Results

Barriers and facilitators to providing SC care were identified. The most commonly identified barriers in capability were the lack of knowledge, training and institutional engagement. Opportunity was hindered by lack of time, hospital support and resources, yet facilitated by the existence of a collaborative, multidisciplinary team and the ability to follow-up patients long term. In motivation, clinicians’ attitudes and experience negatively influenced the initiation of the cessation conversation, while intrinsic attributes of empathy and positivity were drivers to provide SC care.

## Conclusions

Clinicians’ views, together with inadequate SC training, resources and engagement to implement clinical guidelines, contribute to inconsistent SC care. There is a need for hospitals to provide adequate SC resources and training to all clinicians to improve SC care to cardiothoracic surgery patients throughout the perioperative period.

## Keywords

Tobacco • Coronary artery disease • Lung cancer • Preoperative • Hospital

## Introduction

Cigarette smoking is an important risk factor for the development of both lung cancer and coronary heart disease, two leading causes of premature death and disability in Australia

[1,2]. Cardiothoracic surgery is important for curative disease management, and active smoking is associated with an increased incidence of postoperative complications, primary disease recurrence and death [3–5]. Evidence-based clinical guidelines recommend offering routine brief cessation

\*Corresponding author at: Department of Psychology, Macquarie University, Balaclava Road, North Ryde, NSW, 2109., Email: [Nia-Angharad.Luxton@hdr.mq.edu.au](mailto:Nia-Angharad.Luxton@hdr.mq.edu.au)

© 2018 Australian and New Zealand Society of Cardiac and Thoracic Surgeons (ANZSCTS) and the Cardiac Society of Australia and New Zealand (CSANZ). Published by Elsevier B.V. All rights reserved.

advice to quit, appropriate cessation pharmacotherapy (such as nicotine replacement therapy [NRT]), and follow-up support for at least 1 month post hospital discharge, using various approaches such as the 5As (Ask, Assess, Advise, Assess, Arrange follow-up) [6,7]. However, systematic implementation of these approaches in the perioperative period have proved challenging, and there are inconsistencies in the delivery of smoking cessation (SC) care [8].

Internationally, survey-based research has identified organisational and individual factors that impact the implementation of perioperative SC care. Diverse views of responsibility, limited time and knowledge, and low self-efficacy regarding skills to provide SC interventions were consistently reported amongst surgeons and anaesthetists [9–12]. Nurses and physiotherapists in surgical areas had a more positive view of their role, yet a lack of knowledge, training and time, and certain perceived patient characteristics, negatively influenced their provision of SC care [13–16]. Yet there is limited research that collectively includes the views of surgeons, anaesthetists, nurses and physiotherapists involved with patient care in a cardiothoracic perioperative period.

In Australia, understanding the influences and views of clinicians providing SC care in the perioperative period will improve implementation of the recommended guidelines [17–19]. Little is known about the cardiothoracic interdisciplinary context in Australia, as studies surveyed either single professional groups internationally, or in Australia, clinicians in non-cardiothoracic surgical areas, or as a component of intervention studies [20–22]. This study explores the perceived factors affecting SC care throughout the cardiothoracic perioperative period, with two objectives: (i) to examine Australian cardiothoracic clinicians' perspectives on SC care given to cardiothoracic surgery patients who continue to smoke in the perioperative period, and (ii) to identify the barriers and facilitators to the provision of SC care.

The study uses the Behaviour Change Wheel (BCW) framework [23] which enables the systematic development of interventions for supporting behaviour change, the targeted behaviour being the provision of SC care by cardiothoracic clinicians. It is underpinned by the COM-B model which has three interacting conditions for a given behaviour to occur: Capability (e.g. knowledge); Opportunity (e.g. access); and Motivation (e.g. beliefs), and the BCW and model have been

used in SC area [24,25]. Exploring cardiothoracic clinicians' SC care using the COM-B components can identify how to improve implementation of clinical guidelines.

## Methods

### Design and Data Collection

Six hospitals in Sydney, NSW were selected for this qualitative study: three public tertiary referral hospitals employing cardiothoracic surgeons and three private hospitals where the surgeons were affiliated. These hospitals were responsible for approximately 43% of cardiothoracic cases in 2016 in NSW, with patients from urban, rural and remote areas, maximising potential generalisability [26]. This study was part of a larger study on the perceived role of electronic cigarettes in the perioperative period of cardiothoracic surgery [27]. Northern Sydney Local Health District Human Research Ethics Committee (LNR/15/HAWKE/356) approved the study, site-specific ethics approval was gained from each hospital, and participants provided informed consent. A mixed sampling strategy was used. Purposive sampling was used to recruit all cardiothoracic surgeons who operated at the six hospitals. In 'snow ball' sampling, heads of cardiothoracic surgery, anaesthetic, nursing and physiotherapy departments nominated other appropriate staff in their hospital.

One-on-one, semi-structured interviews were conducted between October 2015 and November 2016. An interview guide (Figure 1) was used with questions exploring the views of clinicians on patient use of tobacco and perioperative outcome, and tobacco cessation knowledge and methods. All interviews were conducted by the same researcher (NAL), a senior physiotherapist and academic with over 20 years' international clinical experience in cardiothoracic surgical care. Information about the NSW Health 5As SC approach [28], Quit kits and Quitline fax referrals, and details of local SC services were given to each clinician, if requested, at the end of each interview.

### Data Analysis

Interviews were audio-recorded, professionally transcribed and deidentified. Clinicians were assigned a code based on their specialty – surgeons (S), anaesthetists (A), nurses (N)

1. What is your knowledge of the effect of traditional cigarette smoking in the perioperative period of cardiothoracic surgery?
2. What is the importance you place on perioperative smoking abstinence in cardiothoracic surgery?
3. If you see a patient postoperatively, do you ask whether they will or have quit tobacco cigarettes?
4. How do you deliver smoking cessation advice in their interview prior to / after cardiothoracic surgery?
5. Have you received any formal tobacco cessation training?
6. Have you heard of the 5As (Ask, Assess, Advise, Assist, Arrange) approach for smoking cessation recommended by NSW Health?

**Figure 1** Interview Guide Questions – adapted by clinician profession.

and physiotherapists (P). All data were imported and managed within NVivo 11 (QSR international Pty Ltd, Melbourne, Victoria, Australia) [29]. Initially, data underwent thematic analysis [30], where data was read and reread, and common ideas and patterns emerging from interviews and field notes were identified and coded by one author (NAL), and then grouped into subthemes, and further abstracted to form broad themes, using both deductive (researcher-driven) and inductive (response-based) methods. Next, themes were reviewed, refined and grouped using the COM-B model [31] in an iterative process with co-authors to ensure the final themes accurately reflected the data for transferability, credibility and confirmability [32].

## Results

Fifty-two (52) of the 58 clinicians (90%) approached agreed to participate, with a sample of 15 cardiothoracic surgeons, 15 consultant anaesthetists, three cardiothoracic case managers (nurse), three clinical nurse consultants (two cardiothoracic ward and one preadmission clinic (PAC)), two nurse unit managers, three senior PAC nurses, four cardiothoracic physiotherapy educators, four senior and three junior physiotherapists. Experience varied from recently graduated physiotherapists to nurses, surgeons and anaesthetists with more than 20 years of experience. The mean interview time was 23 minutes (range 12 to 35 minutes).

Barriers and facilitators reported by clinicians to the provision of SC care in the cardiothoracic perioperative period are summarised in Table 1, under the headings of Capability, Opportunity and Motivation.

### Capability

In the COM-B model, ‘capabilities’ refer to an individual’s psychological and physical capacity to engage in the activity. Limited awareness and experience in referring to SC resources, beyond a patient’s GP, was common as shown in Table 2. No clinician could recount the meanings of all acronyms in the 5As approach to SC, yet a few surgeons and anaesthetists recalled the AAR (Ask, Advice, Refer) model. The perception of personal need for formal education in SC care varied amongst professions, with most physiotherapists and nurses deeming it necessary, and two physiotherapists self-funding external courses. No medical clinician viewed personal education as necessary to provide best patient care. Some surgeons regarded their preoperative discussion and brief advice as sufficient, a view supported by their ability to follow-up a patient for 1 to 10 years.

Despite their personal views, all clinicians considered their hospitals’ lack of interest in professional development and staff training led to poor awareness and execution of SC support. Similarly, the absence of SC promotional material and lack of enforcement of the smoking ban outside hospital buildings, noted by clinicians across five of the sites, portrayed a lack of engagement and undermined the clinicians’ advice on the importance of SC to patients and families.

*“The sign that smoking is not permitted within the boundaries of the hospital is there, but walking in this morning, there were three people standing at the front door smoking.” (A12).*

### Opportunity

The opportunity afforded by interpersonal influences, social cues and cultural norms that influence the way clinicians think is an important component of the COM-B model. In this study, the lack of opportunity to effectively engage with SC care was due to lack of SC resources, and time constraints, particularly in the initial surgical planning interview.

*“The discussion of stopping smoking has to be made but invariably the surgeons don’t have time to do it. I have a 45-minute consult and invariably I run over. There’s a lot to talk about in the management of their disease.” (S2)*

Time constraints in public hospital PACs negatively impacted on the ability of anaesthetists and nurses to discuss SC with patients and offer an intervention. Due to the increasing number of patients with complex medical or mental health histories, interview time was directed at other higher priority risk factors:

*“I don’t have time! When you’ve got 20 patients to see in clinic, you’re there to see whether their health is optimised, and I get that smoking cessation is part of that. But in our population, we’ve got bigger fish to fry.” (A15)*

Inadequate hospital support included: the lack of accessibility and availability in hospital pharmacies to provide NRT, and the absence of SC care documentation between professionals and hospital environments throughout the patient’s perioperative period. Scarce resources such as Quit kits and Quitline referral pads created a feeling of administrative disinterest. The desire to link a patient to specialist face-to-face help was limited by the existence of only two specialist clinics (with limited availability) for the six hospitals.

There were three examples where social influences facilitated a more coherent approach to supporting SC care. First, the existence of a multidisciplinary team of surgeons, anaesthetists and specialist nurses (cardiac and thoracic case managers) at two hospitals (one public, one private) meant all team members delivered and repeated the same SC care, coordinated by the nurse case manager. The team’s success was based on interdisciplinary respectful and open communication, together with familiarity with surgical procedures, and the surgeon’s view on preoperative smoking abstinence. Second, positive cooperation between hospital administration and the surgeon to reschedule cardiothoracic surgery was required.

*“The nursing case managers will be aware that they are currently smoking and that they must have ceased. So, when they come up to the case managers in the clinic and they haven’t stopped, we’ll either discuss postponement or a referral to the cessation clinic.” (S10)*

A third facilitator, the strong network link from surgeon to medical colleagues in rural areas to provide patient

**Table 1** Summary of barriers and facilitators.

COM components			Barrier	Facilitator
Capability	Psychological	Knowledge	Lack of knowledge of current SC interventions and referral processes	Surgeons' confidence in the effect of their own advice
	Physical	Skills	Limited awareness/knowledge of 5As	
		Skills	Absence of clinician SC education and training	Established, collaborative multidisciplinary team with mutual goals Hospital-surgeon cooperation for surgery date postponement Strong network link from surgeon-colleagues in rural areas
		Lack of smoke-free hospital enforcement		
Opportunity	Social	Social influences		
	Physical	Environmental context/resources	Lack of SC resources Absence of systematic documentation patient SC care Deficiency of onsite/in-house SC services Inadequate allocated time in preoperative interview Lack of accessibility/availability to provide NRT	
Motivation	Reflective	Professional role/identity	Lack of role clarity Perceived responsibility in providing support beyond advice	Attributes of positivity and empathy
		Optimism	Perception of increasing patient distress Patient disinterest	
	Automatic	Intentions	Negative beliefs of NRT	Experience of adverse patient outcomes
		Beliefs	Adverse patient circumstances limit patient cessation ability	
	Habit-Desire to help		Duty of care to reduce unnecessary patient complications	

Abbreviations: COM, capabilities, opportunity, motivation; SC, smoking cessation; NRT, nicotine replacement therapy; 5As, Ask, Assess, Advice, Assess, Arrange follow-up.

follow-up, created opportunities for more consistent SC long-term support.

## Motivation

The COM-B model describes reflective and automatic motivation as processes involving either planning and evaluation, or emotional reactions, desires and impulses respectively. Clinicians primarily encouraged SC based on both their desire to prevent unnecessary patient perioperative complications, and clinical experience of the risks of continued smoking.

*"I have had patients smoking heavily up to the time of operation without telling anybody. I've had at least a couple of deaths in my career which were clearly related."* (S14)

Clinicians who self-identified as more positive and empathetic tended to make greater efforts to provide thorough SC care, even if a patient had not acted on a surgeon's advice.

*"A lot of the time they say, 'I quit as of today or I've quit as of a few days ago in preparation for the surgery, because I've been told to stop smoking.' I tend to just latch onto that, encourage them, congratulate them."* (P1)

Empathy and sensitivity were deemed important when discussing SC, especially in the period of increased stress between diagnosis and surgery. Clinicians who were ex-smokers, or had family members who smoked, understood that smoking was both a social and physiological addiction. Senior PAC nurses spoke of 'tailoring' the cessation method to the patient, to make it realistic and achievable, or 'pitching'

**Table 2** SC resource self-reported awareness and practice (by profession).

Profession	Identified SC resources (verbally referred to or prescribed)				
	GP	Quitline	Onsite clinic	NRT	None
Cardiothoracic surgeons (n = 15)	8 (8)	2 (2)	3 (3)	1 (0)	1
Consultant anaesthetists (n = 15)	9 (5)	1 (0)	0 (0)	1 (1)	4
Nurses (n = 11)	0 (0)	3 (1)	2 (1)	4 (3)	2
Physiotherapists (n = 11)	5 (0)	0 (0)	0 (0)	3 (0)	5

Abbreviations: SC, smoking cessation; NRT, nicotine replacement therapy.

the idea of the SC clinic to the patient. Overall, no clinician sought to have a 'belligerent' conversation or exacerbate patients' feelings of guilt about smoking.

*"The first thing I say is I know how hard it is to give up, and you've probably been smoking since you were young. You don't make them feel guilty, that's number one. It's not their fault often, it's just circumstances and it's a highly addictive substance."* (S5)

Motivational barriers included differing clinicians' views about which professional was responsible for proactively linking a patient to support services or providing NRT.

*"I think clinicians have a standard by-line 'You should quit smoking as it is bad for you'. In terms of committing to other therapies to help them or directing them to what will help them quit, it's unclear who does that."* (N10)

Some anaesthetists and surgeons would not prescribe pharmacotherapy, considering it unsafe in the cardiac perioperative period. Other medical clinicians felt that without a cessation coordinator at a hospital, a patient should seek assistance to quit from their cardiologist, respiratory specialist or GP (general practitioner) pre and postoperatively if they were struggling with relapse.

*"There's patches and gum and electronic cigarettes and cold turkey or whatever. I've got no idea, and I certainly don't prescribe it. So, I advise them to talk to their GP."* (S2)

Senior nurses and physiotherapists, who had continuous contact with patients throughout their surgical pathway, were keen to have formal responsibility for providing SC care.

The context of the perioperative patient meeting created a barrier to raising cessation. If the meeting was within a week of the surgical date, some anaesthetists and nurses felt that focussing on cessation would increase a patient's anxiety levels prior to surgery. A clinician's personal judgement and clinical experience of a patient's ability and likelihood of quitting influenced SC care. Key factors were perceptions of a patient's circumstances such as inadequate health care or social support; socio-demographic background; diagnoses of mental illness; and poor understanding of the consequences of smoking and the benefits of quitting. For these patients,

some surgeons encouraged either preoperative tobacco abstinence of 24 hours or a cut down to quit method, accepting reduced smoking.

Patients' lack of desire to quit hindered SC care as most clinicians, from clinical experience, reported frequent examples of patients' disinterest in preoperative advice usually meant continued tobacco use postoperatively.

*"I saw one or two such people postoperatively last week who freely admitted that they'd started cigarette smoking again."* (S13)

## Discussion

This is the first Australian study to explore interdisciplinary clinical views and practices that influence the implementation of SC guidelines in the cardiothoracic perioperative period. It revealed more barriers than facilitators to SC care, using the three domains of the COM-B model [23]. Limited time, resources and education were key obstacles to a clinician's desire and capability to create and sustain a patient's preoperative quit attempt. The line of responsibility to proactively provide cessation referrals and pharmacotherapy was unclear, yet the study revealed the positive influences of individual clinicians' optimism and empathy, and exemplars of coherent teamwork that promote perioperative SC care.

Our findings align with previous work on factors that hamper clinicians' capabilities to address SC. The lack of enforcement and promotion of the NSW Health Smoke-free Health Care Policy 2015 [33] has been consistently reported at other hospitals in NSW, and has a negative influence on SC intervention effectiveness, and staff engagement (motivation) [22,34]. Clinicians are unlikely to refer to services unless they are aware of them (capability) and if there are SC resources to connect a patient to (opportunity). The barriers of limited knowledge, time constraints to offer SC care, and inadequate hospital resources and Quitline material to offer patients found in this study have been reported elsewhere [34,35]. This study highlights that the negative interaction between capability and opportunity had a greater impact on anaesthetists, nurses and physiotherapists in public, rather than private, hospital PACs and wards, likely due to the

higher numbers of patients with more complex health and socio-demographic issues in the public system. The COM-B analysis identified that clinicians' target behaviour, SC care, can be increased through enablement and education. Interventions implemented and supported by hospitals, such as endorsing smoke-free policies, increasing SC resources and tools such as computer-based interventions [35], and training [36] will increase the likelihood and motivation of clinicians offering SC interventions throughout the perioperative period [8,21,37].

Barriers to the provision of NRT were identified in all components of the COM-B model, with limited knowledge, access and mandate to provide NRT coupled with diverse clinician beliefs, leading to suboptimal use and digression from clinical guidelines. While NRT for nicotine withdrawal is neither required nor appropriate for all cardiothoracic patients, some need pharmacotherapy support to achieve preoperative abstinence and prevent postoperative relapse, particularly early after discharge when cues to relapse are high. Detailed recommendations to ensure more consistent provision of NRT have recently been published by the Cancer Institute NSW [37]. Methods include engaging motivated clinicians as cessation champions, such as those nurses and physiotherapists in PACs/wards found in this study and expanding their coordination, or enabling their delivery, of cessation interventions. Establishing procedures, systematic documentation and access to NRT, in both public and private hospitals, where SC care was also noted to be deficient in prior studies [38], will allow perioperative guidelines to be implemented more efficiently and effectively by all clinicians.

Automatic motivation was the main driver for discussing cessation with patients, possibly due to sample selection bias. Yet, using the COM-B model, many barriers to the provision of SC care were identified, consistent with a recent review [25]. Individual judgements about patient circumstances led to certain priority populations [39] missing out on comprehensive SC care. Similarly, clinicians' beliefs in either the effectiveness of a surgeon's advice, the diagnosis of a tobacco-related illness, the efficacy of patient-GP support, or the preference for unaided preoperative patient quit attempts led to inconsistent SC advice and support. These judgements and beliefs may result in unsuccessful postoperative cessation for some patients. Tailored professional education, performance incentives, and the use of decision aids, such as standardised SC scripts, and simple referral processes to existing onsite clinics or Quitline to support clinician-patient SC interaction, may address the individual motivational barriers that impede perioperative SC care [8,37]. Inter-disciplinary SC leadership, headed by senior clinicians has been recommended to inspire and encourage others [37]. The surgeon-led, nurse-coordinated, multidisciplinary teams found in this study should be used as an example of a strategy to address capability (knowledge of SC interventions), opportunity (social collaboration), and motivation (similar beliefs), and achieve the target behaviour of consistent perioperative SC care to cardiothoracic patients.

The findings of this study are likely to be applicable to other cardiothoracic surgical specialists in Australia due to the variety of disciplines and experience of the clinicians interviewed, plus the high response rate and length of interviews. The recruitment of cardiothoracic clinicians from hospitals in Sydney, NSW, limits generalisability of the study outside of Australia. However, these qualitative findings add to previous quantitative research [21,34] confirming the nature and quality of clinician engagement has an impact in the implementation of SC care.

## Conclusions

This study provides an in-depth insight into the factors that influence interdisciplinary cardiothoracic clinicians' provision of SC care. The barriers and facilitators were linked to capability, opportunity and motivation, which require different approaches and interventions to improve the use of evidence-based SC guidelines in routine cardiothoracic perioperative practice. Hospitals should provide ongoing education of clinicians in the provision of SC advice, support and follow-up. Similarly, clinicians must develop clarity in their own practices, and an awareness of the effect their individual beliefs and motivating factors have on the advice and support they offer to patients. Proactive engagement between clinicians and hospitals can enhance the services provided to cardiothoracic patients in the perioperative period and improve long-term SC, which can prevent disease progression and reduce premature mortality.

## Disclosures

NAL is a clinician at one of the hospital sites.

## Funding

This work was supported by a Macquarie University Research Excellence Scholarship (NAL), and National Cancer Institute, US National Institutes of Health, Grant R01-CA091021 (RM). The funding had no role in the design and conduct of the study, collection, management, analysis and interpretation of the data, or preparation, review or approval of the paper.

## Acknowledgements

The authors thank all the clinicians who participated in the study and hospital staff who facilitated the study.

## References

- [1] Australian Institute of Health and Welfare. Cancer in Australia 2017. Cancer series no.101. Canberra: AIHW Publication CAN 100; 2017. Available from: <https://www.aihw.gov.au/reports/cancer/>

- [cancer-in-australia-2017/contents/table-of-contents](#). [Accessed 30 March 2018].
- [2] Australian Bureau of Statistics. Causes of Death, Australia, 2016. Canberra: 2016. ABS publication 3303.0. Update 27 September 2017. Available from: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/3303.0>. [Accessed 30 March 2018].
  - [3] Warner MA, Offord KP, Warner ME, Lennon RL, Conover MA, Jansson-Schumacher U, Warner MA, Offord KP, Warner ME, Lennon RL, Conover MA, Jansson-Schumacher U. Role of preoperative cessation of smoking and other factors in postoperative pulmonary complications: a blinded prospective study of coronary artery bypass patients. *Mayo Clin Proc* 1989;64(6):609–16.
  - [4] Saxena A, Shan L, Reid C, Dinh DT, Smith JA, Shardey GC, et al. Impact of smoking status on early and late outcomes after isolated coronary artery bypass graft surgery. *J Cardiol* 2013;61(5):336–41.
  - [5] Warren GW, Kasza KA, Reid ME, Cummings KM, Marshall JR. Smoking at diagnosis and survival in cancer patients. *Int J Cancer* 2013;132(2):401–10.
  - [6] Fiore MC, Bailey WC, Cohen SJ. Treating tobacco use and dependence. Clinical practice guideline. 2008 update. Editor. Rockville, MD: US Department of Health and Human Services, Public Health Service; 2008. <https://www.ncbi.nlm.nih.gov/books/NBK63952/>. [Accessed 30 March 2018].
  - [7] Rigotti NA, Clair C, Munafò MR, Stead LF. Interventions for smoking cessation in hospitalised patients. *Cochrane Database Syst Rev* 2012;16(5):1–88.
  - [8] Nolan MB, Warner DO. Perioperative tobacco use treatments: putting them into practice. *BMJ* 2017;358:j3340.
  - [9] Warner DO, Sarr MG, Offord KP, Dale LC. Anesthesiologists, general surgeons, and tobacco interventions in the perioperative period. *Anesth Analg* 2004;99(6):1766–73.
  - [10] Kai T, Maki T, Takahashi S, Warner DO. Perioperative tobacco use interventions in Japan: a survey of thoracic surgeons and anaesthesiologists. *Br J Anaesth* 2008;100(3):404–10.
  - [11] Shi Y, Yu C, Luo A, Huang Y, Warner DO. Perioperative tobacco interventions by Chinese anesthesiologists: practices and attitudes. *Anesthesiology* 2010;112(2):338–46.
  - [12] Nickels AS, Warner DO, Jenkins SM, Tilburt J, Hayse JT. Beliefs, practices, and self-efficacy of US physicians regarding smoking cessation and electronic cigarettes: a national survey. *Nicotine Tob Res* 2017;19(2):197–207.
  - [13] McCarty MC, Hennrikus DJ, Lando HA, Vessey JT. Nurses' attitudes concerning the delivery of brief cessation advice to hospitalized smokers. *Prev Med* 2001;33(6):674–81.
  - [14] Schultz AS, Johnson JL, Bortorff JL. Registered nurses' perspectives on tobacco reduction: views from Western Canada. *Can J Nurs Res* 2006;38(4):192–211.
  - [15] Sarna L, Bialous SA, Wells M, Kotlerman J, Wewers ME, Froelicher ES. Frequency of nurses' smoking cessation interventions: report from a national survey. *J Clin Nurs* 2009;18(14):2066–77.
  - [16] Bodner ME, Miller WC, Rhodes RE, Dean E. Smoking cessation and counseling: knowledge and views of Canadian physical therapists. *Phys Ther* 2011;91(7):1051–62.
  - [17] Zwar N, Richmond R, Borland R, Peters M, Litt J, Bell J, et al. Supporting smoking cessation: a guide for health professionals. Melbourne: The Royal Australian College of General Practitioners; 2014. Available from: <https://www.racgp.org.au/your-practice/guidelines/smoking-cessation/>. [Accessed 30 March 2018].
  - [18] Australian and New Zealand College of Anaesthetists. Guidelines on smoking as related to the perioperative period 2014. PSB 12. Available from: <http://www.anzca.edu.au/getattachment/resources/professional-documents/ps12bp-2014-guidelines-on-smoking-as-related-to-the-perioperative-period-background-paper.pdf>. [Accessed 30 March 2018].
  - [19] Royal Australasian College of Surgeons Cessation of Smoking 2015. Available from: [https://www.surgeons.org/media/21553848/2015-10-27\\_pos\\_rel-gov-031\\_cessation\\_of\\_smoking.pdf](https://www.surgeons.org/media/21553848/2015-10-27_pos_rel-gov-031_cessation_of_smoking.pdf). [Accessed 30 March 2018].
  - [20] Nagle A, Schofield M, Redman S. Australian nurses' smoking behaviour, knowledge and attitude towards providing smoking cessation care to their patients. *Health Promot Int* 1999;14(2):133–44.
  - [21] Freund M, Campbell E, Paul C, Sakrouge R, Lecathelinis C, Knight J, et al. Increasing hospital-wide delivery of smoking cessation care for nicotine-dependent in-patients: a multi-strategic intervention trial. *Addiction* 2009;104(5):839–49.
  - [22] McCrabb S, Baker A, Attia J, Balogh Z, Lott N, Palazzi K, et al. Hospital smoke-free policy: compliance, enforcement, and practices. A staff survey in two large public hospitals in Australia. *Int J Environ Res Public Health* 2017;14(11):1358.
  - [23] Michie S, Stralen MM, West R. The Behaviour Change Wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci* 2011;6:42.
  - [24] Gould GS, Bar-Zeev Y, Bovill M, Atkins L, Gruppeta M, Clarke MJ, et al. Designing an implementation intervention with the Behaviour Change Wheel for health provider smoking cessation care for Australian Indigenous pregnant women. *Implement Sci* 2017;12(1):114.
  - [25] Sharpe T, Alsahlane A, Ward KD, Doyle F. Systematic review of clinician-reported barriers to provision of smoking cessation interventions in hospital inpatient settings. *J Smok Cessat* 2018;1–11.
  - [26] Bureau of Health Information. Healthcare Quarterly 2016: Sydney (NSW). Available online: [http://www.bhi.nsw.gov.au/BHI\\_reports/healthcare\\_quarterly/\\_nocache](http://www.bhi.nsw.gov.au/BHI_reports/healthcare_quarterly/_nocache). [Accessed 30 March 2018].
  - [27] Luxton NA, Mackenzie R. Electronic cigarettes in Australia: Knowledge, attitudes and potential applications in the perioperative period of cardiothoracic surgery. In: Annual Meeting — Society for Research on Nicotine and Tobacco Conference; 2017.
  - [28] NSW Health. Managing Nicotine Dependence A Guide for NSW Health Staff. Available online: <http://www.health.nsw.gov.au/tobacco/Pages/managing-nicotine-dependence.aspx>. [Accessed 30 March 2018].
  - [29] QSR International. NVivo Qualitative Data Analysis. Version 11. 2014.
  - [30] Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
  - [31] Michie S, Atkins L, West R. The Behaviour Change Wheel—a guide to designing interventions. Great Britain: Silverback; 2014.
  - [32] Pope C, Ziebland S, Mays N. Qualitative research in health care: analysing qualitative data. *Br Med J* 2006;320(7227):114–6.
  - [33] NSW Health. Smoke-Free Health Care Policy 2015. Available online: [http://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2015\\_003.pdf](http://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2015_003.pdf). [Accessed 30 March 2018].
  - [34] Slattery C, Freund M, Gillham K, Wolfenden L, Bisquera A, Wiggers J. Increasing smoking cessation care across a network of hospitals: an implementation study. *Implement Sci* 2016;11:28.
  - [35] Wolfenden L, Wiggers J, Campbell E, Knight J, Kerridge R, Spigelman A. Providing comprehensive smoking cessation care to surgical patients: the case for computers. *Drug Alcohol Rev* 2009;28(1):60–5.
  - [36] Carson KV, Verbiest MEA, Crone MR, Brinn MP, Esterman AJ, Assendelft WJJ, et al. Training health professionals in smoking cessation. *Cochrane Database Syst Rev* 2012;16(5):CD000214.
  - [37] Cancer Institute NSW. Smoking Cessation Framework for NSW Health Services. Available online: <https://www.cancerinstitute.org.au/how-we-help/cancer-prevention/stopping-smoking/nsw-smoking-cessation-framework>. [Accessed 30 March 2018].
  - [38] Redfern J, Hyun K, Chew DP, Astley C, Chow C, Aliprandi-Costa B, et al. Prescription of secondary prevention medications, lifestyle advice, and referral to rehabilitation among acute coronary syndrome inpatients: results from a large prospective audit in Australia and New Zealand. *Heart* 2014;100(16):1281–8.
  - [39] Bonevski B, Borland R, Paul CL, Richmond RL, Farrell M, Baker A, et al. No smoker left behind: it's time to tackle tobacco in Australian priority populations. *Med J Aust* 2017;207(4):141–2.