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Perceptions of Surgical Never Events among Interdisciplinary Clinicians: Implications for Practice

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Abstract:	Background Never Events are serious, preventable, and clearly identifiable medical errors with the potential for causing patients significant morbidity and mortality. Despite the development of a formal, consensus definition and extensive efforts to eliminate them, Never Events persist. Aim To assess whether interdisciplinary clinicians (nurses, surgeons and anesthesiologists) and risk managers have different mental models about three aspects of the definition of surgical Never Events: incidence, severity and preventability. Methods Semi-structured interviews were conducted with 25 operating room clinicians and hospital risk managers in Israel. Verbatim transcripts were analyzed using 6-phase inductive thematic analysis. Findings Mental models of Never Events varied by profession. Surgeons described them as rare and nurses saw them as common. While agreeing on their severity, mental models about preventability were mixed, with surgeons and nurses thinking that training and/or safety standards could prevent them, and anesthesiologists and risk managers considering them to be unpreventable. Discussion The common definition of Surgical Never Events characterizes them as severe and preventable events. Different mental models characterize interdisciplinary views about the definition. These differences challenge the utility of a single international consensus definition of Never Events. Conclusion Given differences in mental models, approaches to eliminating Never Events may benefit from identifying and addressing these differences in order to improve teamwork and implementation of safety protocols.
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June 27, 2022

Lisa McKenna, RN RM PhD MEdSt GDLFAH GradDipHAdminIS FACN,
Editor in Chief, *Collegian*

Dear Professor McKenna,

We are pleased to submit our manuscript, "Perceptions of Surgical Never Events among Interdisciplinary Clinicians: Implications for Practice", for your consideration as original research.

The manuscript reports the results of a qualitative study exploring the perceptions of operating room nurses, physicians, and risk managers regarding the definition and characteristics of Never Events, the differences in perceptions among professionals, and the resulting impact on nursing practice. Such differences, at best, limit the quality improvement approaches intended to mitigate the risk of serious surgical errors and, at worst, impair the functioning of the team, decreasing patient safety during surgery.

By modifying the definition in accordance with the professional role, the measurability of the events will increase. This may encourage risk stratification that will enhance improved methods for addressing never events among the interdisiciplinary team members.

Each author has substantially contributed to conducting the underlying research, participating in thematic analysis of findings, and drafting this manuscript. Additionally, to the best of our knowledge, the named authors have no conflict of interest, financial or otherwise to disclose.

The manuscript has not been published elsewhere and is not being considered for publication elsewhere.

Finally, the research has been supported by a grant from the Medical Research Fund for Health Services–Jerusalem at the Israel Ministry of Health.

Thank you for considering this manuscript.

Sincerely,

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COREQ (COnsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	6
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	RN,MSN, 0
Occupation	3	What was their occupation at the time of the study?	Nursing, 0
Gender	4	Was the researcher male or female?	Female
Experience and training	5	What experience or training did the researcher have?	7
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	6
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	6
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	6
Domain 2: Study design			
Theoretical framework			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	6,7
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	5
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	6
Sample size	12	How many participants were in the study?	6
Non-participation	13	How many people refused to participate or dropped out? Reasons?	6
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	6
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	no, 5
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	5,6,22
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	5,6
Repeat interviews	18	Were repeat inter views carried out? If yes, how many?	no
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	5
Field notes	20	Were field notes made during and/or after the inter view or focus group?	6
Duration	21	What was the duration of the inter views or focus group?	5
Data saturation	22	Was data saturation discussed?	6,7
Transcripts returned	23	Were transcripts returned to participants for comment and/or	no

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	7
Description of the coding tree	25	Did authors provide a description of the coding tree?	7,8,9
Derivation of themes	26	Were themes identified in advance or derived from the data?	7
Software	27	What software, if applicable, was used to manage the data?	6
Participant checking	28	Did participants provide feedback on the findings?	no
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	20,21
Data and findings consistent	30	Was there consistency between the data presented and the findings?	yes 7,8,9,20,2
Clarity of major themes	31	Were major themes clearly presented in the findings?	7,8,9,20,21
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	7,8,9

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

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TITLE PAGE

Perceptions of Surgical Never Events among Interdisciplinary Clinicians: Implications for Practice

Running title: Mental Models and Never Events

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ABSTRACT

Background: Never Events are serious, preventable, and clearly identifiable medical errors with the potential for causing patients significant morbidity and mortality. Despite the development of a formal, consensus definition and extensive efforts to eliminate them, Never Events persist.

Aim: To assess whether interdisciplinary clinicians (nurses, surgeons and anesthesiologists) and risk managers have different mental models about three aspects of the definition of surgical Never Events**:** incidence, severity and preventability.

Methods: Semi-structured interviews were conducted with 25 operating room clinicians and hospital risk managers in Israel. Verbatim transcripts were analyzed using 6-phase inductive thematic analysis.

Findings: Mental models of Never Events varied by profession. Surgeons described them as rare and nurses saw them as common. While agreeing on their severity, mental models about preventability were mixed, with surgeons and nurses thinking that training and/or safety standards could prevent them, and anesthesiologists and risk managers considering them to be unpreventable.

Discussion: The common definition of Surgical Never Events characterizes them as severe and preventable events. Different mental models characterize interdisciplinary views about the definition. These differences challenge the utility of a single international consensus definition of Never Events.

Conclusion: Given differences in mental models, approaches to eliminating Never Events may benefit from identifying and addressing these differences in order to improve teamwork and implementation of safety protocols.

KEYWORDS: Never event, surgery, patient safety, mental model, nurses, physicians

SUMMARY OF RELEVANCE

Problem or Issue

Never Events persist despite international agreement on their definition and characteristics.

What is Already Known

Among strategies for eliminating Never Events are efforts to promote patient safety cultures characterized by effective interprofessional teamwork. The literature demonstrates that high functioning healthcare teams have shared knowledge structures – or mental models – regarding patient safety. Nevertheless, less is known about the underlying characteristics of these mental models.

What this Paper Adds

This study explores mental models of 25 nurses, surgeons, anesthesiologist and risk managers with regard to Surgical Never Events and finds patterns of variability concerning their seriousness, preventability and incidence – with implications for approaches to needed team training.

1. INTRODUCTION

Adverse medical events can lead to significant morbidity and mortality and increase healthcare expenditures (Kjellberg et al., 2018). Never Events are preventable medical errors with potentially serious consequences for patient morbidity and mortality. The concept was first defined by the National Quality Forum in 2001 as an outcome of voluntary stakeholder consensus process (Kizer & Stegun, 2005). Although the definition has varied somewhat and has evolved over time in different countries, several elements are typically present in all definitions (Robert et al., 2015). Jung et al. (2019) suggested an additional concept of unintended and unanticipated events caused by medical teams and not by the patient's underlying conditions. Surgical Never Events, a subset of Never Events, include performing surgery on the wrong site or the wrong patient, performing the wrong surgical procedure, and

unintended retention of a foreign object in a patient's body after surgery, intraoperative, or immediately postoperative death in otherwise healthy patients (NQF, 2021).

Multiple efforts have been undertaken to prevent Surgical Never Events worldwide, including a surgical safety checklist developed by the World Health Organization (Kumar & Raina, 2017; Stawicki et al., 2009; WHO, 2009). Other efforts include quality improvement training, root cause analysis, and team huddles. One of the important elements among organizational strategies for eliminating never events are efforts to promote a patient safety culture (Moppet & Moppet, 2016), an effort that includes listening and relating to employee voices (Martin et al., 2020), and encouraging effective interprofessional teamwork, intraoperative communication, and ability to manage disruptions (Mathew et al., 2018). An attribute of the high functioning teams required to implement these approaches is shared mental models in relation to safety (Aveling, et al., 2017). Mental models are individually held knowledge structures around the dimensions of content, similarity, accuracy, and dynamics. Shared mental models can help team members to function collaboratively (McComb & Simpson, 2014).

A literature search revealed that a few studies have analyzed interprofessional mental models in the Operating Room (Brown et al., 2012, Aveling et al., 2018), but have not directly probed views on the fundamental definition of Never Events. Brown et al. (2017) found that variability in mental models hampered communication among members of a cardiac perioperative team at critical care transition points. Schiff et al. (2018) determined that uptake of a training tool for improving teamwork was hampered by variable mental models among members of a surgical gynecology team. While a study by Göras et al. (2020) notes that mental models are created by shared planning to improve safety, it did not explore the underlying characteristics of varying mental models. Perhaps most relevant is the work of McComb, et al. (2017) which found that physicians and nurses have significantly different

mental models, as reflected in their divergent views on who is responsible for a number of activities closely related to patient safety, including patient advocacy, identifying errors and near misses, and medication reconciliation.

Generally, clinicians choose their actions during surgical procedures based on their knowledge and practice (Flug et al, 2018). Little is known about the perceptions of professionals and their mental model with regard to the concept of Never Events. This study aims to assess whether interdisciplinary clinicians and risk managers have different mental models about the definition of surgical Never Events, including their seriousness, preventability, and incidence. We also consider possible implications of varying mental models for patient safety training and protocols.

2. METHODS

2.1 Study Design

This qualitative study relied on data from semi-structured, in-person interviews with the 25 operating room professionals and hospital risk managers (see Table 1). The interviewees were selected using a purposive recruitment (Cheung et al., 2019) from different general hospitals. Participants were included who had an administrative role, frontline experience, and systemic views of surgical Never Events. Exclusion criteria eliminated participants who were either trainees or staff members without an administrative role. In-person interviews were conducted at participants' settings from September to December 2019 by one of the study's authors (DA) and were recorded and transcribed verbatim. The interviews lasted 20 minutes each on average.

2.2 Participants

The participants were employed at nine Israeli hospitals or at the Israeli Ministry of Health. Although all subjects held administrative positions, 19 of the 25 had also worked (currently or previously) in operating rooms. The risk managers from hospitals and the Ministry of Health had a role in risk assessment in the OR and policy development accordingly. The hospitals included four large urban trauma centers (>800 beds); three medium-sized (400–800 beds) rural centers, one of which was also a trauma center; and two small centers (<400 beds), one rural and the one urban, providing only surgical care.

The semi-structured interviews were performed according to a literature-based guide that was developed by the authors and validated by surgery and risk management experts. The guide included open-ended questions specifically intended to explore the participants' mental model with regard to aspects of the definition of perioperative Surgical Never Events (see Table 3). To evaluate the guide, two pilot interviews were conducted, resulting in one question being omitted. The data from the pilot study were added to the final analysis. Field notes were taken during and immediately after each interview in which the interviewers described the participants' familiarity with components of the Never Events definition and recorded any nonverbal reactions, such as anger or discomfort, during the interview. Conversations were recorded and verbatim transcripts of each interview were produced.

2.3 Data Analysis

The researchers manually entered information from the transcripts into Microsoft Excel, (version 16.0), using the 6-phase inductive thematic analysis approach as described by Braun and Clarke (2006): (1) familiarization with the data, (2) generating initial codes, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) producing the report. Two of the study's authors read and reread the entire data set and systematically, and, independently, coded the transcripts. Codes were then grouped into emergent themes after

iterative reading and discussion with two different authors. The entire team met several times throughout the analysis process to discuss disagreements and refine and label the themes descriptively and interpretatively ((Lindgren, Lundman & Graneheim, (2020).

3. FINDINGS

The analysis revealed themes clustering around two main themes: professionals' perceptions of the formal definition of Never Events; and perceptions around various characteristics of the definition of Never Events.

3.1 Professionals' perceptions of the definition of Never Events

The participants shared their perceptions of the common definition of Never Events and its concept. Risk managers endorsed the formal definition, whereas most of the operating room clinicians suggested modifying the definition. These clinicians suggested a broader definition to include any event that puts the success of the surgery at risk, but this was based on their own professional role in the surgery. For example, nurses related to their role of being accountable for the patient's safety: "If I want the patient not to fall, I will stand next to him and make sure the stretcher is braked while he is being transferred." One surgeon viewed inappropriate preparedness for the surgery as a Never Event: "For me, a 'never event' is non-sharpened scissors." And a majority of the anesthesiologists defined a Never Event as a surgery with an unexpected occurrence of events, including "unexpected death during surgery", "wrong blood transfusion", "wrong organ anesthesia", and "wrong medication administration".

Risk managers related to the formal regulatory definition of Never Events with a modification to patient's harm—for example, "There is a definition [from] the Ministry of Health", and "In the Operating Room, there are three types of 'never events': error in patient identification, wrong site surgery, [and] surgery to the wrong patient" and suggested adding

"Loss of tissue should be included in the definition….It mustn't happen [for] somebody [to go] through a surgery in order to know if he has cancer or not", and "The issue of patient identification should be a critical aspect in 'never events'".

3.2 Perceptions of Various Characteristics of the Definition

Incidence and Measurability of Never Events

Perceptions of incidence of Never Events varied among nurses and physicians. Nurses perceived these events as common: "In my opinion, they are very common, especially with regard to their severity", and "…common events. There are patients [who] fall, burns during surgery, and problems with surgical counts". Surgeons perceived the events as rare and related to the implementation of safety standards in the Operating Room: "The events are rare because everybody implemented correct signing, [which] was the major issue in these events…Lack of following work protocols is very simple; it is caused by distraction, working at night, and burnout", and "[A Never Event is] very rare; it might happen [once] every few years".

Anesthesiologists thought that the events are rare but unpredictable and thus hard to measure due to the dynamic work environment in the Operating Room: "An adverse event that surprisingly occurs within our usual routine and is exceptional and unusual". Another described an "esophageal intubation, unidentified, that caused the patient severe harm. A case of unpredictable wrong use of equipment, that we did not [take] notice of, during bronchoscopy that caused the patient harm".

Risk managers thought that some characteristics of the surgery might increase the incidence of Never Events. These characteristics challenge the measurability of an incident since they consider some errors to be unpredictable. One noted that obstetrics and gynecology "is [a] high-risk specialty since many surgeries are urgent…also trauma surgeries because the

team skips the safety standards due to the urgency". Another pointed out that, "In general, when the surgery is more complicated, the chance for [a] 'never event' is higher because when one needs to give attention to so many details, one starts creating shortcuts and doing things automatically".

Severity and Preventability Characterizing the Definition of Never Events

All participants described their perceptions of two characteristics of the definition of Never Events: severity and preventability (Table 2). There was a consensus among nurses and physicians that severity – or, the potential for serious patient harm – is an essential element of the definition and is related to the complexity of the surgery and the work environment in the Operating Room. An anesthesiologist further described the importance of the anesthesiologist's role in quickly decreasing the severity of an occurring event with a rapid response. Moreover, a surgeon stated that a surgical Never Event indicates a serious safety hazard in the operating room that resulted in severe patient harm. Even though there was a consensus regarding the severe outcome of Never Events, a risk manager thought that these events can be graded by their potential severity.

Preventability refers to the possibility of avoiding never events through increased awareness, training, and work protocols. Nurses thought that most Never Events could be prevented adhering to safety standards, and by using tools such as training, awareness, and work protocols. However, they thought that some human errors resulting in Never Events cannot be prevented by safety standards alone.

Among the surgeons, a few thought that proper training could help prevent Never Events, whereas others said that some events are not preventable due to the inherent risks in some procedures (i.e., the combination of electricity and oxygen can lead to burns). Anesthesiologists thought that not all Never Events are preventable and described situations

of “force majeure”, such as a patient’s fall or a surgical burn, which can occur even if standards are upheld.

4. DISCUSSION

Since the first definition of 'Never Events' was advanced by the NQF in 2001 (Kizer, 2001), other health care organizations have adopted what has become a consensus definition (National Patient Safety Agency, 2010; World Health Organization, 2009). This study aimed to assess any variability in mental models among interdisciplinary clinicians and risk managers with regard to key aspects of the definition of a surgical Never Event, including incidence, seriousness, and preventability. The study was undertaken in response to literature that links shared mental models with effective teamwork. If variability among interdisciplinary professionals influences efforts to reduce surgical Never Events, understanding differences among clinicians is an important contribution of this study.

Focusing on the key dimensions of a Never Event, in our study, surgeons consider the incidence of surgical Never Events to be rare, while nurses say they are common. Interviewees agreed that Never Events are severe, as defined by many international organizations (Robert et al., 2015), but had different opinions about whether all are actually preventable.

While some studies have shown that initial perception of a definition is based on its literal meaning (Flug et al., 2018), in our study, the clinicians modified the definition of a Never Event to conform to their specific roles in a surgical procedure. This meant that surgeons focused on performing the surgery, anesthesiologists focused on stabilizing patients, and nurses on coordination and patient assistance. In our study, risk managers focused more on potential risks for patient harm. This view may be explained by their role as promoters of patient safety and error preventers (Card, 2016).

The variations we found regarding incidence might also be explained by a dynamic work environment that affects the occurrence of Never Events (Göras, 2020). Thus, nurses might perceive more of the risks in the operating room that can lead to occurrence of Never Events in their routine work (Haugen et al., 2013). Regardless of their origin, our findings around mental models have implications for efforts to reduce Never Events.

4.1 Implications for Practice

Agreement on the basic attributes of Never Events, particularly among the staff who are central to providing surgical care, would seem to be required for effective – and safe – interprofessional teamwork. All components of communication, trust, respect, mutual acquaintanceship and more are related to the existence of shared mental models around the required tasks and the environment in which collaboration happens (Karam et al., 2018). Studies show that teamwork is essential for the prevention of Never Events (Fry et al., 2010), from the safe conduct of the surgery itself to the implementation of safety tools, like checklists (Moppet, 2016). Effective teams have a shared understanding of the complexity of a clinical situation, make appropriate decisions, and act efficiently (Mitchell et al., 2011).

Moreover, tracking the incidence of Never Events and the impact of improvement efforts relies on accurate measurement (Cohen et al., 2021), which depends on consistent staff reporting. If some professional groups distinguish (as did the physicians in our study) 'unexpected consequences' from errors, or if some groups are conditioned to consider Never Events rare, reporting systems may be compromised. Similarly, measurability of the events, which is influenced by the mental models of various professionals towards adverse events, which are in turn conditioned by social norms, awareness, and perception of the event itself (Haim et al., 2018).

In our study, nurses perceived themselves as playing a key role in identifying risk and promoting safety in the OR. Therefore, their advocacy for addressing the existence of divergent mental model and providing solutions may be especially important.

Improvement efforts that can help to address variations in mental models include:

- Enhancing interdisciplinary and collaborative teamwork by evaluating the discrepancies in the team's mental model and planning a specific intervention to encourage their mutual agreement about the most important characteristics of a Never Event;
- Tailoring a broader definition of Never Events that reflects the multiple roles of interprofessional teams and characteristics of the surgery;
- Offering a standardized, interprofessional training around the definition and prevention of errors; and
- Defining a core of information that must be shared by all clinicians participating in the surgery to improve communication and teamwork.

2. CONCLUSION

This study finds that various mental models around surgical Never Events characterize groups of interdisciplinary professionals. Further research would benefit not only from the inclusion of more individuals who hold frontline surgical positions but also from querying a larger group of clinicians via a formal survey. Such a study could explore interprofessional differences as well as assess the impact on mental models of the norms of the participating organization, including any national or cross-cultural differences. Finally, follow-up research comparing mental models among clinicians working in environments characterized by

different levels of patient safety could further develop the role of mental models in efforts to promote high quality and safe health care.

CONFLICTS OF INTEREST

To the best of our knowledge, the named authors have no competing interests, financial or otherwise to disclose.

Authorship contribution statement

The paper properly credits the meaningful contributions of co-authors and co-researchers.

Ethical Statement

Ethical approval for the study was obtained from the Medical Research and Ethical Committee of the Israel Ministry of Health, reference number 032-2019, on 27 December 2019. Each participant provided verbal consent to participate and received no compensation for their participation.

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Table 1. Characteristics of Study Participants

Characteristic	Respondents Number (%) (Total = 25)
Age (years)	
35–44	3 (12)
45–54	10 (40)
55–64	10 (40)
65–75	2 (8)
Sex	
Male	10 (40)
Female	15 (60)
Profession	
Operating room clinician	
Anesthesiologist	6 (24)
Surgeon	3 (12)
Nurse	9 (36)
Risk manager (physician)	3 (12)
Risk manager (nurse)	4 (16)
Administrative role	
Yes	25 (100)
No	0
Experience in profession (years)	
10–19	5 (20)
20–29	7 (28)

30–39	10 (40)
40–50	3 (12)
Years in current position	
0–4	9 (36)
5–9	9 (36)
10–14	2 (8)
15–19	1 (4)
20–25	4 (16)

Table 2. Perceptions of clinicians and risk managers regarding aspects of the formal "Never Event" definition

Severity
"Never Events" are severe events that cause patient harm
- "In my opinion, [a] 'never event' is an event that included [a] patient's harm, occurred during routine surgery, or [was a] procedure that must not happen."– a nurse
- "Based on the fact that most 'never events' occur or may occur in the OR, it is an important issue that should be related to as severe events." – a risk manager
- "A safety event with severe patient harm or even death in a way that was preventable…It is not related to the elements that I operated [on in] the patient, and he was severely sick and then he passed and a harm occur[red]. It is an event of [a] retained foreign object such as pad/sponge, [or] major harm such as damage to a vital organ."– a surgeon
The severity of events can be graded and depends on the rapidity of response
- "I would define the type of event such [as a] burn occurring during surgery at the same severity level as retention of [a] foreign object during surgery and definitely not as wrong [as a] blood transfusion that caused [a] patient's death" – a risk manager
- "Since the patient care we provide is one on one, it is easier for us to decrease the severity of events. If we give wrong medication, we can immediately recognize the error and provide care in five second[s] [to] decrease the potential severity." – an anesthesiologist
Preventability

Surgical "Never Events" are preventable by increased awareness, training, and following work protocols

- "Since all 'Never Events' have a risk for patient harm, we should prevent their occurrence in the OR."– a nurse
- "We count items during the surgery exactly by the rules; it is important to prevent errors."– a nurse
- "I think that they are all preventable. Everybody has awareness for preventing them and proper training for such awareness."– a surgeon
- "The types of surgeries with their special characteristics, like long surgeries with addition of absorbing materials/gauzes; in such surgeries, the surgical count should be done very carefully."– a risk manager

Some events cannot be prevented owing to human errors and force majeure

- "There is certain rate of human errors; we are unable to reach zero with these errors…with attention and proper standards, we can prevent all events except events that are related to [an] unknown factor/condition of the patient that you are not aware [of]."– a nurse
- "Most 'Never Events' are preventable, but [a] large amount of them are not."– an anesthesiologist
- "The patient was restrained to the surgical bed and somehow the bed broke and he fell."– an anesthesiologist

The characteristics of the surgery affect the ability to prevent "Never Events"

- "Performance of surgery in an airway [or] close to an airway created risk for catching fire in that area"– a nurse
- "You use oxygen, you use electricity, and together it can lead to a surgical burn."– a surgeon

Table 3. Interview Guide

Discussion topics	**Examples of questions**
Attitude toward "Never Events" in operating rooms in Israel	How would you define "Never Events" in operating rooms? PROBE: Are there different types of "Never Events" in operating rooms? PROBE: Preventable vs. not preventable

Personal experience with “Never Events” in the operating room	Have you been exposed to a “Never Event” in the operating room? If yes, can you please tell me what happened? PROBE: In your opinion, what were the main causes of the “Never Event” in this case? PROBE: Do you think the “Never Event” in this case was preventable? PROBE: Do you have any suggestions for how to avoid a case like that in the future?

CONFLICTS OF INTEREST

To the best of our knowledge, the named authors have no competing interests, financial or otherwise to disclose.

Ethical Statement

Ethical approval for the study was obtained from the Medical Research and Ethical Committee of the Israel Ministry of Health, reference number 032-2019, on 27 December 2019. Each participant provided verbal consent to participate and received no compensation for their participation.

Author Agreement

Each author has substantially contributed to conducting the underlying research, participating in thematic analysis of findings, and drafting this manuscript. Additionally, to the best of our knowledge, the named authors have no conflict of interest, financial or otherwise to disclose.

The manuscript has not been published elsewhere and is not being considered for publication elsewhere.

Authorship contribution statement

The paper properly credits the meaningful contributions of co-authors and co-researchers.