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A survey about postoperative delirium in older patients among nurses and anaesthetists: implications for future practice and policy

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A survey about postoperative delirium in older patients among nurses and anaesthetists: implications for future practice and policy

Abstract

Background Postoperative delirium is a major complication associated with anaesthesia and surgery, more commonly seen in older people. **Aims** The aims of this study were to explore the knowledge and understanding of anaesthetists and nurses involved in anaesthesia through their responses to two case scenarios of postoperative delirium experienced by older people. **Methods** A 30-item online survey was sent to 500 potential respondents. **Results** Two hundred and twenty-six practitioners from Australia, New Zealand and Scotland responded. Most had no workplace protocols for anaesthesia planning in older people. There was substantial variability in practice in relation to postoperative delirium screening, detection, prevention and management. **Conclusions** Improvements in education and awareness, together with a more coherent approach, for example, as recommended in the European Society of Anaesthesiology Guidelines, could help to reduce the impact of postoperative delirium in older people. This should be combined with ongoing research into perioperative optimisation of detection, prevention and management of postoperative delirium.

Keywords

among, patients, older, delirium, anaesthetists:, nurses, implications, survey, future, practice, policy, postoperative, about

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1 **A survey about postoperative delirium in older patients among nurses and**
2 **anaesthetists: implications for future practice and policy**

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30 **Declaration of interest**

31 The authors report no declaration of interest.

32
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36 surgery.

37 **Victoria Traynor:** is Professor in Nursing and the Founding Director of Aged and Dementia Health
38 Education Research (ADHERE). Her research area focuses on working with older people and family
39 carers and healthcare practitioners delivering aged and dementia care services.

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41 **Sheila Rodgers:** has a background in Acute Care with an emphasis on the care of Older people. Her
42 research interest is in evidence-based practice and the links between research and practice with
43 main methodological expertise in quantitative approaches and complex interventions.

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Alasdair Waite: is a Consultant Anaesthetist at the Royal Infirmary of Edinburgh. His research interest is in sedation recovery and other related outcomes.

Alasdair MacLulich: is active clinically, working in acute geriatric medicine and acute orthogeriatrics. He has a keen interest in improving the detection and management of delirium and dementia in acute hospital patients and leads the regional 'Delirium and Dementia Implementation Group'.

Irwin Foo: is a consultant anaesthetist ay NHS Lothian. His research interest is in delirium and other cognitive disorders.

56 **Abstract**

57 **Purpose:** Postoperative delirium (POD) is a major complication associated with anaesthesia
58 and surgery, more commonly seen in older people. The aims of this study were to explore
59 the knowledge and understanding of anaesthetists and nurses involved in anaesthesia
60 through their responses to two case scenarios of POD experienced by older people.

61 **Methods:** A 30-item online survey was sent to 500 potential respondents.

62 **Findings:** Two hundred and twenty-six practitioners from Australia, New Zealand and
63 Scotland responded. Most had no workplace protocols for anaesthesia planning in older
64 people. There was substantial variability in practice in relation to POD screening, detection,
65 prevention and management.

66 **Conclusion:** Improvements in education and awareness, together with a more coherent
67 approach e.g. as recommended in the European Society of Anaesthesiology Guidelines could
68 help to reduce the impact of POD in older people. This should be combined with ongoing
69 research into perioperative optimisation of detection, prevention and management of post-
70 operative delirium.

71 **Keywords:** Postoperative delirium, anesthesia protocols, older people, survey, cognition,

72

73 1. Introduction and Literature review

74

75 Delirium is perhaps the most common age-related postoperative complication (Mohanty et
76 al., 2016) affecting 13-79% of older people, depending on the population group and type of
77 surgery (Chang et al., 2008; Smith et al., 2017). It was only recently that post-operative
78 delirium (POD) was acknowledged as a major postoperative complication (Igwe et al., 2019;
79 Zenilman, 2017). Postoperative delirium might start in the recovery room and occur up to
80 five days after surgery. In the postoperative care of older people, screening, detection,
81 prevention and management of delirium is critical as delirium can lead to functional decline,
82 increased average length of stay and increased risk of relocation to a nursing home
83 (Dasgupta & Dumbrell, 2006). Patients are less likely to be able to return home and live
84 independently after surgery if they experience POD (Griffiths et al. 2014). Additionally, POD
85 is associated with higher mortality and a prolonged inpatient stay (Griffiths et al., 2014).

86

87 Multiple pre- and postoperative triggers are implicated in POD, including haematocrit less
88 than 30%, hypotension, hypoalbuminaemia, acute infection, pain, and environmental
89 factors such as room changes and absence of a clock or watch (Chang et al., 2008; McCusker
90 et al., 2001; Nie et al., 2012). Established predisposing factors include dementia, aged 65+,
91 other co-morbidities, visual or hearing impairment, and living in a nursing home (Smith et al.,
92 2017). Use of certain medications increase the risk of delirium e.g. anticholinergic drugs.
93 (Egberts et al., 2017). Post-operative delirium presents as hypoactive, hyperactive or as
94 mixed form delirium. In hypoactive POD patients show decreased alertness, motor activity
95 and anhedonia while in hyperactive POD patients are agitated and combative (Aldecoa et
96 al., 2017).

97 Other conditions also present symptoms similar to POD which leads to misdiagnosis. These
98 conditions include dementia, emergence delirium, and postoperative cognitive dysfunction
99 (POCD). POCD is defined as a significant decline in cognitive functions following surgery in
100 comparison to preoperative functions (Sawamura, 2017).

101 A preliminary review of resources targeted at POD within the preoperative clinical protocols
102 from local service providers found that screening, detection, prevention and management
103 of POD in older people was not specifically addressed. Colleagues in our networks confirmed
104 this was not an unexpected finding and a common omission. This is a barrier to
105 implementation of effective POD care for older people. Despite the clinical significance of
106 POD, it is frequently undetected and misdiagnosed as dementia or another psychiatric
107 disorder (Aldecoa et al., 2017; American Geriatrics Society, 2015b). As the number of older
108 people undergoing surgery increases, cases of POD in older people will increase. This
109 highlights the potential increased impact on the use of healthcare resources. It is important
110 to understand current anaesthetic opinions and practices for older people in order to
111 develop services for screening, detection, prevention and management of POD in older
112 people.

113 The POD in older adults best practice statement from the American Geriatrics Society
114 (Samuel, 2015) describes recommendations by an expert panel on best practices in relation
115 to POD in older adults. Some of these recommendations include implementation of formal
116 education programs with ongoing refresher sessions as well as the use of processed
117 electroencephalographic monitors of anaesthetic depth during intravenous sedation or
118 general anaesthesia of older patients to reduce postoperative delirium. Other
119 recommendations include avoidance of polypharmacy (five or more) and medications that

120 induce POD in older adults such as anticholinergic medications, sedative-hypnotics, and
121 meperidine and the use of adequate pain control. In terms of the use of antipsychotics,
122 there is insufficient evidence for or against its use prophylactically in older surgical patients
123 however, it is recommended that in all circumstances, treatment with antipsychotics should
124 only be employed in agitated patients who maybe threatening substantial harm to self or
125 others and only if behavioural interventions have failed or are not possible, and ongoing use
126 should be evaluated daily with in-person examination of patients and not in otherwise calm
127 patients (Samuel, 2015).

128

129 **1.1. Aims**

130 The aims of this study were to explore the knowledge and understanding of anaesthetists
131 and nurses involved in anaesthesia through their responses to two case scenarios of POD
132 experienced by older people. We ascertained whether they used POD guidelines and
133 protocols in these scenarios.

134

135 **1.2. Design**

136 The study was an online survey adapted from a previous study of anaesthetic practitioners
137 (P. K. Jildenstål et al., 2014) which sought to gain insights in Sweden on protocols and
138 practices for risk assessment, detection and management of postoperative cognitive side
139 effects and the use of electroencephalogram (EEG) based depth of anaesthesia monitoring
140 among anaesthesia practitioners. The Swedish survey was made up of three sections,
141 including questions about the subjective preferences of respondents, their anaesthetic
142 routines and practices and their responses to four case scenarios related to postoperative
143 cognitive dysfunction, POD, emergence agitation and awareness.

144 We abbreviated the Swedish survey (P. K. Jildenstål et al., 2014) and adapted it for use with
145 our study population. Face and content validity of the present survey were assessed and
146 established by a multidisciplinary team comprising of an anaesthetist, a medical scientist,
147 three nurses, a pharmacist, and a public health specialist. The face validity was assessed by
148 inviting the above-named group to read through the survey and provided feedback on each
149 question. The content validity was assessed by the research team and other experts in the
150 field. Comments from both the content and face validity were noted, and amendments made
151 to the survey. Some of the questions from the original survey were modified and some were
152 deleted based on these recommendations. Cronbach's Alpha was calculated to determine the
153 reliability of the final questionnaire (0.833).

154

155 The final survey consisted of questions in four sections:

- 156 1. Demographics
- 157 2. Workplace practices and protocols in relation to anaesthesia in older people
- 158 3. Subjective preferences on factors that influence choice of anaesthetic plan for older
159 people; and
- 160 4. Two case scenarios focused on POD (see Table 1).

161

162 There were 30 questions in the survey. Response formats varied depending on the type of
163 question and comprised Likert scales, fixed category responses and free text responses.

164 The study population was defined as practising anaesthetists and anaesthetic nurses. No
165 geographical limits were placed on respondents though promotion of the survey focused on
166 the professional networks of the authors in Australia, New Zealand and Scotland.

167

168 **2. Methods**

169

170 A convenience sample was recruited in Australia, New Zealand and Scotland from a pool of
171 500 anaesthetists and anaesthetic nurses. Due to the potential lack of interest in the topic
172 among the potential participants and a low response rate, convenience sampling was used
173 to enable easier accessibility of potential participants (Etikan et al., 2016).

174 Email invitations to complete the survey were sent to anaesthetists and anaesthetic nurses
175 between September 2016 and March 2017. In Australia, an email invitation was sent to
176 attendees of the 2016 Australian and New Zealand College of Anaesthetists (ANZCA)
177 Perioperative Special Interest Group meeting in association with the Australian and New
178 Zealand Society for Geriatric Medicine (Perioperative Special Interest Group Meeting 2016
179 2016) as well as to the anaesthetic departments of one metropolitan and one regional
180 hospital. In Scotland, nurses and anaesthetists were recruited from 25 of the 29 NHS
181 Scotland Anaesthetic Departments after email invitations to complete the survey were sent
182 to all departments. A convenient sampling method was employed in this study in order to
183 provide a snapshot of current practices in order to inform further research on clinicians'
184 practice in relation to POD care in older patients.

185

186 Data were analysed using IBM SPSS Statistics for Windows, Version 21.0. (IBM Corp.,
187 Armonk, NY, USA). Frequencies and descriptive statistics of respondent characteristics were
188 performed.

189 **Table 1:** Case scenarios presented to participants

CASE SCENARIO 1:

“An 82-year-old sustains a hip fracture and undergoes an emergency surgical procedure. Preoperative oxygen saturation is 88%, blood pressure, 160/100 and pulse 110. She has a fever, is agitated and confused and has difficulties giving clear answers to questions asked of her. Her postoperative pain is relieved with opioids. She develops postoperative delirium.”

CASE SCENARIO 2:

“The patient, who is a former warehouse worker, aged 65, with moderate alcohol consumption and previous coronary artery surgery. The patient also had a minor stroke, but without residual impact. Recently he has undergone surgery for stomach cancer and is now returning four weeks later for a planned follow-up. He was diagnosed with postoperative cognitive dysfunction (POCD). He is upset, angry and sad about the inherent frustration of not being able to plan the day as he had previously been able to. He explains that his memory is short, it fails and that it is taking him time to figure out what he planned to do, or not do. He requires treatment of his cognitive symptoms.”

190

191

192 **3. Results**

193

194 *Respondent characteristics*

195 A total of 226 respondents answered the survey in part or completely giving an estimated
 196 response rate of 45% from the pool of 500 potential participants. The respondents
 197 comprised 19 registered nurses and 198 medical anaesthetists. Demographic and clinical
 198 practice characteristics data of respondents were reported for only valid data (completed
 199 questions) as mean (SD) and number (%) (Table 2).

200

201 **Table 2:** Demographic/characteristics of participants

Demographic of participants	N = 226 (%)
Gender	
Male	115 (52)
Female	106 (48)
Age (mean \pm SD)	42 \pm 10
Position	
Registered Nurse	19 (8.8)
Medical (anaesthetist specialist)	198 (91.2)
Highest academic qualification	
Bachelor's degree	139(62.9)
Post-Graduate certificate	37 (16.7)
Masters	37 (16.7)
PhD	8 (3.62)
Country	
Scotland	128 (58.2)
Australia	79 (35.9)
NZ	13 (5.9)

202

203

204 *Influence on choice of anaesthesia plan and depth of anaesthesia monitoring*

205 More than 80% of the respondents stated that there were no workplace protocols available
206 for anaesthesia plans for older people and 59% do not use clinical guidelines/pathways to
207 inform their clinical practice when anaesthetising older people. Respondents were asked
208 about factors influencing their choice of an anaesthetic plan at the time of preoperative
209 assessment (Table 3). They were also asked whether depth of anaesthesia monitoring
210 equipment is used. Only 65% of respondents used such equipment in the two proposed
211 scenarios.

212

213 *Care of a patient with postoperative delirium (POD) – Case Scenarios 1*

214 Respondents were presented with Case Scenario 1 (Table 1) representing a typical patient
215 with emergent delirium and asked whether they would transfer ‘Case Study 1’ patient to a
216 high dependency unit (HDU) with an increased staffing ratio if symptoms persisted for over
217 2 hours. Sixty-one respondents (61.0%) answered ‘yes’ and 39 (39.0%) answered ‘no’. in
218 addition, ninety-five (82.6%) respondents answered ‘yes’ to using neuroleptics including
219 butyrophenones (haloperidol) while 28 (32.6%) answered ‘yes’ and 58 (67.4%) answered
220 ‘no’, to administering a benzodiazepine such as midazolam when the patient in Case
221 Scenario 1 becomes ‘unsettled’ and displays ‘psychomotor agitation’.

222

223 *Care of a patient with postoperative cognitive disorder (POCD) – Case Scenario 2*

224 Respondents were presented with Case Scenario 2 (Table 1), who was a patient with typical
225 POCD. They were asked to respond to questions about whether in their workplace there

226 was a protocol in relation to POCD available, whether the patient had her cognitive function
 227 formally assessed and whether feedback about the long-term cognitive status of patients is
 228 provided to anaesthetists. Most respondents had no protocol for POCD (n=128, 95.2%) and,
 229 in most instances, patients like the one in Case Scenario 2 do not have their cognitive
 230 function formally assessed using an assessment tool (n=81, 65.3%). Further, most
 231 respondents reported that they would not receive feedback about the longer-term cognitive
 232 status of patients (n=121, 94.5%).

233

234 **Table 3:** Factors influencing the anaesthesia plan at pre-op assessment

Factors	Strongly Agree/Agree	Disagree/ Strongly disagree
Patient's wish	133(97.8%)	3 (2.2%)
Risk of postoperative nausea	134 (97.8%)	3 (2.2%)
Risk of postoperative pain	136(100%)	0(0%)
Risk of postoperative delirium (POD)	120 (84.2%)	16 (11.8%)
Risk of postoperative cognitive dysfunction (POCD)	111 (81.6%)	25(18.4%)
Risk of cardiac events	136 (100%)	0(0%)
Risk of respiratory effects	136 (100%)	0(0%)

235

236

237 4. Discussion

238

239 The findings from this study identified that there is a lack of workplace protocols in use for
240 the management of POD, especially for older people in the clinical areas of the respondents.

241 This study also provides preliminary insights into how the clinical practice of anaesthetists
242 and anaesthetic nurses could be enhanced to reduce and treat POD among older people.

243 The majority of the respondents came from three different countries. Comparing practices
244 across different countries would be a valuable outcome from this study. However, clear
245 international comparisons were not possible due to low numbers from New Zealand (n=13).

246 The findings in this study about the availability of workplace protocols for anaesthesia plans
247 for older people and the use of clinical guidelines/ pathways to inform their clinical practice
248 were similar to a comparable study where 80% had no protocol for anaesthesia plans; 93%
249 were unaware of a protocol for the monitoring and assessment of POD; 59% did not use
250 clinical guidelines/pathways to inform their clinical practice with older people and 89% had
251 no pharmacological intervention protocols for POD in older people (P. K. Jildenstål et al.,
252 2014). Our study yielded comparable findings with respect to the use of clinical protocols for
253 POD.

254

255 Although two major countries were represented in the current survey (Australia and
256 Scotland), clinical practices as shown in the responses were similar and there was no
257 significant difference. Results from this survey showed that at pre-op assessment, 84% of
258 the respondents considered the risk of POD as an important factor that influences their
259 choice of anaesthesia plan. However, this consideration and number does not translate to

260 the development and use of POD protocols within the workplace. This could be due to the
261 lack of consensus on the management of POD using pharmacologic or non-pharmacologic
262 interventions (Hshieh et al., 2015; Tremblay & Gold, 2016). The use of clinical guidelines in
263 anaesthesia plans for older people is important in understanding anaesthetic practice in
264 clinical settings. The absence of workplace guidelines implies that anaesthetists and
265 anaesthetic nurses are either less aware of POD and its associated predictive factors or do
266 not perceive it to be a significant problem. In the clinical setting, complications such as post-
267 operative organ failure or common symptoms, such as pain are considered as important and
268 managed effectively. It is imperative that POD is adequately addressed in a similar manner
269 to other postoperative complications to reduce negative impacts on patient outcomes and
270 improve clinical practices. In addition, routine monitoring of POD needs to be implemented
271 globally (Zenilman, 2017).

272 More than half of the respondents (55%) stated there was no protocol in place to assess for
273 POD. Of the respondents who answered 'yes' to using clinical guidelines/pathways to inform
274 their clinical practice with older people, 30% specified the clinical guideline they used which
275 were made up of 15 publicly available resources. There were local resources, but these were
276 only available to two respondents. A review of the guidelines reported by respondents
277 found that only 4 focused on POD (16%) (White et al.), including three mentions of the
278 Association of Anaesthetists of Great Britain and Ireland (AAGBI) Perioperative Care of the
279 Elderly 2014 publication.

280 Depth of anaesthesia (DOA) monitoring is an important consideration in the detection,
281 prevention and management of POD (P. Jildenstål, 2014) and 65% of respondents used DOA
282 monitoring equipment with general anaesthesia. Dose adjustment in older people is

283 challenging, with overall lower doses being required but also increased variability in
284 outcomes. Thus, relative overdoses and significant hypotension often occur (Griffiths et al.,
285 2014). As a way of mitigating this risk, DOA monitoring is becoming more commonplace, but
286 it is not used universally. Its lack of availability and implementation in some clinical settings
287 was attributed to its high cost (Steiner, 2017).

288 Drugs are a potentially modifiable risk factor for POD. The American Geriatrics society
289 recommends avoiding the use of anticholinergics in older adults who are at an increased risk
290 of delirium because of their potential of inducing or worsening delirium (American Geriatrics
291 Society, 2015a). With respect to drug prophylaxis for delirium, guidelines from the European
292 and American specialist associations specifically discourages the use of prophylactic
293 antipsychotics because of the lack of supportive evidence (Aldecoa et al., 2017; American
294 Geriatrics Society, 2015b; Mohanty et al., 2016). A review of delirium and antipsychotics
295 identified haloperidol as the most frequently used and best studied antipsychotic
296 medication for delirium (Markowitz & Narasimhan, 2008). However, in the US and UK, there
297 is no approval labelling for this indication and the evidence base to guide haloperidol dosing
298 in delirium management is weak (Chew et al., 2008; Fukata et al., 2014; National Institute
299 for Health and Clinical Excellence, 2010). Many of the relevant guidelines for the
300 perioperative management of older people recommend antipsychotics like haloperidol as
301 second-line therapy (AHMAC, 2006; Aldecoa et al., 2017; American Geriatrics Society, 2015b;
302 Mohanty et al., 2016). In the current study, more than 80% of the respondents chose
303 haloperidol as the first-line treatment in a POD scenario. In addition, a higher proportion of
304 respondents did not have a workplace protocol for anaesthesia plans for older people which
305 could explain their first choice of sedation plan. In the absence of a workplace protocol for

306 anaesthesia plans for older people, haloperidol was a first choice in sedating older people
307 with POD (Agar et al., 2017). In the perioperative setting, it is important that these drugs are
308 only used to manage POD when there is no alternative and only if individuals become a
309 danger to themselves (Agar et al., 2017).

310 There are organisational and financial implications as a result of increased average length of
311 stay due to POD for older people. This might be alleviated with improved screening,
312 detection, prevention and management of POD which was shown to reduce hospital stay by
313 a mean of 3.42 days (Naughton et al., 2005). The financial costs associated with increased
314 average length of stay are well recognised (Leslie & Inouye, 2011) as they require a higher
315 proportion of nursing care and other staff resources than is usually provided (Yevchak et al.,
316 2012) which in turn, may impact on quality of care on other patients in the vicinity of
317 individuals with delirium.

318 Limitations of this study include the low response rates to some of the questions and by
319 some groups (anaesthetic nurses) which also meant that analysis by specific groups could
320 not be analysed without the risk of a Type II error (Etikan et al., 2016) as well as making it
321 difficult to generalise study outcome and clinical practice in relation to the nurse populaion. Larger
322 studies would go some way to addressing this issue. In addition, no reliability testing was
323 conducted on the survey. This meant that even though, content and face validity of the
324 survey were completed, the reliability of the questions using a test-retest approach was not
325 conducted. There is also a risk that using non-random sampling method resulted in self-
326 selecting samples with a particular characteristic bias which could limit the generalisability
327 of results. Future studies need to target more countries through relevant professional
328 organisations. Researchers could also take advantage of the recent interest in POCD among

329 anaesthetists with the publication of post-operative care guidelines for delirium in several
330 countries (Aldecoa et al., 2017; American Geriatrics Society, 2015b; Igwe et al., 2019;
331 Steiner, 2017). When this study was commenced, post-operative guidelines for delirium had
332 not gained such a large international profile. There is also the possibility of potential bias
333 created from the wording of the questions. In addition, consultations with clinicians in
334 future studies are imperative in order to ensure questions are appropriate and relevant and
335 thus further reduce bias.

336 **5. Conclusion and further research**

337

338 This paper contributes to the understanding of postoperative delirium POD care for older
339 people. We found a reasonable level of awareness about best practice POD care among the
340 respondents but, at the same time, respondents overwhelmingly agreed with the statement
341 that POD is neglected in anaesthesia. Given that 40% of POD cases are found to be
342 preventable (Aldecoa et al., 2017) we can conclude that being aware of best practice does
343 not necessarily translate into implementation of evidence based strategies to detect,
344 prevent and manage POD. This study identified a major gap in the use of policies to guide
345 best practice POD care. Patient outcomes might be improved by more consistent
346 implementation of protocols, guidelines or pathways to detect, prevent and manage POD.
347 Some of the more commonly used screening tools employed in the detection of POD include
348 the Confusion Assessment Method (CAM) and 4 'A's Test (4AT) (Shenkin et al., 2019). It is
349 imperative that postoperative care by clinicians consistently and incorporate these tools. In
350 addition, collaboration between nurses and anaesthetists is imperative. This collaboration
351 also needs to be extended in a multidisciplinary manner in the pre- and post-care of older
352 surgical patients. The findings from our study demonstrate the need for further knowledge

353 translation research to study how to increase the use of guidelines for POD prevention and
354 management by anaesthetists and anaesthetic nurses.

355

356 **Key points**

357 1. There is limited focus on POD guidelines and anaesthesia planning protocols in
358 surveyed clinical settings

359 2. Older patients are at an increased risk of developing POD with a prevalence of about
360 50% in this group

361 3. There is a lack of awareness and education around POD incidence

362 4. Post-operative delirium (POD) was recently recognised as a major postoperative
363 complication

364

365 **Ethical Permissions**

366 Ethical approval for the study was granted by the relevant Human Research Ethics
367 Committees in Australia. The study was also reviewed by NHS Lothian Research Ethics
368 Committee and by NHS Lothian Research and Development Office. Both agreed that no
369 additional approvals from them were required for the study to be conducted in Scotland as
370 this study was only conducted with staff only.

371

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468 **Table 1:** Case scenarios presented to participants

CASE SCENARIO 1:

“An 82-year-old sustains a hip fracture and undergoes an emergency surgical procedure. Preoperative oxygen saturation is 88%, blood pressure, 160/100 and pulse 110. She has a fever, is agitated and confused and has difficulties giving clear answers to questions asked of her. Her postoperative pain is relieved with opioids. She develops postoperative delirium.”

CASE SCENARIO 2:

“The patient, who is a former warehouse worker, aged 65, with moderate alcohol consumption and previous coronary artery surgery. The patient also had a minor stroke, but without residual impact. Recently he has undergone surgery for stomach cancer and is now returning four weeks later for a planned follow-up. He was diagnosed with postoperative cognitive dysfunction (POCD). He is upset, angry and sad about the inherent frustration of not being able to plan the day as he had previously been able to. He explains that his memory is short, it fails and that it is taking him time to figure out what he planned to do, or not do. He requires treatment of his cognitive symptoms.”

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471 **Table 2:** Demographic/characteristics of participants

Demographic of participants	N = 226 (%)
Gender	
Male	115 (52)
Female	106 (48)
Age (mean \pm SD)	42 \pm 10
Position	
Registered Nurse	19 (8.8)
Medical (anaesthetist specialist)	198 (91.2)
Highest academic qualification	
Bachelor's degree	139(62.9)
Post-Graduate certificate	37 (16.7)
Masters	37 (16.7)
PhD	8 (3.62)
Country	
Scotland	128 (58.2)
Australia	79 (35.9)
NZ	13 (5.9)

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474 **Table 3:** Factors influencing the anaesthesia plan at pre-op assessment

Factors	Strongly Agree/Agree	Disagree/ Strongly disagree
Patient's wish	133(97.8%)	3 (2.2%)
Risk of postoperative nausea	134 (97.8%)	3 (2.2%)
Risk of postoperative pain	136(100%)	0(0%)
Risk of postoperative delirium (POD)	120 (84.2%)	16 (11.8%)
Risk of postoperative cognitive dysfunction (POCD)	111 (81.6%)	25(18.4%)
Risk of cardiac events	136 (100%)	0(0%)
Risk of respiratory effects	136 (100%)	0(0%)

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