NIHR | National Institute for Health and Care Research

Health Technology Assessment

Check for updates

Research Article

Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT

Timothy S Walsh[1*] Richard A Parker[2] Leanne M Aitken[3] Cathrine A McKenzie[4] Robert Glen[5] Christopher J Weir[2] and the A2B Trial Investigators Group

[1]Usher Institute, The University of Edinburgh, Edinburgh, UK
[2]Edinburgh Clinical Trials Unit, Usher Institute, The University of Edinburgh, Edinburgh, UK
[3]City St George's, University of London, London, UK
[4]NIHR Southampton Biomedical Research Centre, Perioperative and Critical Care Theme, University of Southampton, Southampton, UK
[5]Lay Member, Edinburgh, UK

[*]**Corresponding author** timothy.walsh@ed.ac.uk

Published January 2026
DOI: 10.3310/GJTW2718

Abstract

Background: Optimising comfort and ability to communicate for mechanically ventilated intensive care unit patients is a priority for clinicians, intensive care unit patients and their relatives. Current usual care is propofol-based sedation plus an opioid analgesic. The alpha2-agonists dexmedetomidine and clonidine are potential alternative sedatives.

Objective(s): To explore whether nurses and relatives perceive patients sedated with dexmedetomidine and/or clonidine appear more awake, comfortable and co-operative than patients receiving only propofol-based sedation.

Design and methods: Substudy within an open-label, three-arm trial.

Setting and participants: Forty-one intensive care units in the United Kingdom. One thousand four hundred and thirty-seven adults receiving propofol ± opioid for sedation-analgesia within 48 hours of starting mechanical ventilation, expected to require ≥ 48 total hours of mechanical ventilation.

Interventions: Light sedation was targeted in all patients unless clinicians requested deeper sedation. In intervention groups, algorithms promoted alpha2-agonist up-titration and propofol down-titration, followed by sedation primarily with allocated alpha2-agonist. Usual care was propofol-based sedation. Intervention continued until patients were successfully extubated (primary outcome), or other pre-defined end points.

Outcomes For each 12-hour care period, nurses responded to two 'yes/no' questions: *is the patient able to communicate pain? Is the patient able to co-operate with care?* When the patients' personal legal representative visited, they were asked for 'yes/no' responses to three questions: *does the patient appear awake? Does the patient appear comfortable? Does the visitor feel they can communicate with the patient?*

Intervention versus propofol group responses were compared fitting a generalised linear mixed model, with results expressed as odds ratios (95% confidence intervals); odds ratios > 1 indicated greater probability of a 'yes' response.

Results: Nurse responses were available for > 90% of trial patients [mean (standard deviation) 12 (12) care periods per patient]. Comparing dexmedetomidine versus propofol groups, the odds ratio for a 'yes' response to '*communicate pain*' was 1.38 (95% confidence interval 1.08 to 1.75), and for clonidine versus propofol, it was 1.13 (0.89 to 1.43). For '*co-operate with care*' comparing dexmedetomidine versus propofol groups, the odds ratio was 1.14 (95% confidence interval 0.98 to 1.32), and for clonidine versus propofol, it was 0.96 (95% confidence interval 0.83 to 1.12). Relative responses were available for 32–34% of trial patients across groups [mean (standard deviation) 3 (3) days per patient]. For the '*appear awake*' question, the dexmedetomidine versus propofol group odds ratio was 1.48 (95% confidence interval 1.04 to 2.10), and for clonidine versus propofol, it was 1.35 (95% confidence interval 0.95 to 1.91). For '*appear comfortable*', the dexmedetomidine versus propofol group odds ratio was 0.64 (95% confidence interval 0.38

This article should be referenced as follows:
Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

to 1.09), and for clonidine versus propofol, it was 0.78 (95% confidence interval 0.45 to 1.34). For the '*feel they can communicate*' comparison, the dexmedetomidine versus propofol group odds ratio was 1.00 (95% confidence interval 0.68 to 1.47), and for clonidine versus propofol, it was 1.05 (95% confidence interval 0.71 to 1.54).
Limitations: Interventions were unblinded, with risk of bias; missing data may not have been at random.
Conclusions: Nurses perceived patients receiving dexmedetomidine-based sedation could better communicate pain than with propofol-based sedation, and relatives perceived patients appeared more awake. No differences for the other questions were found, or for the clonidine versus propofol comparisons, although some uncertainty remains due to the wide confidence intervals.
Future work: Additional mixed-methods research of sedation quality with different agents from staff and relative perspectives.
Funding: This article presents independent research funded by the National Institute for Health and Care Research (NIHR) Health Technology Assessment programme as award number 16/93/01.
A plain language summary of this research article is available on the NIHR Journals Library Website https://doi.org/10.3310/GJTW2718.

Background

Achieving comfort, analgesia and enabling communication with intensive care unit (ICU) patients is a goal of optimum sedation.[1] The views of staff and relatives regarding the overall comfort of patients and their ability to co-operate with care have not previously been studied in trials of ICU sedation. Protocols to guide pain, agitation and delirium management typically use validated rating scales completed by bedside staff, such as the Richmond Agitation–Sedation Scale (RASS),[2] Confusion Assessment Method for the ICU (CAM-ICU)[3] and Behavioural Pain Scale.[4] These categorise patient status in order to prompt changes in treatment rather than reflecting the views of staff and relatives. Many patients recall pain, anxiety and discomfort following ICU discharge, with a high prevalence of frightening memories and long-term psychological morbidity.[5,6] The need for more holistic approaches to ensuring patient comfort has been highlighted by consensus groups and guidelines.[1,7]

The Alpha 2 agonists for sedation to produce Better outcomes from critical illness (A2B) trial was a randomised trial comparing ICU sedation based on propofol, dexmedetomidine or clonidine for patients expected to require more than 48 hours of mechanical ventilation (MV).[8] The main results of the trial have been reported elsewhere.[9] Briefly, neither dexmedetomidine- nor clonidine-based sedation decreased the primary outcome of time to successful extubation. Among secondary outcomes, neither alpha2-agonist improved rates of delirium, unnecessary deep sedation or pain behaviours, but both were associated with higher rates of patient agitation. Within the trial, we undertook a pre-planned exploration of the views of bedside nurses and relatives visiting patients regarding their perceptions of patient comfort and communication while receiving sedation with the allocated trial interventions. We hypothesised that nurses and relatives would perceive that the patients sedated with dexmedetomidine and/or clonidine were more awake, comfortable and co-operative than patients receiving only propofol-based sedation. We report here the results of this analysis.

Methods

The A2B trial overview

The A2B trial protocol has been published.[8] Briefly, eligible patients were receiving MV in the ICU, aged ≥ 18 years, and were within 48 hours of starting MV and sedated with propofol. At randomisation, they were expected to require a further 24 hours of MV and a total of ≥ 48 hours. Exclusion criteria included: acute brain injury, neuromuscular paralysis, bradycardia < 50 beats per minute for ≥ 60 minutes and patients not expected to survive a further 24 hours. Randomisation used a remote web-based system, allocating in a 1 : 1 : 1 ratio to the three groups using permuted blocks stratified by centre. Intervention group patients commenced intravenous infusion of open-label drug using a weight-based dose regimen within 2 hours post randomisation. Bedside nurses used group-specific algorithms to up-titrate alpha2-agonist and down-titrate propofol to transition patients to receive the allocated alpha2-agonist, with the aim of alpha2-agonist-based sedation, supplemented with propofol if required. Usual care (UC) was propofol-based sedation without specific dose-guidance. For all groups, bedside algorithms indicated a sedation target RASS score of −2 to + 1 [range: −5 (unresponsive) to + 4 (combative)], unless responsible clinicians requested deeper sedation for therapeutic reasons. The choice and dosing of opioid for analgesia were determined by the clinical team according to UC and clinical judgement. For the majority of patients, this was either fentanyl or alfentanil according to local prescribing policies. Other sedatives were discouraged and recorded as 'rescue medications', if required. Interventions continued until the patient was successfully extubated,

died during MV, was transferred before extubation to a non-participating ICU or until the end of 28 days of MV.

Ethical approval

The A2B trial received ethical approval from the Scotland A Research Ethics Committee (REC) (reference 18/SS/0085) on 21 August 2018. This exploratory analysis was part of the main protocol, and the relevant outcomes were included in the pre-specified statistical analysis plan.[10] Ethical approval allowed any clinical nurse providing care during the trial to participate without additional written consent. For relatives, ethical approval was provided for the Personal Legal Representative (PerLegR), who had provided written consent for participation in the trial, usually the next-of-kin, to be approached to provide responses when they visited the patient. Assessments of relatives' views were, therefore, always the same individual for each patient. As the A2B trial included a deferred consent model when relatives were unavailable 2 hours after confirming eligibility, the PerLegR might have provided consent after starting the intervention.

Assessment and data collection

All patients were assessed while receiving their allocated sedation intervention from randomisation until either primary outcome (successful extubation), death prior to primary outcome, transfer to another ICU before extubation or 28 days post randomisation without achieving the primary outcome. Caring nurse data collection was based on 12-hour nursing shifts. The nurse was asked to complete a 'nursing shift' form that included: whether a clinical request for deep sedation was made; regular RASS scores (suggested 4 hourly); a CAM-ICU score (once per shift); and assessments of two behavioural pain ratings based on ventilator compliance and upper limb movement. These outcomes contributed to outcomes reported for the main trial publication. At the end of each nursing care period ('day shift' and 'night shift'), nurses were also asked to respond to two binary 'yes/no' questions about their view of the patient's comfort and co-operation during that shift, namely: *is the patient able to communicate pain*? And, *is the patient able to co-operate with care?*

For relative assessments, when the PerLegR visited and agreed to provide an opinion, they were asked to provide the caring nurse with a binary 'yes/no' response to three questions, namely: *does the patient appear awake to the visitor? Does the patient appear comfortable to the visitor?* And, *does the visitor feel they can communicate with the patient?* The bedside nurse recorded responses on the daily shift forms. Data recorded on daily shift forms were entered onto the trial database by local research staff.

Patient and public involvement

The decision to include the views of visiting relatives was strongly supported by a patient and public involvement (PPI) group who helped develop the trial funding proposal and subsequently contributed to protocol design. The choice and wording of questions put to relatives was informed by a group of ICU survivors and their relatives. A lay co-applicant, Bob Glen, was part of the Trial Management Group throughout the trial and reviewed information materials. An independent PPI representative was a member of the Trial Steering Committee. Glen reviewed and approved the final manuscript, and is a coauthor.

Equality, diversity and inclusion

The trial inclusion/exclusion criteria had no limitations based on gender, LGBTQ preference, ethnicity, social status or geographical location. Children were excluded but are usually managed in different ICUs from adults, experience a different spectrum of illness and are typically studied in paediatric-centric ICU trials.

Blinding

Clinical staff were not blinded to group allocation, as they were managing sedation and titrating the allocated sedatives. Relatives were not formally blinded as part of the trial. We did not record whether relatives had asked or been told which group the patient was allocated to.

Trial registration

This trial is registered as ClinicalTrials.gov NCT03653832.

Analysis

Analysis population

The analysis population comprised all randomised patients in whom nursing and/or relative responses were recorded at least once during the intervention period (and who were not excluded for another reason from the pre-defined overall trial analysis population).[9] We described the numbers of patients in whom data were available and the mean [standard deviation (SD)] number of days on which responses were available from nurses and from relatives.

Statistical analyses

Baseline characteristics for patients included in the trial have been published previously.[9] For the present analysis, we summarised relevant baseline data for those patients included in the analysis of nursing responses and visiting relative responses. We calculated the mean (SD) numbers of days with available data for each question, and mean

This article should be referenced as follows:
Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

(SD) proportion of care periods with 'yes' responses to the questions.

We analysed outcomes by fitting a generalised linear mixed model with a logit link function, using all available data. Site was included as a random effect in the model and treatment group as a fixed effect. For these outcomes, which were measured in multiple care periods, a random effect for participant (nested within site) was also included. Results were expressed as the odds ratio (OR) for each of dexmedetomidine and clonidine versus propofol-based sedation, with corresponding 95% confidence interval (CI). A higher OR indicated a greater probability of a 'yes' response to the question analysed.

We recognised that these assessments were most relevant when the patient was either not comatose due to their illness, or concurrent sedation level during the nursing shift was at RASS −3 or higher, indicating patients who were not comatose. In sensitivity analysis, we, therefore, summarised data when the highest RASS score during the concurrent nursing shift was −3 or higher, and repeated the same generalised linear mixed-model analysis restricted to responses for nursing shifts in which a RASS score of −3 or above was recorded.

All analyses were undertaken using SAS version 9.4 (SAS Institute Inc., Cary, NC, USA).

Results

From December 2018 to October 2023, we randomised 1438 patients in 41 ICUs in the UK. One patient was randomised twice in error. The predefined overall trial analysis population comprised 1404 patients allocated to receive propofol (*N* = 471), dexmedetomidine (*N* = 457) or clonidine (*N* = 476) as primary sedative. The numbers of patients and proportions of the overall analysis population in whom data were available for this analysis are summarised in *Table 1*.

A summary of baseline characteristics for the populations analysed is shown in *Table 2*. Patients included in both the bedside nurse assessments and visiting relative assessments were similar to the published overall trial population. There were no clinically relevant differences between the three groups, or between the subgroup for whom visiting relative assessments were available compared with bedside nursing assessments.

Bedside nurse response to questions

A summary of the bedside nurse responses to the questions is shown in *Table 3*.

'*Is the patient able to communicate pain?*' The mean proportion of days with 'yes' response was: dexmedetomidine 39%, clonidine 35% and propofol 33%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 1.38 (95% CI 1.08 to 1.75); for the clonidine with propofol group comparison, the OR for a 'yes' response was 1.13 (95% CI 0.89 to 1.43). Restricting the analysis to days with RASS −3 or above, the mean proportion of days was: dexmedetomidine 44%, clonidine 40% and propofol 37%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was: 1.37 (95% CI 1.07 to 1.74); for the clonidine with propofol group comparison, the OR for a 'yes' response was 1.09 (95% CI 0.86 to 1.38).

'*Is the patient able to co-operate with care?*' The mean proportion of days was: dexmedetomidine 42%,

TABLE 1 Proportion of patients in the overall trial analysis population contributing data to each of the bedside nurse and visiting relative questions

Question	Proportion of analysis population (number)		
	Propofol	Dexmedetomidine	Clonidine
Bedside nurse			
Is the patient able to communicate pain?	97% (457)	94% (430)	95% (452)
Is the patient able to co-operate with care	93% (438)	90% (413)	92% (438)
Visiting relative			
Does the patient appear awake to the visitor?	34% (162)	32% (148)	34% (164)
Does the patient appear comfortable to the visitor?	33% (156)	32% (147)	34% (160)
Does the visitor feel they can communicate with the patient?'	33% (157)	33% (150)	33% (158)

TABLE 2 Comparison of patients' baseline characteristics for the patients in whom: bedside nurse assessments of patients' comfort and communication were recorded, and visiting relative assessments of comfort and ability to communicate were recorded

Variable	Bedside nurse assessments			
	Dexmedetomidine group (*N* = 456)	**Clonidine group (*N* = 476)**	**Propofol (*N* = 471)**	**Overall cohort (*N* = 1403)**
Mean age (SD)	59 (15)	60 (15)	60 (15)	60 (15)
Male number (%)	283 (66)	297 (66)	295 (65)	875 (65)
Admission APACHE II score mean (SD)	20 (8)	20 (8)	21 (9)	20 (8)
Admission FCI mean (SD)	1.6 (1.5)	1.7 (1.4)	1.6 (1.5)	1.6 (1.4)
Sepsis at baseline number (%)	282 (66)	296 (66)	300 (66)	878 (66)
Diagnostic category number (%)				
Medical	268 (62)	270 (60)	285 (62)	823 (62)
Surgical	130 (30)	140 (31)	141 (31)	411 (31)
Unavailable	32 (7)	42 (9)	31 (7)	105 (8)
	Visiting relative assessments			
	Dexmedetomidine group (*N* = 153)	**Clonidine group (*N* = 168)**	**Propofol (*N* = 164)**	**Overall cohort (*N* = 485)**
Mean age (SD)	60 (14)	61 (14)	60 (15)	60 (15)
Male number (%)	95 (62)	100 (60)	108 (66)	303 (63)
Admission APACHE II score mean (SD)	20 (9)	20 (7)	21 (8)	20 (8)
Admission FCI mean (SD)	1.7 (1.5)	1.9 (1.4)	1.6 (1.5)	1.7 (1.5)
Sepsis at baseline number (%)	104 (68)	111 (66)	114 (70)	329 (68)
Diagnostic category number (%)				
Medical	103 (67)	105 (63)	110 (67)	318 (66)
Surgical	41 (27)	52 (31)	43 (26)	136 (28)
Unavailable	9 (6)	11 (7)	11 (7)	31 (6)

APACHE II, Acute Physiology and Chronic Health Evaluation; FCI, Functional Comorbidity Index.

clonidine 38% and propofol 38%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 1.14 (95% CI 0.98 to 1.32); for the clonidine with propofol group comparison, the OR for a 'yes' response was 0.96 (95% CI 0.83 to 1.12). Restricting the analysis to days with RASS −3 or above, the mean proportion of days was: dexmedetomidine 46%, clonidine 42% and propofol 42%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 1.11 (95% CI 0.95 to 1.30); for the clonidine with propofol group comparison, the OR for a 'yes' response was 0.94 (95% CI 0.80 to 1.09).

Visiting relative responses to questions

A summary of the visiting relative responses to the questions is shown in *Table 4*.

'*Does the patient appear awake to the visitor?*' The mean proportion of days was: dexmedetomidine 53%, clonidine 50% and propofol 44%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 1.48 (95% CI 1.04 to 2.10); for the clonidine with propofol group comparison, the OR for a 'yes' response was 1.35 (95% CI 0.95 to 1.91). Restricting the analysis to days with RASS −3 or above, the mean proportion of days was: dexmedetomidine 56%, clonidine 54% and propofol 49%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 1.31 (95% CI 0.93 to 1.85); for the clonidine with propofol group comparison, the OR for a 'yes' response was 1.25 (95% CI 0.89 to 1.77).

'*Does the patient appear comfortable to the visitor?*' The mean proportion of days was: dexmedetomidine

This article should be referenced as follows:
Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

NIHR Journals Library www.journalslibrary.nihr.ac.uk

DOI: 10.3310/GJTW2718

TABLE 3 Bedside nurses' assessments of ability to communicate pain and co-operate with care

Outcome	All available care periods included				Care periods restricted to RASS score −3 or greater			
Ability to communicate pain	**Dexmedetomidine (*N* = 430)**	**Clonidine (*N* = 452)**	**Propofol (*N* = 457)**	**Overall (*N* = 1339)**	**Dexmedetomidine (*N* = 418)**	**Clonidine (*N* = 434)**	**Propofol (*N* = 439)**	**Overall (*N* = 1291)**
Number of care periods for which patient was able to communicate pain – number (percentage)	319 (74)	315 (70)	313 (69)	947 (71)	316 (76)	313 (72)	309 (70)	938 (73)
Number of care periods per patient during follow-up, for which communication of pain data were available – mean (SD)	12 (12)	12 (11)	12 (12)	12 (12)	10 (10)	11 (11)	11 (11)	10 (11)
Number of care periods per patient during follow-up, for which patient able to communicate pain – mean (SD)	5 (8)	4 (7)	4 (8)	5 (7)	5 (8)	4 (7)	5 (8)	5 (7)
Percentage of care periods per patient during follow-up, for which patient was able to communicate pain – mean (SD)	39% (35)	35% (33)	33% (33)	36% (34)	44% (36)	40% (35)	37% (35)	40% (35)
Ability to co-operate with care	**Dexmedetomidine (*N* = 413)**	**Clonidine (*N* = 438)**	**Propofol (*N* = 438)**	**Overall (*N* = 1289)**	**Dexmedetomidine (*N* = 401)**	**Clonidine (*N* = 419)**	**Propofol (*N* = 420)**	**Overall (*N* = 1240)**
Number of care periods for which patient was able to co-operate with care – number (percentage)	329 (80)	325 (74)	329 (75)	983 (76)	319 (80)	319 (76)	319 (76)	957 (77)
Number of care periods per patient during follow-up, for which co-operation with care data were available – mean (SD)	11 (10)	11 (11)	11 (11)	11 (10)	9 (9)	10 (10)	9 (10)	9 (10)
Number of care periods per patient during follow-up, for which patient was able to co-operate with care – mean (SD)	5 (7)	4 (7)	5 (7)	5 (7)	5 (6)	4 (7)	5 (7)	5 (7)
Percentage of care periods per patient during follow-up, for which patient was able to co-operate with care – mean (SD)	42% (33)	38% (33)	38% (33)	39% (33)	46% (35)	42% (34)	42% (34)	43% (34)

TABLE 4 Visiting relative assessments of whether patient appears awake or seems comfortable and whether they feel able to communicate with patient

Outcome	All available days included				Days restricted to RASS score −3 or greater			
Patient appears awake to the visiting relative	**Dexmedetomidine (*N* = 148)**	**Clonidine (*N* = 164)**	**Propofol (*N* = 162)**	**Overall (*N* = 474)**	**Dexmedetomidine (*N* = 144)**	**Clonidine (*N* = 158)**	**Propofol (*N* = 151)**	**Overall (*N* = 453)**
Number of days recorded on which patient appeared awake to the visitor – number (percentage)	109 (74)	108 (66)	100 (62)	317 (67)	107 (74)	108 (68)	99 (66)	314 (69)
Number of days during follow-up, for which data available regarding whether patient appears awake to the visiting relative – mean (SD)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)
Number of days during follow-up on which patient appears awake to the visiting relative – mean (SD)	2 (2)	2 (2)	1 (2)	2 (2)	2 (2)	2 (2)	2 (2)	2 (2)
Percentage of days during follow-up, for which patient appears awake to the visiting relative – mean (SD)	53% (40)	50% (42)	44% (41)	49% (41)	56% (40)	54% (42)	49% (41)	53% (41)
Patient seems comfortable to the visitor	**Dexmedetomidine (*N* = 147)**	**Clonidine (*N* = 160)**	**Propofol (*N* = 156)**	**Overall (*N* = 463)**	**Dexmedetomidine (*N* = 143)**	**Clonidine (*N* = 154)**	**Propofol (*N* = 145)**	**Overall (*N* = 442)**
Number of days recorded on which patient appeared comfortable to the visitor – number (percentage)	140 (95)	153 (96)	152 (97)	445 (96)	137 (96)	148 (96)	141 (97)	426 (96)
Number of days during follow-up, for which data available regarding whether patient appears comfortable to the visiting relative – mean (SD)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)	3 (3)
Number of days during follow-up on which patient appeared comfortable to the visitor – mean (SD)	3 (2)	3 (3)	3 (3)	3 (3)	3 (2)	2 (3)	3 (3)	3 (3)
Percentage of days during follow-up on which patient appeared comfortable to the visitor – mean (SD)	88% (26)	90% (24)	93% (19)	90% (23)	89% (25)	91% (23)	93% (20)	91% (23)
Visiting relative feels they can communicate with the patient	**Dexmedetomidine (*N* = 150)**	**Clonidine (*N* = 158)**	**Propofol (*N* = 157)**	**Overall (*N* = 465)**	**Dexmedetomidine (*N* = 146)**	**Clonidine (*N* = 151)**	**Propofol (*N* = 147)**	**Overall (*N* = 444)**
Number of days for which the visitor feels they can communicate with the patient – number (percentage)	107 (71)	102 (65)	104 (66)	313 (67)	107 (73)	100 (66)	102 (69)	309 (70)
Number of days during follow-up, for which data available regarding whether relative feels able to communicate with patient – mean (SD)	3 (3)	3 (3)	3 (3)	3 (3)	3 (2)	3 (3)	3 (3)	3 (3)
Number of days during follow-up for which the visitor feels they can communicate with the patient – mean (SD)	2 (2)	2 (2)	2 (3)	2 (2)	2 (2)	2 (2)	2 (3)	2 (2)
Percentage of days during follow-up, for which the visitor feels they can communicate with the patient – mean (SD)	54% (41)	52% (44)	52% (42)	52% (42)	56% (41)	54% (44)	57% (43)	56% (42)

This article should be referenced as follows: Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

88%, clonidine 90% and propofol 93%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 0.64 (95% CI 0.38 to 1.09); for the clonidine with propofol group comparison, the OR for a 'yes' response was 0.78 (95% CI 0.45 to 1.34). Restricting the analysis to days with RASS −3 or above, the mean proportion of days was: dexmedetomidine 89%, clonidine 91% and propofol 93%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 0.58 (95% CI 0.33 to 1.02); for the clonidine with propofol group comparison, the OR for a 'yes' response was 0.70 (95% CI 0.39 to 1.25).

'*Does the visitor feel they can communicate with the patient?*' The mean proportion of days was: dexmedetomidine 54%, clonidine 52% and propofol 52%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 1.00 (95% CI 0.68 to 1.47); for the clonidine with propofol group comparison, the OR for a 'yes' response was 1.05 (95% CI 0.71 to 1.54). Restricting the analysis to days with RASS −3 or above, the mean proportion of days was: dexmedetomidine 56%, clonidine 54% and propofol 57%. Comparing the dexmedetomidine with propofol group, the OR for a 'yes' response was 0.87 (95% CI 0.59 to 1.30); for the clonidine with propofol group comparison, the OR for a 'yes' response was 0.96 (95% CI 0.64 to 1.42).

Discussion

In this preplanned analysis of the A2B trial,[9] we found that, overall, bedside nurses felt patients were able to communicate pain in a mean 36% of care periods. Comparing each alpha2-agonist to propofol-based sedation, dexmedetomidine was associated with greater probability of being able to communicate pain; the probability for clonidine was similar to propofol-based sedation. Overall, bedside nurses felt patients were able to co-operate with care for a mean 39% of care periods, with no significant differences between either dexmedetomidine or clonidine and propofol. Overall, visiting relatives felt patients appeared awake for a mean of 49% of days they visited. Comparison of dexmedetomidine and clonidine to propofol-based sedation suggested effects that favoured both alpha2-agonists compared with propofol, but the CI only excluded a null effect for the dexmedetomidine to propofol comparison. Relatives felt patients appeared comfortable for a mean of 90% of days they visited. There were no marked differences between groups, but the observed effects and CIs indicated a trend towards greater perceived comfort with propofol. Finally, relatives felt they could communicate with patients on a mean of 52% of days they visited, with no apparent differences between the groups.

To our knowledge, this is the first exploration of nurses' and relatives' perceptions of patient comfort and ability to communicate during ICU sedation. Embedding this substudy within a randomised trial enabled direct comparison between sedation with the three strategies. The proportion of trial patients (> 90%) and numbers of care periods with data (mean 11–12 care periods, equating to 6 days) was high for the bedside nurse responses. Given the study occurred in 41 ICUs over 5 years, with data recorded by nurses providing clinical care, it is likely that several thousand different nurses contributed opinions. The study, therefore, has high validity for representing nurse opinions, based on the questions asked. Approximately, a third of patients had opinions from visiting relatives, and for a smaller number of days per patient (mean 3 days). The smaller sample resulted from several factors. First, the ethics committee approval only allowed the relative who had provided consent for each participant in the trial to provide views, which restricted data to days on which they visited. Second, the COVID-19 pandemic had an extended effect on relative visiting behaviours during much of the trial. Despite this, we obtained views from 474 different relatives distributed evenly across the three groups. The patients in whom relative responses were available had similar baseline characteristics to the overall trial cohort, suggesting inclusion bias was unlikely.

Guidelines recommend the clinical assessment of sedation state, pain status and cognition using validated scales designed to have high discriminative ability and inter-rater consistency.[7] As such, they do not reflect nurses' personal views and nurse preferences. These can be discordant with guidelines, for example, in relation to performing sedation breaks and/or maintaining wakefulness, and because of concerns about patient comfort, distress and safety.[11–13] Factors such as personal beliefs and previous experiences, for example, adverse events, are also potentially important,[11–14] and practices such as increasing overnight sedation to promote sleep and safety are common.[15] Our approach sought nurse and relative views based on their personal opinion, providing novel insights into sedation quality from these perspectives. This is relevant to understanding sedation practice and clinician preferences, given the complex interplay of factors involved in sedation delivery.[11,14]

Dexmedetomidine aims to achieve light sedation where patients are readily roused, more co-operative, and interactive when stimulated.[7] This may be mediated by clearer cognition and reduced delirium.[16–18] Analgesic

properties also potentially contribute to patient comfort. These benefits underpinned our hypothesis that nurse and relative views would demonstrate superiority compared with propofol. In the A2B trial, patients first achieved the target RASS of −2 after a median 24 hours in all three groups, and on around 75% of intervention days, demonstrating that attempts were made to maintain light sedation.[9] This was also reflected in the high proportion of care periods available for analyses restricted to RASS score −3 or greater. Our findings are consistent with the proposed benefits of dexmedetomidine in relation to nurse communication and relative perceptions of wakefulness, although CIs were wide. The lesser effect with clonidine is consistent with its much lower alpha2-receptor selectivity. In the trial, we found no differences between the groups in rates of unnecessary deep sedation, delirium or pain behaviours, but agitation occurred at a 50% higher rate in both alpha2-agonist groups compared with propofol.[9] This might explain why nurses reported no significant differences in the ability to co-operate with care, and relatives reported no significant differences in perceived ability to communicate. Relative assessment of comfort may have had a ceiling effect, as mean proportions were 88–93% across the groups. The trend to greater perception of comfort with propofol compared to both alpha2-agonists was unexpected, but might be explained by the greater agitation rates with alpha2-agonists. For all questions, the CIs from the modelling included a wide range of potentially important differences between the groups, perhaps reflecting the sample size available for analysis, diversity of views from nurses and relatives, and differences between individual patients.

Strengths of this substudy include the randomised design, large sample size especially for the nurse data, and pragmatic real-world context. Patients were also closely involved throughout the design, data collection, analysis and interpretation of the data. Our analytic approach included modelling that maximised use of available data with adjustment for site and multiple observations within participants. However, our study has limitations. Data were not available every day, with only a third of patients contributing relative data. The populations with data were similar to the overall trial, but we cannot exclude some inclusion or response bias. Group allocation was not blinded, which might have influenced subjective responses, especially among bedside nurses. Although sedation was randomised, most patients in the alpha2-agonist groups also received some propofol, at around a third of UC dose, which meant the responses did not reflect sedation with alpha2-agonists alone in most cases. The majority of patients also received opioid infusions at the discretion of clinical teams.

Future research should further investigate the differences in perceived sedation quality from carer and relative perspective with different drugs and sedation strategies, potentially using opinion-based tools as in this study and/or qualitative methods. To investigate whether differences translate into improvements in clinical or patient-centred outcomes, the relationship between improved communication or wakefulness and changes in care decisions (e.g. earlier weaning or mobilisation) or family satisfaction could be explored.

In conclusion, although the A2B trial found no significant differences in objective measures of sedation status (RASS score), delirium (CAM-ICU scores) or pain behaviours, this substudy suggested that nurses may perceive patients receiving dexmedetomidine as better able to communicate pain compared with propofol. There did not appear to be perceived differences in ability to co-operate with care for either alpha2-agonist versus propofol. Visiting relatives perceived patients appeared more awake with dexmedetomidine compared with propofol. Perceptions of comfort and ability to communicate were not notably different between groups, although CIs did not rule out large effect sizes. Given the primary and other key clinical outcomes in the A2B trial were not superior with dexmedetomidine or clonidine compared to propofol, the implications of these findings for optimising ICU sedation are uncertain and reflect the complexity of ICU sedation practice.

Additional information

CRediT contribution statement

Timothy S Walsh (https://orcid.org/0000-0002-3590-8540): Conceptualisation (lead), Formal analysis (supporting), Funding acquisition (lead), Investigation (equal), Methodology (equal), Administration (equal), Supervision (lead), Visualisation (equal), Writing – original draft (lead), Writing – reviewing and editing (equal).

Richard A Parker (https://orcid.org/0000-0002-2658-5022): Data curation (equal), Formal analysis (lead), Investigation (supporting), Methodology (equal), Software (lead), Validation (lead), Visualisation (equal), Writing – reviewing and editing (equal).

Leanne M Aitken (https://orcid.org/0000-0001-5722-9090): Conceptualisation (supporting), Funding acquisition (supporting), Investigation (supporting), Methodology (supporting), Administration (supporting), Supervision (supporting), Visualisation (equal), Writing – reviewing and editing (equal).

This article should be referenced as follows:
Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

Cathrine A McKenzie (https://orcid.org/0000-0002-5190-9711): Conceptualisation (supporting), Funding acquisition (supporting), Investigation (supporting), Supervision (supporting), Visualisation (equal), Writing – reviewing and editing (equal).

Robert Glen (https://orcid.org/0009-0007-6001-8578): Conceptualisation (supporting), Funding acquisition (supporting), Investigation (supporting), Visualisation (equal), Writing – reviewing and editing (equal).

Christopher J Weir (https://orcid.org/0000-0002-6494-4903): Conceptualisation (supporting), Data curation (supporting), Formal analysis (lead), Funding acquisition (supporting), Investigation (supporting), Methodology (lead), Administration (supporting), Software (supporting), Supervision (supporting), Validation (lead), Writing – reviewing and editing (equal).

Acknowledgements

The A2B trial investigators, who all contributed to the data presented in this analysis, are listed in *Appendix 1*.

Patient data statement

This work uses data provided by patients and collected by the NHS as part of their care and support. Using patient data is vital to improve health and care for everyone. There is huge potential to make better use of information from people's patient records, to understand more about disease, develop new treatments, monitor safety, and plan NHS services. Patient data should be kept safe and secure, to protect everyone's privacy, and it is important that there are safeguards to make sure that they are stored and used responsibly. Everyone should be able to find out about how patient data are used. #datasaveslives You can find out more about the background to this citation here: https://understandingpatientdata.org.uk/data-citation

Data-sharing statement

De-identified participant data will be made available to researchers if their proposal for use is within the agreed uses for which participants provided consent, the proposal is approved by the trial team, and any agreements are in place for data-sharing. A data dictionary for the trial data will be made available. All data requests should be submitted to the corresponding author for consideration. Access to anonymised data may be granted following review.

Ethics statement

The A2B trial received ethical approval from the Scotland A REC (18/SS/0085) on 21 August 2018.

Information governance statement

The University of Edinburgh an NHS Lothian (cosponsors) are committed to handling all personal information in line with the UK Data Protection Act (2018) and the General Data Protection Regulation (EU GDPR) 2016/679. Under the Data Protection legislation, the University of Edinburgh is the Data Controller, and you can find out more about how we handle personal data, including how to exercise your individual rights and the contact details for our Data Protection Officer, here (https://data-protection.ed.ac.uk/contact). The University of Edinburgh is also the Data Processor.

Disclosure of interests

Full disclosure of interests: Completed ICMJE forms for all authors, including all related interests, are available in the toolkit on the NIHR Journals Library report publication page at https://doi.org/10.3310/GJTW2718.

Primary conflicts of interest: Timothy S Walsh declares receiving a grant from NIHR EME Board as a co-applicant and a grant from NIHR Programme Board as a co-applicant. Neither grant related to this work, and funding was to the University of Edinburgh.

Richard A Parker declares membership of the HS&DR Board (31 July 2013–31 May 2018).

Cathrine A McKenzie declares being in receipt of an NIHR Senior Clinical Practitioner Research Award, and an NIHR Wessex Applied Research Collaborative Research Enhancement Award.

Christopher J Weir declares membership of several boards: HS&DR Commissioned – Board Member (31 July 2013–1 March 2016); HS&DR Commissioned R&R (Bird) Sub Board (31 July 2013–1 May 2016); HS&DR Funding Committee Member (31 July 2013–31 January 2018); and EME – Funding Committee Member (1 July 2018–1 July 2022).

Department of Health and Social Care disclaimer

This publication presents independent research commissioned by the National Institute for Health and Care Research (NIHR). The views and opinions expressed by authors in this publication are those of the authors and do not necessarily reflect those of the NHS, the NIHR, MRC, NIHR Coordinating Centre, the Health Technology Assessment programme or the Department of Health and Social Care.

This article was published based on current knowledge at the time and date of publication. NIHR is committed to being inclusive and will continually monitor best practice and guidance in relation to terminology and language to ensure that we remain relevant to our stakeholders.

Trial registration

This trial is registered as ClinicalTrials.gov NCT03653832.

Funding

This article presents independent research funded by the National Institute for Health and Care Research (NIHR) Health Technology Assessment programme as award number 16/93/01.

This article reports on one component of research award *Alpha 2 agonists for sedation to produce Better outcomes from critical illness* (A2B *Trial): A randomised, parallel-group, allocation concealed, controlled, open, phase 3 pragmatic clinical and cost-effectiveness trial with internal pilot*. For more information about this research, please view the award page [www.fundingawards.nihr.ac.uk/award/16/93/01].

About this article

The contractual start date for this research was in April 2018. This article began editorial review in February 2025 and was accepted for publication in August 2025. The authors have been wholly responsible for all data collection, analysis and interpretation, and for writing up their work. The Health Technology Assessment editors and publisher have tried to ensure the accuracy of the authors' article and would like to thank the reviewers for their constructive comments on the draft document. However, they do not accept liability for damages or losses arising from material published in this article.

List of abbreviations

A2B	Alpha 2 agonists for sedation to produce Better outcomes from critical illness
CAM-ICU	Confusion Assessment Method for the ICU
ICU	intensive care unit
LGBTQ	lesbian, gay, bisexual, transgender and queer
MV	mechanical ventilation
PerLegR	Personal Legal Representative
PPI	patient and public involvement
RASS	Richmond Agitation–Sedation Scale
REC	Research Ethics Committee
UC	usual care

References

1. Vincent JL, Shehabi Y, Walsh TS, Pandharipande PP, Ball JA, Spronk P, *et al*. Comfort and patient-centred care without excessive sedation: the eCASH concept. *Intensive Care Med* 2016;**42**:962–71. https://doi.org/10.1007/s00134-016-4297-4
2. Ely EW, Truman B, Shintani A, Thomason JWW, Wheeler AP, Gordon S, *et al*. Monitoring sedation status over time in ICU patients: reliability and validity of the Richmond Agitation-Sedation Scale (RASS). *JAMA* 2003;**289**:2983–91. https://doi.org/10.1001/jama.289.22.2983
3. Ely EW, Inouye SK, Bernard GR, Gordon S, Francis J, May L, *et al*. Delirium in mechanically ventilated patients: validity and reliability of the confusion assessment method for the intensive care unit (CAM-ICU). *JAMA* 2001;**286**:2703–10. https://doi.org/10.1001/jama.286.21.2703
4. Payen JF, Bru O, Bosson JL, Lagrasta A, Novel E, Deschaux I, *et al*. Assessing pain in critically ill sedated patients by using a behavioral pain scale. *Crit Care Med* 2001;**29**:2258–63. https://doi.org/10.1097/00003246-200112000-00004
5. Train S, Kydonaki K, Rattray J, Stephen J, Weir CJ, Walsh TS. Frightening and traumatic memories early after intensive care discharge. *Am J Respir Crit Care Med* 2019;**199**:120–3. https://doi.org/10.1164/rccm.201804-0699LE
6. Righy C, Rosa RG, da Silva RTA, Kochhann R, Migliavaca CB, Robinson CC, *et al*. Prevalence of post-traumatic stress disorder symptoms in adult critical care survivors: a systematic review and meta-analysis. *Crit Care* 2019;**23**:213. https://doi.org/10.1186/s13054-019-2489-3
7. Devlin JW, Skrobik Y, Gélinas C, Needham DM, Slooter AJC, Pandharipande PP, *et al*. Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and

sleep disruption in adult patients in the ICU. *Crit Care Med* 2018;**46**:e825–73. https://doi.org/10.1097/ccm.0000000000003299

8. Walsh TS, Aitken LM, McKenzie CA, Boyd J, Macdonald A, Giddings A, *et al*. Alpha 2 agonists for sedation to produce better outcomes from critical illness (A2B Trial): protocol for a multicentre phase 3 pragmatic clinical and cost-effectiveness randomised trial in the UK. *BMJ Open* 2023;**13**:e078645. https://doi.org/10.1136/bmjopen-2023-078645
9. Walsh TS, Parker RA, Aitken LM, McKenzie CA, Emerson L, Boyd J, *et al*.; A2B Trial Investigators. Dexmedetomidine- or clonidine-based sedation compared with propofol in critically ill patients: the A2B randomized clinical trial. *JAMA* 2025;**334**:32–45. https://doi.org/10.1001/jama.2025.7200
10. Edinburgh Clinical Trials Unit. *Trials*, *Methodology*, *Capacity Building*, *Data Linkage*. URL: https://usher.ed.ac.uk/edinburgh-clinical-trials/our-studies/ukcrc-studies/a2b (accessed 23 July 2025).
11. Kydonaki K, Hanley J, Huby G, Antonelli J, Walsh TS; Development and Evaluation of Strategies to Improve Sedation practice in inTensive care (DESIST) Study Investigators. Challenges and barriers to optimising sedation in intensive care: a qualitative study in eight Scottish intensive care units. *BMJ Open* 2019;**9**:e024549. https://doi.org/10.1136/bmjopen-2018-024549
12. Macpherson D, Hutchinson A, Bloomer MJ. Factors that influence critical care nurses' management of sedation for ventilated patients in critical care: a qualitative study. *Intensive Crit Care Nurs* 2024;**83**:103685. https://doi.org/10.1016/j.iccn.2024.103685
13. Everingham K, Fawcett T, Walsh T. 'Targeting' sedation: the lived experience of the intensive care nurse. *J Clin Nurs* 2014;**23**:694–703. https://doi.org/10.1111/jocn.12058
14. Varga S, Ryan T, Moore T, Seymour J. What are the perceptions of intensive care staff about their sedation practices when caring for a mechanically ventilated patient?: a systematic mixed-methods review. *Int J Nurs Stud Adv* 2022;**4**:100060. https://doi.org/10.1016/j.ijnsa.2021.100060
15. Aitken LM, Emerson LM, Kydonaki K, Blackwood B, Creagh-Brown B, Lone NI, *et al*. Alpha 2 agonists for sedation to produce better outcomes from critical illness (A2B trial): protocol for a mixed-methods process evaluation of a randomised controlled trial. *BMJ Open* 2024;**14**:e081637. https://doi.org/10.1136/bmjopen-2023-081637
16. Mirski MA, Lewin JJ 3rd, Ledroux S, Thompson C, Murakami P, Zink EK, Griswold M. Cognitive improvement during continuous sedation in critically ill, awake and responsive patients: the Acute Neurological ICU Sedation Trial (ANIST). *Intensive Care Med* 2010;**36**:1505–13. https://doi.org/10.1007/s00134-010-1874-9
17. Goodwin HE, Gill RS, Murakami PN, Thompson CB, Lewin JJ, Mirski MA. Dexmedetomidine preserves attention/calculation when used for cooperative and short-term intensive care unit sedation. *J Crit Care* 2013;**28**:1113.e7–10. https://doi.org/10.1016/j.jcrc.2013.07.062
18. Maagaard M, Barbateskovic M, Andersen-Ranberg NC, Kronborg JR, Chen YX, Xi HH, *et al*. Dexmedetomidine for the prevention of delirium in adults admitted to the intensive care unit or post-operative care unit: a systematic review of randomised clinical trials with meta-analysis and trial sequential analysis. *Acta Anaesthesiol Scand* 2023;**67**:382–411. https://doi.org/10.1111/aas.14208

Appendix 1 Members of the A2B Trial Investigators Group

Natalie Pattison
Barry Williams
Louise Rose
Paul Mouncey
John Prowle
David Wellsted
Stephen Brett
Julian Bion
Graeme McLennan
Matt Stevenson
Alistair Nichol
Timothy Walsh
Maria Amamio
Lucy Barclay
Sophie Birch
Kate Briton
Sarah Clark
Jessica Crossan
Katherine Doverman
David Hope
Lucy Macdonald
Corrienne McCulloch
Nicola Rae
Scott Simpson
Jo Singleton
Maggie Wishart

Ruth Thompson
Neill Aitken
Rachel Fairlie
Nabeel Salim
Sam Talbot
Sarah Ackroyd
Valeria Alicino
Euan Allan
Thomas Anderson
Rosemary Andrew
Andrew Baigey
Kenneth Baillie
Calum Barnetson
Ruth Begbie
Richie Biggers
Michael Blaney
Richard Broom
David Birrell
Will Calkin
Keegan Chuavilong
Rebecca Cowden
Thomas Cox
Coral Darjee
Simon Davies
Annemarie Docherty
Luke Dornan
Mark Dunn
Stuart Edwardson
Ross Gillespie
Jane Greenwood
David Griffith
Alasdair Hay
Amy Hu
Ali Hunter
Karen Jones
Helen Jordan
Ancy Joseph
Kallirroi Kefala
Stephanie Kelly
Laura Kemp
Bara Kubanova
Victoria Leng
John Livesey
Nazir Lone
James Lyon
Olivia Mansfield
Dean McAvoy
Aaron McClatchey
Jonathan Miller
Ananda Mirchandani
Peter Moffitt
Steven Morrison
Alexandra Muir
Kieran Nunn
John Ochiltree
Emily Ogden
Matthew Parks
Marc Pass
Rachael Penrose
Harry Putnam
Thomas Quinn
Jonathan Rhodes
Alexander Rollings
Stephen Ross
Ralph Shackleton
Manu Shankar
Sunil Sharma
Iain Slessor
Zack Slevin
Duncan Stickle
Louise Symons
Fiona Walker
Luke Walls
Ian Whiteford
Sue Yin Yong
Neil Young
Kevin Rooney
Michael Kinsella
Brian Digby
Michael Brett
Paul McConnell
Mark Henderson
Radha Sundaram
Lisa Gemmell
Fiona Christie
Philip Henderson
Fiona MacGregor
Steven Henderson
Natalie Rodden
Kirsty Fallon
Lynn Abel
Barbara McLaren
Emma Hughes
Deborah McGlynn
Nicola Thomson
Lauren Walker
Susan Currie
Natasha Parker
Donna Gillan
Farooq Brohi
Sarah Purvis
Michele Clark
Pam Race
Lynne Williams
Ahmed Shahin
Eusebius Nworah

This article should be referenced as follows:
Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

Jonathan Gui
Li-Chin Cheng
Katelyn Stewart
Rebecca Cusack
Mark Tomlin
Clare Bolger
Rachel Burnish
Sue Jackson
Alice Baker
Jonathan Biss
Karen Salmon
Michael Carter
Catherine McKenzie
Razaz Elsheikh
Missy (Anne) Harrison
Charlotte Thomas
James Ward
Andrew Cumpstey
Ahilanandan Dushianthan
Ivan Kemp
Valerie Page
Xiaobei Zhao
Nazril Nordin
Ahmed Hegazy
Elvira Hoxha
Owen Hardaker
Chimenime Ede
Nailia Kotrikova
Acharya Devaraja
Thomas Stambach
Prasun Mukherjee
Mark Louie Guanco
Matthew P Wise
Jade Cole
Helen Hill
Jenny Brooks
Michelle Davies
Rhys Davies
Emma Thomas
Angharad Williams
Lauren Lodhi
Matt PG Morgan
Simon Ridler
Christopher Smith
Maria Faulkner
Alison Ivison
Laura McKay
Helen Jeffrey
Jude Price
Lucy Slater
Angela Davies
Edward Hughes.
Matt Thomas

Dominic Janssen
Ian Thomas
Kate Crewdson
Christopher Newell
Robert Hirst
Stephen West
Agnieszka Skorko
Emma Gendall
Ruth Worner
Beverley Faulkner
Borislava Borislavova
Kati Hayes
Andrew Parsons
Elizabeth Goff
John Sowersby
Annie Wood
Kieran Oglesby
Idrisu Sanusi
Charlie Pope
Andrew Baird
Hayley Blackmore
Robert Healey
Philip Hopkins
Eleanor Corcoran
Gillian Selman
Clare Finney
Evita Pappa
John Smith
Emma Clarey
Maeve Cockrell
Sian Saha
Harriet Noble
Kevin O'Reilly
Maria Depante
Anna Broderick
Marianette Anne
Axalan Burt
Vergara Reena Mehta
Henrik Reschrieter
Sarah Patch
Julie Camsooksai
Sarah Jenkins
Madga Pomichowska
Ken Power
Spike Briggs
Elizabeth Woodward
Christopher Loew
James Bromilow
James Keegan
Matthew Taylor
Emma Langridge
Dinesh Kulandhaisamy
Saah Savage

Yasmin de'Ath
Charlotte Humphrey
Sue Roffe
Matthew Bayliss
Leanne Bartlett
Richard Gordon-Williams
Kate Tatham
Sam Smith
Isabel Noris
Sharjeel Tahir E
mma Yates S
hivali Patel
Tanith Westerman
Sekina Bakare
Hugh Furness
Emma Hunt
Reyhaneh Sadegh Zadeh
Maria Khan
William Sherwood
Claudio Addari
Roshni Manex
Nicole Whitehead
Fred Wilson
Luke Edwards
Kshiteeja Nalk
Sophie Biddle
Suzannah Lant
Francesca Holden
Shree Voralia
Nicola Ocean
Arun Sahni
Prakhar Srilastava
Sultan Iqbal
Shamil Tana
Vishal Venkat Raman
Zoszka Webb
Luke Parker
Arnold Dela Rosa
Miran Kadr
Eleanor Harvey
Ryan Howle
Aatif Husain
Olivia Morley
Sarah Loftus
Jenna Hutchinson
Shaman Jhanji
Ethel Black
David Parkinson
Ravishankar Raobaikady
Mark Borthwick
Christie James
Grace Polley
Neil Davidson
Sally Beer
Paula Hutton
Archana Bashyal
Jean Wilson
Soyamol Mathew
Jung Ryu
Jason Cupitt
Gareth Hardy
Leonie Benham
Robert Downes
Neil Flint
Michael Little
Ravindra Pochiraju
Prematie Andreou
Dawn Hales
Jessica Hailstone
Megha Mathews
Martin Huntley
Lorraine Stephenson
Jacqui Hussey
Hao-Ern Tan
Simon Holbrook
Hayley Kemp David Earl
Richard Innes
Benjamin Plumb
Patricia Doble
Rebecca Purnell
Ashly Thomas
Muhammad Hamza Noor
Waqas Khaliq
Micheal Jennings
Bernd Oliver Rose
Rosaleeta Reece-Anthony
Sagira Khatun
Samantha Dickinson
Jayson Clarke
Charlie Cox
Adam Longley
Tariq Ali
Babita Gurung
Mohamed Moubarak
Alan Williams
Jonathan Ball
Susannah Leaver
Sarah Farnell-Ward
Maria Thanasi
Shreeja Dangol
Vince Ventura
Massimiliano Valcher
Christine Sicat
Nikki Yun
Rebecca Kanu
Maria Maiz Cordoba

This article should be referenced as follows:
Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

Ha Trinh
Karen Lloyd
Romina Pepermans Saluzzio
Lijun Ding
Helen Farrah
Edna Fernandes
Chris Nutt
Jon Silversides
Danny McAuley
Peter McGuigan
Emmet Major
Elliott Lonsdale
Nerielle Fundano
Kathryn Ward
Christine Turley
Aisling O'Neill
Stephanie Finn
Jackie Green
Erin Collins
Julie McAuley
Jeanette Mills
Chris Wright
Michelle Growcott
Iain McCullagh
Stephen Wright
Ian Clement
Jonathan Shelton
Matthew Faulds
Thomas Hellyer
Harriet Morton
Christopher Pollard
Christopher White
Leigh Dunn
Verity Calder
Susan Taylor
Pamela Garcia
Benjamin Brown
James Savage
Maite Babio-Galan
Kimberley Webster
Tessa Wilkinson
Arti Gulati
Tara Shrestha
Carole Hays
Lauren Butler
Fatima Simoes
Margaret McNeil
Ian Storey
Simon Whiteley
Elizabeth Wilby
Susan Trott
Sarah Watts
Shailamma Mathew
Sheila Salada
Adam Neep
Nora Youngs
Clare Howcroft
Matthew Powell
Michael Adlam
Elankumaran Paramasivam
Zoe Friar
David Antcliffe
Stephen Brett
Anthony Gordon
Dorota Banach
Roceld Rojo
Sonia Sousa Arias
Ziortza Fernandez de Pinedo Artaraz
Phoebe Coghlan
Amal Mohammed
Eleanor Jepson
Jenny Wong
Anita Tamang Gurung
Caoimhe O'Dwyer
Sara Perez Guillotin
Maie Templeton
James Hanison
Jonathan Bannard-Smith
Daniel Conway
Shoneen Abbas
Mohamad Aly
Stephen Benington
Teh Eng Hean
Daniel Hayley
Ellen McGuckin
Andrew Martin
Thomas Morris
William Musselbrook
Bhaskar Narayan
Thomas Wright
Chris Wheeler
Melanie Barker
Richard Clark
Emma Connaughton
Rose Jama
Deborah Paripoorani
Rachael Quayle
Anila Sukumaran
Charlotte Taylor
Megan Balmer
Saejohn Lingeswaran
Lauren Edmunds
Katharine Wylie
Andrew Owen
Gavin Perkins
Sean Munnelly

Daniel Park
Jo Gresty
Ellie Reeves
Celina Maliaykal
Teresa Melody
Jacobus Preller
Petra Polgarova
Cristina Bravoelvira
Sofia Teixeira
James Varley
Sapna Sharma Hajela
Kay Elston
Siobhan Campbell
Meike Keil
Muhammad Elbehery
Jocelyn Marshall
Susan Stevenson
Andrew Conway Morris
Prasad Gogineni Venkateskara
Michael Reay
Karen Reid
Rebecca Brown
Chinenyenwa Amareihe
Elliot Yates
Jia Luen Goh
Edward Jones
Aamer Mughal
David Brealey
Niall MacCallum
Samuel Clark
Deborah Smyth
Georgia Bercades
Ingrid Hass
Gladys Martir
Jung Ryu
Anna Reyes
Maria Alexandra Zapata Martinez
Laura Gallagher
Chi Yee Chung
Graeme Sanders
Vipal Chawla
Namrata Maheshwari
Tessa Glazebrook
Hollie Angel
Rebecca Squires
Hayley Dolan
Christopher Donnelly
Lucy Mires
Robert Musalagani
Suzanne Williams
Robin Heij
Peter Young
Mark Blunt
Gayathri Wijewardena
John Gibson
Aricsa Mariya Joshy
Jeremy Bewley
Kieron Rooney
Katie Sweet
Kim Wright
Lisa Grimmer
Denise Webster
Casandra Bazan Lacerot
Rachel Shiel
Eva Maria Hernandez Morano
Christina Coleman
Eleanor Daniel
Oluwatosin Komolafe
Josephine Bonnici
Linda Pipira
Rebekah Johnson
Anna Chillingworth
Ya-Hui Liang
Georgia Efford
Angeliki Kolovou
George Davies
Zoe Garland
Bethany Gumbrill
Ivan Collin
Matthew Gibbins
Thomas Brougham
Agnieszka Skorko
Dan Harvey
William Phipps
Kathryn Harrold
Nick Plummer
Ben Lowe
Paul James
Sara Ahmed
Rukmini Ghosh
Omer Mohamed
Tanushree Santra
James Shilston
Andrew Russell
Viresh Patel
Upasana Topiwala
Habideen Bello
Julia Sampson
Lucy Ryan
Cecilia Peters
Megan Meredith
Louise Conner (Now Hughes)
Lucy Morris
Amy Clark
Alice Baddeley
Lisa Mcloughlin

This article should be referenced as follows:
Walsh TS, Parker RA, Aitken LM, McKenzie CA, Glen R, Weir CJ; the A2B Trial Investigators Group. Relative and bedside nurse assessment of comfort and communication during propofol, dexmedetomidine, or clonidine-based sedation: pre-planned analysis within the A2B RCT [published online ahead of print January 14 2026]. *Health Technol Assess* 2026. https://doi.org/10.3310/GJTW2718

Cate Walton
Treesa Joseph
Anju Thomas
Sophie Lubbock
David Ford
Alexandra McCoy
Tony N'Dungu
Ingeborg Welters
Vinoth Sankar
Alicia Waite
Brian Johnston
David Shaw
Vicki Waugh
Karen Williams
Maria Lopez Martinez
Maria Norris
Maria Arra Carlota Mahiya
Jamie Fernandez Roman
Jin-Xi. Yuan
Silvia Manes
Caitlin Lythgoe
Ibrahim Almafreji
Josh Colfar
Laura Medhurst
Stephanie Beresford
Sofia Farina
Lema Imam
Syamlam Ali Zachary
Thomas Francesca Bold
Edward Hughes
Katherine Hodson A
leem Morenikeji
Daniel Watkin
Tamas Szakmany
Amy Cardwell
Anne Frawley
Marlies Ostermann
Gillian Radcliffe
Nicholas Barrett
Simon Sparkes
Adam Woodman-Bailey
Eirini Kosifidou
Aneta Bociek

Ellie Hendrie R
osario Lim
Fabiola D'Amato
Sarah Fordyce
Benjie Cendreda
Kyma Morera Vas
Jacqueline Pan
Christopher Meddings
Vladimir Milic
Mike Barker
Jennifer Owusu-Afriyie
Carolin Engelhard
Malcolm Sim
Richard Appleton
Maximilian Ralston
Andrew Arnott
Steven Henderson
Izabela Orlikowska
Sophie Kennedy-Hay
Christopher Murray
Matthew Devine#
Padraig Headley
John McCaffrey
Daniel Donnelly
Richard Young
Samantha Hagan
Victoria Adell
Elizabeth Murphy
Alasdair Hay
Jian Que
Stephen Wilson
Catherine Jardine
Mark Forrest
Emma Collins
Miqdad Ibrahim
Mark Wheeley
Mostafa Kodous
Mathew Blake
Victoria Lacey
Michael Eager
Robin Jootun
Janine Birch