WDAD 2023

Worldwide delirium prevalence study on March 15th 2023

Proposal 1.3, ~~December~~ January 2nd ~~9th~~, 2023~~2~~

Dr. Rebecca von Haken, Department for Anesthesiology, University Hospital Mannheim, Theodor-Kutzer-Ufer 1-3, 68167 Mannheim, Rebecca.vonHaken@umm.de

~~Dr. Peter Nydahl, Nursing research and development, University Hospital of Schleswig-Holstein, Kiel, Germany, Peter.Nydahl@uksh.de~~

Abstract

Background: Delirium is a common complication of pediatric and adult patients in hospitals and other settings, leading to a worse outcome. Delirium related structures and processes can have an impact on prevention and treatment of delirium. The worldwide extent of these structures and processes on delirium remains unknown.

Aim: To evaluate service quality, to increase patients' safety, and to assess the delirium practice and organizational characteristics in wards and Units caring for pediatric and adult institutionalized patients. Secondary aim is the establishment of a collaboration network with quality improvement projects and re-evaluations.

Method: worldwide, cross sectoral prevalence study on March 15th, 2023. Attending clinicians will be surveyed for data of the structures of their hospitals/ICUs or units and performance of delirium related approach to inpatients. The primary outcome is the general prevalence of delirium in present patients at 8 a.m. and 8 p.m. on that day, and the practice of delirium assessment methods. Secondary outcome parameters are the use of pharmacological and non-pharmacological prevention and intervention measurements, presence of protocols, barriers, and priorities for future care and research. Statistical analysis will be done for pediatric vs adult patients, conservative vs surgical wards vs Intensive Care Units, high vs low leveled income countries, and others.

Expected results: the survey will explore current practices of delirium management in institutions worldwide, opportunities for quality improvement projects, and future research.

Content

Research team

Primary Investigator

Dr. Rebecca von Haken, University Hospital Mannheim, Rebecca.vonHaken@umm.deDr. Peter Nydahl, Nursing Research and development, University Hospital of Schleswig-Holstein, Kiel, Germany
Haus V40, Arnold-Heller-Str. 3, 24105 Kiel
Peter.Nydahl@uksh.de

Participating Researchers

- Dr. Heidi Lindroth, RN PhD, Mayo Clinic Rochester, USA Lindroth.Heidi@mayo.edu
- Dr. Keibun Liu, MD PhD, Intensive Care Collaboration Network, Tokyo, JapanCritical Care Research Group, Faculty of Medicine, The Prince Charles Hospital, University of Queensland, Brisbane, QLD, Australia keiliu0406@gmail.com

Dr. Peter Nydahl, Nursing Research and development, University Hospital of Schleswig-Holstein, Kiel, Germany
Haus V40, Arnold-Heller-Str. 3, 24105 Kiel
Peter.Nydahl@uksh.de

- And national study coordinators (list will be in appendix)

Participating Centres

- Department of Anesthesiology, University Hospital Mannheim
- Nursing Research and development, University Hospital of Schleswig-Holstein, Kiel, Germany
- Department of Nursing, Mayo Clinic, Rochester, Minnesota and the Mayo Clinic Health System, Eau Claire, Wisconsin, U.S.A.
- Intensive Care Collaboration Network, Tokyo, JapanCritical Care Research Group, Faculty of Medicine, The Prince Charles Hospital, University of Queensland, Brisbane, QLD, Australia

Authoring

Future publication will be presented in the following order

- Lindroth, H*
- Liu, K*
- National study coordinators in alphabetically order
- Nydahl, P#
- Von Haken, R#

*Both authors contributed equally to this work and are reported as co-first authors.

#Both authors contributed equally to this work and are reported as co-senior authors.

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Registration

After approval by the Ethic Committee of the Christian Albrechts University in Kiel, Germany, the study will be registered in the German Registry for Clinical Trials www.DRKS.de.

Registration will be updated after revision of PI.

Background

Delirium is an acute encephalopathy characterized by an acute onset, fluctuation, deficits in attention, and other cognitive impairments (American-Psychiatric-Association, 2013). Delirium is a result of one or more physical disorders, interventions or medications (Maldonado, 2008). The causes of delirium are manifold and result from predisposing and triggering factors (Oh et al., 2017, Lindroth et al., 2018). It is a common complication of patients in hospitals, affecting up to 23% of older patients on medical wards, 25% after stroke, 32% in Intensive Care Units (ICU), 70% with mechanically ventilation (MV), and 88% in palliative units (Wilson et al., 2020, Stollings et al., 2021). Both, pediatric and adult patients, can be affected (Wilson et al., 2020). Consequences of delirium are plentiful and follow a dose-response relationship including an increased risk length of stay in the hospital, increased mortality, impaired rehabilitation, permanent cognitive disturbances and institutionalization (Lindroth et al., 2020).

The management of delirium developed over the last years ((NICE), 2010), leading to complex concepts and approaches such as the ABCDEF bundle in critical care or the HELP program for older patients on wards (Ely, 2021, Hshieh et al., 2015, Mudge et al., 2022). Implementation in practice is still challenging and routine assessment ranges from 18% to over 90% (Devlin et al., 2008, Morandi et al., 2013, Luetz et al., 2014, Andrews et al., 2015, Glynn and Corry, 2015, Elliott, 2014, Fisher et al., 2015, Karabulut and Yaman Aktaş, 2016, Mo et al., 2016, Trogrlić et al., 2016, Jenkin et al., 2016, Saller et al., 2016, Morandi et al., 2019, Selim and Wesley Ely, 2016, Richardson et al., 2016, Morandi et al., 2017, Krotsetis et al., 2017, Nydahl et al., 2018, Berger et al., 2020). Barriers to implementation are often lack of time and staff, missing interprofessional collaboration, lack of knowledge, and others (Nydahl et al., 2018, de Souza-Talarico et al., 2021).

The Covid-19 crisis stressed the healthcare system and hence, provision of evidence based delirium management (Liu et al., 2021, Liu et al., 2022, Luz et al., 2022). Delirium management could not be delivered as in previous periods, and the achievements in delirium prevention and treatment seemed to be lost (Kotfis et al., 2020, Pun et al., 2021). Delirium management needs (again) more awareness and action. The aim of this study is ~~to conduct a worldwide delirium prevalence study on the next World Delirium Awareness Day at March 15th 2023, to assess delirium prevalence in pediatric and adult patients in hospitals, implemented structures and processes, and existing barriers.~~ to evaluate service quality and to increase patients' safety, and to assess the delirium practice and organizational characteristics in wards and Units caring for pediatric and adult institutionalized patients. Secondary aim is the establishment of a collaboration network with quality improvement projects and re-evaluations.

Methods

This is an intersectoral, non-funded, open online survey, distributed in a snowball system via professional networks, social media, personal contacts, and others. Clinicians from single health care institutions including units and wards will be invited for voluntary participation, to fill in a questionnaire. No patient data will be assessed, but summarizing information about delirium prevalence and management from clinicians, e.g. by answering how many patients are present on the unit/ward and how many are assessed positive for delirium during the prevalence day. The survey will be designed in concordance with guidelines for conduction of online surveys (Eysenbach, 2004).

The study protocol will be submitted to the Ethic Committee of the Christian Albrechts University, Kiel, Germany, and after change of PI, to the Ethic Committee of the University Hospital Mannheim. Data protection is proved by the department of data protection of the Unversity Hospital Mannheim. ~~proved by the department of data protection of the University Hospital Schleswig-Holstein, and~~and the study is registered in the Registry for Clinical Trials (DRKS), which is related to the Worlds Health Trial Registry.

The survey

The survey will be an online-survey on Survey Monkey on March 15th, 2023. Participants will be informed on the first page of the survey about its purpose, voluntary participation, estimated amount of time to fill in the answers, and that participation includes acceptance of these conditions.

The survey includes 34 questions and in total, 209 items, giving a mean number of 6.1 items per question. All but three questions target on quantitative data, with 8 questions providing multiple choice questions, and 7 questions with options for specifying additional information.

The survey will be pretested with clinicians for understanding, feasibility, and time amount from the same target population. Data of the pretest will not be included in the final survey. Based on the pretests' results, the survey will be revised, without performing another pretest.

During the survey, participants can interrupt the survey and continue later, they can move fore- and backwards, and can revise their answers. There will be no mandatory request to fill in all questions. After finishing the survey, participants cannot continue or revise the answers. Participants have no access to the results. No incentives will be offered to participants. The complete survey is in the supplement.

Participants

Included will be leading health care workers or representatives who a) leading clinicians from single Units or wards, such as senior physician, physician in charge, nurse leader, nurse in charge or similar professionals, or other; b) provide data from units/wards in hospitals and facilities including Emergency Department, Intensive Care Units, palliative units, wards, weaning centers, rehabilitation centers; nursing homes; c) answer ≥80% of questions.
Excluded will be clinicians a) from ambulatory care services, or anesthesia/operation theatre, b) other participants than clinicians such as family members, former patients, or else.

Recruitment

The survey will be distributed via Social Media, professional Networks and personal networks.
Professional networks include the following:

- Japanese Society for Critical Care Medicine,
- Japanese Network for Early Mobilization
- Society of Critical Care Medicine
- European Society of Intensive Care Medicine
- American Delirium Society
- European Delirium Society
- Australian Asian Delirium Society
- German Delirium Network
- German Society of Critical Care Medicine,

and others.

National coordinators

In a first step, national study coordinators will be invited for participation in the study. National study coordinators will be responsible for recruiting participants in their country, coordination of the survey, and checking national laws for ethic approval and data protection. National coordinators will be offered a co-authorship.

Study Participants

Study participants from single units/wards will be asked for the name of city, where the hospital is located, and the name of the ward or unit, where participants are responsible of. These data will be used for identifying double or multiple entries from single wards/units. These data will be kept confidentially and will be not part of the main evaluation and future publication.

IP-addresses will not be stored to enable multiple answers from the same hospitals. Only the research team will have access to these addresses. These addresses will be stored on the server of the survey for three months after the survey (June 15th, 2023), and deleted afterwards.

Study participants will be offered to be acknowledged in future publications. For this exclusive purpose, they need to enter on the last page of the survey their names, degrees, hospital, city, country, and email address. These data addresses will be handled confidentially and not forwarded to third parties. Only the research team will have access to these data. These addresses will be stored on the server of the survey for three months after the survey (June 15th, 2023), and deleted afterwards. The data will be used for publication, to acknowledge the contributions of study participants.
The survey follows the European Union's General Data Protection Regulation (GDPR). Participants will be informed about their rights and this approach in the survey. The online form allows only a participation, if participants confirm that they understood these conditions. The approach is voluntary. By entering their personal data, participants agree to the approach. Both, national coordinators and study participants, will be informed about this approach (see survey in the supplement).

Data collection

The prevalence day will be March 15th 2023 and data shall be collected for this day, at the timepoint of 8 p.m. Data will be collected via a web-based form.
Participants will have three days to perform the data entry. The survey will close at March 18th, 2023 at midnight European Central Time.

Data assessment

National study coordinators
National study coordinators will be asked for

- Agreement in co-authorship in publication, and in case of a positive answer:
    - Name, titles, profession, affiliation, Hospital, address incl Country, email address

These data will not be part of the data evaluation.

Study participants' data
From a theoretically approach, it is possible, that multiple health care workers from a single unit/ward participate in the survey. To identify these cases, a security question is included, with

the information of the city and the name of the unit/ward. In case, multiple answers will be identified, the most likely answer will be chosen, and the others excluded.
Further data include the a) profession, b) leading position, and c) years of clinical experience (see all items in the complete survey in the supplement).

Hospital data

Hospital data includes the a) country, b) number of beds, and c) affiliation (see all items in the complete survey in the supplement).

Unit/Ward data

Unit/ward based data include a) age groups, b) discipline, c) type such as general ward or ICU, d) number of beds, e) presence of different types of written protocols such as for analgesia, delirium, dementia and others (see all items in the complete survey in the supplement).

Delirium specific processes and structures

These data include a) delirium awareness interventions such as trainings, posters, and others, b) type of delirium assessment, c) frequency of delirium assessment, and d) primarily responsible profession for assessment (see all items in the complete survey in the supplement).

Delirium data

Delirium data will be collected for March 15th 2023 at 8 a.m. in the morning and 8 p.m. in the evening(if not exactly feasible, at least close to this timepoint including +/- 4 hours).
Participants are encouraged to collect data by retrospective chart review. The data collection includes four questions each for morning and evening:

1. Total patients: How many patients were present on the ward/unit in the morning (evening) at 8 a.m. (p.m.)?
2. Assessed patients: How many patients were assessed for delirium by using the above reported assessment?
3. Delirious patients: How many patients were assessed positive for delirium by using the above reported assessment?
4. Non-delirious patients: How many patients were assessed free of delirium by using the above reported assessment?
5. Not assessable/unclear patients: How many patients were not assessable for delirium (e.g. comatose, sedated, disturbed consciousness, too sleepy, away for procedures, aphasic,

different language, or else) and/or had unclear results by using the above reported assessment (e.g. unclear case of delirium superimposed on dementia, severe depression, or else)?

The answers shall be given in full numbers, e.g. 1: “10”, 2: “8”, 3: “4”, 4: “2”, 5: “2”. No specific patient data will be collected.
Furthermore, presence of all types of health care professions who were present at the ward/unit on the prevalence day, will be reported (see all items in the complete survey in the supplement).

Prevention and treatment of delirium

Data of prevention- and treatment-measurements will be reported. A prevention and/or treatment is counted as present, if most patients (>50%) on the unit/ward receive it as routine interventions, at least once per shift. Reported are data from a list including non-pharmacological and pharmacological interventions. General pharmacological management is reported (see all items in the complete survey in the supplement).

Barriers

Participants report barriers against implementation and/or use of evidence-based strategies regarding delirium management (see all items in the complete survey in the supplement).

Sub-analyses

Participants can pre-register requests for sub-analysis, e.g. for data collection in different hospitals which belong to one company. A sub-analysis would be feasible for this company. For this purpose, participants must request a code from the Primary Investigator by email. The code is generated by the letters “WDAD” and a four-letter, running number, e.g. the first analysis will be “WDAD0001”. This code will be entered in the survey, and can be used for identification of data sets of interest.

Open questions

Participants are asked for their opinions of priorities in a) delirium care, b) delirium research, and c) further comments. They can perform free-text-answers (see survey in the supplement).

Outcome

Primary outcome is the clinician-reported rate of delirious patients on the WDAD 2023, who were assessed with a delirium assessment tool as provided in the survey. Any data of patients, who were not assessed with a validated assessment, will be excluded from the analysis.
Secondary outcome will be data on delirium related structures and processes on WDAD 2023, such as used delirium assessments, presence of delirium protocols, awareness interventions, delirium related structures and processes, pharmacological management, and others.

Analysis

Quantitative data will be analyzed statistically. Nominal data will be reported in absolute and relative extend as number and percent. Based on tests for distribution, normal distributed metrical data will be reported as mean and standard deviation (SD), non-normal distributed metrical data as median and Interquartil range (IQR).
Hypotheses tests will be conducted to prove differences between continents, high- vs. middle- vs low developed countries, hospitals size, different categories of units/wards, disciplines, and age groups, using Fisher's exact tests, Chi square, or Whitney Mann U-tests.
Further multiple logistic regression analyses will be performed to assess the association between the number of implemented processes and structures and the probability of presence of delirium.
Answers in the comment boxes will be analyzed by qualitative content analysis. All entries will be categorized into similar abstracting categories, which will be summarized in main themes. If feasible, relationships between the categories will be developed and displayed. All content will be analyzed by two researchers independently, and compared afterwards; conflicts will be resolved by discussion with a third researchers. All research are experienced in qualitative data analysis.

Time Management

We are planning following milestones

Milestone	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Proposal													
Recruitment of national coordinators													
Pretest													

Ethic approval, data protection, registration													
First announcement													
Recruitment of local coordinators													
Survey													
Data analysis													
Publication													
Dissemination													

Expected results

Expected results: the survey will provide data upon current practices of delirium management in hospitals worldwide.

Data protection

The survey follows the European Union's General Data Protection Regulation (GDPR). Participants have the rights:

- **Right for information**
  You have the right for information about the personal data concerning you that will be collected, processed or, if necessary, transmitted to third parties within the framework of this project and to hand over a free copy (Article 15 GDPR).
- **Right to rectification**
  You have the right to correction of inaccurate personal data concerning you (Articles 16 and 19 GDPR).
- **Right to erasure**
  You have the right to erasure of personal data concerning you if this is possible (e.g. if this data is no longer necessary for the purpose for which it was collected and this is not precluded by any retention obligations (Articles 17 and 19 GDPR).
- **Right to restriction of processing**
  Under certain conditions, you have the right to demand a restriction of processing, i.e. the data may only be stored, not processed. You must apply for this. Please contact the project management (Articles 18 and 19 GDPR).
- **Right to data portability**
  You have the right to receive the personal data concerning you that you have provided to the person responsible for the project. You can request that this data be transmitted either to you or, as far as technically possible, to another body notified by you (Article 20 GDPR).
- **Right to object**
  You have the right to object at any time to specific decisions or measures regarding the

processing of your personal data (Art. 21 GDPR, § 36 BDSG-new). Such processing does not take place afterwards.

- **Consent to the processing of personal data and right to withdraw this consent**
  The processing of your personal data is only lawful with your consent (Article 6 GDPR). You have the right to withdraw your consent to the processing of personal data at any time.
- **Right to lodge a complaint with the competent supervisory authority for data protection**
  If you would like to exercise one of these rights, please contact the responsible project management or the data protection officers of the research team involved.

In case, participants would like to exercise one of these rights, they can contact the responsible project management or the data protection officers of the research team involved, the ~~primary~~principal investigator Dr. ~~Peter Nydahl~~Rebecca von Haken (Rebecca.vonHaken@umm.de~~Peter.Nydahl@uksh.de~~) or the representative of the department of data protection in the University Hospital ~~of Schleswig-Holstein~~Mannheim (datenschutzbeauftragter@umm.de~~datenschutzbeauftragter@uksh.de~~).
Participants will be informed about their rights and this approach in the survey. The approach is voluntary. By entering their personal data, participants agree to the approach (see all items in the complete survey in the supplement).

Ethic approval

Since this study will not collect any patients' personal data, we do not expect any ethical problems or challenges. Similar, data of participating clinicians will not be published, and we do not expect any serious challenges with data protection.
Nevertheless, participating clinicians have to prove their national and local policies for ethics and data protection. We will inform each participant about this need.
All participants will be informed about the voluntary approach on the first page of the survey. They will be informed about data protection. They will be informed that participation means consent.

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Supplement

Content

- Survey /(text and questions)
- Data collection form
- Cherrie Statement

World Delirium Awareness Day March 15th 2023 Survey

A 1-Day Point Prevalence Study about Delirium

Introduction

Dear colleague

Thank you very much for participation in the worldwide one-day point prevalence study during the World Delirium Awareness Day March 15th 2023.

On the next pages you will find the survey. We are asking for some personal data such as country, years of experience, discipline, but moreover for current delirium-related structures and processes on your unit/ward.

The main question is: how many patients on your unit/ward are delirious at 8 a.m. in the morning and 8 p.m. in the evening on March 15th? We beg you to ask other clinicians and/or check the charts to be most accurate on this question. There will be more questions and information in the survey, of course.

The survey includes 34 questions and will take 12-15 minutes approximately. The survey is anonymous, and your participation is voluntary. You can stop your participation whenever you want. There is no chance to identify your personality or of your patients. The survey has been registered, has an ethic approval, and is based on the European law of data protection. These rights are reported in detail on the next page. Nevertheless, before performing the study, be sure that the national collaborator informed you about the legal requirements of the ethic approval and data protection in your country and health care setting.

At the end of the survey, we will be asking you if you would like to be acknowledged!

By participating in this survey, you agree with these terms and conditions.

Thank you!

The study team

Data protection

The survey follows the European Union's General Data Protection Regulation (GDPR).

Participants have the rights:

Right for information

You have the right for information about the personal data concerning you that will be collected, processed or, if necessary, transmitted to third parties within the framework of this project and to hand over a free copy (Article 15 GDPR).

Right to rectification

You have the right to correction of inaccurate personal data concerning you (Articles 16 and 19 GDPR).

Right to erasure

You have the right to erasure of personal data concerning you if this is possible (e.g. if this data is no longer necessary for the purpose for which it was collected and this is not precluded by any retention obligations (Articles 17 and 19 GDPR).

Right to restriction of processing

Under certain conditions, you have the right to demand a restriction of processing, i.e. the data may only be stored, not processed. You must apply for this. Please contact the project management (Articles 18 and 19 GDPR).

Right to data portability

You have the right to receive the personal data concerning you that you have provided to the person responsible for the project. You can request that this data be transmitted either to you or, as far as technically possible, to another body notified by you (Article 20 GDPR).

Right to object

You have the right to object at any time to specific decisions or measures regarding the processing of your personal data (Art. 21 GDPR, § 36 BDSG-new). Such processing does not take place afterwards.

Consent to the processing of personal data and right to withdraw this consent

The processing of your personal data is only lawful with your consent (Article 6 GDPR). You have the right to withdraw your consent to the processing of personal data at any time.

Right to lodge a complaint with the competent supervisory authority for data protection

If you would like to exercise one of these rights, please contact the responsible project management or the data protection officers of the research team involved.

Contact: in case you want to use any of these rights, please contact the ~~primary~~ principal investigator Dr. ~~Peter Nydahl~~Rebecca von Haken (Rebecca.vonHaken@umm.de~~Peter.Nydahl@uksh.de~~) or the representative of the department

of data protection in the University Hospital ~~of Schleswig-Holstein~~Mannheim (datenschutzbeauftragter@umm.de~~datenschutzbeauftragter@uksh.de~~).

By clicking the box below; I confirm that I understood the above text

Yes, I confirm

Please consider if you fulfill the inclusion criteria

Inclusion

I am working as a leading health care worker or representative (such as senior physician, physician in charge, nurse leader, nurse in charge or similar professionals) in a health care setting with patients, such as units/wards in hospitals and facilities including Emergency Department, Intensive Care Units, palliative units, wards, weaning centers, rehabilitation centers, or nursing homes.

Exclusion:

Former patients, family member or clinicians working in an ambulatory care service

By clicking on the button, I confirm that I am fulfilling the inclusion criteria above
I do not fulfil the inclusion criteria (ending survey)

Page 3 Security

To avoid multiple participants from single ward or units, we ask you for the name of the city and the name of the ward/unit, where you are collecting data. These data will not be part of the main data evaluation and will be kept confidentially and not forwarded to others. These data will be kept for three months on the server of the survey, and deleted afterwards

What is the name of the city, where the hospital is located, e.g. “Hamburg”
Free text: ……

What is the official name of your ward or unit (no nicknames, please), e.g. “C114”?
Free text: ……

Page 4 Sociodemographic data

What is your profession?

- ○ Assistant (any type, e.g. unit assistant, nurse assistant, rehab assistant ...)
- ○ Manager
- ○ Lecturer
- ○ Researcher
- ○ Nurses
- ○ Nutrionist/Dietician
- ○ Occupational Therapist
- ○ Pharmacist
- ○ Physician
- ○ Physical Therapist
- ○ Respiratory Therapist
- ○ Speech and Swallow Therapist
- ○ Technician
- ○ Other

Are you in a leading position on your unit/ward?

- Yes
- Yes, partly
- No
- No, but I am in charge for reporting these data
- Do not know/Unsure

What is the number of years of clinical experience?

- <5
- <10
- <15
- <20
- ≥20 years

Page 5 Hospital data

Please select the country where the hospital is located

(list)

Number of beds in your hospital

- ○ <250
- ○ <500
- ○ <750
- ○ <1000
- ○ <1500
- ○ ≥1500

Type of hospital

- ○ University hospital
- ○ University-related/affiliated hospital
- ○ community hospital
- ○ nursing home
- ○ rehabilitation center
- ○ private hospital
- ○ others

Page 6: Unit/ward data

The majority of your patients belong into following age group:

- ○ 0-17 years
- ○ 18-75 years
- ○ >75 years
- ○ Mixed

The discipline you are working, can be described as

- ○ Medical/non-surgical
- ○ Surgical
- ○ Palliative
- ○ Respiratory/weaning
- ○ Rehabilitation
- ○ Long care
- ○ Mixed/general
- ○ Other

The ward or Unit you are working is …

- ○ Emergency Department
- ○ General Ward
- ○ High acuity, Intermediate Care, or Intensive Care Unit
- ○ Rehabilitation Facility
- ○ Nursing Home
- ○ Other

Please report the number of beds on your unit/ward in full numbers (e.g. "12")

- ……

Do you have written protocols for (tick all that apply):

- ○ Pain management (assess, prevent and manage pain)
- ○ Spontaneous Awakening Trial (SAT) management
- ○ Spontaneous breathing trial (SBT) management
- ○ Sedation management
- ○ Delirium management (assess, prevent and manage Delirium)
- ○ Dementia

- Mobility and exercise
- Family engagement and empowerment
- Nutrition management
- Sleep
- Physical restraint
- ICU Diaries
- None
- Other (free text)

Page 7 Delirium related Structures and processes

Do you provide delirium-awareness-interventions in your team (tick all that apply)

- ○ At least one educational training about delirium in the last year
- ○ Delirium flyer for the staff
- ○ Delirium is mentioned in handovers
- ○ Pocketcards for delirium assessment/management
- ○ Informational Posters about delirium
- ○ Delirium experts, known by the team and dedicated for delirium care
- ○ Communication of delirium screening rate on your unit/ward
- ○ None
- ○ Other

Delirium Assessment: What type of delirium assessment do you use in your team? (In case of multiple assessment, tick all that apply)

- ○ 3DCAM
- ○ 4AT
- ○ bCAM
- ○ CAM
- ○ CAM-ICU
- ○ CAMICU-7
- ○ CAPD
- ○ DTS
- ○ DSM-IV criteria
- ○ DSM-V criteria
- ○ DSM-VI criteria
- ○ ICDSC
- ○ NU-DESC
- ○ PAED Scale
- ○ pCAM-ICU
- ○ Psychiatric counsel
- ○ SOS-PD
- ○ SQID
- ○ UB2

- ○ None
- ○ Others (please specify)

How often do you assess patients for delirium?

- ○ Once per day (24h)
- ○ Twice per day (24h)
- ○ Thrice per day (24h)
- ○ More than thrice per day (24h)
- ○ Only at admission
- ○ Only in case of sudden changes of consciousness (withdrawn, agitation, disorientation, inappropriate behavior)
- ○ Other (please specify) …

Who is the profession, who is primarily responsible for daily delirium assessment?

- ○ Nurse
- ○ Physician
- ○ Psychiatrist
- ○ Geriatrician
- ○ Specific delirium team (composed of multidisciplinary team)
- ○ Mixed professions
- ○ None
- ○ Other

Morning

Delirium data at March 15th 2023 at 8 a.m. in the morning (if not exactly feasible, at least close to this timepoint including +/- 4 hours)

We would like to know the delirium rate on your unit/ward. Please check the charts/records and/or ask responsible clinicians to be most accurate. Please enter full numbers (e.g. “4”), no range or percent

1. Total patients: How many patients were present on the ward/unit in the morning at 8 a.m.?
2. Assessed patients: How many patients were assessed for delirium by using the above reported assessment?
3. Delirious patients: How many patients were assessed positive for delirium by using the above reported assessment?
4. Non-delirious patients: How many patients were assessed free of delirium by using the above reported assessment?
5. Not assessable/unclear patients: How many patients were not assessable for delirium (e.g. comatose, sedated, disturbed consciousness, too sleepy, away for procedures, aphasic, different language, or else) and/or had unclear results by using the above reported assessment (e.g. unclear care of delirium superimposed on dementia/depression, or else)?

Evening

Delirium data at March 15th 2023 at 8 p.m. in the evening (if not exactly feasible, at least close to this timepoint including +/- 4 hours)

We would like to know the delirium rate on your unit/ward. Please check the charts/records and/or ask responsible clinicians to be most accurate.
Please enter full numbers (e.g. “4”), no range or percent

1. Total patients: How many patients were present on the ward/unit in the evening at 8 p.m.?
2. Assessed patients: How many patients were assessed for delirium by using the above reported assessment?

3. Delirious patients: How many patients were assessed positive for delirium by using the above reported assessment?
4. Non-delirious patients: How many patients were assessed free of delirium by using the above reported assessment?
5. Not assessable/unclear patients: How many patients were not assessable for delirium (e.g. comatose, sedated, disturbed consciousness, too sleepy, away for procedures, aphasic, different language, or else) and/or had unclear results by using the above reported assessment (e.g. unclear care of delirium superimposed on dementia/depression, or else)?

Please report all types of health care professions who were present at your ward/unit today, even if only for a few moments (tick all who apply)

- Assistants/Service
- Nurses
- Nutrionist/Dietician
- Occupational Therapist
- Pharmacist
- Physician
- Physical Therapist
- Priest/religious Support
- Psychologists
- Respiratory Therapist
- Speech and Swallow Therapist
- Technician
- Other

Page 9 Non-pharmacological interventions for prevention and treatment

Do most patients (>50%) your unit/ward receive routine non-pharmacological interventions (at least once per shift) for delirium prevention and treatment?

Answers: (Click all that apply)

- ○ Mobilization (sitting on the edge of bed or more, daytime)
- ○ Pain management
- ○ Bed boarder
- ○ Physical restraints (e.g. on wrists and others)
- ○ Provision of day- and night rhythm
- ○ Adequate fluids
- ○ Provision of vision- and hearing and mobility aids
- ○ Cognitive stimulation, e.g. provision of newspapers, TV, music, other
- ○ Verbal re-orientation
- ○ Open or liberal visiting times for families (daytime)
- ○ Non-disturbed sleep (i.e., reduction of noise and light)
- ○ Ear plugs, sleep glasses
- ○ Family information
- ○ Multi-professional team rounds
- ○ Avoidance of bladder tubes/catheters
- ○ Multi-professional daily goals
- ○ Sharing or communicating patient information about delirium
- ○ Ground-leveled beds
- ○ Activities in patient groups, e.g. singing, eating, doing exercises together, other
- ○ Animal assisted therapy
- ○ Going “outside” the unit/ward, eg hospital hall, garden, sunlight
- ○ Special trained delirium/dementia carer
- ○ Other (please specify) …

Page 10: Pharmacological Treatment

Do most delirious patients (>50%) of your unit/ward receive pharmacological interventions?

Answers: Click all that apply

- o Haloperidol
- o Clonidine
- o Melperone
- o Risperidone
- o Lorazepam
- o Dexmedetomidine
- o Diazepam
- o Reduction of potentially delirogenous drugs
- o Quetiapine
- o Midazolam
- o Distraneurin
- o Evaluation of drugs by a specialist (e.g. geriatrician, pharmacists, or else)
- o Melatonin
- o Beta-blocker
- o Levodopa
- o Phenobarbital
- o Do not know
- o Other (please specify) …

In general, the pharmacological management on my ward/unit of patients in delirium … (click all that apply)

- o Is based on a standard operation procedure (SOP), or protocol
- o Includes pharmacologists
- o Includes psychiatrist or delirium specific liaison team
- o Is a more general approach, including a few pharmacological agents
- o Is a more individual approach, depending on patients, and side effects
- o Depends on specific symptoms of each patient's delirium
- o Is discussed with patients in most cases
- o Is discussed with families in most cases
- o Is reported in handovers
- o Includes recommendations for withdrawal of delirium-related drugs
- o None of the above
- o Other (please specify) …

Page 11: Barriers

On my unit/ward, barriers against implementation and/or use of evidence-based strategies are … (Click all that apply)

- Lack of time to educate and train staff
- Shortage of personnel/staff
- No cost/resources for promoting at the department
- Missing knowledge about delirium (i.e., treatment, assessment, etc.)
- Communication gaps between professions
- Missing attitude, delirium is not important
- Not enough motivated staff
- No leadership
- Lack of of non-pharmacological interventions
- Lack of pharmacological interventions
- No appropriate scores for assessment of delirium
- Patients who are difficult for assessment (dementia, dying, prematured)
- Other problems are more challenging
- Inter-professional conflicts
- We have no barriers, delirium is regularly assessed, delirium-management is implemented, we go ahead
- Other (please specify) …

Page 12 Comments

In your opinion, what should be high priority for delirium care in the future? (free text)?

…

In your opinion, what should be high priority for delirium research in the future? (free text)?

…

Comments

Would you like to add anything? (free text)

- …

Page 13 Acknowledgement

Thank you very much.

Optional code for sub-analysis: in case, you pre-registered sub-analyses, please enter here the code you received, and report your data in the acknowledgement below.

…….

You are almost done. If you would like to be acknowledged personally, we would be happy to include your name in an acknowledgement in future publications. If so, please enter your name, degrees, hospital, and email address (example: Dr. Peter Nydahl, University Hospital Schleswig-Holstein, Kiel, Germany. Peter.Nydahl@uksh.de)

These data addresses will be handled confidentially and not forwarded to third parties. Only the research team will have access to these data. These data will be stored on the server of the survey for three months after the survey (June 15th, 2023), and deleted afterwards. The data will be used for publication, to acknowledge your contributions. Participation is voluntary. By entering your personal data, you agree to this approach.

Your full Name

- …

Scientific degrees

- …

Hospital

- …

Email address

- …

Thank you for participation!
The WDAD 2023 Research Team

Data collection form

… for the WDAD Study delirium prevalence study on March 15th 2023. Most data of present structures and process do not change and can be collected a few days before/after the prevalence day. Prevalence data such as delirium-assessment-results must be collected by chart-review or asking responsible clinicians during the prevalence day on March 15th or next day. You can use this form collecting the prevalence data and transfer it into the survey. The survey on the website will close on March 19th. More information on www.wdad-study.center

Delirium data

Items **Report in full numbers (e.g. "12")**	Data collection at 8 a.m. MORNING	Data collection at 8 p.m. EVENING
Total patients: How many patients were present on the ward/unit?		
Assessed patients: How many patients were assessed for delirium by using the above reported assessment?		
Delirious patients: How many patients were assessed positive for delirium by using the above reported assessment?		
Non-delirious patients: How many patients were assessed free of delirium by using the above reported assessment?		
Not assessable/unclear patients: How many patients were not assessable for delirium and/or had unclear results by using the above reported assessment?		

Please report all types of health care professions who were present at your ward/unit today, even if only for a few moments (tick all who apply)

- ☐ Assistants/Service
- ☐ Nurses
- ☐ Nutrionist/Dietician
- ☐ Occupational Therapist
- ☐ Pharmacist
- ☐ Physician
- ☐ Physical Therapist
- ☐ Priest/religious Support
- ☐ Psychologists
- ☐ Respiratory Therapist
- ☐ Speech and Swallow Therapist
- ☐ Technician
- ☐ Other

Cherries

Table E2: Checklist for Reporting Results of Internet E-Surveys (CHERRIES)

Checklist Item	Description	Reported on page
Describe survey design	Describe target population, sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.)	7
IRB approval	Mention whether the study has been approved by an IRB.	5
Informed consent	Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study?	7-8
Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect unauthorized access.	9
Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire	7
Open survey versus closed survey	An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample which the investigator knows (password-protected survey).	7
Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for Web-based data entry.)	7-8
Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally the survey announcement should be published as an appendix.	Not reported yet
Web/E-mail	State the type of e-survey (eg, one posted on a Web site, or one sent out through e-mail). If it is an e-mail survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?	9
Context	Describe the Web site (for mailing list/newsgroup) in which the survey was posted. What is the Web site about, who is visiting it, what are visitors normally looking for? Discuss to what degree the content of the Web site could pre-select the sample or influence the results. For example, a survey about vaccination on a anti-immunization Web site will have different results from a Web survey conducted on a government Web site	9
Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the Web site, or was it a voluntary survey?	7
Incentives	Were any incentives offered (eg, monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?	7
Time/Date	In what timeframe were the data collected?	7
Randomization of items or questionnaires	To prevent biases items can be randomized or alternated	7
Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce number and complexity of the questions.	7

Number of Items	What was the number of questionnaire items per page? The number of items is an important factor for the completion rate	7
Number of screens (pages)	Over how many pages was the questionnaire distributed? The number of items is an important factor for the completion rate.	7
Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if “yes”, how (usually JAVAScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as “not applicable” or “rather not say”, and selection of one response option should be enforced.	7
Review step	State whether respondents were able to review and change their answers (eg, through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct).	7
Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both.	7
View rate (Ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.	Not reported yet
Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called “recruitment” rate.	Not reported yet
Completion rate (Ratio of users who finished the survey/users who agreed to participate)	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate “informed consent” page or if the survey goes over several pages. This is a measure for attrition. Note that “completion” can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word “completeness rate”.)	Not reported yet
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (eg, the first entry or the most recent)?	Not reported yet
IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (eg, 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	7
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe	9

Registration	In “closed” (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	9
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	11
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.	n/a
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	11

n/a not applicable

Reference E1: Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). J Med Internet Res 2004;6(3):e34.