Oxford COVID-19 Evidence Service

How can healthcare workers adapt non-pharmacological treatment - whilst maintaining safety - when treating people with COVID-19 and delirium?

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VERDICT

- **COVID-19 can present with delirium, which may be severe. Presentation may be rapid and index of suspicion should be high**
- **Non-pharmacological interventions (See Box 1) are the mainstay for the management of delirium in all settings; there is consistent evidence of benefit in the prevention of delirium**
- **Communication and care are compromised by the need for Personal Protection Equipment (PPE) in COVID-19**
- **Use of remote consultations may be necessary and is often feasible (See Box 2)**

BACKGROUND

What is delirium?

Delirium is common in people with any terminal or acute illness. High risk groups include those who are hospitalized for acute infection, older people, and those who are frail or have neurodegenerative conditions leading to decreased cognitive reserve, such as dementia. Delirium occurs frequently in people who are critically ill in any setting including the community and it may indicate imminent dying in those with or without COVID-19. In some people, however, delirium resolves as causes are treated.

Delirium presents as acute brain failure with a sudden onset of fluctuating poor attention and confusion. (1) Patients may have disturbed sleep patterns and experience hallucinations. Delirium may be hyperactive, hypoactive or mixed. A useful infographic is found here https://www.bmj.com/content/357/bmj.j2047/infographic. (2)

Delirium may be caused by underlying disease or occur as a side effect of drugs or other conditions. Frequently it is not clear why a person has delirium and causes are often multifactorial. The complex nature of delirium makes its management challenging. Delirium frequently causes distress to both the person, their family and healthcare workers (O'Malley 2008; Partridge 2013). (3,4)

Delirium and COVID-19
Narrative evidence is emerging from the COVID-19 pandemic that clinical deterioration may be sudden. Rapid onset of delirium may be a prominent feature (5) of this. In some patients with COVID-19, particularly older people, delirium may be the main presenting symptom. COVID-19 may precipitate delirium through hypoxia, infection, and multi-organ failure. There is some evidence that COVID-19 may be associated with encephalopathy and other neurological syndromes. Admission into an acute hospital and transfers between care settings or wards, including critical care, may all precipitate delirium. Index of clinical suspicion should be high amongst professional and family carers, but case recognition may be challenging. Maintaining safety through wearing Personal Protective Equipment (PPE) or offering care at a distance presents challenges for communication with patients and their families. Key face recognition and body language clues are lost and people may become more confused and frightened.

Although transfer of care setting is a risk factor for delirium, those at home are also vulnerable. Recognition of delirium may be complicated by limited contact with healthcare providers; this may be particularly challenging for family members and others in the household who do not have medical training. It is possible that carer anxiety may be an important issue in caring for people with COVID-19 in the community, especially in the face of rapid deterioration and the emergence of delirium, and in the context of self-isolation restrictions.

Learning from the Ebola epidemic in 2014-15 highlighted how delirium was common during the advanced stages of the disease and how it presented a serious management challenge in a context in which strict infection control was required. In addition this had important subsequent effects (6) on the mental health of survivors.

Research question and objectives of this rapid review

***How can healthcare workers adapt non-pharmacological treatment -
whilst maintaining safety - when treating people with COVID-19 and delirium?***

The objectives are to
- summarise emerging evidence and clinical guidelines relevant to the management of delirium in people with COVID-19
- present what is known on the use of non-pharmacological approaches for the management of delirium and relevant to people with COVID-19, outside of critical care settings.

- report on the feasibility, acceptability, challenges and potential benefits of using remote consultation for managing delirium in the context of COVID-19 where issues of need for infection control may present barriers to face to face assessments.

Search strategy

Pubmed, Embase and Psychinfo were searched on 17th April 2020. We ran additional more general searches on telemedicine in the same databases on 20th April 2020 and on personal protective equipment (PPE) on 30th April 2020.

We sought to identify works containing the information most relevant to the research question, of high quality and most likely to be impactful on practice. These included where available systematic reviews and clinical guidelines.

Critical Appraisal of Research

We used Amstar II (7) to appraise systematic reviews and the quality of the evidence derived was judged following the GRADE (8) Working Group grades of evidence. For any primary studies, dependent on study design, we planned to use a CASP checklist. (9)

EVIDENCE, CLINICAL GUIDELINES and COVID-19

Emerging evidence and clinical guidelines relevant to the management of delirium in people with COVID-19

First line treatment of delirium uses non-pharmacological approaches (Bush 2018; SIGN 2019). (10,11) Simple measures include early recognition, attention to the environment and addressing reversible physical causes as outlined in Box 1. People with COVID-19 may also be distressed by a perception of shortness of breath. Emerging challenges to the use of non-pharmacological interventions in people with delirium and COVID-19, including possible adjustments to some components, are set out here https://onlinelibrary.wiley.com/doi/epdf/10.1111/jgs.16480 (5)

Detection and index of clinical suspicion

Identification of delirium is the key first step in its management. The need for staff and family education to raise the index of suspicion of delirium underpins many of the identified multi-component interventions (Box 1). A detailed discussion of family carer education interventions can be found in the review conducted by Carbone (2015). (12) Education programmes such as those evaluated by Yamalada (2013) and Wand (2011) are time consuming. (13,14) Bush (2014) suggests the use of leaflets. (15) Shorter methods such as leaflets may be needed in the rapidly unfolding picture of delirium in COVID-19.

A strong evidence base on the content of leaflets is not found (we are aware of one study) (16) but further information is available at https://www.dementiauk.org/delirium/ (17)

In the context of COVID-19, some staff may have been redeployed from other clinical areas and may not be familiar with detecting delirium. We suggest the use of the simple and validated 4-AT scale. (18) This is a widely used tool in UK clinical practice and is embedded in many acute trust admission clerking proformas and e-records.

Mental capacity
Some patients may be so delirious that they may not have the mental capacity to understand or tolerate the use of oxygen masks, or may wander with the complication of the threat of spreading the virus. Guidance on issues of mental capacity and deprivation of liberty safeguards is found here (19) https://www.gov.uk/government/publications/coronavirus-covid-19-looking-after-people-who-lack-mental-capacity

Management
Since the start of the COVID-19 pandemic, a number of guidelines and algorithms have been produced and a useful list is found at the end of this document.
The most widely cited are those developed by the British Geriatric Society. (20) They incorporate the SIGN guidance (21), which promotes use of the "TIME" tool (Triggers, Investigate, Manage, Engage) which is a tool/heuristic for delirium management widely used in the NHS.

Polypharmacy may be common in older people or patients discharged from the acute setting. This may lead to a high anticholinergic drug burden (ACB) which can precipitate or prolong delirium. A useful tool for calculating ACB is available at https://medichec.com/ (this can be downloaded as an application for mobile devices). (22)

End of life
Some people showing delirium may recover and careful clinical judgement should be exercised before commencing end of life care. In this context supportive treatment for delirium may include "correctable" causes. For example, antibiotic treatment for a secondary bacterial infection may improve fever, cough, breathlessness and delirium. Comprehensive international guidance on palliative care in the context of coronavirus and COVID-19 is available from the European Association for Palliative Care. (23)
In the UK, guidance is available through NICE on the management of delirium at the end of life and the appropriate use of medication. (24)

What is known on the use of non-pharmacological approaches for the management of delirium and relevant to people with COVID-19, outside of critical care settings

Adaptation of pharmacological treatment for delirium for people with COVID-19
No direct evidence was identified.

Non-pharmacological multicomponent interventions for delirium
We identified nineteen (List A) systematic reviews of studies of hospitalised patients including older and younger populations in surgical or medical settings which were not specific to ICU. None were specific to COVID-19. Three of the reviews included studies of nursing home residents; none included studies on home care. Multi-component non-pharmacological interventions were compared with usual care. Heterogeneity in components and study quality makes it difficult to provide clear recommendations.

The interventions varied in components but certain elements were commonly included and these are shown in Box 1. Many of the interventions have built upon the principles of the Hospital Elder Life Programme HELP (Inouye 1999) for the prevention and management of delirium. (25)

BOX 1: **Common components of multi-component non-pharmacological interventions for delirium**

- protocols to address staff and family education to raise awareness for identification of delirium syndrome;
- identifying and optimising treatment of potentially reversible clinical conditions;
- review and treatment of possible sources of pain;
- addressing simple measures such as provision of vision and hearing aids to enhance orientation;
- review of medication, reduction in use of psychiatric drugs and minimising overall medication;
- adequate and appropriate hydration and nutrition;
- proactive geriatric consultation if available;
- sleep management;
- early mobilisation;
- systematic cognitive screening.

There is generally consistent evidence that in non-ICU hospital settings and in nursing homes, in comparison with usual care, multi-component non-pharmacological interventions containing some or all of these components reduce the incidence of delirium. For instance, in one Cochrane review in combined analysis of seven studies

with a total of 1950 participants the risk was reduced by 31% (Relative Risk 0.69, 95% Confidence Interval 0.59 to 0.81, moderate-quality evidence) (Siddiqi 2016). (26)

Additional single-item interventions in delirium prevention or management
Seven (List B) systematic reviews measured impact on delirium of various single-item interventions; bright light therapy, improving decision making, improving hydration, medication monitoring, music therapy, physical training, use of ear plugs and staff education. Evidence was inconclusive for these therapies as single-items. This is not to suggest they may not work but there is insufficient evidence. Moreover, in the case of bright light therapy it may rebalance the sleep-wake cycle (disruption of which is a key driver of delirium) when used in combination with other elements of multi-component interventions.

Infection control and using remote consultation for managing delirium in the context of COVID-19 where issues of need for infection control may present barriers to face to face assessments.

Communication in face to face consultations
In our search, we found one review, a Cochrane rapid qualitative synthesis (27) on barriers and facilitators to infection control procedures in acute respiratory illnesses such as COVID-19. It discusses the many issues arising, including fears that patients feel isolated, frightened or stigmatised. A recent mixed methods study that incorporated systematic evidence review sets out 5 key recommendations (28) to enhance communication in usual patient/physician encounters
(See Box 2). However, use of PPE may limit these processes particularly when attending people with delirium and COVID-19. We suggest considering the use of a simple recently proposed ABC mnemonic (29) for communicating whilst wearing PPE: **A**ttend mindfully, **B**ehave calmly; **C**ommunicate clearly (See Box 2)

BOX 2: Enhancing communication in clinical encounters.

Good practice when possible
(1) prepare with intention; (2) listen intently and completely
(3) agree on what matters most; (4) connect with the patient's story
(5) explore emotional cues

When using PPE:
    (1) **A**ttend Mindfully – take time to prepare yourself, remember clinician/patient asymmetries, body language, aligning non-verbal signalling with spoken message
    (2) **B**ehave Calmly – approach from the front, drop down to eye level, avoid negative body language
    (3) **C**ommunicate clearly – underline words with gesture, match tone with that of patient especially older adults, observe first and mirror mood or tone of patient if possible.

Further guidance and communication aids are available at (30, 31)
https://www.cardmedic.com/
https://www.rgptoronto.ca/wp-content/uploads/2020/04/How-to-prevent-and-support-delirium-in-an-older-adult-when-you-can%E2%80%99t-visit-in-person.pdf

Use of Telemedicine for remote consultations
We included seven (List C) reviews of studies on the use of technological aids in remote consultations with older people, some with cognitive impairment, in community settings including long term care facilities and hospices. We included another review which focused on remote consultations with children and families for the delivery of paediatric palliative care. There is increasing interest in this form of working although it remains an under-researched topic.

A number of technologies were considered such as videoconferencing, use of tablets or iPads, and telephones. Choice of technology was dependent on what was available to participants.

None of the reviews specifically looked at evidence on impact on care management. There was low quality but consistent evidence across studies reviewed that families and community nurses found remote consultations feasible and useful in the care of older adults (Ramprasad 2019) (32), in hospice (Oliver 2012) (33) and the care of children receiving palliative care (Bradford 2013) (34) including reduction in carer anxiety (outcome data not provided).

In the context of COVID-19 use of remote consultation in primary care, speed of consultation and appropriate conservation and use of PPE have become paramount. A number of rapidly produced descriptive articles have emerged on the use of telemedicine for managing care outside of hospital for example Calton 2020. (35) Suggested key features for successful consultations are listed in
Box 3. Some of these resonate with components of the non-pharmacological interventions in particular attention to orientation and environment, and involvement of family members where possible.

Box 3: Common features in successful remote consultations

- ensuring in advance a point of contact within the household (key family member if possible) to enable a workable electronic connection;
- attention to call etiquette including the free consent of participants and a quiet confidential environment;
- documentation of discussions and decisions made;
- careful attention to body language (on video calls) and tone of voice used.

Remote consultations can be achieved by telephone, but video may provide additional visual cues and therapeutic presence. Video may be appropriate for sicker patients such as those with delirium, those with comorbidities, those whose social circumstances have a bearing on the illness, and those who are very anxious. Patients who are hard of hearing may prefer video to telephone; some platforms offer subtitles when using video links. In many countries there has been formal relaxation of privacy and data protection regulations for video and other communications technologies during the COVID-19 pandemic; the General Data Protection Regulation in the UK and European Union already include a clause excepting work in the overwhelming public interest. (36) https://www.bmj.com/content/368/bmj.m1182

A useful infographic of a quick guide to assessing patients by video or voice call in the context of COVID-19 is available here (37) https://www.bmj.com/content/bmj/368/bmj.m1182/F1.large.jpg

Implications for practice
Prevention and detection of delirium are of high importance during the COVID-19 pandemic (5). Non-pharmacological interventions remain the preferred clinical option in the first instance.

Delirium may require a pharmacological approach in situations where there is a very high level of distress to the patient or where patients put themselves or others at risk. Some patients may recover as COVID-19 subsides, so consider carefully before implementing terminal sedation. Advice from NICE is available on the management of delirium and other symptoms for people for whom the prognosis is poor and when they are considered to be in the terminal phase of illness.

Additional information (38,39) to support clinicians is available through the website of the collaborative and multi-disciplinary Network for the Investigation of Delirium Unifying Scientists (NIDUS) and the HELP programme.

CONCLUSIONS

Key points:
- **COVID-19 can present with delirium which may be severe, presentation may be rapid and index of suspicion should be high**
- **Non-pharmacological interventions (See Box 1) are the mainstay for the management of delirium in all settings; there is consistent evidence of benefit in the prevention of delirium**
- **Communication and care are compromised by the need for Personal Protection Equipment (PPE) in COVID-19**
- **Use of remote consultations may be necessary and is often feasible (See Box 2).**

Additional resources

Further guidance including specifically for **managing COVID related delirium** is available through National Institute for Clinical and Care Excellence, NICE: https://www.nice.org.uk/guidance/ng163/chapter/7-Managing-anxiety-delirium-and-agitation

https://www.nice.org.uk/guidance/cg103/resources/delirium-prevention-diagnosis-and-management-pdf-35109327290821

Guidance specifically focussed on care of **people in the community with COVID-19**, which includes guidance on delirium, can be found here https://www.guidelines.co.uk/infection/covid-19-rapid-guideline-managing-covid-19-symptoms-in-the-community/455280.article

Detailed evidence on the management of **breathlessness** is not the subject of this review, but as it may be a refractory and distressing symptom that may contribute to hypoxia and delirium, a recent summary is available here https://breathe.ersjournals.com/content/15/3/198?ctkey=shareline&utm_medium=shareline&utm_source=0200-2019&utm_campaign=shareline

And **guidance on managing breathlessness from NICE** is available here https://www.nice.org.uk/guidance/ng163/chapter/6-Managing-breathlessness

PUBMED LINK

End.

Disclaimer: the article has not been peer-reviewed; it should not replace individual clinical judgement and the sources cited should be checked. The views expressed in this commentary represent the views of the authors and not necessarily those of the host institution, the NHS, the NIHR, or the Department of Health and Social Care. The views are not a substitute for professional medical advice.

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SEARCH TERMS

To reflect the complexity of the question several search strategies were used. The search strategies ran in Pubmed on the non-pharmacological treatments and telemedicine are:

Non-pharmacological interventions/telemedicine in dementia and EOL - systematic reviews only
(((("Delirium"[Mesh]) OR ((delirium[Title/Abstract] OR "acute confusion"[Title/Abstract] OR "acutely confused"[Title/Abstract] OR "toxic confusion"[Title/Abstract]) OR (confus*[Title]))) AND ((((("Middle East Respiratory Syndrome Coronavirus"[Mesh]) OR "SARS Virus"[Mesh]) OR "Severe Acute Respiratory Syndrome"[Mesh]) OR "Influenza, Human"[Mesh]) OR (influenza[Title/Abstract] OR pneumonia[Title/Abstract] OR SARS[Title/Abstract] OR MERS[Title/Abstract] OR severe respiratory infections[Title/Abstract] OR acute respiratory infections[Title/Abstract]))) AND ((((((((("prevention and control" [Subheading]) OR "Telemedicine"[Mesh]) OR ("Infection Control"[Mesh])) OR (manag*[Title/Abstract] OR prevent*[Title/Abstract] OR treat*[Title/Abstract] OR therap*[Title/Abstract] OR program*[Title/Abstract] OR intervention*[Title/Abstract])) OR ((telehealth[Title/Abstract] OR tele-health[Title/Abstract] OR telemedicine[Title/Abstract] OR tele-medicine[Title/Abstract] OR "mobile health"[Title/Abstract] OR mhealth[Title/Abstract] OR "electronic health"[Title/Abstract] OR ehealth[Title/Abstract]) OR (smartphone*[Title/Abstract] OR smart phone*[Title/Abstract] OR cellphone*[Title/Abstract] OR cell phone*[Title/Abstract] OR ipad*[Title/Abstract] OR iphone*[Title/Abstract] OR android[Title/Abstract]))) OR (infection control[Title/Abstract])) OR ("Cell Phone"[Mesh])) OR (online[Title] OR electronic[Title] OR digital[Title] OR internet[Title] OR web*[Title]))

Telemedicine and COVID-19 - no restriction on type of evidence
(((("Delirium"[Mesh]) OR ((delirium[Title/Abstract] OR "acute confusion"[Title/Abstract] OR "acutely confused"[Title/Abstract] OR "toxic confusion"[Title/Abstract]) OR (confus*[Title]))) AND (((((((("prevention and control" [Subheading]) OR "Telemedicine"[Mesh]) OR ("Infection Control"[Mesh])) OR (manag*[Title/Abstract] OR prevent*[Title/Abstract] OR treat*[Title/Abstract] OR therap*[Title/Abstract] OR program*[Title/Abstract] OR intervention*[Title/Abstract])) OR ((telehealth[Title/Abstract] OR tele-health[Title/Abstract] OR telemedicine[Title/Abstract] OR tele-medicine[Title/Abstract] OR "mobile health"[Title/Abstract] OR mhealth[Title/Abstract] OR "electronic health"[Title/Abstract] OR ehealth[Title/Abstract]) OR (smartphone*[Title/Abstract] OR smart phone*[Title/Abstract] OR cellphone*[Title/Abstract] OR cell phone*[Title/Abstract] OR ipad*[Title/Abstract] OR iphone*[Title/Abstract] OR android[Title/Abstract]))) OR (infection control[Title/Abstract])) OR ("Cell Phone"[Mesh])) OR (online[Title] OR electronic[Title] OR digital[Title] OR internet[Title] OR web*[Title]))) AND ((("Pandemics"[Mesh]) OR "Disease Outbreaks"[Mesh:NoExp]) OR (pandemic*[Title/Abstract] OR outbreak*[Title/Abstract]))

(("Personal Protective Equipment"[Mesh]) OR ("personal protective equipment"[Title/Abstract] OR ppe[Title/Abstract] OR mask*[Title/Abstract] OR glove*[Title/Abstract] OR gown*[Title/Abstract] OR apron*[Title/Abstract]) Filters: from 2010 – 2020

(((((("Professional-Patient Relations"[Mesh]) OR "Interpersonal Relations"[Mesh:NoExp])
OR "Trust"[Mesh]) OR "Communication"[Mesh]) OR (communicat*[Title/Abstract] OR
relation*[Title/Abstract] OR interpersonal*[Title/Abstract] OR talk*[Title/Abstract])))
(interpersonal OR speech OR talk OR talking OR speaking)

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10.1002/gps.3900]

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systematic reviews that include randomised or non-randomised studies of healthcare
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(15)   Bush et al. Treating an established episode of delirium in palliative care: expert opinion and review of the current evidence base with recommendations for future development. Journal of Pain and Symptom Management. 2014: 48: 231-248.

(16)   https://www.ncbi.nlm.nih.gov/pubmed/23616273

(17)   https://www.dementiauk.org/delirium/ - Dementia UK

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(19)   https://www.gov.uk/government/publications/coronavirus-covid-19-looking-after-people-who-lack-mental-capacity

(20)   https://www.bgs.org.uk/resources/coronavirus-managing-delirium-in-confirmed-and-suspected-cases   - British Geriatrics Society et al. Coronavirus: Managing delirium in confirmed and suspected cases. March 2020.

(21)   https://www.sign.ac.uk/sign-157-delirium

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(28)   5 key recommendations

(29)   ABC mnemonic

(30)   https://www.cardmedic.com/

(31)   https://www.rgptoronto.ca/wp-content/uploads/2020/04/How-to-prevent-and-support-delirium-in-an-older-adult-when-you-can%E2%80%99t-visit-in-person.pdf

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(37)   https://www.bmj.com/content/bmj/368/bmj.m1182/F1.large.jpg

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LIST A

Reviews that evaluated non-pharmacological multicomponent interventions for delirium included

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