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Rapid Review: What is known about best practices for infection prevention and control in inpatient psychiatric facilities?



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Executive Summary

Background

Individuals who are admitted to inpatient psychiatric facilities may be at higher risk for coronavirus disease 2019 (COVID-19) and may also be at increased risk for serious complications due to the disease. While these inpatient wards fall under hospital-wide recommendations for infection control, some known best practices for limiting disease spread in hospital settings, such as patient isolation, may have adverse effects for individuals with serious mental illness, and compliance with physical distancing measures and hand hygiene may also be of concern.

This rapid review was produced to support public health decision makers' response to the coronavirus disease (COVID-19) pandemic. This review seeks to identify, appraise, and summarize emerging research evidence to support evidence-informed decision making.

This rapid review includes evidence available up to June 23, 2020 to answer the question: **What is known about best practices for infection prevention and control in inpatient psychiatric facilities?**

Key Points

- There is very little evidence on effective infection control practices specific to inpatient psychiatric facilities and no guidelines informed by research evidence are available. Quality of available studies is low, and recommendations are very likely to change as more evidence becomes available.
- In response to COVID-19, several organizations have produced interim guidance documents with recommendations specific to inpatient psychiatric facilities. Recommendations (based on expert opinion) generally suggest following established guidelines for other inpatient hospital settings (not included in data tables), and several factors specific to inpatient psychiatric facilities were identified:
 - There are complex ethical considerations surrounding enforcement of physical distancing measures if patients are non-compliant (e.g., use of restraints).
 - There is a need to adapt rather than suspend activities (for example, group therapy, family visits, etc.) to ensure adequate mental health care support
 - There is the potential for certain conditions (e.g., anxiety, paranoia, obsessive compulsive disorder) to be worsened by the experience of the pandemic.
 - Many patients have other medical comorbidities that may place them at increased risk of more serious COVID-19 complications.

Overview of Evidence and Knowledge Gaps

- One study found that mandatory supervised alcohol-based hand cleaning every four hours during an outbreak of respiratory infections reduced the number of infections. Given that a variety of respiratory infections were included, it is not known whether these findings are applicable to COVID-19. Overall study quality is low.
- Seven case reports were identified that described the experiences of inpatient psychiatric facilities in managing the effects of COVID-19. There are no data available to understand whether these measures were 1) effective in minimizing the spread of COVID-19 amongst patients and staff or 2) had any adverse effects on patient care or treatment of psychiatric conditions.

Methods

Research Question

What is known about best practices for infection prevention and control in inpatient psychiatric facilities?

Search

On June 22, 2020, the following databases were searched:

- Pubmed's curated COVID-19 literature hub: [LitCovid](#)
- [Trip Medical Database](#)
- World Health Organization's [Global literature on coronavirus disease](#)
- Joanna Briggs Institute [COVID-19 Special Collection](#)
- [COVID-19 Evidence Alerts](#) from McMaster PLUS™
- [Public Health +](#)
- [COVID-19 Living Overview of the Evidence \(L-OVE\)](#)
- [McMaster Health Forum](#)
- Cochrane Rapid Reviews [Question Bank](#)
- [Prospero Registry of Systematic Reviews](#)
- NCCMT [COVID-19 Rapid Evidence Reviews](#)
- [MedRxiv preprint server](#)
- [PubMed](#) database
- [EMBASE](#) database
- [PsycINFO](#) database
- NCCDH [Equity-informed Responses to COVID-19](#)
- NCCEH [Environmental Health Resources for the COVID-19 Pandemic](#)
- NCCHPP [Public Health Ethics and COVID-19](#)
- NCCID [Public Health Quick Links](#)
- NCCID [Disease Debrief](#)
- NCCIH [Updates on COVID-19](#)

A copy of the search strategy is available on request.

Study Selection Criteria

The search results were first screened for recent guidelines and syntheses. Single studies were included if no syntheses were available, or if single studies were published after the search was conducted in the included syntheses. English-language, peer-reviewed sources and sources published ahead-of-print before peer review were included. Guidance documents were included as relevant. Surveillance sources were excluded. When available, findings from syntheses and clinical practice guidelines are presented first, as these take into account the available body of evidence and, therefore, can be applied broadly to populations and settings.

	Inclusion Criteria	Exclusion Criteria
Population	Inpatients at psychiatric facilities	
Intervention	Prevention and control measures for respiratory infections	
Comparisons	Any	
Outcomes	Infection prevention, including COVID-19 or other respiratory illnesses	Non-respiratory infections (e.g., sexually transmitted)

Data Extraction and Synthesis

Data relevant to the research question, such as study design, setting, location, population characteristics, interventions or exposure and outcomes were extracted when reported. We synthesized the results narratively due to the variation in methodology and outcomes for the included studies.

We evaluated the quality of included evidence using critical appraisal tools as indicated by the study design below. Quality assessment was completed by one reviewer and verified by a second reviewer. Conflicts were resolved through discussion. For some of the included evidence a suitable quality appraisal tool was not found, or the review team did not have the expertise to assess methodological quality. Studies for which quality appraisal has not been conducted are noted within the data tables.

Study Design	Critical Appraisal Tool
Synthesis	Health Evidence™ Quality Appraisal Tool
Non-randomized intervention	Joanna Briggs Institute (JBI) Checklist for Quasi-Experimental Studies
Case Control	Critical Appraisal Skills Programme (CASP) Case Control Checklist
Case Report	Joanna Briggs Institute (JBI) Checklist for Case Reports
Expert Opinion	Joanna Briggs Institute (JBI) Checklist for Text and Opinion

Completed quality assessments for each included study are available on request.

Findings

Quality of Evidence

This document includes two completed syntheses, one single study, three guidance documents, and eight case reports for a total of 14 publications included in this review. The quality of the evidence included in this review is as follows:

		Total	Quality of Evidence
Syntheses	Completed	2	2 Low
Single Studies	Completed	1	1 Moderate
Guidance Documents		3	1 Moderate 2 High
Case Reports		8	8 Low

Warning

Given the need to make emerging COVID-19 evidence quickly available, many emerging studies have not been peer reviewed. As such, we advise caution when using and interpreting the evidence included in this rapid review. We have provided a summary of the quality of the evidence as low, moderate, or high to support the process of decision making. Where possible, make decisions using the highest quality evidence available.

Table 1: Syntheses

Reference	Date Released	Description of Included Studies	Summary of Findings	Quality Rating: Synthesis	Quality Rating: Included Studies
Canadian Agency for Drugs and Technologies in Health. (2020, Apr 17). Infection prevention and control measures in mental health facilities: Guidelines.	Apr 17, 2020 (Search completed Apr 16, 2020)	No relevant evidence-based guidelines were found.	There were no relevant evidence-based guidelines found in relation to recommendations for infection prevention or control in mental health treatment facilities, therefore, no results were reported.	Low	None
Institut national d'excellence en santé et en services sociaux. (2020, Apr 3). Approches et interventions de soutien pour les personnes qui nécessitent des soins psychiatriques et qui ont ou sont à risque d'avoir la Covid-19.	Apr 3, 2020 (Search date not reported)	11 documents were included from China (n = 5), France (n = 2), Canada, the United Kingdom, the United States, and Israel. The review included guidance documents or commentaries (n = 9), and single studies (n = 2).	Key recommendations include: <ul style="list-style-type: none"> • Reorganization, rather than cancellation, of services • Cohorting for confirmed or suspected cases • Patient education on infection prevention and control measures • Establishment of approaches for communication between patients and families that maintains physical distancing • Identification and close observation of patients at high risk of impulsive behaviour 	Low	None

Table 2: Single Studies

Reference	Date Released	Study Design	Setting	Infection control measures tested	Summary of findings	Quality Rating:
Cheng, V.C.C., Wu, A.K.L., Cheung, C.H.Y., Lau, S.K.P., Woo, P.C.Y., Chan, K.H., Li, K.S.M., Ip, I.K.S., Dunn, E.L.W., Lee, R.A., Yam, L.Y.C., & Yuen, K.Y. (2010). Outbreak of human metapneumovirus infection in psychiatric inpatients: Implications for directly observed use of alcohol hand rub in prevention of nosocomial outbreaks. <i>Journal of Hospital Infection</i> , 67(4), 336–343.	May 17, 2010	Quasi-experimental	610-bed regional centre for chronic psychiatric conditions Hong Kong	Supervised hand hygiene intervention (regular alcohol hand rub for patients [Avagard™ and Microshield™] every four hours)	This study compared number of patients and staff with confirmed or suspected respiratory viruses (e.g., influenza, norovirus) during nosocomial outbreak before and after implementation of compulsory alcohol hand rub. Following implementation, the mean number of patients and staff with suspected or confirmed respiratory viruses per outbreak decreased from 60 to 6 (p < 0.001).	Moderate

Table 3: Guidance Documents

Reference	Date Released	Country	Key Recommendations	Quality Rating:
<p>Substance Abuse and Mental Health Services Administration. (2020, May 8). Covid19: Interim considerations for state psychiatric hospitals.</p>	<p>May 8, 2020</p>	<p>United States</p>	<p><u>Hospital-level</u></p> <ul style="list-style-type: none"> • Segregate all new admissions until a negative result • Assign dedicated staff in caring for only COVID-19 patients • Prepare for staff shortages <p><u>Ward-level</u></p> <ul style="list-style-type: none"> • Identify high risk patients (those who use tobacco or have comorbidities) and consider segregation • Closely monitor patients with paranoia or anxiety disorders whose conditions may worsen due to negative news about the pandemic • Consider suspension or modification of group treatment sessions. Offer one-on-one sessions with adequate distancing. • Continue family meetings and therapy with procedures in place for safe implementation: establish designated meeting area, frequent sanitization, social distancing. Consider alternative technologically based visits. • Strategic placement of visual cues/alerts related to hand and respiratory hygiene. <p><u>Individual-level</u></p> <ul style="list-style-type: none"> • Restrict movement of COVID-19 patients outside of their room. Enforcing this requires assessment of a patient’s capacity to understand risk of exposure. 	<p>High</p>
<p>Starace, F., & Ferrara, M. (2020). COVID-19 disease emergency operational instructions for Mental Health Departments issued by the Italian Society of Epidemiological Psychiatry. <i>Epidemiology and Psychiatric Sciences</i>, 29, e116, 1–4.</p>	<p>Mar 28, 2020</p>	<p>Italy</p>	<p><u>Hospital-level</u></p> <ul style="list-style-type: none"> • Suspension of in-person visits (exceptions as necessary in which visitors required to wear masks, practice hand hygiene and social distancing) <p><u>Ward-level</u></p> <ul style="list-style-type: none"> • Restrict new admissions to emergencies • Permit admission of new patients even with positive contact or symptom history if access to single isolation room with dedicated en-suite and availability of PPE and COVID-19 test • Prohibit patients from leaving ward/unit <p><u>Individual-level</u></p> <ul style="list-style-type: none"> • Patient education: hand hygiene • Surveillance: daily temperature and respiratory rate 	<p>High</p>

<p>Royal College of Psychiatrists. (n.d.). COVID-19: Inpatient services.</p>	<p>No date</p>	<p>England</p>	<p><u>Ward-level</u></p> <ul style="list-style-type: none"> • Consider adaptation of communal activities to reduce duration and increase physical distancing rather than suspension where possible to do so safely • Maintain meetings with limited personal contact and adequate distancing • Limit in-person visits. Alternative methods for keeping in touch are recommended (e.g., telephone). Restrict visits to immediate family or carers. Limit to 1 per patient (with exceptions) with visits limited to 1 hour daily. <p><u>Individual-level</u></p> <ul style="list-style-type: none"> • As possible, maintain patient leave and time off wards with assessment of risk/benefit for patients. 	<p>Moderate</p>
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Table 4: Case Reports

Reference	Date Released	Setting	Key infection control measures implemented	Quality Rating:
Du, N., OuYang, Y., & Chen, Y. (2020). The experience of prevention measures taken by the psychiatric hospital during the emergence of asymptomatic patients with COVID-19. <i>Psychiatry Research</i> . Epub ahead of print.	May 30, 2020	1,400-bed inpatient psychiatric hospital China	<p><u>Hospital-level</u></p> <ul style="list-style-type: none"> • Use of closed management mode (prohibiting visits) to all departments; new patients must undergo nucleic acid testing. <p><u>Ward-level</u></p> <ul style="list-style-type: none"> • Transition wards used for 14-day quarantine of new admissions. • Establishment of fever clinics for screening if symptoms present. • Personnel who have come in contact with confirmed cases are prohibited from leaving the ward after work hours. • Nursing staff required to undergo nucleic acid test, provide health certificate and obtain nursing card before entrance to ward permitted. Consistent patient assignments among nurses will be maintained as best as possible. Nucleic acid re-testing requires completion again if nurse leaves and re-enters the ward. 	Low
Skelton, L., Pugh, R., Harries, B., Blake, L., Butler, M., & Sethi, F. (2020). The COVID-19 pandemic from an acute psychiatric perspective: a London psychiatric intensive care unit experience. <i>BJPsych Bulletin</i> , 1–4.	May 14, 2020	Psychiatric intensive care unit experiencing an outbreak London, England	<p>Upon first suspected case of COVID-19:</p> <p><u>Ward-level</u></p> <ul style="list-style-type: none"> • Suspension of weekly patient-facing ward rounds; cohorting of COVID-19 positive and negative patients in separate corridors; reducing frequency of medicine administration and face-to-face assessments; one-to-one nursing activities completed at a 2m distance where possible <p><u>Individual-level</u></p> <ul style="list-style-type: none"> • Patients encouraged to wear masks <p><u>Challenges:</u></p> <ul style="list-style-type: none"> • Enclosed ward layout preventing social distancing and isolation • Non-adherence to self-isolation • Limited staff knowledge of infection control (e.g., use of PPE) given psychiatric specialty • Ethical dilemmas around decisions to enforce isolation (using restraints for example) to protect others 	Low

Poremski, D., Subner, S.H., Lam, G.F. K., Dev, R., Mok, Y.M., Chua, H.C., & Fung, D.S. (2020). Effective infection prevention and control strategies in a large, accredited, psychiatric facility in Singapore . <i>Infection Control & Hospital Epidemiology</i> , 1–2.	Apr 23, 2020	2,000-bed inpatient hospital Singapore	<p><u>Ward-level</u></p> <ul style="list-style-type: none"> Split-mode operations (divide departments into independent functioning units to present large-scale quarantine); prohibition of inter-ward mixing and separate inpatient and outpatient service <p><u>Individual level</u></p> <ul style="list-style-type: none"> Visitors: mask requirement; suspension of volunteer activities Patients: twice daily temperature; hand sanitization every 2h, hygiene education, vaccination to prevent against other infections (e.g., influenza), suspension of group activities Staff: twice daily temperature screening; electronic tracking to facilitate contact tracing; restrictions on travel, leave and non-essential training; infection control and PPE use education and training; vaccination 	Low
Percudani, M., Corradin, M., Moreno, M., Indelicato, A., & Vita, A. (2020). Mental Health Services in Lombardy during COVID-19 outbreak . <i>Psychiatry Research</i> . Epub ahead of print.	Apr 12, 2020	Mental health services Lombardy, Italy	<p><u>Ward-level</u></p> <ul style="list-style-type: none"> Establishment of dedicated areas on wards for COVID-19 positive patients Provision of PPE and training in its use for staff (may be unfamiliar) <p><u>Individual level</u></p> <ul style="list-style-type: none"> Suspension of home leave requests/permission and family visits Daily symptom (e.g. temperature) monitoring 	Low
Shao, Y., Shao, Y., & Fei, J.-M. (2020). Psychiatry hospital management facing COVID-19: From medical staff to patients . <i>Brain, Behavior, and Immunity</i> . Epub ahead of print.	Apr 10, 2020	2400 inpatient bed mental health centre, Shanghai, China	<p><u>Ward-level</u></p> <ul style="list-style-type: none"> Suspension of in-person visits, replaced with video/internet channels <p><u>Individual-level</u></p> <ul style="list-style-type: none"> Fever report system for patients with dedicated staff and reported to ward/department. Summarized data reported to infection management team. Staff and students report health status and temperature daily, report travel history (if travel, must isolate for 14 days) 	Low
Fagiolini, A., Cuomo, A., & Frank, E. (2020). COVID-19 diary from a psychiatry department in Italy . <i>The Journal of Clinical Psychiatry</i> , 81(3): 20com13357.	Mar 31, 2020	Psychiatric division of a large university hospital Tuscany, Italy	<p><u>Ward-level</u></p> <ul style="list-style-type: none"> Limiting inpatient admissions to only essential Establishment of COVID-19 and non-COVID-19 areas <p><u>Individual-level</u></p> <ul style="list-style-type: none"> Hand hygiene procedures Face masks (medical and non-medical given limited resources) Establishment of seclusion room for patients engaging in high risk transmission behaviours (spitting, biting) 	Low
Zhu, Y., Chen, L., Ji, H., Xi, M., Fang, Y., & Li, Y. (2020). The risk and prevention of novel	Feb 25, 2020	China	<p>Upon confirmed cases of COVID-19:</p> <p><u>Hospital-level</u></p> <ul style="list-style-type: none"> 14-day observation in a pre-admission observation isolation ward 	Low

<p>coronavirus pneumonia infections among inpatients in psychiatric hospitals. <i>Neuroscience Bulletin</i>, 36(3), 299–302.</p>			<p><u>Ward-level</u></p> <ul style="list-style-type: none"> • Suspension of in-person visits and replaced with virtual ones • Consider risk level in decision-making related to patient transfer onto ward <p><u>Individual-level</u></p> <ul style="list-style-type: none"> • Temperature surveillance of hospital staff <p><u>Challenges</u></p> <ul style="list-style-type: none"> • Overcrowding, ward design not conducive to isolation • Lack of adherence to self-isolation measures • Staff knowledge on infectious disease protocols • Complex mental health needs of patients 	
<p>Bocher, R., Jansen, C., Gayet, P., Gorwood, P., & Laprévote, V. (2020). Responsiveness and sustainability of psychiatric care in France during COVID-19 epidemic. L'Encéphale. Epub ahead of print.</p>	<p>May 26, 2020,</p>	<p>Inpatient psychiatric facilities, France</p>	<p><u>Hospital-level</u></p> <ul style="list-style-type: none"> • Early discharges of inpatients if possible, to increase hospital capacity for COVID-19 cases • Limited visiting • No shared dining; restrictions on shared spaces • No community passes <p><u>Ward-level</u></p> <ul style="list-style-type: none"> • At least 89 new wards were created for COVID-19 patients who required psychiatric care • Quarantine measures implemented • Strategies to maintain therapeutic contact with discharged patients through telecommunication 	<p>Low</p>

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