Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Editorial

Keeping the wolf at bay: Infection prevention and control measures for inpatient psychiatric facilities in the time of COVID-19

Since COVID-19's arrival only months ago, daily life has changed drastically due to both the threat posed by the virus and the measures implemented to halt its spread. Though often set apart from the rest of society, the relative isolation of inpatient psychiatric facilities has not spared them from COVID-19's disruptive influence or, in some cases, its devastation. In February, the virus infiltrated a South Korean psychiatric ward, infecting all but two of the facility's 100+ patients and killing seven [1]. The following month, Western State Hospital, the largest psychiatric hospital in Washington state, experienced the first outbreak in a US psychiatric facility [2]. Other outbreaks—some fatal—are now underway in several states, including in 63 state psychiatric facilities [3].

COVID-19 infection commonly causes fever, fatigue, cough and shortness of breath, with symptom onset typically occurring two to fourteen days after exposure [4]. The most common comorbidities found in infected individuals include hypertension, obesity and diabetes [5], which are frequently encountered in patients with serious mental illness [6]. While viral transmission dynamics are still being determined, respiratory droplets produced during coughing or sneezing are considered the main route of spread, and special precautions are recommended for healthcare workers treating patients with known COVID-19 infection [7]. Evidence also indicates that COVID-19 can survive on some surfaces for days, presenting another challenge for healthcare facilities [8]. With a vaccine likely many months away and high mortality from COVID-19 in at-risk populations, prevention of the virus's spread is currently a primary focus of patient safety efforts in psychiatric facilities.

Unfortunately, vulnerability to infectious disease outbreaks has been a longstanding problem for these facilities [9], and they face a number of unique challenges in implementing infection prevention and control measures, particularly with regard to respiratory diseases. Many of these difficulties stem from the communal nature of inpatient psychiatric care, with its emphasis on group and milieu therapies. This design is particularly problematic for preventing COVID-19 dissemination, since viral spread from asymptomatic or pre-symptomatic individuals is common [10]. The inpatient psychiatric population itself poses several challenges to infection control as well. Patients are frequently admitted to psychiatric facilities directly from areas at high risk for COVID-19 dissemination, such as hospitals, correctional facilities, nursing homes, emergency rooms and homeless shelters. Due to cognitive limitations and severe mental illness, many patients also struggle with attending to activities of daily living, such as bathing and hand hygiene [11,12]. Agitated patients and those experiencing psychosis are often unable to comply with infection prevention measures, reducing their efficacy. Due to limited resources and fewer infection prevention personnel, infection prevention is often undervalued and consequently less of a priority within psychiatric facilities than in general hospitals [12]. Hand washing is also likely to be less frequent among staff in psychiatric facilities, since they have fewer physical interactions with patients than staff in general hospitals [11]. Furthermore, in many facilities, dispensers for alcohol-based hand sanitizers are not available in care delivery areas for patient safety reasons. The need to restrain agitated patients also means that staff come into direct contact with patients in chaotic conditions, increasing their chances of becoming infected.

Current COVID-19 prevention and control efforts have been hampered by poor access to testing at many facilities, which delays the transfer of patients who develop symptoms after admission and eventually test positive. Personal protective equipment (PPE) shortages also continue to be so problematic that the American Psychiatric Association and other mental health organizations have requested assistance from Vice President Pence [13], though there has been no public response to their request. These difficulties greatly increase the risk of multiple inpatient psychiatric providers requiring quarantine or isolation after exposure to an infected patient, straining an already depleted workforce.

Facilities are also experiencing barriers discharging patients, increasing length of stay and the chance affected individuals could be caught in an outbreak. Outpatient services, including partial hospitalization and intensive outpatient programs, have been severely curtailed in the wake of the pandemic, complicating discharge planning. While telepsychiatry services have expanded rapidly, they have not fully compensated for lost community capacity and are not accessible to patients without cell phone or computer access, which includes many individuals who are homeless or have serious mental illness. There are also anecdotal reports of sober homes and homeless shelters closing, as well as nursing homes and similar facilities refusing to accept new residents or allow current residents to return following a psychiatric hospitalization, due to concerns about these individuals seeding COVID-19 outbreaks in their facilities.

The Centers for Medicare & Medicaid Services (CMS) have released COVID-19 guidance for long-term care facilities [14] and the National Council for Behavioral Health has released guidelines for behavioral health residential facilities [15], both of which can be useful for inpatient psychiatric facilities. However, there are currently no guidelines from professional bodies or governmental organizations in the US explicitly regarding COVID-19 prevention and control measures in inpatient psychiatric facilities. As a result, facilities across the country have independently developed strategies for dealing with COVID-19, many of which are being shared through informal channels such as the

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Psychiatry Network, a Facebook group of more than 10,000 psychiatrists.

Some hospitals have opened dedicated psychiatric units for individuals known to be infected with COVID-19. However, this strategy is not yet widespread and most facilities continue to focus efforts on keeping COVID-19 out. Here we present recommended infection prevention measures drawn from relevant portions of the National Council for Behavioral Health behavioral health residential facility guidelines, our own hospital policies, discussions among psychiatrists in the Psychiatry Network and the opinions of the authors, to serve as a reference for institutions looking to maximize their COVID-19 prevention and response efforts:

- Administrators
  - Maintain open communication with staff regarding any cases of COVID-19, policy changes, and supplies of personal protective equipment.
  - Implement thorough environmental service sanitizing procedures.
  - If possible, work with courts to make civil commitment hearings virtual.
- Admission procedures
  - Screen potential admissions for symptoms of COVID-19 and exposure to those with known disease. If the screen is positive, the patient should be tested and admitted only if negative, unless the facility is one specifically designated for patients with COVID-19 or it has an area dedicated to treating such patients in isolation from the rest of the inpatient population. These latter arrangements are becoming increasingly common, since management of patients with active psychiatric issues and COVID-19 infection is particularly challenging on frequently overwhelmed medical units amid the pandemic. If it is necessary for a patient to be cared for on a medical floor, some psychiatric departments have found it most effective to deploy inpatient psychiatric nurses to assist in their care and for consultation-liaison psychiatry teams to guide management much more than usual, almost to the point of serving as the primary treatment team.
  - Some facilities require that all patients test negative for COVID-19 prior to admission. In this case, for those symptomatic patients refusing testing prior to admission, the safest approach is to manage them as if they were infected. However, since they may not actually be infected, they should be treated on a medical floor rather than a dedicated COVID-19 psychiatric facility if possible due to the high risk of exposure at the latter. For asymptomatic patients refusing testing, making an exception to allow for admission may be reasonable, since early peer reviewed [16,17] and non-peer reviewed data [18,19] indicate COVID-19 prevalence is low among a variety of populations receiving hospital based care, particularly among patients not exhibiting symptoms consistent with infection [17,18]. However, in areas experiencing significant COVID-19 outbreaks this approach may not be appropriate. COVID-19 antibody testing could help minimize the frequency of these challenging scenarios in the future, since patients refusing the nasopharyngeal swab currently required for COVID-19 testing may be willing to submit to a serologic antibody test. However, at this time antibody tests should not be used as the sole test for diagnostic decision-making due to uncertainty regarding interpretation [20].
- Patients
  - Post information about COVID-19 symptoms, disease spread, hand hygiene, cough etiquette, and social distancing measures throughout care areas for patients. Discuss these matters during patient orientation and community meetings. Encourage patients to report potential COVID-19 symptoms.
  - If possible, patients should be housed in single rooms and receive their meals and medications there.
  - Check patients' temperature every shift. If they are febrile, isolate them and consider COVID-19 testing.
  - Encourage patients to wash hands at set intervals or opportune times, such as before meals.
  - Group therapy should occur in a large room, with patients spaced at least 6 ft apart. Alternatively, some facilities have converted group therapy to a virtual experience.
  - Limit number of patients allowed in common areas at one time.
  - The patient phone is a particular point of vulnerability and should be sanitized in between calls.
  - If the patient is willing and able to safely use a cloth mask, this may be used to enhance cough etiquette and minimize the risk of viral transmission from asymptomatic shedders.
  - Maximize use of telehealth services in care of inpatients.
  - Patients who are so grossly impaired by mental illness that they cannot adhere to social distancing measures such as staying six feet away from other patients, may require seclusion, since their behavior poses a risk to others.
  - Clinicians should regularly perform a careful risk-benefit analysis of a patient's need to remain hospitalized to facilitate shorter stays if appropriate.
- Staff
  - Thorough hand hygiene should be emphasized.
  - Staff experiencing potential COVID-19 symptoms should stay home and be tested for COVID-19.
  - All staff should wear a cloth mask.
  - Treatment team meetings should be conducted virtually or by phone.
  - Due to the often-crowded nature of nurses' stations and physician workrooms, staff should be encouraged to spread out within these spaces and help limit the number of people using them at any given time by working in other locations if possible.
  - Family meetings should be conducted virtually or by phone.
  - Regularly sanitize frequently touched items such as phones and keyboards.
  - Consider implementation of alternating 1–2 week on/off schedules to minimize number of staff that must be quarantined if there is an exposure.
- Visitors
  - Restrict non-essential visitation. Virtual visitation options should be considered as an alternative to improve patient wellbeing.
  - Visitors who screen positive for COVID-19 symptoms should not be granted entry.
  - All visitors should perform hand hygiene and wear a cloth face mask.

If a patient develops symptoms suggestive of COVID-19 infection after admission:

- Immediately implement infection prevention precautions. These include: offering the patient a surgical or cloth face mask right away, placing the patient in separate room, and staff members donning appropriate PPE.
- Test the patient for COVID-19. If patient refuses testing, they should be managed as if they have tested positive.
- Upon notification of a positive test result, or if a patient under investigation requires a higher level of care or cannot be appropriately isolated before results are available, the patient should be transferred to a medical facility or a dedicated COVID-19 psychiatric facility. If the patient tests negative and symptoms persist in the absence of another identifiable cause, repeat testing should be performed due to poor sensitivity of some tests.
- Outbreak response measures will need to be implemented and may include testing and quarantining exposed patients.
- Follow CDC guidance on monitoring and work restrictions for staff who are potentially exposed [21], as well as work restrictions and

return to work criteria for staff who develop confirmed or suspected COVID-19 [22].

- Homeless patients may need to complete quarantine in the psychiatric facility or another hospital affiliated site as a public safety measure. Coordination with public health officials is essential in this situation.

Despite significant and unique challenges, inpatient psychiatric facilities are rapidly adapting to meet the demands of operating amid the COVID-19 pandemic. This is particularly important given signs of widespread psychological distress stemming from the pandemic [23], which could soon lead to increased utilization of inpatient psychiatric facilities. By sharing infection prevention and response measures and strategies to overcome barriers to their implementation, psychiatric facilities can ensure the continued delivery of safe, effective care to their patients during these unsettling times.

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