

## The Interface of COVID-19 and Inpatient Psychiatry: Our Experience and Lessons Learned

MARK J. RUSS, MD  
SHARON J. PARISH, MD  
RUTH MENDELOWITZ, MSW  
SHAYNE MENDOZA, MHA  
STAN D. ARKOW, MD  
MICHAEL RADOSTA, MA, MS, RN, NEA-BC, FACHE  
LINDA ESPINOSA, MS, RN, NEA-BC  
LISA B. SOMBROTTO, MD  
DONNA ANTHONY, MD, PhD  
DAVID A. WYMAN, MPA  
LOURIVAL BAPTISTA-NETO, MD  
PHILIP J. WILNER, MD

**The coronavirus disease 2019 (COVID-19) pandemic presented unprecedented challenges to the provision of inpatient psychiatric care. The nature of the physical plant, programmatic constraints, and the patient population required a rapid and agile approach to problem-solving under conditions of uncertainty and stress. Flexibility in decision-making, excellent communication, an effective working relationship with infection prevention and control experts, and attention to staff morale and support were important elements of successful provision of care to our inpatients. We present our experience, lessons learned, and recommendations should a resurgence of the pandemic or a similar crisis occur.**

*(Journal of Psychiatric Practice 2021;27:172–183)*

**KEY WORDS:** coronavirus disease 2019, SARS-CoV-2, pandemic, inpatient psychiatry, personal protective equipment

The challenges faced by inpatient psychiatric facilities when confronted by the coronavirus disease 2019 (COVID-19) pandemic have been unprecedented. The ease of transmission of this virus, coupled with the paucity of knowledge regarding its presentations, course, management, and complications early in the pandemic, contributed to both infection control conundrums and psychological hardships for patients and staff. The complexities associated with managing patients on inpatient units, particularly patients with serious psychiatric disorders, in the early days of the pandemic have also been described elsewhere.<sup>1–4</sup> Our experience, like that of other caregivers, was one of making rational decisions based on available information, which ultimately yielded useful and effective approaches to managing this health care crisis. Our purpose in this article is to share our experience with the ultimate goal of

defining best practices over time. We hope that the lessons learned might be utilized as we face recrudescence surges of the current pandemic or comparable challenges in the coming years.

RUSS: Professor of Clinical Psychiatry, Weill Cornell Medicine, Vice-Chair of Clinical Programs and Medical Director, New York-Presbyterian Hospital/Westchester Behavioral Health Center, White Plains, NY; PARISH: Professor of Medicine in Clinical Psychiatry and Director of Medical Service, New York-Presbyterian Hospital/Westchester Behavioral Health Center, White Plains, NY; MENDELOWITZ: Director of Access Services, New York-Presbyterian Hospital/Westchester Behavioral Health Center, White Plains, NY; MENDOZA: Project Manager-Nursing, New York-Presbyterian Hospital/Westchester Behavioral Health Center, White Plains, NY; ARKOW: Associate Professor of Psychiatry and Medical Director, CPEP & Inpatient Services, Columbia University Medical Center, New York, NY; RADOSTA: Chief Nursing and Quality Officer, Gracie Square Hospital, New York, NY; ESPINOSA: Vice President and Chief Nursing Officer at New York-Presbyterian Hospital/Westchester Behavioral Health Center, White Plains, NY, and New York-Presbyterian/Weill Cornell Medical Center's Psychiatry Program, New York, NY; SOMBROTTO: Assistant Professor of Clinical Psychiatry, Weill Cornell Medicine, and Vice-Chair, Manhattan Clinical Programs, Quality, Department of Psychiatry, New York-Presbyterian/Weill Cornell Medical Center, New York, NY; ANTHONY: Clinical Associate Professor of Psychiatry, Weill Cornell Medicine, and Chief Medical Officer, Gracie Square Hospital, New York, NY; WYMAN: President and Chief Executive Officer, Gracie Square Hospital, New York, NY; BAPTISTA-NETO: Associate Professor of Psychiatry, Vice-Chair for Clinical Services, Department of Psychiatry, Columbia University Medical Center, New York, NY; WILNER: Professor of Clinical Psychiatry, Weill Cornell Medicine, and Executive Vice-Chair, Department of Psychiatry, Weill Cornell Medicine, New York, NY; Senior Vice President & Chief Operating Officer, New York-Presbyterian Westchester Behavioral Health Center, White Plains, NY

Copyright © 2021 Wolters Kluwer Health, Inc. All rights reserved.

Please send correspondence to: Mark J. Russ, MD, Professor of Clinical Psychiatry, Weill Cornell Medicine, Vice-Chair for Clinical Programs and Medical Director, New York-Presbyterian Hospital/Westchester Behavioral Health Center, 21 Bloomingdale Road, White Plains, NY 10605 (e-mail: mjr:9012@med.cornell.edu).

The authors declare no conflicts of interest.

DOI: 10.1097/PRA.0000000000000551

## CHALLENGES OF THE PSYCHIATRIC INPATIENT ENVIRONMENT

### Physical Plants

New York-Presbyterian/Westchester Behavioral Health Center (NYP/WBHC) in White Plains, New York, located several miles from the original pandemic epicenter in New York, is a 250-bed inpatient facility consisting of 13 inpatient specialty units, ranging in size from 18 to 25 beds, including resident training units. Gracie Square Hospital (GSH) is a free-standing psychiatric hospital in Manhattan, New York. The hospital's 133 beds are divided into 4 units, each with specialty programs. The New York-Presbyterian/Columbia University (NYP/CU) inpatient unit is a 24-bed resident training unit embedded in the general acute care medical hospital with access to rapid on-site subspecialty consultation as needed. All of these sites had to manage common challenges related to their physical plants when confronted by patients with COVID-19. While some patient rooms are designed to accommodate individual patients, most of the rooms have the capacity to house 2 patients. Because of privacy concerns, state regulations do not permit visual access to patients inside the rooms when the door is closed, and remote video monitoring in bedrooms is not permitted. There are also no negative pressure rooms. Nursing stations and other clinical gathering areas tend to be relatively small so that fairly close physical contact is the norm. There are no designated rooms dedicated to donning and doffing of protective personal equipment (PPE). Sinks for hand hygiene and hand sanitizing dispensers are available, but not necessarily optimally located within the units. In addition, unlike the 2 free-standing psychiatric hospitals with their multiple units, patients with COVID-19 admitted to NYP/CU had to share the same single unit with uninfected patients.

### Psychiatric Treatment

Safety concerns on almost all inpatient psychiatric units in this country require that they be locked. Like all facilities that limit voluntary egress, occupants of these facilities, whether they are patients or staff, are subject to frequent and continuous social interaction. While inpatient units prohibit "personal contact" between patients and between patients and staff, the notion of a 6-foot radius has never been advocated nor entertained. Treatment on our inpatient services,

like those of many psychiatric hospitals, is largely group-based and strongly influenced by the time-honored principles of milieu treatment. Patients are encouraged to attend group therapy sessions, each with its own therapeutic focus and goals. Patients are also encouraged to interact in protherapeutic ways with patients and staff during "downtime." Meals are also served communally so that patients have close contact with one another while dining. There has been an assumption that the ability to function safely and adaptively in the milieu is an important source of data to measure the patient's progress and readiness for discharge to outpatient care. In particular, patients are discouraged from spending a lot of time isolated in their rooms in favor of engaging with patients and staff on the unit. Family work and visitation are also seen as integral to the treatment plans of most patients. Finally, therapeutic interactions of all kinds with patients require the ability to engage patients. Physical proximity, the ability to read and relate facial expressions accurately, and appreciation of body language, have been considered key components in the delivery of psychiatric care. Physical distancing and the interposition of PPE, for example, pose potential barriers to effective psychiatric care as we have been accustomed to providing it.

### Staff Training and Education

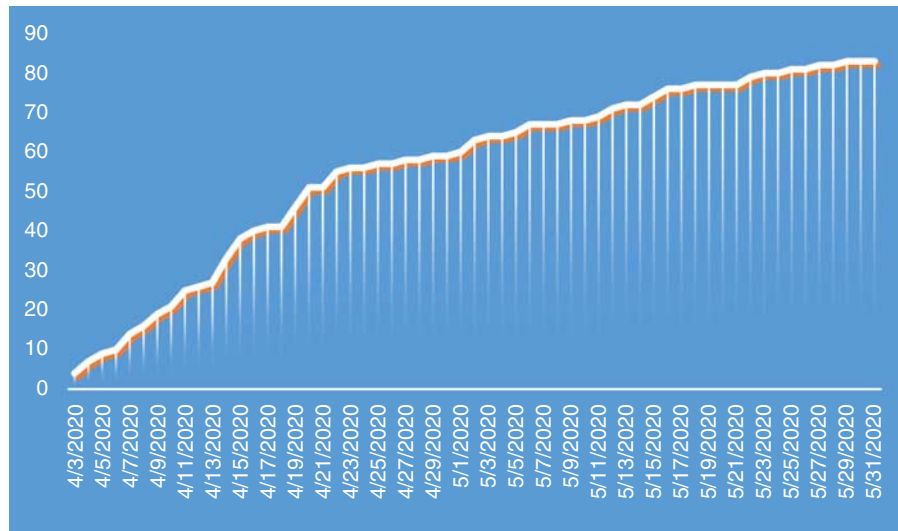
Medical and nursing professionals who work on inpatient units in psychiatric hospitals are not intrinsically prepared to optimally and easily function in a clinical world where nonpsychiatric medical issues are at the forefront of care. In particular, among the medical and nursing subspecialties, mental health care professionals are likely the least prepared to manage the complexities of a pandemic with as many unanswered questions as those raised by COVID-19. At the same time, a general lack of knowledge of the COVID-19 disease process, self-doubts about competency to deliver care, and concerns about safety and self-preservation may combine to challenge the acquisition of new skills that are required to provide needed care.

### Our Patients

While our hospital sites, appropriately, were never tasked with treating patients who were very ill with COVID-19, we were nevertheless required to treat

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

**FIGURE 1. Cumulative coronavirus disease 2019 (COVID-19) admissions to New York-Presbyterian/Westchester Behavioral Health Center (NYP/WBHC), Gracie Square Hospital (GSH), and New York-Presbyterian/Columbia University (NYP/CU) inpatient units**



patients with serious and acute psychiatric disorders who were also afflicted with mild to moderate COVID-19 infections. These were patients who, except for their need for acute psychiatric care, would have been quarantined at home and managed on an ambulatory basis. The interplay between our patients' illnesses and their ability to understand and cooperate with the COVID-19 management requirements was a major source of concern for our staff. In particular, the prospect of treating patients at risk of aggressive behavior that might require seclusion or restraint because of their psychiatric illness, as well as disorganized patients unable to readily follow directions, presented particular concerns for our staff.

### DESCRIPTIVE DATA

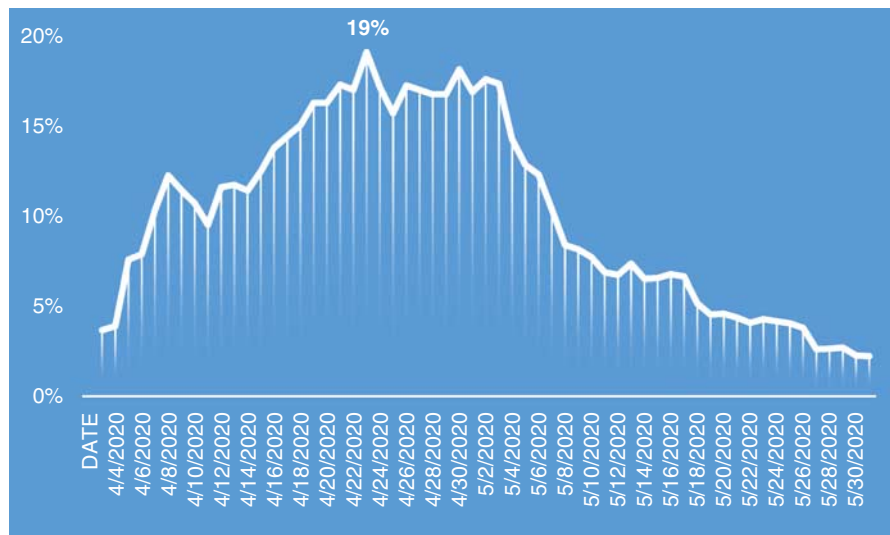
The data for this paper were assembled in the spring of 2020 and the manuscript was submitted in June 2020 so that this article describes the experiences and strategies of our inpatient services during the very early stages of the COVID crisis. The pandemic has taken many turns since those early months. The description of experiences, strategies, and detailed recommendations in the current article do not precisely correspond to the ongoing

experiences and lessons learned during the intervening period. However, the discrepancies in practice are relatively minor and the principles of care are unchanged.

During the first weeks of April 2020 (April 3, 2020-April 22, 2020), there was a sharp rise in the number of admitted patients with COVID-19, followed by a stabilization and decline over subsequent weeks up to the end of May (Figs. 1, 2). There were a total of 84 patients with COVID-19 admitted during this period (April 3, 2020-May 31, 2020), ~10% of admissions to our hospitals. At the peak of the surge in the third week of April, 19% of all patients in-house were diagnosed with COVID-19. Among the patients who were COVID-19 positive at the time of admission, 22 (26%) were symptomatic, typically exhibiting a fever, cough, sore throat, fatigue, or myalgias, but initially without significant dyspnea, hypoxia, or other evidence of more serious illness. Thirty-five patients likely acquired COVID-19 in the hospital. These patients developed symptoms consistent with COVID-19 while on the inpatient units, and a positive polymerase chain reaction (PCR) test confirmed the diagnosis. Overall, during the 2-month period on which we are reporting, 13 patients required transfer to an emergency room because of

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

**FIGURE 2. Percent coronavirus disease 2019 (COVID-19) patients on the inpatient services of New York-Presbyterian/Westchester Behavioral Health Center (NYP/WBHC), Gracie Square Hospital (GSH), and New York-Presbyterian/Columbia University (NYP/CU)**



worsening COVID-19 illness. Of these patients, 9 were admitted for additional treatment while 4 patients returned to the psychiatric units after assessment in the emergency room. Eight patients recovered and were either returned for psychiatric care ( $n = 3$ ) or were discharged from the medical setting to the community ( $n = 2$ ) or to a skilled nursing facility ( $n = 3$ ). One patient with a preexisting “do not intubate” order died after transfer to a medical facility.

### MANAGING THE CRISIS: THE NYP EXPERIENCE

#### The First Days and Weeks

Paralleling the national and local medical experience, and as PCR testing slowly became available in the early days of the pandemic in New York, we began to care for a small number of patients with acute psychiatric illnesses and comorbid COVID-19. The first patients we encountered were inpatients who developed symptoms of COVID-19 (typically, fever with upper respiratory symptoms) on the inpatient unit, with PCR testing confirming the diagnosis. Inevitably, with extensive preparation, we then admitted our first patient who was already known to have COVID-19, a patient recovering from

his illness, who was transferred from a medical facility for psychiatric care. All of the staff required re-education regarding the rudiments of droplet and contact precautions, proper technique for donning and doffing PPE, and related management issues. Immediate concerns about the spread of the virus prompted consultation and the development of a close working relationship with nurse and physician colleagues from the Department of Infection Prevention and Control of NYP. Through these interactions, we learned early on that the structure and function of psychiatric inpatient units are often opaque to our medical colleagues. It was crucial that our colleagues from Infection Prevention and Control develop a clear understanding of all things related to the running of an inpatient unit, from the floor plan of the unit to how patients are observed and monitored. The need for reciprocal education was an early critical lesson learned. Although the first patients on our psychiatric units diagnosed with COVID-19 were hospitalized at NYP/WBHC, the psychiatric units at NYP/CU and GSH were soon confronted with patients with COVID-19. From the beginning, the processes and strategies described here were simultaneously implemented on psychiatric inpatient units across all 3 hospital settings.

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

### **Communication Strategies**

Vertically integrated communication was established from the start of the crisis. Each campus met locally in “Command Center” meetings to review and update local issues related to patient flow, infection prevention and control measures and protocols, staffing, PPE supplies, and related issues. Meetings involving all 3 campuses spanning the Department of Psychiatry (“Service Line” meetings) were held to ensure standardization and optimization of all practices related to the care of patients during the pandemic. These meetings were likewise integrated into system-wide meetings that managed issues related to the interface of psychiatry and the other medical services, including the consolidation of psychiatric beds, repurposing psychiatric beds for critical care needs, redeployment of clinical staff, and meeting the mental health needs of seriously ill patients with COVID-19 and the staff who cared for them. These meetings occurred 7 days a week during the first month of the crisis in the New York City region, with a gradual reduction in frequency as conditions improved.

### **Infection Prevention and Control**

As the number of patients with comorbid COVID-19 grew from a trickle to a steady flow, 2 priorities related to infection prevention and control quickly became apparent: the mitigation of contagion on our inpatient units and the development of units dedicated to the treatment of patients with comorbid illness (COVID-19 units).

#### ***Mitigation of Contagion***

A number of initiatives were undertaken concurrently to mitigate the spread of COVID-19 on the inpatient units. The need to screen and quickly ascertain who might be developing COVID-19 was understood, prompting the development of a working document that included protocols for medical assessment of all patients, including assessment of risk factors in patients with worsening symptoms that might require emergency transfer to a medical setting. This working document also included protocols for how patient observations should be performed in light of the new infection risks as well as how to manage patients who required continuous positive airway pressure (CPAP) for the treatment

of obstructive sleep apnea. The document evolved almost on a day-to-day basis (Table 1). Several weeks into the pandemic, as PPE became more readily available, we were able to provide all patients and staff with surgical masks. In retrospect, the most important mitigation strategy became available weeks into the pandemic, namely, the ability to perform PCR testing on all patients in the hospital and all patients newly admitted to the hospital. This development permitted the rapid segregation of patients into the general hospital community or the dedicated COVID-19 units (see below), depending on the PCR test result.

Another issue we confronted was the problem of where to place patients whose PCR status was unknown. When the number of such patients was small in the early weeks of the pandemic, we admitted these patients to their assigned unit, placed them in their rooms, wearing a mask, and waited for the PCR results. An exception to this practice was that we did not place such patients on high-risk units, including our Geriatric and Eating Disorders units. If patients showed symptoms of COVID-19 they were placed on full droplet and contact precautions in a single room awaiting test results. The turn-around time for PCR results was typically 12 to 24 hours. Recognizing that this approach was suboptimal because it potentially placed patients and staff at risk in the event the patient could not adhere to the room restriction and masking requirements, in one of our facilities, we dedicated a wing of a unit for housing patients whose status was unknown while awaiting PCR test results, with wide geographic separation from the other wing which was used to house patients with COVID-19. Eventually, a partition was built to create a holding area for this purpose with 5 available rooms. Patients were transferred to the appropriate unit upon obtaining the PCR test result. However, on the single NYP/CU unit embedded in the general medical hospital, where it was not possible to geographically separate patients, we placed newly admitted patients whose COVID-19 status was unknown on isolation precautions in single rooms on arrival. Isolation was either continued or discontinued based on the PCR test result.

Like many other psychiatric inpatient facilities in our region, we experienced a decrease in census soon after the beginning of the crisis. Local

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

**TABLE 1. Medical Protocol for Inpatient Psychiatric Units: Suspected and Confirmed COVID-19 in Patients and Staff of Behavioral Health Units as of August 17, 2020 (Subject to Changes in CDC and Other Guidelines)**

### Definitions

*COVID-19-like illness*: new onset of subjective or measured ( $> 100.4^{\circ}\text{F}$  or  $38.0^{\circ}\text{C}$ ) fever OR cough OR shortness of breath OR sore throat OR myalgias OR diarrhea

*Confirmed case of COVID-19*: person with a positive laboratory test for COVID-19

*Person under investigation (PUI)*: a symptomatic person who is being tested for COVID-19

*COVID-recovered*: person who previously tested positive for COVID-19 and has met criteria for discontinuation of transmission-based precautions

*Exposure*: close contact ( $< 6$  feet distance for  $> 10$  min) with a symptomatic person with confirmed COVID-19 when neither the symptomatic person nor the exposed person was wearing a surgical mask

### Screening of new admissions

- (1) Patients who were never tested for COVID-19 or with a prior negative test should have been tested within 72 h of admission or should be tested just after admission
- (2) Repeat testing and isolation on readmission for previously COVID-19 positive patients
  - (a) Repeat testing is not recommended on readmission for patients who previously tested positive for COVID-19 and have met criteria for discontinuation of transmission-based precautions and do not have new COVID-19 symptoms (“COVID-recovered”)
  - (b) For patients with a previously positive COVID-19 test who are not yet identified as COVID-recovered, implement contact and droplet precautions and test in accordance with discontinuation of transmission-based precautions
  - (c) COVID-recovered patients do not require re-isolation if they subsequently test positive (“re-positive”)
  - (d) If the initial positive polymerase chain reaction (PCR) test was performed  $\geq 4$  wk before readmission, the patient should be managed as a COVID-recovered patient
- (3) All newly admitted patients should be screened for travel in the past 14 d to states with high transmission rates of COVID-19 that are on the New York State Department of Health Travel Advisory list: <https://coronavirus.health.ny.gov/covid-19-travel-advisory>
  - (a) Patients who have traveled to a state on the advisory list should be quarantined in a single room on contact and droplet precautions for 14 d and administered SARS-CoV-2 PCR testing

### General staff interactions with patients

- (1) All staff must at a minimum wear a surgical mask and eye protection at all times when interacting with patients

### Initial medical evaluation of patients with COVID-19-like illness

- (1) An initial clinical assessment should determine the need for COVID-19 testing and droplet and contact precautions
- (2) Patients with suspected COVID-19 should be in single room and placed on droplet and contact precautions
- (3) Subsequent clinical assessments should be performed by the unit staff in conjunction with routine vital signs and pulse oximetry. The Medicine team should be contacted or reconsulted as indicated by the patient’s clinical status
- (4) PUIs should be monitored with at least twice daily (at least 8 h apart) vital signs, including pulse oximetry, and symptom checks (fever, cough, shortness of breath, sore throat, diarrhea, myalgias). Vital signs may be increased to every 4 h as indicated by patient’s clinical status and medical comorbidities
- (5) PUIs should be treated with symptomatic relief measures, such as acetaminophen and fluids as needed. Nebulizer therapy should be avoided
- (6) Indications for medical reassessment include increased respiratory rate  $> 20$ -24, observed dyspnea, dyspnea on exertion, worsening cough, elevated temperature  $> 100.0^{\circ}\text{F}$  for 3 consecutive days, or pulse oximetry  $< 94\%$ . For patients in Behavioral Health units without adjoining Medicine services, these symptoms and signs may be an indication for transfer to the emergency room
- (7) PUIs who test negative for COVID-19 who remain symptomatic for a COVID-19-like illness (cough, fever, shortness of breath) and for whom an alternative diagnosis has not been established should remain on droplet and contact precautions with further observation. While routine retesting of persistently symptomatic patients is not indicated, retesting may be considered based on discussion with Medicine and/or Infectious Diseases services

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

**TABLE 1. Medical Protocol for Inpatient Psychiatric Units: Suspected and Confirmed COVID-19 in Patients and Staff of Behavioral Health Units as of August 17, 2020 (Subject to Changes in CDC and Other Guidelines) (continued)**

### Medical evaluation and management of patients with COVID-19

- (1) COVID-19 patients should be monitored with at least twice daily (at least 8 h apart) vital signs, including pulse oximetry, and symptom checks (fever, cough, shortness of breath). Vital signs may be increased to every 4 h as indicated by patient's clinical status and medical comorbidities
- (2) COVID-19 patients should be treated with symptomatic relief measures, such as PRN acetaminophen and fluids. Nebulizer therapy should be avoided
- (3) If there are 2 patients with confirmed COVID-19 on the unit, they may be housed in the same room if clinically compatible
- (4) Discontinuation of contact and droplet (transmission-based) precautions
  - (a) Patients on behavioral health units with mild-moderate COVID-19 should remain on contact and droplet precautions at least until the following criteria are met: at least 3 d (72 h) without fever without the use of fever-reducing medications, AND
  - (b) Marked improvement in respiratory symptoms (eg, cough, shortness of breath), AND
    - (1) For patients who were asymptomatic or symptomatic with mild/moderate illness [peripheral oxygen saturation ( $SpO_2$ )  $\geq$  94%] at the time of initial testing
      - (a) At least 10 d have passed since date of positive test
      - (2) For patients who were symptomatic with severe/critical illness ( $SpO_2$   $<$ 94%) at the time of initial testing
        - (a) At least 20 d have passed since date of positive test
      - (3) For severely immunocompromised patients\*
        - (a) At least 10 d have passed since date of positive test
        - (b) Two negative swabs separated by 24 h. If retesting after 10 d still yields a positive result, wait 3 d and retest
  - (5) Emergency room transfer<sup>5-9</sup>: For patients on behavioral health units without adjoining Medicine services, the following symptoms and signs may be an indication for transfer to the emergency room for evaluation
    - (a) Pulse oximetry  $<$ 94% (93% or worse) at rest
    - (b) Worsening shortness of breath or chest pain at rest
      - (1) Shortness of breath can be assessed as follows:
        - (a) Is the patient able to speak in full sentences at rest?
        - (b) Single Breath Count Test: have seated patient take full inhale and count to highest number possible at 2 beats/s. Record the highest number counted (abnormal  $<$ 20)
    - (c) Complaint of worsening dyspnea on exertion and/or desaturation below 94% with exertion (respiratory rate  $>$  22,  $SpO_2$   $<$ 94%, and heart rate  $>$  125 after 1 min of walking)
    - (d) Signs of worsening respiratory function
      - (1) Color—bluish tint to lips
      - (2) Retractions/labored breathing, accessory muscle use, nasal flaring
    - (e) Risk factors may be factored into the clinical assessment and the decision to transfer patients with borderline resting pulse oximetry readings (93% or lower) and desaturation with exertion (93% or lower)
      - (1) Risk factors include age  $>$  50, hypertension, diabetes mellitus, cardiovascular disease, chronic kidney disease, lung disease, obesity, and immunosuppression

### Exposure protocol

- (1) All staff and patients are expected to wear a surgical mask and eye protection while in the hospital. In the event there is an exposure:
  - (a) The patient care director or appropriate department manager will gather exposure lists as directed by Workforce Health & Safety. Exposed staff should contact Workforce Health & Safety as soon as possible for consultation regarding symptom monitoring and further instructions

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

**TABLE 1. Medical Protocol for Inpatient Psychiatric Units: Suspected and Confirmed COVID-19 in Patients and Staff of Behavioral Health Units as of August 17, 2020 (Subject to Changes in CDC and Other Guidelines) (continued)**

- (b) All exposed unit patients should be monitored, with vital sign checks, including temperatures, and symptom checks (fever, cough, shortness of breath, sore throat, diarrhea, myalgias) twice daily, with checks occurring at least 8 h apart. Monitoring with pulse oximetry is not required
- (2) The length of time that a unit must stay closed due to a COVID-19 positive patient or staff member will be reviewed on a case-by-case basis. The fact that patients and staff are masked and that we have divided our patients into small cohorts will affect this decision. No blanket closure rules (eg, 14 d) will be applied. Reassessment can be initiated based on feasibility concerns on the basis of discussion with Infection Prevention and Control/Hospital Epidemiology

Interim guidelines for using CPAP on behavioral health units in consideration of the current COVID-19 pandemic

- (1) Patients who are COVID-19 positive who require CPAP for the treatment of obstructive sleep apnea *may* be considered for admission or ongoing hospital treatment on a psychiatric inpatient unit on a case-by-case basis. All such cases **MUST** be reviewed and discussed with the Medicine service to determine the optimal venue of care
- (2) For patients who utilize CPAP devices and do or do not have COVID-19, consider discontinuing CPAP during their hospital stay in favor of supportive measures such as raising the head of the bed 45 degrees at night and avoiding sedatives. This is a risk vs. benefit decision for each patient depending on the circumstances. Factors to consider in making this decision include baseline adherence to CPAP, severity of obstructive sleep apnea, requirement for sedative medications, anticipated duration of hospitalization, anticipated duration of COVID-19 illness (if applicable), and patient and family preference. Whenever possible, this decision should be made before admission
- (3) If CPAP is required, the following steps should be taken:
- (a) Patient must be in a single room in which it is possible to view the patient without opening the door
  - (b) The bedroom door should remain closed throughout the use of CPAP and for at least 60 min afterward
  - (c) If staff must enter the patient's room during CPAP use or within 60 min of CPAP use, staff must wear an N95 mask, eye protection, gown, and gloves. The door should be closed as quickly as possible after staff entry and exit
- (4) Patients using CPAP should be retested weekly for COVID-19, or immediately if symptoms develop. For patients on CPAP who are COVID positive, retesting and isolation should follow the discontinuation protocol
- (5) Place an airborne isolation sign on the patient's door to indicate that an aerosol-generating procedure is in progress. The sign should remain on the door during and after the aerosol-generating procedure (for 60 min after use)

Other actions for staff

- (1) Staff experiencing symptoms of fever ( $> 100.0^{\circ}\text{F}$ ), shortness of breath, cough, sore throat, diarrhea, or myalgias should remain in a mask and leave the patient care area. Self-isolation and return to work will be in accord with Workforce Health & Safety protocols

Other measures to prevent person-to-person spread on behavioral health units

- (1) Social distancing among staff and patients, minimizing the number of patients in the dining room during meal times, grouping patients into small cohorts, maximizing time that patients spend in their rooms, and other interventions will be used to minimize the risk of person-to-person spread of pathogens

\*Severely immunocompromised patients include bone marrow transplant recipients, solid organ transplant recipients, patients receiving cytotoxic chemotherapy for cancer, untreated HIV infection with CD4 T-lymphocyte count  $< 200$ , combined primary immunodeficiency disorder, and receipt of prednisone  $> 20$  mg/d for  $> 14$  d.

COVID-19 indicates coronavirus disease 2019; CPAP, continuous positive airway pressure; HIV, human immunodeficiency virus; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.



## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

emergency departments were receiving many fewer patients than usual, ostensibly because people, regardless of their “non-COVID” condition and complaint, avoided going to hospitals because of fear of infection. This development permitted us to make the decision that, insofar as possible, only 1 patient would be assigned to a room. When the census increased after 2 months and there was a need to increase capacity for new admissions, we developed a protocol to assist in the decision-making regarding which patients and rooms could accommodate double occupancy.

At the same time, we developed a protocol to define and optimize social distancing on the inpatient units. Apart from attending groups or meals, patients were asked to spend much of their time in their rooms. Patients were divided into small cohorts on the units, each consisting of 6 patients. Cohorts attended groups, meals, and limited out-of-room activities together and were encouraged not to interact with patients in other cohorts. This was done both to limit exposure and to assist in tracking an outbreak of illness should it occur. Groups, meals, and all activities were conducted within the established parameters of social distancing. For the most part, patients understood the need for these measures and were able to adhere to the guidance. It was noted that patients with severe psychotic illness had the most difficulty with adherence.

Medical center-wide decisions were made to limit, and then essentially to eliminate visitation. Procedures already in place to meet with families remotely were enhanced, both for the purpose of conducting family meetings as well as providing digital access to replace visitation. Electronic communication devices, principally tablets, were procured and their use was standardized in protocols that addressed physical safety issues as well as confidentiality.

### ***Dedicated COVID-19 Units***

The need to open first one and then several COVID-19 units became self-evident as the number of patients with COVID-19 comorbidity rapidly increased. The rationale included, first and foremost, minimizing the risk of infecting patients and staff because of potential patient nonadherence to isolation procedures as well as enhancing expertise and comfort level in implementing infection control techniques among the staff on the dedicated units.

The plan to convert a general psychiatric unit into a COVID-19 unit was introduced and implemented with great care and sensitivity. Clinician leaders were selected based on their willingness and ability to take on this novel challenge. Hospital leadership met with the staff of the unit to discuss the plan and provide support and guidance. An *esprit de corps* soon emerged which was both heartening and inspiring. The units developed seamless, relaxed, and confident approaches to the management of extremely complex patients. Medical protocols that had been developed to manage patients with COVID-19 were implemented on these units.

Because all patients on the COVID-19 units required droplet and contact precautions and there was a premium placed on conserving PPE for direct patient care, a web-based, inpatient telehealth system was developed to facilitate communication between staff and patients using tablets.<sup>10</sup> The tablets, which were configured to limit internet access to email and designated applications, provided reciprocal access to staff, access to family and friends, therapeutic interventions, and social diversion during an extended isolation period. The isolation period lasted a minimum of 14 days from the date of the positive PCR test. The protocol for discontinuing isolation consisted of a period of being symptom-free or markedly improved, included being afebrile for at least 72 hours, and 2 negative PCR tests separated by at least 24 hours. Some of our patients did not meet these criteria at the end of 14 days (ie, they continued to have a positive PCR test) and required continued isolation and retesting which was initially performed at weekly intervals, then every 3 days. In June 2020, the protocol for discontinuing isolation changed again based on new CDC recommendations, so that the minimum period of isolation following a positive PCR result was reduced to 10 days, and the requirement for repeat testing of hospitalized patients who were asymptomatic at the time of PCR testing was eliminated. Additional guidelines were implemented regarding screening new admissions, particularly patients who were considered recovered from COVID-19 and no longer infectious (Table 1).

### ***Changes in Other Clinical Functions***

Management of patients on the inpatient psychiatric service during the COVID-19 pandemic had to interface with several other important hospital-

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

based functions, including the provision of electroconvulsive therapy (ECT) and the use of CPAP machines for patients with obstructive sleep apnea. Because of the risk of aerosolization inherent in ventilating patients during the administration of ECT<sup>11</sup> as well as during the use of CPAP,<sup>12</sup> new procedures were required to safely manage patients requiring these interventions. Given the risks of contagion, especially with the limitations of not having a negative pressure room in our ECT suite, we decided that we could not safely treat patients with known COVID-19 with ECT. Patients with COVID-19 who were being considered for ECT would either have to be treated with a different modality (eg, pharmacotherapy) or wait for their viral illness to clear. A number of changes were made to our ECT protocol, including new clinical screening procedures for patients being considered for ECT. In addition, before each treatment, symptom screening, disinfection, and infection control procedures were instituted. Patients were required to undergo repeat PCR testing weekly during the course of ECT or if symptoms developed. Changes were made to minimize the number of staff involved in administering ECT and to ensure that they wore proper PPE and that related safeguards were in place. A designated area for contaminated equipment was defined. General anesthesia was performed with low flow oxygen, minimal positive pressure ventilation, and use of high-efficiency particulate air filters. Additional precautions during recovery were also implemented, including the use of full PPE, ensuring the patient mask was in place, avoiding the use of a nasal cannula if possible, and comprehensive disinfection of the area postrecovery. These changes are detailed in Limoncelli et al.<sup>11</sup>

The use of CPAP devices presented additional challenges. Like ECT, given the risk of aerosolization and the absence of negative pressure rooms and optimal air exchange in our patient rooms, we felt we could not easily manage patients with COVID-19 who were utilizing CPAP in our communal setting. We concluded that a risk/benefit decision would have to be made regarding the option of withholding CPAP until the patient recovered from COVID-19 and implementing temporary measures to manage their obstructive sleep apnea, such as raising the head of the bed during sleep and avoiding the use of sedative medications.

In the event this alternative could not be safely implemented, we were able to obtain a waiver from New York State to permit visualizing the patient during CPAP use through a vision panel built into the bedroom door. Curtains on both the inside and outside of the vision panel allowed for patient privacy. The vision panel enabled patients to be monitored periodically or continuously, as needed to manage their psychiatric condition, without needing to open the door. This permitted us to safely use CPAP both in the general and COVID-19 units. As with patients treated with ECT, patients receiving CPAP who did not have COVID-19 were tested weekly for the presence of COVID-19 or sooner if symptomatic.

### DISCUSSION

We believe that many of the lessons learned are generalizable to other inpatient psychiatric settings that may experience a recurrence of COVID-19 or a similar crisis. These lessons and associated recommendations are summarized below.

The most important lesson we learned in the recent pandemic environment is that local leadership must be comfortable with an approach to problem-solving that is agile, creative, flexible, and mutually supportive, particularly in the face of uncertainty and limited knowledge. A corollary to this lesson is the willingness to abandon assumptions about the impact of our interventions on patient care. Contrary to expectations, for example, patients tolerated the many “restrictions” we imposed, such as spending more time in bedrooms and wearing masks.

A second critical lesson is a need for frequent and structured communication, both within leadership groups and between leadership and staff. The details of patient flow, clinical protocol development, the availability, utilization, and conservation of PPE, and redeployment of units and staff were among the topics that required very frequent discussion and resolution. Technical support in the form of adequate numbers of computers, cameras, and software to establish reliable virtual communication is critical and needs to be part of an emergency preparedness plan.

The contemporaneous development, documentation, and distribution of policies and procedures related to a plethora of issues including testing, triage, medical protocols, observation and monitoring of patients,

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

social distancing and cohorting, visitation, and ECT and CPAP use are required to ensure large-scale, accurate communication. Going forward, we recommend that these policies and procedures be developed in advance of relevant future crises as part of hospital emergency planning.

An intimate working relationship with infection prevention and control experts who understand the complexities of inpatient psychiatric treatment and physical plant limitations is key to the successful management of future pandemics. The many practical lessons learned regarding infection control and sustaining psychiatric care in the context of a pandemic are summarized in Table 1. A related issue is the competence of psychiatric inpatient staff to execute the requirements of infection prevention and control. We recommend developing a robust program for annual training in infection prevention and control, including in vivo training on the donning and doffing of PPE.

The key management issue on the inpatient units was maintaining an environment that mitigated the risk of infection to patients and staff. Two strategies to support this effort were most effective. The first was universal testing of all admitted patients as discussed above so that meaningful triage and infection control measures could be implemented. The details of the triage algorithm we developed are described by Brody et al.<sup>13</sup> The second strategy was the development of units dedicated to the care of patients with COVID-19. Not only did these units permit more effective infection prevention and control, they fostered the development of technologically based clinical programming and seamless communication with staff and significant others. Unit subspecialization facilitated the rapid development of expertise in providing safe care. Planning for such units or portions of units where possible is highly recommended. Single rooms with dedicated bathrooms are ideal. Moreover, inclusion of built-in equipment to facilitate digital communication and clinical programming in all patient rooms should be considered.

Because most inpatient psychiatric facilities will likely not have the volume of patients or physical plant requirements to have 1 or more dedicated COVID-19 units, it is useful to consider strategies that were or were not effective on units with only 1 or a few patients who required isolation. Patient engagement is key to successful management. For patients who require isolation, educating patients

about the need for isolation, incorporating digital technology when possible for communication and activities, and utilizing clear body language in the absence of the ability to visualize faces under masks and eye protection are all helpful. For patients in the general population who do not require isolation, unit-wide activities that permit patients to participate from their rooms is a helpful strategy. While grouping patients into cohorts was instituted as an infection control measure to mitigate the spread of infection and facilitate tracking of exposed patients, this strategy was not as useful as anticipated, because maintaining the integrity of the cohorts was a challenge. Wider testing of patients on the unit was often required.

In general, patients cooperated with both PCR testing and isolation precautions. Patients who did not cooperate, however, posed considerable clinical and ethical challenges. Housing patients who refuse testing and patients with COVID-19 on a dedicated COVID-19 unit is recommended both from the perspective of mitigating the risk of contagion (other patients are isolated in their rooms, staff are wearing full PPE) and having a dedicated staff experienced in the management of such patients. In fact, the staff on our COVID-19 units became adept at enlisting the cooperation of patients. Approaches that facilitated cooperation with testing and isolation precautions in severely ill patients included promoting a safe environment through clear, consistent, and supportive messaging of expectations, having immediate access to staff via a digital platform, approaching the patient as an interdisciplinary team, and optimizing medication in patients who agreed to take medication. In a few cases, court-ordered treatment over objection and consultation with the hospital ethics committee were obtained. The ethical complexities we encountered are beyond the scope of this paper but are addressed in another recent publication.<sup>14</sup> That paper presents recommendations for proceeding on a case-by-case basis, assessing the urgency of a given clinical situation, and following a step-wise sequence of interventions to maximize patient autonomy while facilitating the safety of others.<sup>14</sup>

Our final lessons and recommendations concern providing support for staff. Like all health care workers nationally and internationally, our staff suffered greatly during this crisis. Managing the stress and anxiety in our staff and in ourselves was

## INTERFACE OF COVID-19 AND INPATIENT PSYCHIATRY

likely the most onerous aspect of the experience. Fatigue, low mood, irritability, and other emotions accompanied us on our journey. Scores of our health care workers developed COVID-19. Low points were the losses of 4 coworkers to the illness. Each loss was commemorated in a virtual memorial service which served not only to honor our colleagues but powerfully enhanced institutional cohesiveness. Virtual town hall meetings and smaller support groups based on each unit were helpful constructs. In addition, we were fortunate to be part of a larger initiative across NYP Hospital. Hospital leadership implemented a variety of web-based supports for staff, including voluntary, anonymous online symptom tracking of anxiety, depression, and acute stress with attendant recommendations based on results; team-based support groups; and access to individual psychotherapy. Finally, we learned that crises can foster creativity and progress in delivering care to our inpatients. Nascent efforts to introduce technological approaches to delivering care, for example, were invigorated as a result of our experience. In the final analysis, attention to morale and to providing support for each other and our staff allowed us to persevere, learn, and provide high quality, dignified care for our patients.

### REFERENCES

1. Li L. Challenges and priorities in responding to COVID-19 in inpatient psychiatry. *Psychiatr Serv*. 2020;71:624–626.
2. Fahed M, Barron GC, Steffens DC. Ethical and logistical considerations of caring for older adults on inpatient psychiatry during the COVID-19 pandemic. *Am J Geriatr Psychiatry*. 2020;28:829–834.
3. Cheung EH, Strouse TB, Li L. Planning for a psychiatric COVID-19-positive unit. *Clinical Psychiatry News*; 2020. Available at: [www.mdedge.com/psychiatry/article/222331/coronavirus-updates/planning-psychiatric-covid-19-positive-unit](http://www.mdedge.com/psychiatry/article/222331/coronavirus-updates/planning-psychiatric-covid-19-positive-unit). Accessed May 24, 2020.
4. Shinn AK, Viron M. Perspectives on the COVID-19 pandemic and individuals with serious mental illness. *J Clin Psychiatry*. 2020;81:20com13412.
5. World Health Organization. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected. Interim guidance; March 13, 2020. Available at: [www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517\\_2](http://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf?sfvrsn=bc7da517_2). Accessed May 24, 2020.
6. Alhazzani W, Møller MH, Arabi YM, et al. Surviving Sepsis Campaign: guidelines on the management of critically ill adults with Coronavirus Disease 2019 (COVID-19). *Intensive Care Med*. 2020;46:854–887.
7. Shi Y, Yu X, Zhao H, et al. Host susceptibility to severe COVID-19 and establishment of a host risk score: findings of 487 cases outside Wuhan. *Crit Care*. 2020;24:108.
8. Yang J, Zheng Y, Gou X, et al. Prevalence of comorbidities and its effects in patients infected with SARS-CoV-2: a systematic review and meta-analysis. *Int J Infect Dis*. 2020;94:91–95.
9. Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet*. 2020;395:1054–1062.
10. Kanellopoulos D, Bueno Castellano C, McGlynn L, et al. Implementation of telehealth services for inpatient psychiatric COVID-19 positive patients: a blueprint for adapting the milieu. *Gen Hosp Psychiatry*. 2021;68:113–114.
11. Limoncelli J, Marino T, Smetana R, et al. General anesthesia recommendations for ECT during the COVID-19 pandemic. *J ECT*. 2020;36:152–155.
12. American Academy of Sleep Medicine. Guidance April 3, 2020. Updated guidance is available at Considerations for the practice of sleep medicine during COVID-19; updated January 18, 2021. Available at: <https://aasm.org/covid-19-resources/considerations-practice-sleep-medicine>. Accessed March 31, 2021.
13. Brody BD, Kanellopoulos D, Russ MJ, et al. A SARS-Covid-19 testing and triage algorithm for psychiatric units: one hospital's response to New York's pandemic. *Psychiatry Res*. 2020;291:113244.
14. Russ MJ, Sisti D, Wilner PJ. When patients resist COVID-19 testing, quarantine, and social distancing in inpatient psychiatry: clinical and ethical challenges. *J Med Ethics*. 2020;46:579–580.