COVID-19 Pandemic Mitigation for the High-Risk Patients Served by the Community Mental Health System

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ABSTRACT: Multiple chronic medical conditions are common to patients served by the community mental health (CMH) system. Medical diseases are present in at least 50% of all patients with psychiatric conditions, and severe mental disorders are associated with significant physical comorbidity and mortality. Early data show that individuals with preexisting multiple chronic conditions have a higher mortality risk when they are symptomatic with COVID-19. Although mitigation guidelines and recommendations are constantly being reviewed and updated, we found no specific recommendations targeting the vulnerable population who use CMH systems or the publicly funded and managed behavioral health entities which serve them. We reviewed the Centers for Disease Control and Prevention guidelines regarding infection control in health care facilities that provide ambulatory care, including behavioral health clinics, as well as reviewed recent population outcomes data. We posit that the population served by the CMH systems is a higher-risk cohort than the general population and offer recommendations for effective infection prevention strategies specific to this population.

KEYWORDS: Mental health, COVID-19, Community Mental Health (CMH) system

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Mental illnesses are common in the United States, with approximately 46.7 million persons (19.1%) living with a mental illness, and 11.4 million (4.6%) having serious/severe mental illness (SMI), meaning that they experience impairment that substantially interferes with or limits their life activities.[1]

In the United States, these populations frequently receive treatment through public-sector managed behavioral health, also known as community mental health (CMH) entities, which provide coverage for Medicaid recipients with SMI, developmental disabilities, substance use disorder, or serious emotional disturbances. CMH systems are tasked with serving patients with SMI, a group of patients with high rates of diabetes, obesity, hypercholesterolemia, and coronary artery disease.[2] Meta-analyses involving multiple countries in North America, Europe, and Asia show that people with mental disorders have an increased risk of developing chronic physical diseases.[3]

This article provides a brief review of the current CMH system and its unique vulnerability in the face of the COVID-19 pandemic and proposes a number of mitigation strategies specific to the array of services for the population with SMI.

Table 1. CMH Populations and COVID-19 Risk Factors

Population Served by CMH	Medical/Behavioral Comorbidities in CMH Population	Factors That Increase Poor Outcomes Associated With COVID-19
Individuals with multiple medical comorbidities	Hypertension	Higher risk of severe illness and poor outcomes due to viral and bacterial infections[20]
	Hyperlipidemia	
	Diabetes	
	Ischemic heart disease	
	Rheumatoid arthritis/osteoarthritis	
	Chronic obstructive pulmonary disease	
Individuals with neurodevelopmental disorders (eg, autism, Down syndrome, intellectual disability)	Atypical oral/sensory needs (eg, handwashing, touching)	Limited adherence to standard precautions such as social distancing, handwashing, touching)
	Higher incidence of autoimmune conditions[21]	Higher risk of severe illness due to viral and bacterial infections
Individuals with metabolic syndrome[22,23] or taking clozapine,[24] lithium,[25] mood stabilizers,[26] or antidepressants[27]	Leukopenia[24]	People of any age with serious underlying medical conditions might be at higher risk for severe illness from COVID-19[11,13-17]
	Kidney disease[25]	
	Hyperlipidemia[22,23]	
	Ischemic heart disease[22,23]	
	Hypertension[22,23]	
	Obesity[22,23]	
Individuals with substance use disorders	Drug-seeking behavior	Rapid spread of disease due to sharing of drug paraphernalia
	Lack of social support from stigma	Contact and distancing precautions may be difficult
	Malnutrition	Higher risk of severe illness due to viral and bacterial infections
	Close living quarters and unhealthy living conditions	Increased risk of person-to-person transmission
	Need for positive therapeutic and social interactions	Inability to see therapists or engage in community.

BACKGROUND

During a global pandemic, infection mitigation strategies are challenging in certain population segments, including nursing homes, assisted-living facilities, and foster homes. Patients who depend on state-sponsored behavioral health services (CMH centers) present a unique situation within this subset due to the substantial variations in operations from one point of care to the next in CMH systems across the different counties and states, and due to these systems' focus only on mental illness as well as their generally limited resources. This variation is due in part to heterogeneous levels of medical oversight and disproportionate levels of funding.[4] Furthermore, this population also presents a high risk for both the spread of disease and its poor outcomes due to physical comorbidities.

CMH clinics have several characteristics that underscore their need for strong mitigation strategies during a pandemic. The bulk of their services are typically provided by individuals trained in social work and psychology or counseling, and these services are delivered in nonmedical settings with limited medical oversight.[5,6] The quintessential points of service in this system are the local CMH providers. Typically, the CMH clinics provide services such as group and individual therapy, care for persons with intellectual and developmental disabilities to live independently (including residential services), care in the commu-

Table 2. CDC Guidelines and Authors' Suggestions for Implementation

CDC Guidelines for Ambulatory Care Facilities Including Behavioral Health Clinics[12]	Suggested Steps for CMH Implementation
Definition of outpatient health care facility (HCF) • At a minimum, outpatient facilities need to adhere to local, state, and federal requirements regarding reportable disease and outbreak reporting.	Operate outpatient behavioral health as HCF as defined by CDC and implement commensurate standards of infection control
Definition of health care personnel (HCP) • HCP, to be defined as all persons, paid and unpaid, working in outpatient settings and who have the potential for exposure to patients and/or to infectious materials, including body substances, contaminated medical supplies and devices, contaminated environmental surfaces, or contaminated air. This includes persons not involved in patient care (eg, clerical staff, housekeeping staff, volunteers) but potentially exposed to infectious agents that can be transmitted to and from HCP and patients.	Therapists, clerical staff, residential care providers who work in outpatient settings and who have the potential for exposure to patients and/or to infectious materials, including body substances, contaminated medical supplies and devices, contaminated environmental surfaces, or contaminated air. Therefore, they are to be trained and protected as HCP.
Dedicate resources to infection prevention • Sufficient and appropriate equipment and supplies necessary for the consistent observation of standard precautions. • Infection prevention programs for all staff to extend beyond Occupational Safety and Health Administration (OSHA) bloodborne pathogens training to address patient protection. • Assure that at least one individual with training in infection prevention is employed in the role of an infection control officer to manage the facility's infection prevention program.	Ensure supply of hand hygiene products, injection equipment, and personal protective equipment (eg, gloves, gowns, face and eye protection) to be kept in inventory on-site to be coordinated with the local health department
	Implement mandatory infection control programs beyond OSHA bloodborne pathogen training and include training to address patient protection.
	Appoint an appropriately trained infection control officer, hired or contracted, to oversee infection control protocols for staff and patients. This individual should be involved in the development of written infection prevention policies and have regular communication with HCP to address specific issues or concerns related to infection prevention.
Educate and train health care personnel Ongoing education and competency-based training of HCP are critical for ensuring that infection prevention policies and procedures are understood and followed. Education on the basic principles and practices for preventing the spread of infections should be provided to all HCP. Training should include both HCP safety (e.g., OSHA bloodborne pathogens training) and patient safety, emphasizing job- or task specific needs.	Educate all HCP in the basic principles and practices for preventing the spread of infections. Training should include both HCP safety (eg, OSHA bloodborne pathogens training) and patient safety, emphasizing job- or task-specific needs.
	Training and compliance with this training to be developed in conjunction with the local health department, which can improve communication and collaboration between publicly funded programs.
Monitor and report healthcare-associated infections Track adherence to specific process measures (eg, hand hygiene, environmental cleaning) as a means to reduce infection transmission. To assist with identification of infections that may be related to care provided by the facility, patients should be educated regarding signs and symptoms of infection and instructed to notify the facility if signs and symptoms occur.	Develop a strong bidirectional relationship with the local health department by including the local health officer or designee in policy and practices of the behavioral health outpatient facility.
	The infection control officer should assist and education patients as a priority measure, especially those with SMI, those taking immunosuppressant psychotropics (eg, clozapine), and those in group homes/crisis residences/with substance use disorder.
	Educate patients regarding the signs and symptoms of communicable diseases (eg, COVID-19).
	Establish dedicated communication channels, which can be email, a dedicated phone line, or a dedicated person on site, for patients to notify the facility if signs and symptoms occur.

Incorporating public health and population health principles and using CDC guidelines across all managed behavioral-health facilities can be an important first step in protecting the vulnerable individuals with SMI.

nity for persons with SMI, services to families and children, and psychiatric care. In some states, the CMH clinic is also the point of service for substance use rehabilitation and treatment.

Moreover, the CMH system is organized using a "social-support" model and not a medical model, with an ostensible aim to destigmatize the experiences and treatment of mental illness and to deinstitutionalize the delivery of mental health services.[5,7-9] While this service delivery design has many strengths, including its aim to normalize and destigmatize mental illness by using a community-based, person-centered, and locally determined services array, this same model can be problematic in the case of a pandemic. The key to pandemic management is a swift, decisive, and unified response based on population health methods and with a robust, bidirectional relationship with local health departments. The heterogeneous and independent structure of the CMH system can cause the implementation of such a response to falter.

Medical comorbidity in individuals with SMI is widely documented. Medical diseases are present in at least 50% of patients with psychiatric conditions, and severe mental disorders are associated with significant excess of physical comorbidity and mortality.[10] According to a recent systematic review by Onyeka and colleagues,[2] hypertension (35.6%), hepatitis C (26.9%), diabetes (7.5%), and cardiovascular disease (11.3%) were the most prevalent physical disorders among patients with SMI and concomitant substance use disorders. For patients with SMI without substance use disorders, hypertension (32.5%), endocrine disease (19.0%), diabetes (7.5%), and cardiovascular disease (11.3%) were most prevalent. The Centers for Disease Control and Prevention (CDC) acknowledges that people of any age with serious underlying medical conditions might be at higher risk for severe illness from COVID-19; these conditions are obesity, severe cardiovascular disease, diabetes, chronic liver disease, immunocompromised status, chronic kidney disease being treated with dialysis, and chronic lung disease.[11]

Given the well-documented high prevalence of medical comorbidities in individuals with SMI, the COVID-19 pandemic poses a unique risk to this vulnerable population. Therefore, it is urgent to evaluate infection control and the ramifications of the pandemic for this population.

METHODS

We examined guidelines provided by the CDC and other sources regarding mitigation and prevention of person-to-person transmission in the health care setting, and how these guidelines can be implemented and operationalized in the CMH system.[12]

We reviewed the literature published recently about COVID-19 infection and poor outcomes in patients with preexisting medical conditions,[13-17] and we reviewed the national medical comorbidities and mental illness data from Medicaid regarding the medical comorbidities in individuals with SMI.[18] Finally, we performed a literature search using the keywords "medical comorbidity, severe mental illness."[2,10,19]

In addition, the CDC's COVID-19 guidance documents (https://www.cdc.gov/coronavirus/2019-ncov/communication/guidance-list.html?Sort=Date%3A%3Adesc) and the Joint Commission's COVID-19 resources (https://www.jointcommission.org/en/covid-19/) were reviewed.

RESULTS

1. Individuals with SMI constitute a cohort that is at much higher risk for COVID-19–related mortality, because they are more likely to have medical comorbidities that are associated with worse COVID-19 disease outcomes.

2. A robust and bidirectional relationship between CMH clinics and their overarching state organizational entities and respective health departments is needed to operationalize the population health and preventive care processes.

Table 1 summarizes the factors that overlap between the population served by the CMH system and those with higher likelihood of morbidity and mortality from COVID-19 infection.

Our recommendations for an effective mitigation strategy during the pandemic, which are based on the unique outpatient structure of CMH clinics, are outlined in **Table 2**. This is particularly important as the crisis of communicable illness related to this virus is entering into a protracted phase, according to public health experts.[28]

DISCUSSION

Today, approximately 1 in 5 adults, or approximately 46.7 million persons, have mental illness in the United States, and this number is expected to increase in the years ahead.[1] This leads us to a well-known epidemiological fact that individuals with mental illness tend to also have comorbidities from their adverse life events risk and treatment interventions, such as hyperlipidemia, coronary artery disease, and metabolic syndrome,

as well as from their social determinants and behaviors such as smoking, alcohol use, and substance use. Early retrospective analysis of COVID-19–related illness and death is showing a strong link between comorbidities and mortality in affected populations.[13,29,30]

In the face of this high risk for morbidity for individuals with mental illness, associated comorbidities, and coexisting high-risk health behaviors, the current pandemic poses a variety of structural and organizational challenges. Incorporating public health and population health principles and using the guidelines developed by the CDC across all managed behavioral-health facilities that receive public funding can be an important first step in protecting the vulnerable individuals with SMI.

The existing system of care for behavioral health runs parallel to but rarely intersects with the physical health care system that is based on the medical hierarchical model. The patients that most use CMH clinics for their mental health care are those who are most at-risk for being exposed to and experiencing worse outcomes from COVID-19. Ergo, the behavioral health system faces unique challenges when dealing with a public health crisis such as the COVID-19 pandemic. These challenges arise because of the disparities associated with the a CMH system based largely on the decentralized operational structure and the complex needs of the population served.

Based on this, we propose that the current operating model of the CMH system may be unprepared to serve patients safely during a pandemic. We have developed suggestions and recommended modifications to the existing infrastructure that can be made in a relatively short time (**Table 2**).

CONCLUSION

We posit that the patient population with SMI that is served by CMH systems/state-funded health systems are at high risk for worse COVID-19 outcomes. More needs to be done and resources need to be allocated in order to prepare for and mitigate what might otherwise result in tragic loss of life. ■

REFERENCES:

1. Substance Abuse and Mental Health Services Administration. *Key Substance Use and Mental Health Indicators in the United States: Results from the 2018 National Survey on Drug Use and Health.* Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration; 2019. HHS Publication No. PEP19-5068, NSDUH Series H-54. Accessed May 6, 2020. https://www.samhsa.gov/data/sites/default/files/cbhsq-reports/NSDUHNationalFindingsReport2018/NSDUHNationalFindingsReport2018.pdf
2. Onyeka IN, Collier Høegh M, Nåheim Eien EM, Nwaru BI, Melle I. Comorbidity of physical disorders among patients with severe mental illness with and without substance use disorders: a systematic review and meta-analysis. *J Dual Diagn.* 2019;15(3):192-206. doi:10.1080/15504263.2019.1619007
3. Daré LO, Bruand P-E, Gérard D, et al. Co-morbidities of mental disorders and chronic physical diseases in developing and emerging countries: a meta-analysis. *BMC Public Health.* 2019;19(1):304. doi:10.1186/s12889-019-6623-6
4. Frank RG, Glied S. Changes in mental health financing since 1971: implications for policymakers and patients. *Health Aff (Millwood).* 2006;25(3):601-613. doi:10.1377/hlthaff.25.3.601
5. Sharfstein SS. Whatever happened to community mental health? *Psychiatr Serv.* 2000;51(5):616-620. doi:10.1176/appi.ps.51.5.616
6. Beigel A, Sharfstein S, Wolfe JC. Toward increased psychiatric presence in community mental health centers. *Hosp Community Psychiatry.* 1979;30(11):763-767. doi:10.1176/ps.30.11.763
7. Grob GN. From hospital to community: mental health policy in modern America. *Psychiatr Q.* 1991;62(3):187-212. doi:10.1007/BF01955796
8. Mowbray CT, Grazier KL, Holter M. Managed behavioral health care in the public sector: will it become the third shame of the states? *Psychiatr Serv.* 2002;53(2):157-170. doi:10.1176/appi.ps.53.2.157
9. Ahmedani BK. Mental health stigma: society, individuals, and the profession. *J Soc Work Values Ethics.* 2011;8(2):4-1–4-16.
10. Manuel CM, Rao PP, Rebello P, Safeekh AT, Mathai PJ. Medical comorbidity in in-patients with psychiatric disorder. *Muller J Med Sci Res.* 2013;4(1):12-17. doi:10.4103/0975-9727.112264
11. Centers for Disease Control and Prevention. Coronavirus disease 2019 (COVID-19): people who need to take extra precautions. Reviewed May 14, 2020. Accessed May 26, 2020. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/index.html
12. *Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care.* Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases, Division of Healthcare Quality Promotion. September 2016. Accessed May 6, 2020. https://www.cdc.gov/infectioncontrol/pdf/outpatient/guide.pdf
13. Guan W-j, Liang W-h, Zhao Y, et al; China Medical Treatment Expert Group for Covid-19. Comorbidity and its impact on 1590 patients with Covid-19 in China: a nationwide analysis. *Eur Respir J.* 2020;2000547. doi:10.1183/13993003.00547-2020
14. Guo T, Fan Y, Chen M, et al. Cardiovascular implications of fatal outcomes of patients with coronavirus disease 2019 (COVID-19). *JAMA Cardiol.* 2020;e201017. doi:10.1001/jamacardio.2020.1017
15. Guo Y-R, Cao Q-D, Hong Z-S, et al. The origin, transmission and clinical therapies on coronavirus disease 2019 (COVID-19) outbreak—an update on the status. *Mil Med Res.* 2020;7(1):11. doi:10.1186/s40779-020-00240-0
16. Adams JG, Walls RM. Supporting the health care workforce during the COVID-19 global epidemic. *JAMA.* Published online March 12, 2020. doi:10.1001/jama.2020.3972
17. Xie J, Tong Z, Guan X, Du B, Qiu H, Slutsky AS. Critical care crisis and some recommendations during the COVID-19 epidemic in China. *Intensive Care Med.* 2020;46(5):837-840. doi:10.1007/s00134-020-05979-7
18. Howard PB, El-Mallakh P, Rayens MK, Clark JJ. Comorbid medical illnesses and perceived general health among adult recipients of Medicaid mental health services. *Issues Ment Health Nurs.* 2007;28(3):255-274. doi:10.1080/01612840601172593
19. Bahorik AL, Satre DD, Kline-Simon AH, Weisner CM, Campbell CI. Serious mental illness and medical comorbidities: findings from an integrated health care system. *J Psychosom Res.* 2017;100:35-45. doi:10.1016/j.jpsychores.2017.07.004
20. Centers for Disease Control and Prevention. People at high risk for flu complications. Reviewed August 27, 2018. Accessed May 26, 2020. https://www.cdc.gov/flu/highrisk/index.htm
21. Hughes HK, Mills Ko E, Rose D, Ashwood P. Immune dysfunction and autoimmunity as pathological mechanisms in autism spectrum disorders. *Front Cell Neurosci.* 2018;12:405. doi:10.3389/fncel.2018.00405
22. Lieberman JA III. Metabolic changes associated with antipsychotic use. *Prim Care Companion J Clin Psychiatry.* 2004;6(suppl 2):8-13.
23. Correll CU, Frederickson AM, Kane JM, Manu P. Equally increased risk for metabolic syndrome in patients with bipolar disorder and schizophrenia treated with second-generation antipsychotics. *Bipolar Disord.* 2008;10(7):788-797. doi:10.1111/j.1399-5618.2008.00625.x
24. Alvir JM, Lieberman JA. Agranulocytosis: incidence and risk factors. *J Clin Psychiatry.* 1994;55(suppl B):137-138.
25. Gitlin M. Lithium side effects and toxicity: prevalence and management strategies. *Int J Bipolar Disord.* 2016;4(1):27. doi:10.1186/s40345-016-0068-y
26. Hung C-I, Liu C-Y, Hsiao M-C, Yu N-W, Chu C-L. Metabolic syndrome among psychiatric outpatients with mood and anxiety disorders. *BMC Psychiatry.* 2014;14:185. doi:10.1186/1471-244X-14-185
27. Yekehtaz H, Farokhnia M, Akhondzadeh S. Cardiovascular considerations in antidepressant therapy: an evidence-based review. *J Tehran Heart Cent.* 2013;8(4):169-176.
28. Yong E. How the pandemic will end. *The Atlantic.* March 25, 2020. Accessed May 26, 2020. https://www.theatlantic.com/health/archive/2020/03/how-will-coronavirus-end/608719/
29. Shi S, Qin M, Shen B, et al. Association of cardiac injury with mortality in hospitalized patients with COVID-19 in Wuhan, China. *JAMA Cardiol.* 2020;e200950. doi:10.1001/jamacardio.2020.0950
30. 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(10229):1054-1062. doi:10.1016/S0140-6736(20)30566-3