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TESTIMONY FOR AGENCY PERFORMANCE OVERSIGHT HEARING FISCAL YEAR  
2020-2021 FOR THE DEPARTMENT OF BEHAVIORAL HEALTH (DBH)  
COMMITTEE ON HEALTH

February 12, 2021

Good afternoon, Chairperson Gray and Committee Members. Thank you for this opportunity to testify. My name is Jaclyn Verner and I am a Staff Attorney at Disability Rights DC at University Legal Services (“DRDC”), the designated protection and advocacy program for people with disabilities in the District of Columbia. Pursuant to our federal mandate, Disability Rights DC represents hundreds of DC residents with mental illness each year. I would like to thank the Council for this opportunity to testify. In addition, I would like to thank the DC Bar Foundation for supporting DRDC’s efforts to address housing barriers experienced by District residents living with mental illness.

My testimony is focused on five important areas: 1) DBH’s failure to allocate adequate housing resources for individuals who are housing unstable or homeless and living with serious and persistent mental illness, 2) DBH’s insufficient efforts to ensure equitable distribution of the COVID-19 vaccine to DBH consumers, 3) the need for DBH to be more proactive and transparent regarding the transition to managed care for Medicaid behavioral health services, 4) the state of services at St. Elizabeths Hospital, and 5) the service gap for District residents living with traumatic brain injury.

First, you are well aware that access to safe, affordable housing is central to the safety and treatment of mental health consumers. Long-standing research confirms that people respond

better to treatment when they are in safe, stable housing. Common sense and human decency tell us that individuals with mental illness need housing as much as anyone else. At one time, DBH acknowledged its role in the development of this essential element by supporting housing development that would add to the inventory of housing possibilities for mental health consumers.<sup>1</sup> In order to reduce reliance on Mental Health Community Residential Facilities (CRFs), which are institutional in nature, and to address widespread homelessness, DBH envisioned an ambitious plan, as outlined in its 2012 Supportive Housing Strategic report. For example, in 2012, DBH committed itself to develop a system “that supports individuals with mental illness in integrated, community based settings.”<sup>2</sup> The 2012 plan committed to increasing the number of Permanent Supported Housing units so that people with mental illness could live in integrated community based settings, consistent with the Americans with Disabilities Act (ADA) community integration mandate.<sup>3</sup> In addition, DBH created a more targeted housing waitlist for their consumers by securing set-aside housing vouchers.

This commitment on housing those with serious and persistent mental illness has waned, and we understand that few, if any, vouchers have been added to DBH’s allotment for years, a terrible shame for the many who have been waiting and hoping for relief from the tragedy of homelessness. At a time when 22% of individuals connected to DBH reported that they are homeless and all of the CRF inventory is reportedly at or near capacity, we ask that DBH make a renewed effort to cultivate housing by actively seeking out housing resources now.<sup>4</sup> It is time for

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<sup>1</sup> See DBH Supportive Housing Strategic Plan 2012-2017, Sept. 2012, <https://dbh.dc.gov/sites/default/files/dc/sites/dmh/publication/attachments/webpage.%202012-2017%20Supportive%20Housing%20Strategic%20Plan.pdf>; See also DMH Comprehensive Strategy Mental Health Services to the Homeless, Jan. 13, 2009, [https://dbh.dc.gov/sites/default/files/dc/sites/dmh/publication/attachments/HomelessServicesStrategy\\_0.pdf](https://dbh.dc.gov/sites/default/files/dc/sites/dmh/publication/attachments/HomelessServicesStrategy_0.pdf).

<sup>2</sup> DBH Supportive Housing Strategic Plan at 2.

<sup>3</sup> DBH Supportive Housing Strategic Plan at 3.

<sup>4</sup> In an email to DRDC dated October 22, 2020, DBH General Counsel stated that although the data in iCAMS “is not perfect,” roughly 22 percent of DBH consumers were homeless at that time.

DBH to revisit the above goals and to update the strategies outlined in past reports. Certainly, it should be keeping track of homelessness and the general state of need among the thousands of individuals it serves.

Second, we are very grateful to learn that DBH has partnered with DC Health to schedule onsite vaccination clinics inside CRFs and applaud these efforts that were drastically needed. We hope DBH expands onsite vaccination clinics to CSAs and other community-based behavioral health sites and allows reimbursement for contracted nurses to vaccinate individuals who cannot leave their homes. However, we are concerned that DBH is not adequately taking responsibility in ensuring equitable access to the COVID-19 vaccine for all its consumers. On January 28, 2021, DRDC submitted a letter to DBH and DC Health, providing recommendations for ensuring equitable access to the vaccine for DBH consumers, as well as posing a series of questions to understand what actions DBH is taking to ensure and support vaccination access in partnership with its providers.<sup>5</sup> As outlined in our letter, these providers are instrumental in facilitating vaccine access and addressing vaccine hesitancy for individuals living with serious and persistent mental illness, but we urge DBH to immediately lead implementation of a targeted vaccination program for DBH consumers. In her response, Dr. Bazron indicated that DBH is relying on its provider network to ensure that consumers have access to vaccine information, as well as assistance in making appointments at accessible sites.<sup>6</sup> Specifically, DBH views its role as advisory and is expecting its providers to help consumers navigate the system with informal support from DBH in weekly provider meetings with DC Health. DBH declined, contrary to our recommendations, to commit to lead coordination and directly support outreach, education, and vaccine appointment assistance efforts with its providers in a consistent and systemic manner.

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<sup>5</sup> See attached DRDC Letter to DBH and DC Health RE: COVID-19 Vaccine Distribution Plan Implementation, Jan. 28, 2021.

<sup>6</sup> See attached DBH Response to DRDC Letter, Feb. 5, 2021.

This reflects DBH's lack of a proactive and effective approach to outreach and education among the DBH provider community as a whole; it seems except for limited technical guidance from DBH, providers are left to their own devices to determine strategies and techniques for implementation.

Although DBH is tracking the number of St. Elizabeths patients who have received the vaccine to date, DBH was unable to provide any vaccination rate data at this time on consumers in short-term psychiatric inpatient settings such as PIW, CRF residents and staff, CSA and SUD providers, and those who are otherwise living in the community. Without comprehensive data, DBH cannot maintain that it's making sure the system is equitable for the at-risk mental health community.<sup>7</sup> To address these access gaps, we urge DBH to: (1) provide direct and targeted outreach and support to DBH consumers to ensure equitable vaccine access, (2) conduct ongoing monitoring of all its providers' efforts to ensure they are providing effective outreach and education, including mobile outreach by ACT teams and community support workers to unhoused consumers and other consumers in the community, and ongoing monitoring to track that providers are directly assisting consumers to make appointments, and (3) comprehensively track outcomes and vaccination data regarding DBH consumers. DBH's leadership is critical as we continue to have serious concerns that providers may not have adequate staffing to assist all eligible consumers in accessing vaccine appointments, particularly those consumers who lack computer and/or internet access and as the priority groups continue to expand. We hope that DC Council, in its oversight capacity, will monitor DBH's efforts, in partnership with DC Health, regarding vaccine distribution to eligible DBH consumers.

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<sup>7</sup> A recent study, attached to this testimony, found that "psychiatric disorders, and especially severe mental illness, are associated with an increased risk of severe acute respiratory syndrome coronavirus 2 infection and COVID-19-related morbidity and mortality." Mazereel, Victor, et. al, *COVID-19 vaccination for people with severe mental illness: why, what, and how?*, The Lancet Psychiatry, Feb. 3, 2021.

Next, we urge DBH to be more proactive in conducting outreach to its consumers regarding the transition to Medicaid managed care. As you know, roughly 19,000 beneficiaries were moved from Medicaid fee-for-service (FFS) to Medicaid managed care organizations (MCOs) in October 2020.<sup>8</sup> In October 2022, DBH and DHCF further plan to carve-in FFS Mental Health Rehabilitation Services (MHRS) into the MCO behavioral health benefit, which will be a significant change for the DBH community. It is imperative that DBH engage in greater transparency regarding this change *with its consumers*, not just its providers, and that DBH proactively devise a greater outreach strategy to directly engage with consumers and ensure continuity of care. Promulgating information using the internet is not sufficient by itself, as many DBH consumers lack stable internet access.

A fourth area of concern is the state of services at St. Elizabeths Hospital. In the spring of 2020, COVID-19 ravaged St. Elizabeths Hospital, the District's only public psychiatric institution. By the end of the first week of May 2020, just over one month after the first staff person at the Hospital tested positive for COVID-19, fourteen patients were dead from complication of the virus, and seventy-eight patients had been infected. DRDC's in-depth investigation has found substantial evidence that after the virus was detected in the District, Hospital administration failed to adequately prepare, and once the virus arrived at the Hospital, they failed to adequately follow CDC guidelines. Additionally, over the past several years, DRDC has issued three public reports detailing abusive staff practices related to restraint and seclusion.<sup>9</sup> DRDC's recent evaluation of hospital documentation reveals that although restraint and seclusion have decreased, hospital staff continue to restrain and seclude patients at

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<sup>8</sup> DBH and DC Health Behavioral Health Provider FAQ, <https://dhcf.dc.gov/sites/default/files/u23/Behavioral%20Health%20Provider%20FAQs.pdf>.

<sup>9</sup> See <http://www.uls-dc.org/resources/>.

unacceptably high rates. The Hospital staff and administration must be held accountable for this conduct and failure to adequately address it causes untold suffering and even death.

Finally, DRDC would again like to bring to your attention the District's lack of targeted services for individuals with traumatic brain injury (TBI). In addition to representing individuals with severe and persistent mental illness, DRDC also represents a number of individuals with TBI each year. In addition to engaging in individual advocacy on behalf of these clients, DRDC participates in an Acquired Brain Injury (ABI) working group alongside other advocates and service providers in the District. What continues to remain clear is that there is a gap in community based services in the District for individuals with TBI.

Last year's DBH budget provided for an enhancement of \$500,000 of local funds for St. Elizabeths patients who have a TBI to be sent to out-of-state residential placements. While it is a step forward for TBI to be acknowledged in DBH's budget at all, we continue to urge DBH to create *community-based* services for individuals with TBI *in the District*.

In 2016, our TBI working group conducted a survey on the incidence of TBI among adult consumers of community behavioral health services in DC. Participants of this survey were 159 consumers from four different Core Service Agencies who were administered a TBI screening tool at the time of intake. We found that approximately 50 percent of the adult community behavioral health population surveyed had a history of TBI. Yet, almost none had been diagnosed with one.<sup>10</sup>

Currently, TBI is not a Medicaid-billable diagnosis in DC. Thus, CSAs cannot bill for services provided to consumers who have a primary diagnosis of TBI. Because CSAs cannot bill for this diagnosis, they ultimately have not invested resources into training staff to assess for,

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<sup>10</sup> DC TBI Work Group. (2018). *Traumatic Brain Injury in the District: The Ignored Injury. A Paper Examining the Prevalence of TBI in the District and the Need for Services*, <http://www.uls-dc.org/media/1150/tbi-white-paper-final-7-25-18.pdf>.

treat, and accommodate TBI. Our TBI working group acknowledges that the current service gap is a multi-agency issue that will not be solved by DBH alone and has engaged in several productive discussions with the Department of Healthcare Finance (DHCF) in 2018, 2019, 2020, and 2021 to address the current gap in TBI services. However, because our survey demonstrated that a significant percentage of consumers who walk through the doors of CSAs have a history of TBI, DBH will play just as large a role in addressing this service gap.

Our TBI working group met with the previous DBH administration in 2018 to discuss the importance of DBH addressing this gap. DBH's response at that time was that they agree it is an issue, but would not be willing to tackle it alone. The current DBH administration similarly has not yet engaged in efforts to support consumers with TBI, other than sending those with the most severe form of TBI to out-of-state placements.

When TBI is not assessed for by CSAs, one result is that individuals are misdiagnosed with mental illnesses including, but not limited to, schizophrenia and bipolar disorder. Because diagnosis informs treatment, these individuals are then being prescribed psychotropic medications. However, psychotropic medications that are commonly used to treat psychotic disorders are not the first line of treatment for TBI and do not help to address the underlying brain injury at all. As a result, these misdiagnosed individuals often do not demonstrate improved behavior and aren't given the opportunity to recover. This not only hurts these individuals, but is also a poor financial decision for the District, as these are individuals whose symptoms may have improved and therefore may have required fewer District resources had they been properly treated in the first place.

By sending individuals with severe TBI to court-ordered out of state placements, DBH is only touching on a small percentage of those District residents living with TBI. We urge DBH to

find ways for its community based providers to begin to assess for and treat TBI in the District and hope to again meet with DBH administration to discuss these matters.

Thank you for the opportunity to submit testimony on these important issues.



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January 28, 2021

Dr. Barbara Bazron, Director  
Department of Behavioral Health  
64 New York Avenue NE, 3rd Floor  
Washington, DC 20002

Dr. LaQuandra Nesbitt, Director  
DC Health  
899 North Capitol Street NE  
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**Re: COVID-19 Vaccine Distribution Plan Implementation**

Dear Dr. Bazron and Dr. Nesbitt,

As you know, Disability Rights DC (DRDC) at University Legal Services is the federally-designated protection and advocacy program for individuals with disabilities in the District of Columbia. As the District works toward implementation of distribution of the COVID-19 vaccination into our community, we understand that the District is facing significant challenges due to the fact that the demand for the vaccine far exceeds the supply. DRDC writes to address the specific needs of the population in which the Department of Behavioral Health (DBH) serves and to urge DBH to coordinate with DC Health and other sister agencies to ensure DC residents living with severe and persistent mental illness are experiencing equitable access to the vaccination.<sup>1</sup>

DRDC appreciates that the District has undertaken an effort to distribute the vaccine to individuals who are among the most vulnerable, including those who are living in long-term care facilities, those with high-risk conditions and comorbidities, individuals living in other congregate care settings, and individuals aged 65 and older.<sup>2</sup> In addition, we appreciate that frontline public health workers have been included in early stages of the vaccine distribution plan, as this includes frontline behavioral health workers who have access to the Districts' most vulnerable residents living with mental illness, as well as those who are working in psychiatric facilities.

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<sup>1</sup> On January 26, 2021, DRDC submitted a letter to Deputy Mayor Turnage, Dr. LaQuandra Nesbitt of DC Health, and Melisa Byrd of the Department of Health Care Finance, similarly urging them to coordinate with sister agencies.

<sup>2</sup> DC Health, "Vaccination Program Phases With Tiers", Jan. 11, 2021, [https://coronavirus.dc.gov/sites/default/files/dc/sites/coronavirus/page\\_content/attachments/Vaccination-Program-Phases-with-Tiers.pdf](https://coronavirus.dc.gov/sites/default/files/dc/sites/coronavirus/page_content/attachments/Vaccination-Program-Phases-with-Tiers.pdf).

Although we are encouraged to see the above populations included in early phases of the vaccine distribution plan, it does not include much direct reference to the behavioral health population that DBH serves. For example, although we know that patients at St. Elizabeths Hospital have been included in phase 1-A, the plan itself does not make clear what constitutes being a “long-term care resident” and whether psychiatric inpatients are included in this category. A group of leading national mental health organizations recently published a statement urging state authorities to include those experiencing longer-term psychiatric inpatient stays in this first phase of distribution.<sup>3</sup> Similarly, the group urged state authorities to give those individuals experiencing short-term psychiatric inpatient stays a similar priority.<sup>4</sup> DRDC is pleased to see that St. Elizabeths patients have been provided with opportunities thus far to receive the vaccine. However, less is clear regarding where short-term psychiatric inpatients fall, specifically those who are admitted to the Psychiatric Institute of Washington (PIW) and to the psychiatric units at both United Medical Center and Washington Hospital Center. Although patients admitted to these facilities are transient in comparison, there are still at-risk patients, particularly at PIW, whose length of stay surpasses 30 days, and thus should also be prioritized in phase 1-A.

In addition to the lack of clarity as to where individuals experiencing chronic and persistent mental illness fit into the District’s plan, the current vaccine appointment request process, which is on a first-come, first-served track, does not ensure equitable distribution of the vaccine to the disability community in the District, who are disproportionately at risk of severe effects or death from COVID-19.<sup>5</sup> The District acknowledged that vaccine appointments continue to fill quickly and recently responded to DC leaders’ concerns that the vaccine is not being equitably distributed to majority-black DC wards by creating a new registration process in which residents will be placed on a waiting list and will be notified when it is their turn to sign up.<sup>6,7</sup> Although this plan appropriately acknowledges that age, health status, and neighborhood are factors to consider, it will still leave vulnerable District residents waiting and will still require them to have assistance navigating this process.<sup>9</sup>

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<sup>3</sup> National Association of State Mental Health Program Directors, American Psychological Association, Judge David L. Bazelon Center for Mental Health Law, Mental Health America, National Alliance on Mental Illness, “Leading Mental Health Organizations Call on States to Prioritize Individuals in Psychiatric Hospitals for Vaccination”, Jan. 13, 2021, <https://secureservercdn.net/198.71.233.254/d25.2ac.myftpupload.com/wp-content/uploads/2021/01/psych-patient-priority-statement-pdf>.

<sup>4</sup> *Id.*

<sup>5</sup> The Centers for Disease Control, “COVID-19: People with Disabilities”, last updated Jan. 20, 2021, <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-disabilities.html>.

<sup>6</sup> “D.C. Leaders Spar Over Coronavirus Vaccine Access for Poorer Residents”, The Washington Post, Jan. 13, 2021, [https://www.washingtonpost.com/local/coronavirus-vaccine-virginia-maryland-dc/2021/01/13/96ac06fa-559c-11eb-a08b-f1381ef3d207\\_story.html](https://www.washingtonpost.com/local/coronavirus-vaccine-virginia-maryland-dc/2021/01/13/96ac06fa-559c-11eb-a08b-f1381ef3d207_story.html).

<sup>7</sup> “Black DC Residents Say They Want the COVID-19 Vaccine. But the Barriers to Access are Many”, DCist, Jan. 27, 2021, <https://dcist.com/story/21/01/27/black-dc-residents-want-coronavirus-vaccine-but-lack-access/>.

<sup>8</sup> “Virginia, DC Make Vaccine Distribution Changes as Residents Scramble to find Doses”, The Washington Post, Jan. 27, 2021, [https://www.washingtonpost.com/local/coronavirus-virginia-maryland-dc/2021/01/27/18669dbc-609d-11eb-9430-e7c77b5b0297\\_story.html](https://www.washingtonpost.com/local/coronavirus-virginia-maryland-dc/2021/01/27/18669dbc-609d-11eb-9430-e7c77b5b0297_story.html).

<sup>9</sup> *Id.*

Lastly, there has been a demonstrated hesitancy toward taking the COVID-19 vaccination, due to a historical mistrust of the medical system, systemic racism and discrimination in health care, and misinformation that has been promulgated.<sup>10</sup> Individuals living with mental illness may experience symptomatology that further exacerbates these fears. DBH has specialized expertise in serving individuals who are experiencing challenging thoughts and emotions, and thus, is uniquely situated to use this expertise to proactively address these fears in the community and to encourage its provider network to do the same.

As a result of the factors discussed above, we request that the District and DBH take the following steps to support vaccine access to District residents living with severe and persistent mental illness in the following ways:

- The District should include individuals experiencing psychiatric inpatient stays at PIW, United Medical Center, and Washington Hospital Center in phase 1-A along with individuals admitted to St. Elizabeths Hospital;
- DBH should issue guidance to PIW, as well as to United Medical Center's and Washington Hospital Center's psychiatric units, to identify within hospital discharge plans how the second dose of the vaccine will be administered if it is not done so by the time of discharge;
- DBH, in partnership with its providers and DC Health, should prioritize communication, outreach, and assistance with registration and making vaccine appointments as necessary to DBH consumers living in the community, particularly including those consumers who are homeless, as well as to those who are living in Chapter 38 MHCRFs;
- DBH should issue guidance to its provider network and consumers to provide specificity on who is included among adults 16-64 with high-risk conditions;
- DBH should issue a provider bulletin or other directive, requiring community support workers, ACT teams, day program staff, CRF operators and staff, and SUD provider staff to provide education, outreach, and assistance with registration and making vaccine appointments as needed to DBH consumers to facilitate their access to the vaccine;
- DBH should ensure that both the information and education about the administration of the vaccine are accessible to consumers and in plain language and alternate formats;
- DBH, in partnership with DHCF, should ensure equitable access to vaccines for consumers who cannot leave their homes, including allowance for contracted nurses to vaccinate individuals who cannot leave their homes and require the provision of other reasonable accommodations to people with disabilities to facilitate access.

The above protections are necessary to ensure the equitable inclusion of individuals with disabilities in the COVID-19 vaccination process, as the District's current plan fails to account for the specific challenges they face. First, the digital appointment process is often not accessible for individuals with disabilities and fails to account for those who lack internet access or who are unhoused. Indeed, approximately 6,200 of DBH consumers are homeless and thus are likely to fall through the cracks.<sup>11</sup> DBH has a large network and possesses the ability to reach those

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<sup>10</sup> See "Most Nursing Home Workers Don't Want the Vaccine. Here's What Facilities are Doing About It", The Washington Post, Jan. 27, 2021, [https://www.washingtonpost.com/local/nursing-homes-vaccine-decline/2021/01/27/22a602f6-5fe2-11eb-afbe-9a11a127d146\\_story.html](https://www.washingtonpost.com/local/nursing-homes-vaccine-decline/2021/01/27/22a602f6-5fe2-11eb-afbe-9a11a127d146_story.html).

<sup>11</sup> In an email to DRDC dated October 22, 2020, DBH General Counsel stated that although the data in iCAMS "is not perfect," 6,281 people, which is roughly 22 percent of DBH consumers, were homeless at that time.

individuals in the community who may be most at risk of COVID-19 infection, particularly those who are isolated and who have little access to information. In fact, the sheer nature of services provided by DBH, such as ACT services, are designed to reach those individuals in the community who are often disconnected from others. Second, many individuals with disabilities are unable to leave their homes for various reasons, including due to psychiatric symptoms. For example, it is not uncommon for individuals living with Posttraumatic Stress Disorder (PTSD) to report having significant discomfort being around others and with leaving home. Third, as was previously described, many District residents with disabilities, including those with severe and persistent mental illness, may be rightfully hesitant to take the vaccine. These barriers further support the need for robust outreach, education, and assistance with requesting appointments.

We urge DBH to partner with DC Health and other sister agencies to take immediate action to address these issues. Please respond to this letter by February 4, 2021 describing how the District and DBH will implement its COVID-19 vaccination plan for DBH consumers living in psychiatric facilities, MHCRFs, and in the community, including those consumers who are homeless. We also ask that you respond to the following questions:

1. How is DBH and its providers addressing the recommendations outlined in this letter, including:
  - a. What specific steps is DBH taking to ensure consumers have access to information about the COVID-19 vaccine and to successful appointment assignments at accessible vaccination sites, including affordable, accessible transportation?
  - b. What is DBH's role in helping overcome vaccine hesitancy in the behavioral health and disability community?
  - c. What is the role of Core Service Agencies and other MHRS providers regarding communication and outreach about the vaccine to consumers?
  - d. What specific steps are Core Service Agencies and other MHRS providers taking to provide information about the vaccine to consumers, what information are these agencies providing, and in what format(s)?
  - e. For DBH consumers who have legal guardians who must consent to administration of the vaccine, how is DBH ensuring that the consumer is also directly being provided with accessible information and education on the vaccine?
2. How many St. Elizabeths staff and patients received their first dose of the vaccine to date? How many St. Elizabeths staff and patients received their second dose of the vaccine to date?
3. When does DBH expect St. Elizabeths staff and patients to be fully vaccinated?
4. What percentage of St. Elizabeths staff and patients have been vaccinated, including those that have received their first dose, to date?
5. How many PIW staff and patients received their first dose of the vaccine to date? How many PIW staff and patients received their second dose of the vaccine to date?
6. When does DBH expect all PIW staff and patients to be fully vaccinated?
7. What percentage of PIW staff and patients have been vaccinated, including those that received their first dose, to date?
8. How many MHCRF staff and residents received their first dose of the vaccine to date? How many MHCRF staff and residents received their second dose of the vaccine to date?
9. When does DBH expect all MHCRF staff and residents to be fully vaccinated?

10. What percentage of MHCRF staff and residents have been vaccinated, including those that have received their first dose, to date?
11. What role are MHCRF staff and operators expected to take in ensuring residents are being provided with access to information about the COVID-19 vaccine and to successful appointment assignments at accessible vaccination sites, including affordable, accessible transportation, for those residents who still wish to receive the vaccination outside of the home, rather than by DC Health staff who are entering their home?
12. When does DBH expect all of its consumers living in the community to be fully vaccinated?
13. How many Core Service Agency staff have received their first dose of the vaccine to date? How many Core Service Agency staff have received their second dose to date?
14. What percentage of Core Service Agency staff have been vaccinated, including those that have received their first dose, to date?

We acknowledge the novelty of the COVID-19 pandemic and the unique challenges that it has raised. We appreciate your time and attention to this urgent matter.

Sincerely,

/s/ Jaclyn Verner  
Jaclyn Verner  
Staff Attorney



**Office of the Director**

February 5, 2021

SENT VIA ELECTRONIC MAIL ONLY

Jaelyn Verner  
Staff Attorney  
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Dear Ms. Verner:

We are writing in response to your January 28, 2021 letter to Dr. LaQuandra S. Nesbitt, Director, Department of Health (DC Health) and Dr. Barbara J. Bazron, Director, Department of Behavioral Health (DBH).

In your role as the federally designated protection and advocacy program for individuals with disabilities in the District of Columbia, you offered several specific recommendations to support vaccine access to District residents living with severe and persistent mental illness. In addition, you requested responses to several questions regarding DBH's role in facilitating access to the vaccine for individuals with severe and persistent mental illness. Our responses to your specific questions are presented below.

**DRDC Question 1.** How is DBH and its providers addressing the recommendations outlined in this letter, including:

- a. What specific steps is DBH taking to ensure consumers have access to information about the COVID-19 vaccine and to successful appointment assignments at accessible vaccination sites, including affordable, accessible transportation?

DBH's expectation is that its provider network will ensure that consumers have access to information about the COVID-19 vaccine and will assist them in making appointments at accessible site locations. The Director of DBH has provided information on the vaccine on a weekly basis since its availability on the weekly Provider Network WEBEX meetings. This includes meetings in which public health experts such as Dr. Ankoor Shah presented the scientific information regarding the vaccine and answered questions from providers. Dr. Shah, DC Health's Principal Deputy Director and has been placed in charge of the District's vaccination rollout. In addition, the information provided on the District's website <https://coronavirus.dc.gov/vaccine> and the CDC website have been included in the PowerPoint presentations developed for the weekly meetings. This information is discussed with the providers, questions/issues raised are addressed and the materials are made available to share with their staff to guide discussions with consumers. Specific guidance about how to discuss the vaccine's safety and efficacy has also been shared (see below).

As part of our frequent, ongoing collaboration with DC Health epidemiology and vaccination teams, DBH advocated for a “house call” or on-site administration option for MHCRF residents, recognizing the challenges of both safely transporting individuals to mass vaccination sites, as well as the potential need for extensive supports with respect to self-calming and symptom management. Crowds at the public sites and the potential for extended waiting periods for individuals with limited mobility presented special concerns. A “house call” option has been approved by DC Health to facilitate the vaccination of this population. DBH’s office of licensure worked closely with partners to identify efficiencies by geo-mapping the MHCRF portfolio and facilitating the scheduling of vaccines, which is still ongoing. (Individuals in care at Saint Elizabeths are addressed below.) The MHCRF vaccination process will begin February 9, 2021.

- b. What is DBH’s role in helping overcome vaccine hesitancy in the behavioral health and disability community?

As noted above, DBH has engaged DC Health’s Principal Deputy Director to present information about the vaccine’s development, safety, and efficacy, both at DBH “All-Hands” meetings and at weekly Provider Network meetings. Dr. Bazron recently conducted an on-line Power Point presentation for providers and staff that included detailed guidance about how to effectively engage individuals with psychiatric disabilities in individual discussions to address questions and legitimate vaccine hesitancy. Central to the approach DBH endorses is the “stages of readiness for change” paradigm which implores providers to meet individuals where they are and to avoid moving too aggressively to persuade someone to do something they are not ready to do, in this case, to accept the vaccine before they are ready. Providers are encouraged to use this framework to equip staff to encourage individuals to get the vaccine while respecting the personal nature of all health care decisions.

- c. What is the role of Core Service Agencies and other MHRS providers regarding communication and outreach about the vaccine to consumers?

Core Service Agencies (CSA) and Mental Health Rehabilitation Services (MHRS) providers have an important role to play in providing outreach to those they serve and assisting consumers to understand the efficacy of the vaccine and to address any questions they have about the vaccine or reluctance taking it because of anxiety or distrust. The expectation that they will use motivational interviewing and other therapeutic techniques to address any stress or anxiety consumers experience related to both the impacts of the pandemic and making the decision regarding whether they should take the vaccine. They are also responsible for ensuring that consumers have accurate and timely information about the vaccine, support registering for the inoculations and developing their transportation strategy to a public vaccination site, if necessary.

- d. What specific steps are Core Service Agencies and other MHRS providers taking to provide information about the vaccine to consumers, what information are these agencies providing, and in what format(s)?

Multiple techniques and strategies being implemented by CSAs and other MHRS providers to share information to consumers about the vaccine. Information is being shared in multiple formats, including verbal and written/pictorial presentations. One agency sends a daily vaccine update to staff so that they are aware of who can receive the vaccine and the site locations. This information is used to assist consumers who want vaccinations to schedule and receive them. Some agencies are having their medical directors conduct virtual session with consumers to discuss the science related to the vaccine and address the fears and questions people of color have regarding the vaccine based upon the historical experiences

of members of their cultural group. Others are sharing the experiences of CSA and other MHRS leaders who have taken the vaccine to encourage people in care to make the decision to be vaccinated. In addition, individual sessions are being held by clinical staff with consumers as a part of the on-going treatment and support they receive. Providers have been advised that individual one-on-one conversations are most likely to positively impact an individual's decision to accept recommended health care options and that more than one conversation with a trusted advocate or caregiver will likely be needed.

- e. For DBH consumers who have legal guardians who must consent to administration of the vaccine, how is DBH ensuring that the consumer is also directly being provided with accessible information and education on the vaccine?

Staff from DBH's licensure administration worked with DC Health, MHCRF operators, Saint Elizabeths Hospital and CRF residents' CSAs or ACT teams to identify those individuals with legal guardians to provide all necessary information and obtain consent. As DRDC is well-aware, majority of individuals receiving services from DBH provider partners are presumed competent to consent to this and other medical care. DBH has requested that CSAs have one-on-one conversations with their consumers regarding these issues.

In addition, the Saint Elizabeth Hospital medical officer on each unit spoken with patients in the hospital regarding the vaccine to ensure that they had adequate information and an opportunity to have their questions answered. Each patient and guardian received a Fact Sheet produced by Moderna on its vaccine. In addition, a consent form written at the fourth-grade level that contained information about the efficacy of vaccines was provided to each individual in care as well as all guardians. The medical officer assigned to the unit was and is currently available to answer any questions individuals have regarding either of the two available vaccines. Information regarding the vaccine and the vaccination process is explained to each patient at the time in which they are to receive their vaccination. All questions are answered before the administration of the vaccine by the medical provider assigned to their unit.

**DRDC Question 2.** How many St. Elizabeths staff and patients received their first dose of the vaccine to date? How many St. Elizabeths staff and patients received their second dose of the vaccine to date?

As of February 3, 2021, the first dose of the COVID-19 vaccine has been administered to 460 staff and 133 patients. The second dose of the COVI-19 vaccine has been administered to 338 staff and no patients. Patients will begin receiving the second dose during the week of February 8, 2021.

**DRDC Question 3.** When does DBH expect St. Elizabeths staff and patients to be fully vaccinated?

To date, 59% of employees and 64 % of patients have been vaccinated. The hospital will continue the vaccination program until all patients and staff have received the vaccine. It should be noted that the decision to take the vaccine is voluntary. We are providing education, answering questions and encouraging all members of the Saint Elizabeths community to take the vaccine.

**DRDC Question 4.** What percentage of St. Elizabeths staff and patients have been vaccinated, including those that have received their first dose, to date?

59% of Saint Elizabeths staff have received the COVID-19 vaccine.  
64% of patients have received the COVID-19 vaccine.

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**DRDC Question 5, 6 and 7.** How many PIW staff and patients received their first dose of the vaccine to date? How many PIW staff and patients received their second dose of the vaccine to date? When does DBH expect all PIW staff and patients to be fully vaccinated? What percentage of PIW staff and patients have been vaccinated, including those that received their first dose, to date?

DBH does not have information regarding the number of PIW patients or staff who have had their first dose of the vaccine nor do we know when all staff and patients will be fully vaccinated.

**DRDC Question 8. and Question 10.** How many MHCRF staff and residents received their first dose of the vaccine to date? How many MHCRF staff and residents received their second dose of the vaccine to date? What percentage of MHCRF staff and residents have been vaccinated, including those that have received their first dose, to date?

To date, DBH does not have data on the number of MHCRF staff and residents who have received their first dose of the vaccine to date. Residents in MHCRFs will begin receiving vaccinations on-site February 9th. DBH will work with MHCRF operators to periodically collect data on the number of staff and patients who are vaccinated once the MHCRF Vaccination Plan is launched next week.

**DRDC Question 9.** When does DBH expect all MHCRF staff and residents to be fully vaccinated?

The COVID-19 vaccination is voluntary. Notwithstanding the voluntary nature of the vaccine, DBH and its providers are encouraging staff and residents to take the vaccine. DC Health is leading the work to vaccinate residents in mental health community residence facilities (MHCRF). DBH distributed a "Vaccine Informed Consent Form" to each MHCRF Residence Director and owner on 1/29/2021. Scheduling for onsite vaccinations in MHCRFs began the week of February 1, 2021. The onsite vaccination clinics will take place on Tuesdays and Thursdays beginning at 8:00 am until 12 noon. As stated above, the first clinic will take place on February 9, 2021. DBH will email each MHCRF Residence Director and owner with the date of their scheduled onsite vaccination clinic starting on February 5, 2021.

**DRDC Question 11.** What role are MHCRF staff and operators expected to take in ensuring residents are being provided with access to information about the COVID-19 vaccine and to successful appointment assignments at accessible vaccination sites, including affordable, accessible transportation, for those residents who still wish to receive the vaccination outside of the home, rather than by DC Health staff who are entering their home?

Residents of MHCRFs are receiving education, on-going information and support from their Core Service Agencies about the COVID-19 vaccine and vaccination process. Medicaid beneficiaries in the District have access to non-emergency transportation for all medical appointment at no cost to the beneficiary, including vaccination appointments. Across the Medicaid program, in both fee for services and managed care, DHCF is working to ensure same-day notice and transportation for beneficiaries scheduling vaccine appointments outside of their homes.

**DRDC Question 12.** When does DBH expect all of its consumers living in the community to be fully vaccinated?

DC Health and DBH are unable to provide vaccination rates for all consumers living in the community at this time. DC Health will work with DBH and other District agencies and providers to periodically collect data on vaccination rates for consumers living in the community.

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**DRDC Question 13 and 14.** How many Core Service Agency staff have received their first dose of the vaccine to date? How many Core Service Agency staff have received their second dose to date? What percentage of Core Service Agency staff have been vaccinated, including those that have received their first dose, to date?

To date DBH has not collected data on CSA staff vaccination rates. Working with Provider Relations and our Data and Performance Management teams, DBH will deploy a tracking strategy in February 2021 to periodically collect data from CSA and SUD provider partners.

Please let me know if you have any questions. I can be reached at [barbara.bazron@dc.gov](mailto:barbara.bazron@dc.gov).

Sincerely,

A handwritten signature in blue ink that reads "Barbara J. Bazron". The signature is fluid and cursive, with the first name being the most prominent.

Barbara J. Bazron, Ph.D.  
Director

# COVID-19 vaccination for people with severe mental illness: why, what, and how?



Victor Mazereel, Kristof Van Assche, Johan Detraux, Marc De Hert

Psychiatric disorders, and especially severe mental illness, are associated with an increased risk of severe acute respiratory syndrome coronavirus 2 infection and COVID-19-related morbidity and mortality. People with severe mental illness should therefore be prioritised in vaccine allocation strategies. Here, we discuss the risk for worse COVID-19 outcomes in this vulnerable group, the effect of severe mental illness and psychotropic medications on vaccination response, the attitudes of people with severe mental illness towards vaccination, and, the potential barriers to, and possible solutions for, an efficient vaccination programme in this population.

## Introduction

To combat the global COVID-19 pandemic, extraordinary efforts are underway to develop and produce COVID-19 vaccines. Early reports on vaccine safety and efficacy are promising. However, especially in the initial stages of vaccine distribution, doses will be scarce, raising the question of who should be prioritised for vaccination. WHO, the National Academies of Science, Engineering, and Medicine, and others have proposed ethical frameworks to address this issue.<sup>1-4</sup> A commonality in these frameworks can be found in three guiding principles: (1) maximising benefit and minimising harm in the short term and long term, (2) equal concern for every person in priority setting and vaccine allocation and distribution, and (3) mitigation of health inequities to address the higher burden of COVID-19 in some disadvantaged groups. These principles seem to be consistent with public preferences.<sup>5,6</sup>

Some populations should be prioritised because of their disproportionately higher risk of infection, having lasting sequelae, or dying of COVID-19 due to medical factors, socioeconomic status, age, or profession. We have argued that people with severe mental illness should be given priority because they are a disadvantaged group based on both medical and socioeconomic risk factors for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, morbidity, and mortality.<sup>7</sup> Although the term severe mental illness is most commonly used to describe schizophrenia, bipolar disorder, and major depressive disorder, it can be more broadly applied to any mental illness that causes severe functional impairment.<sup>8,9</sup> According to the World Mental Health Survey, the prevalence of serious mental disorders is estimated to be between 0.4% and 7.7%.<sup>10</sup> However, how the pandemic affects the prevalence of psychiatric disorders is still uncertain.<sup>11</sup>

## Why are people with severe mental illness at higher risk?

Among the first to be prioritised for vaccine allocation are groups of people with medical comorbidities that put them at considerably higher risk of dying or having lasting or more severe consequences from COVID-19. These groups include people with cardiovascular

diseases,<sup>12,13</sup> chronic obstructive pulmonary disease (COPD),<sup>12,13</sup> diabetes,<sup>14</sup> chronic kidney disease,<sup>15</sup> immunodeficiency, and cancer.<sup>16</sup> We have previously argued that people with severe mental illness should be added to this list because of their high frequency of comorbidities (although, there are other reasons).<sup>7</sup>

Several studies have found an association between an existing psychiatric disorder and increased risk for SARS-CoV-2 infection and COVID-19-related hospitalisation, morbidity, and mortality.<sup>17-24</sup> Some of these studies also specifically examined the difference between risks associated with severe mental illness, as described by diagnosis, severity, or previous hospitalisation for a mental disorder, and other psychiatric disorders. These studies point to a higher risk for worse COVID-19-related outcomes for people with severe mental illness than for people with less severe mental illness.<sup>17,19,23,24</sup>

Individuals with severe mental illness have a two to three times higher mortality rate than do the general population.<sup>7,25</sup> Compared with the general population, people with severe mental illness are more likely to be obese or have physical diseases, such as cardiovascular diseases, type 2 diabetes, and respiratory tract diseases, all risk factors for worse COVID-19-related outcomes.<sup>26,27</sup> Furthermore, the prevalence of smoking is up to two to three times higher in people with severe mental illness than in people without psychiatric illness.<sup>28-31</sup> SARS-CoV-2 uses the angiotensin-converting enzyme 2 (ACE2) receptor to gain access into cells and cause infection.<sup>32,33</sup> Current smokers have higher expression of ACE2 in bronchial epithelial cells than do non-smokers and former smokers.<sup>34</sup> Although it was initially thought that higher ACE2 expression in the airways of smokers can predispose them to SARS-CoV-2 infection, epidemiological data do not support the claim that smoking is directly associated with COVID-19.<sup>35-37</sup> Nonetheless, COPD, usually caused by smoking and prevalent in people with severe mental illness, is associated with worse COVID-19 outcomes.<sup>38</sup>

Arguably, the increased risk of worse COVID-19-related outcomes in people with psychiatric disorders, and especially in those with severe mental illness, is due to frequent comorbidity with physical diseases related to poor COVID-19 outcomes. However, the aforementioned

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studies<sup>17–23</sup> showed a risk greater than that of physical diseases by correcting for them in the analyses. Therefore, psychiatric disorders confer an additional risk for SARS-CoV-2 infection and COVID-19-related morbidity and mortality. This finding refutes the argument that people with severe mental illness will already be covered by vaccine allocation strategies because of their physical health status.

Severe mental illness is associated with altered immune function, with research showing a pro-inflammatory state and maladaptive T-cell functioning.<sup>39–44</sup> One factor that is associated with dysregulated immunological function is childhood adversity, which is associated with increased odds for the occurrence of any psychiatric disorder (odds ratios between 1.5 and 3.5 according to the number of childhood adversities).<sup>45,46</sup> Chronic stress, which has an important role in the onset of severe and impairing psychiatric disorders, is another factor that impairs immune system regulation.<sup>47</sup>

Sleep problems, which are common in many psychiatric disorders and often serious in severe mental illness, are also frequently associated with a dysregulated immune system and increased risk of acute infection.<sup>48,49</sup> Furthermore, social exclusion and loneliness are associated with increased inflammation and dysregulated anti-viral immunity, which suggests another link between severe mental illness and the immune system.<sup>50</sup> These dysfunctional immunological alterations can predispose people with severe mental illness to a more severe SARS-CoV-2 infection and clinical trajectory.<sup>51–54</sup>

Severe mental illness is also associated with several socioeconomic risk factors for SARS-CoV-2 infection.<sup>55,56</sup> A survey in Switzerland found that people with severe mental illness more often had socioeconomic deprivation or jobs without health-care insurance or with poor working conditions, and lived in poverty compared with people with less severe mental illness and the general population.<sup>57</sup> These issues might prevent these individuals from accessing health care when feeling ill, out of fear of losing their job or of not being able to pay for the expenses. People with severe mental illness often live in overcrowded settings or are homeless, where safety and physical distancing could be a challenge. Many individuals are either living in institutions or confined in a facility where there is a high risk of SARS-CoV-2 circulation and transmission. Social isolation and social exclusion are also highly prevalent among people with severe mental illness,<sup>57,58</sup> which can affect their ability to receive necessary care and support when ill.

When people with severe mental illness do reach out to health-care providers, it is often more difficult for them to receive proper care for their physical illnesses. The diagnosis and management of physical diseases in people with severe mental illness is frequently suboptimal because of stigmatisation, discrimination, erroneous beliefs, and negative attitudes associated with severe mental illness.<sup>56</sup> Individuals with severe mental illness can

experience cognitive dysfunction or delusions,<sup>59</sup> have symptoms of apathy, avolition, or anhedonia, and, in general, have lower educational attainment<sup>60,61</sup> and lower health literacy than the general population.<sup>62,63</sup> As a result, it can be harder for them to find adequate information on COVID-19, to understand the contents and applicability of this information to their personal situation, and to adapt to the continuously changing health safety regulations.<sup>64</sup> From a public health perspective, knowing how SARS-CoV-2 spreads within certain groups is important to estimate the value of vaccinating the individuals in these groups to stop virus transmission. To our knowledge, no research has yet addressed SARS-CoV-2 transmission in people with severe mental illness.

Clearly, severe mental illness is a serious risk factor for worse COVID-19-related outcomes, resulting from a high risk of infection, a high risk that the infection will have a complex course, and a high risk of dying when infected. In accordance with the second and third guiding ethical principles, people with severe mental illness should therefore be among the first to be vaccinated. Everyone involved in the care of these patients should inform them of the utility and risks of early vaccination.

### What is the effect of severe mental illness on vaccination response?

Although the need for vaccination is clear, several problems regarding vaccination for people with severe mental illness exist. Evidence from studies of vaccination against other infectious agents suggests that people with depression might have a reduced immune response to vaccination. Older adults (mostly  $\geq 65$  years) experiencing a chronic stressor or depressive symptoms were found to have a lower antibody response to influenza virus vaccination,<sup>65,66</sup> although, depressive symptoms in older adults (mean age 71 years [SD 9]) might be associated with an amplified, prolonged inflammatory response.<sup>67</sup> One study showed that adults with depression were less likely to test seropositive for measles than were controls who did not have depression and thus had an increased risk for infection.<sup>68</sup> Depressive symptoms were also found to be associated with lower seroconversion rates for hepatitis B vaccination in people undergoing haemodialysis.<sup>69</sup> Concerning the varicella zoster virus, a study showed diminished vaccination efficacy and an increased risk and severity of herpes zoster in patients with depression.<sup>70</sup> To our knowledge, studies examining the effect of other psychiatric diagnoses on vaccination response are scarce. One study on the effects of hepatitis B vaccination in adult patients with either schizophrenia, bipolar disorder, or depression who lived in institutions, reported a weaker immune response in these patients than in the general population.<sup>71</sup> Evidence suggests that depression might impair the maintenance of vaccine-related protection in adults,<sup>68</sup> whereas by contrast, a study in 11-year-old children found that symptoms of depression and anxiety were associated with persistently

higher antibody responses,<sup>72</sup> meaning that vaccination responses might partially be age specific. Sleep problems are also associated with a dysregulated immune system and increased risk of acute infection.<sup>48,49</sup> Studies have shown reduced antibody responses to hepatitis A, hepatitis B, and influenza vaccination when the participants reported reduced sleep duration or quality or were kept awake the night after vaccination.<sup>73-75</sup> Because disturbed sleep is prevalent in patients with severe mental illness, this comorbidity could partly explain the inhibition of vaccine response in these individuals.

### What are the potential interactions between vaccines and psychotropic medications?

Not much is known about the effects of psychotropic medication on vaccination response. Antipsychotics might have a differential effect on several cytokines in people with psychosis, producing an anti-inflammatory effect in some individuals.<sup>76-78</sup> An anti-inflammatory effect, however, might not always be desirable when considering vaccine efficacy because it might suppress the formation of antibodies. Clozapine use is associated with neutropenia, which can confer susceptibility to infection. A secondary antibody deficiency has been observed in patients with long-term clozapine use, putting these patients at risk of immunodeficiency.<sup>79</sup> In a retrospective cohort study, clozapine was a possible risk factor for SARS-CoV-2 infection.<sup>80</sup> Although a small study showed that influenza vaccination had no effect on clozapine serum concentrations,<sup>81</sup> vaccination might affect clozapine concentrations through its action on cytochrome P450 metabolism.<sup>82</sup> As of Dec 18, 2020, no pharmacodynamic data are available for the COVID-19 vaccines currently in testing to ascertain whether they influence cytochrome P450 metabolism and clozapine metabolism.

Lithium has been proposed as an immunomodulatory adjuvant to increase the efficacy of viral vaccines in humans<sup>83,84</sup> because it exhibits some pro-inflammatory properties.<sup>85</sup> However, as lithium has also shown some anti-inflammatory properties in healthy participants and patients,<sup>86,87</sup> its effects remain unclear and could be dose dependent. Other mood-stabilising agents, such as valproic acid, carbamazepine, and lamotrigine, also show a differential effect on several cytokines in healthy participants.<sup>86</sup>

A meta-analysis showed that antidepressant treatment for people with major depression reduced the concentrations of several pro-inflammatory cytokines, resulting in an anti-inflammatory effect.<sup>88</sup> Treatment with antidepressants normalised vaccination response to the varicella zoster vaccine in older patients (>60 years) with major depression.<sup>70</sup> Although most psychopharmacological agents seem to affect several immunological markers and some of these agents interact with the proteins to which SARS-CoV-2 binds,<sup>89</sup> how psychotropic drugs affect vaccination response and efficacy remains to

be seen. Research is urgently needed to provide people with severe mental illness with adequate information on potential interactions between psychotropic medications and COVID-19 vaccines.

### What are the possible neuropsychiatric side-effects of vaccination?

When a vaccine is administered, neuropsychiatric side-effects might develop. In one COVID-19 vaccine trial, a participant was diagnosed with transverse myelitis.<sup>90</sup> This finding might have been incidental; an analysis of 64 million past vaccine doses showed no association between the occurrence of transverse myelitis and vaccination.<sup>91</sup> In a pilot study, individuals with symptoms of depression or anxiety had, compared with mentally healthy individuals, a more pronounced reduction in positive affect following influenza vaccination.<sup>92</sup> Several studies in the general population have shown transient changes in cognition, sleep, mood, and psychomotor activity after vaccination with the typhoid vaccine, changes which could be assumed to also occur in people with severe mental illness.<sup>93-95</sup>

### What are the attitudes of people with severe mental illness towards vaccination?

We found no studies of the attitudes of people with mental illness regarding vaccination against SARS-CoV-2. In a study examining the willingness of people with schizophrenia to adopt protective measures during the 2009 H1N1 influenza pandemic in Australia, 74% said they would be moderately willing to be vaccinated.<sup>96</sup> A study done before the pandemic found that 84% of patients being treated for severe mental illness at a US community mental health clinic believed that, in general, vaccinations are safe, effective, and important.<sup>97</sup>

The race to develop COVID-19 vaccines has been heavily politicised and covered by the media and social media. Concerns have been expressed about vaccine hesitancy in the general population, resulting from the fast advances in vaccine development, fear of premature acceptance of promising results, and paucity of knowledge of possible long-term side-effects.<sup>98,99</sup> How these factors will affect people with severe mental illness who experience persecutory delusions and thought disorders remains to be seen. Research on this topic is urgently needed.

### How can we ensure that vaccines reach people with severe mental illness?

Patients with severe mental illness experience barriers to immunisation, including a lack of knowledge and awareness, accessibility problems, costs, fears about immunisation, and often no recommendations from their primary care providers.<sup>97</sup> Low uptake (24–28%) of influenza vaccination was found in people attending an outpatient clinic for severe mental illness in Alabama, USA.<sup>100</sup> By contrast, a retrospective analysis of patients aged 65–80 years in a US primary care setting found that

### Search strategy and selection criteria

We searched PubMed for any articles published in English between database inception and Nov 19, 2020, related to COVID-19, vaccination, and psychiatric disorders to ascertain: (1) the risk for COVID-19-related outcomes in people with severe mental illness, (2) possible mechanisms behind this risk, (3) the effect of severe mental illness on vaccination response, (4) interactions between vaccines and psychotropic medications, (5) the attitudes of people with severe mental illness towards vaccination, and (6) barriers to, and possible solutions for, efficient vaccine distribution in this population. Whenever no peer-reviewed articles were available we expanded our scope to *medRxiv* and *bioRxiv*. We used the following search terms according to topic: "COVID-19", "severe mental illness", "schizophrenia", "bipolar disorder", "depression", "vaccination", "vaccination response", "psychotropic drugs", "attitudes", "ethics", "immunology", and "socioeconomic". All article types were considered. Articles were screened for their applicability to the topic. The reference lists of selected articles were screened for additional articles.

depression and anxiety were associated with greater odds of influenza vaccination, probably because of frequent visits to address their physical comorbidities.<sup>101</sup>

Patients should be provided with up-to-date information about the benefits of vaccination and invited to the vaccination programme.<sup>97</sup> Psychiatrists and other health-care professionals treating people with severe mental illness should be aware and knowledgeable of the different types of vaccines that become available, their safety and efficacy for their patients, and the applicable vaccination schemes. It is the responsibility of psychiatrists to reach out to their patients and provide them with the best possible care.<sup>102</sup> At the systems level, barriers to vaccination should be actively mitigated by listening to and engaging the public, including people with severe mental illness, in the design and implementation of immunisation policies and programmes, and addressing their concerns,<sup>103</sup> to build trust, confidence, and acceptance. The legislature is responsible for developing the legal framework. The logistical organisation of vaccination should be uniform, transparent, and provide ease of access to people at risk. Vaccination rates in people with severe mental illness can be substantially increased with a targeted vaccination programme.<sup>97</sup> One possibility would be to roll out vaccination programmes in mental health clinics and offices and actively reach out to individuals at risk or assist them in reaching the clinic.<sup>104</sup> This possibility can only be realised if mental health professionals are also trained in administering the vaccine. In the absence of a COVID-19 vaccine in some countries, recommending patients be vaccinated against influenza might also be worthwhile. This kind of vaccination has been associated with reduced admission to hospitals and intensive care units due to COVID-19, possibly caused by natural killer cell activation.<sup>105</sup>

### What do we do in the case of vaccine refusal?

If a person refuses vaccination, clinicians might find themselves confronted with an ethical dilemma between respect for the autonomy and bodily integrity of their patient and public health concerns. Some have argued that in these circumstances compulsory vaccination in the general population could be ethically acceptable.<sup>106</sup> However, compulsory medical interventions should only be considered as a last resort and should be supported by national and international ethical debate, legislation, and guidelines. Furthermore, compulsory treatment is often traumatic for those who receive it and risks undermining patient trust in the health-care system and public trust in vaccination. In light of these ethical concerns and the consideration that voluntary mass vaccination might result in vaccine coverage levels sufficiently high enough to create effective herd immunity, compulsory vaccination should not be pursued. Clinicians faced with a patient's reluctance or refusal to be vaccinated should make an adequate assessment of that person's mental status, decision making capacity, and knowledge and beliefs about vaccination. Clinicians should provide their patients with adequate information and counter misinformation, address negative attitudes in a respectful way, and discuss the advantages and possible risks of vaccination. In the end, it should be left to the individual to weigh the benefits and the risks, and to give informed consent for vaccination.

### Conclusion

Because people with severe mental illness are at high risk for SARS-CoV-2 infection and COVID-19-related morbidity and mortality, they must be offered early access to safe and efficacious vaccines. Therefore, we welcome that people with severe mental illness have been specifically recognised by some ethical guidelines as a high-risk group.<sup>107</sup> Future studies should evaluate vaccine efficacy, safety, and interactions with psychotropic medication specifically in people with severe mental illness so they can be properly informed of the benefits and risks of vaccination.

#### Contributors

VM and MDH did the literature search. VM wrote the manuscript. JD, KVA, and MDH revised the manuscript. All authors approved the final manuscript.

#### Declaration of interests

We declare no competing interests.

#### References

- 1 Persad G, Peek ME, Emanuel EJ. Fairly prioritizing groups for access to COVID-19 vaccines. *JAMA* 2020; published online Sept 10. <https://doi.org/10.1001/jama.2020.18513>.
- 2 Emanuel EJ, Persad G, Kern A, et al. An ethical framework for global vaccine allocation. *Science* 2020; **369**: 1309–12.
- 3 National Academies of Sciences, Engineering, and Medicine. Framework for equitable allocation of COVID-19 vaccine. Washington, DC: The National Academies Press, 2020.
- 4 WHO. WHO SAGE values framework for the allocation and prioritization of COVID-19 vaccination. Sept 13, 2020. <https://www.who.int/publications/i/item/who-sage-values-framework-for-the-allocation-and-prioritization-of-covid-19-vaccination> (accessed Oct 26, 2020).

- 5 Gollust SE, Saloner B, Hest R, Blewett LAUS. US adults' preferences for public allocation of a vaccine for coronavirus disease 2019. *JAMA Netw Open* 2020; **3**: e2023020.
- 6 Luyten J, Tubeuf S, Kessels R. Who should get it first? Public preferences for distributing a COVID-19 vaccine. *Covid Econ* 2020; **57**: 1–19.
- 7 De Hert M, Mazereel V, Detraux J, Van Assche K. Prioritizing COVID-19 vaccination for people with severe mental illness. *World Psychiatry* 2020; published online Nov 1. <https://doi.org/10.1002/wps.20826>.
- 8 Substance Abuse and Mental Health Services Administration. Interdepartmental serious mental illness coordinating committee full report. The way forward: federal action for a system that works for all people living with SMI and SED and their families and caregivers. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2017.
- 9 National Institute of Mental Health. Mental illness. 2020. <https://www.nimh.nih.gov/health/statistics/mental-illness.shtml> (accessed Dec 1, 2020).
- 10 Demyttenaere K, Bruffaerts R, Posada-Villa J, et al. Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *JAMA* 2004; **291**: 2581–90.
- 11 Vindegaard N, Benros ME. COVID-19 pandemic and mental health consequences: systematic review of the current evidence. *Brain Behav Immun* 2020; **89**: 531–42.
- 12 Li X, Xu S, Yu M, et al. Risk factors for severity and mortality in adult COVID-19 inpatients in Wuhan. *J Allergy Clin Immunol* 2020; **146**: 110–18.
- 13 Du RH, Liang LR, Yang CQ, et al. Predictors of mortality for patients with COVID-19 pneumonia caused by SARS-CoV-2: a prospective cohort study. *Eur Respir J* 2020; **55**: 2000524.
- 14 Singh AK, Gupta R, Ghosh A, Misra A. Diabetes in COVID-19: prevalence, pathophysiology, prognosis and practical considerations. *Diabetes Metab Syndr* 2020; **14**: 303–10.
- 15 Cheng Y, Luo R, Wang K, et al. Kidney disease is associated with in-hospital death of patients with COVID-19. *Kidney Int* 2020; **97**: 829–38.
- 16 Gosain R, Abdou Y, Singh A, Rana N, Puzanov I, Ernstoff MS. COVID-19 and cancer: a comprehensive review. *Curr Oncol Rep* 2020; **22**: 53.
- 17 Wang Q, Xu R, Volkow ND. Increased risk of COVID-19 infection and mortality in people with mental disorders: analysis from electronic health records in the United States. *World Psychiatry* 2020; published online Oct 7. <https://doi.org/10.1002/wps.20806>.
- 18 Wang QQ, Kaelber DC, Xu R, Volkow ND. COVID-19 risk and outcomes in patients with substance use disorders: analyses from electronic health records in the United States. *Mol Psychiatry* 2020; published online Sept 14. <https://doi.org/10.1038/s41380-020-00880-7>.
- 19 Yang H, Chen W, Hu Y, et al. Pre-pandemic psychiatric disorders and risk of COVID-19: a UK Biobank cohort analysis. *Lancet Healthy Longev* 2020; **1**: e69–79.
- 20 Taquet M, Luciano S, Geddes JR, Harrison PJ. Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of 62 354 COVID-19 cases in the USA. *Lancet Psychiatry* 2020; published online Nov 9. [https://doi.org/10.1016/S2215-0366\(20\)30462-4](https://doi.org/10.1016/S2215-0366(20)30462-4).
- 21 Maripuum M, Bendix M, Öhlund L, Widerström M, Werneke U. Death associated with coronavirus (COVID-19) infection in individuals with severe mental disorders in Sweden during the early months of the outbreak—an exploratory cross-sectional analysis of a population-based register study. *Front Psychiatry* 2021; **11**: 1538.
- 22 Li L, Li F, Fortunati F, Krystal JH. Association of a prior psychiatric diagnosis with mortality among hospitalized patients with coronavirus disease 2019 (COVID-19) infection. *JAMA Netw Open* 2020; **3**: e2023282.
- 23 Lee SW, Yang JM, Moon SY, et al. Association between mental illness and COVID-19 susceptibility and clinical outcomes in South Korea: a nationwide cohort study. *Lancet Psychiatry* 2020; **7**: 1025–31.
- 24 Nemani K, Li C, Olfson M, et al. Association of psychiatric disorders with mortality among patients with COVID-19. *JAMA Psychiatry* 2021; published online Jan 27. <https://doi.org/10.1001/jamapsychiatry.2020.4442>.
- 25 Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. *JAMA Psychiatry* 2015; **72**: 334–41.
- 26 De Hert M, Correll CU, Bobes J, et al. Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care. *World Psychiatry* 2011; **10**: 52–77.
- 27 Mazereel V, Detraux J, Vancampfort D, van Winkel R, De Hert M. Impact of psychotropic medication effects on obesity and the metabolic syndrome in people with serious mental illness. *Front Endocrinol (Lausanne)* 2020; **11**: 573479.
- 28 Dickerson F, Stallings CR, Origoni AE, et al. Cigarette smoking among persons with schizophrenia or bipolar disorder in routine clinical settings, 1999–2011. *Psychiatr Serv* 2013; **64**: 44–50.
- 29 Rütther T, Bobes J, De Hert M, et al. EPA guidance on tobacco dependence and strategies for smoking cessation in people with mental illness. *Eur Psychiatry* 2014; **29**: 65–82.
- 30 Poirier MF, Canceil O, Baylé F, et al. Prevalence of smoking in psychiatric patients. *Prog Neuropsychopharmacol Biol Psychiatry* 2002; **26**: 529–37.
- 31 Lasser K, Boyd JW, Woolhandler S, Himmelstein DU, McCormick D, Bor DH. Smoking and mental illness: a population-based prevalence study. *JAMA* 2000; **284**: 2606–10.
- 32 Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 2020; **579**: 270–73.
- 33 Lan J, Ge J, Yu J, et al. Structure of the SARS-CoV-2 spike receptor-binding domain bound to the ACE2 receptor. *Nature* 2020; **581**: 215–20.
- 34 Leung JM, Yang CX, Tam A, et al. ACE-2 expression in the small airway epithelia of smokers and COPD patients: implications for COVID-19. *Eur Respir J* 2020; **55**: 2000688.
- 35 Rossato M, Russo L, Mazzocut S, Di Vincenzo A, Fioretto P, Vettor R. Current smoking is not associated with COVID-19. *Eur Respir J* 2020; **55**: 2001290.
- 36 Polverino F. Cigarette smoking and COVID-19: a complex interaction. *Am J Respir Crit Care Med* 2020; **202**: 471–72.
- 37 Cai G, Bossé Y, Xiao F, Kheradmand F, Amos CI. Reply to Polverino: cigarette smoking and COVID-19: a complex interaction. *Am J Respir Crit Care Med* 2020; **202**: 472–74.
- 38 Guan WJ, Liang WH, Zhao Y, et al. Comorbidity and its impact on 1590 patients with COVID-19 in China: a nationwide analysis. *Eur Respir J* 2020; **55**: 2000547.
- 39 Dowlati Y, Herrmann N, Swardfager W, et al. A meta-analysis of cytokines in major depression. *Biol Psychiatry* 2010; **67**: 446–57.
- 40 Fries GR, Walss-Bass C, Bauer ME, Teixeira AL. Revisiting inflammation in bipolar disorder. *Pharmacol Biochem Behav* 2019; **177**: 12–19.
- 41 Müller N. Inflammation in schizophrenia: pathogenetic aspects and therapeutic considerations. *Schizophr Bull* 2018; **44**: 973–82.
- 42 Toben C, Baune BT. An act of balance between adaptive and maladaptive immunity in depression: a role for T lymphocytes. *J Neuroimmune Pharmacol* 2015; **10**: 595–609.
- 43 Miller AH. Depression and immunity: a role for T cells? *Brain Behav Immun* 2010; **24**: 1–8.
- 44 Guo J, Liu C, Wang Y, Feng B, Zhang X. Role of T helper lymphokines in the immune-inflammatory pathophysiology of schizophrenia: systematic review and meta-analysis. *Nord J Psychiatry* 2015; **69**: 364–72.
- 45 Danese A, Lewis SJ. Psychoneuroimmunology of early-life stress: the hidden wounds of childhood trauma? *Neuropsychopharmacology* 2017; **42**: 99–114.
- 46 Kessler RC, McLaughlin KA, Green JG, et al. Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *Br J Psychiatry* 2010; **197**: 378–85.
- 47 Dhabhar FS. Effects of stress on immune function: the good, the bad, and the beautiful. *Immunol Res* 2014; **58**: 193–210.
- 48 Patel SR, Malhotra A, Gao X, Hu FB, Neuman MI, Fawzi WW. A prospective study of sleep duration and pneumonia risk in women. *Sleep (Basel)* 2012; **35**: 97–101.
- 49 Cohen S, Doyle WJ, Alper CM, Janicki-Deverts D, Turner RB. Sleep habits and susceptibility to the common cold. *Arch Intern Med* 2009; **169**: 62–67.

- 50 Leschak CJ, Eisenberger NI. Two distinct immune pathways linking social relationships with health: inflammatory and antiviral processes. *Psychosom Med* 2019; **81**: 711–19.
- 51 Liao M, Liu Y, Yuan J, et al. Single-cell landscape of bronchoalveolar immune cells in patients with COVID-19. *Nat Med* 2020; **26**: 842–44.
- 52 Zhou R, To KKW, Wong YC, et al. Acute SARS-CoV-2 infection impairs dendritic cell and T cell responses. *Immunity* 2020; **53**: 864–87.e5.
- 53 Rydyznski Moderbacher C, Ramirez SI, Dan JM, et al. Antigen-specific adaptive immunity to SARS-CoV-2 in acute COVID-19 and associations with age and disease severity. *Cell* 2020; **183**: 996–1012.e19.
- 54 Paces J, Strizova Z, Smrz D, Cerny J. COVID-19 and the immune system. *Physiol Res* 2020; **69**: 379–88.
- 55 Shinn AK, Viron M. Perspectives on the COVID-19 pandemic and individuals with serious mental illness. *J Clin Psychiatry* 2020; **81**: 20com13412.
- 56 De Hert M, Cohen D, Bobes J, et al. Physical illness in patients with severe mental disorders. II. Barriers to care, monitoring and treatment guidelines, plus recommendations at the system and individual level. *World Psychiatry* 2011; **10**: 138–51.
- 57 Richter D, Hoffmann H. Social exclusion of people with severe mental illness in Switzerland: results from the Swiss Health Survey. *Epidemiol Psychiatr Sci* 2019; **28**: 427–35.
- 58 Linz SJ, Sturm BA. The phenomenon of social isolation in the severely mentally ill. *Perspect Psychiatr Care* 2013; **49**: 243–54.
- 59 Sheffield JM, Karcher NR, Barch DM. Cognitive deficits in psychotic disorders: a lifespan perspective. *Neuropsychol Rev* 2018; **28**: 509–33.
- 60 Isohanni I, Jones PB, Järvelin MR, et al. Educational consequences of mental disorders treated in hospital. A 31-year follow-up of the Northern Finland 1966 Birth Cohort. *Psychol Med* 2001; **31**: 339–49.
- 61 Tempelaar WM, Termorshuizen F, MacCabe JH, Boks MPM, Kahn RS. Educational achievement in psychiatric patients and their siblings: a register-based study in 30 000 individuals in the Netherlands. *Psychol Med* 2017; **47**: 776–84.
- 62 Dickerson FB, Kreyenbuhl J, Goldberg RW, et al. A 5-year follow-up of diabetes knowledge in persons with serious mental illness and type 2 diabetes. *J Clin Psychiatry* 2009; **70**: 1057–58.
- 63 Kim SW, Park WY, Jhon M, et al. Physical health literacy and health-related behaviors in patients with psychosis. *Clin Psychopharmacol Neurosci* 2019; **17**: 279–87.
- 64 Muruganandam P, Neelamegam S, Menon V, Alexander J, Chaturvedi SK. COVID-19 and severe mental illness: impact on patients and its relation with their awareness about COVID-19. *Psychiatry Res* 2020; **291**: 113265.
- 65 Kiecolt-Glaser JK, Glaser R, Gravenstein S, Malarkey WB, Sheridan J. Chronic stress alters the immune response to influenza virus vaccine in older adults. *Proc Natl Acad Sci USA* 1996; **93**: 3043–47.
- 66 Segerstrom SC, Hardy JK, Evans DR, Greenberg RN. Vulnerability, distress, and immune response to vaccination in older adults. *Brain Behav Immun* 2012; **26**: 747–53.
- 67 Glaser R, Robles TF, Sheridan J, Malarkey WB, Kiecolt-Glaser JK. Mild depressive symptoms are associated with amplified and prolonged inflammatory responses after influenza virus vaccination in older adults. *Arch Gen Psychiatry* 2003; **60**: 1009–14.
- 68 Ford BN, Yolken RH, Dickerson FB, et al. Reduced immunity to measles in adults with major depressive disorder. *Psychol Med* 2019; **49**: 243–49.
- 69 Afsar B, Elsurur R, Eyleten T, Yilmaz MI, Caglar K. Antibody response following hepatitis B vaccination in dialysis patients: does depression and life quality matter? *Vaccine* 2009; **27**: 5865–69.
- 70 Irwin MR, Levin MJ, Laudenslager ML, et al. Varicella zoster virus-specific immune responses to a herpes zoster vaccine in elderly recipients with major depression and the impact of antidepressant medications. *Clin Infect Dis* 2013; **56**: 1085–93.
- 71 Russo R, Ciminale M, Ditommaso S, Siliquini R, Zotti C, Ruggenini AM. Hepatitis B vaccination in psychiatric patients. *Lancet* 1994; **343**: 356.
- 72 O'Connor TG, Moynihan JA, Wyman PA, et al. Depressive symptoms and immune response to meningococcal conjugate vaccine in early adolescence. *Dev Psychopathol* 2014; **26**: 1567–76.
- 73 Prather AA, Pressman SD, Miller GE, Cohen S. Temporal links between self-reported sleep and antibody responses to the influenza vaccine. *Int J Behav Med* 2020; published online March 31. <https://doi.org/10.1007/s12529-020-09879-4>.
- 74 Prather AA, Hall M, Fury JM, et al. Sleep and antibody response to hepatitis B vaccination. *Sleep (Basel)* 2012; **35**: 1063–69.
- 75 Lange T, Dimitrov S, Bollinger T, Diekelmann S, Born J. Sleep after vaccination boosts immunological memory. *J Immunol* 2011; **187**: 283–90.
- 76 Miller BJ, Buckley P, Seabolt W, Mellor A, Kirkpatrick B. Meta-analysis of cytokine alterations in schizophrenia: clinical status and antipsychotic effects. *Biol Psychiatry* 2011; **70**: 663–71.
- 77 Tourjman V, Kouassi É, Koué M-È, et al. Antipsychotics' effects on blood levels of cytokines in schizophrenia: a meta-analysis. *Schizophr Res* 2013; **151**: 43–47.
- 78 Stapel B, Sieve I, Falk CS, Bleich S, Hilfiker-Kleiner D, Kahl KG. Second generation atypical antipsychotics olanzapine and aripiprazole reduce expression and secretion of inflammatory cytokines in human immune cells. *J Psychiatr Res* 2018; **105**: 95–102.
- 79 Ponsford MJ, Pecoraro A, Jolles S. Clozapine-associated secondary antibody deficiency. *Curr Opin Allergy Clin Immunol* 2019; **19**: 553–62.
- 80 Govind R, Fonseca de Freitas D, Pritchard M, Hayes RD, MacCabe JH. Clozapine treatment and risk of COVID-19 infection: retrospective cohort study. *Br J Psychiatry* 2020; published online July 27. <https://doi.org/10.1192/bjp.2020.151>.
- 81 Raaska K, Raitasuo V, Neuvonen PJ. Effect of influenza vaccination on serum clozapine and its main metabolite concentrations in patients with schizophrenia. *Eur J Clin Pharmacol* 2001; **57**: 705–08.
- 82 Morgan ET. Regulation of cytochrome p450 by inflammatory mediators: why and how? *Drug Metab Dispos* 2001; **29**: 207–12.
- 83 Young W. Review of lithium effects on brain and blood. *Cell Transplant* 2009; **18**: 951–75.
- 84 Ishizaka S, Yoshikawa M, Kitagami K, Tsujii T. Oral adjuvants for viral vaccines in humans. *Vaccine* 1990; **8**: 337–41.
- 85 Petersein C, Sack U, Mergl R, et al. Impact of lithium alone and in combination with antidepressants on cytokine production in vitro. *J Neural Transm (Vienna)* 2015; **122**: 109–22.
- 86 Himmerich H, Bartsch S, Hamer H, et al. Impact of mood stabilizers and antiepileptic drugs on cytokine production in-vitro. *J Psychiatr Res* 2013; **47**: 1751–59.
- 87 Rybakowski JK. Antiviral and immunomodulatory effect of lithium. *Pharmacopsychiatry* 2000; **33**: 159–64.
- 88 Więdocha M, Marcinowicz P, Krupa R, et al. Effect of antidepressant treatment on peripheral inflammation markers—a meta-analysis. *Prog Neuropsychopharmacol Biol Psychiatry* 2018; **80**: 217–26.
- 89 Gordon DE, Jang GM, Bouhaddou M, et al. A SARS-CoV-2 protein interaction map reveals targets for drug repurposing. *Nature* 2020; **583**: 459–68.
- 90 Doward J. Oxford University resumes Covid-19 vaccine trials. Sept 12, 2020. <https://www.theguardian.com/world/2020/sep/12/oxford-university-resumes-covid-19-vaccine-trials> (accessed Nov 19, 2020).
- 91 Baxter R, Lewis E, Goddard K, et al. Acute demyelinating events following vaccines: a case-centered analysis. *Clin Infect Dis* 2016; **63**: 1456–62.
- 92 Harper JA, South C, Trivedi MH, Toups MS. Pilot investigation into the sickness response to influenza vaccination in adults: effect of depression and anxiety. *Gen Hosp Psychiatry* 2017; **48**: 56–61.
- 93 Sharpley AL, Cooper CM, Williams C, Godlewska BR, Cowen PJ. Effects of typhoid vaccine on inflammation and sleep in healthy participants: a double-blind, placebo-controlled, crossover study. *Psychopharmacology (Berl)* 2016; **233**: 3429–35.
- 94 Harrison NA, Brydon L, Walker C, Gray MA, Steptoe A, Critchley HD. Inflammation causes mood changes through alterations in subgenual cingulate activity and mesolimbic connectivity. *Biol Psychiatry* 2009; **66**: 407–14.
- 95 Brydon L, Harrison NA, Walker C, Steptoe A, Critchley HD. Peripheral inflammation is associated with altered substantia nigra activity and psychomotor slowing in humans. *Biol Psychiatry* 2008; **63**: 1022–29.

- 96 Maguire PA, Reay RE, Looi JCL. Nothing to sneeze at—uptake of protective measures against an influenza pandemic by people with schizophrenia: willingness and perceived barriers. *Australas Psychiatry* 2019; **27**: 171–78.
- 97 Miles LW, Williams N, Luthy KE, Eden L. Adult vaccination rates in the mentally ill population: an outpatient improvement project. *J Am Psychiatr Nurses Assoc* 2020; **26**: 172–80.
- 98 Dror AA, Eisenbach N, Taiber S, et al. Vaccine hesitancy: the next challenge in the fight against COVID-19. *Eur J Epidemiol* 2020; **35**: 775–79.
- 99 The COCONEL Group. A future vaccination campaign against COVID-19 at risk of vaccine hesitancy and politicisation. *Lancet Infect Dis* 2020; **20**: 769–70.
- 100 Lorenz RA, Norris MM, Norton LC, Westrick SC. Factors associated with influenza vaccination decisions among patients with mental illness. *Int J Psychiatry Med* 2013; **46**: 1–13.
- 101 Lawrence T, Zubatsky M, Meyer D. The association between mental health diagnoses and influenza vaccine receipt among older primary care patients. *Psychol Health Med* 2020; **25**: 1083–93.
- 102 Stewart DE, Appelbaum PS. COVID-19 and psychiatrists' responsibilities: a WPA position paper. *World Psychiatry* 2020; **19**: 406–07.
- 103 Paterson P, Larson HJ. The role of publics in the introduction of new vaccines. *Health Policy Plan* 2012; **27** (suppl 2): ii77–79.
- 104 Warren N, Kisely S, Siskind D. Maximizing the uptake of a COVID-19 vaccine in people with severe mental illness: a public health priority. *JAMA Psychiatry* 2020; published online Dec 15. <https://doi.org/10.1001/jamapsychiatry.2020.4396>.
- 105 Yang M, Rooks BJ, Le TT, et al. Influenza vaccination and hospitalizations among COVID-19 infected adults. [https://www.jabfm.org/sites/default/files/COVID\\_20-0528.pdf](https://www.jabfm.org/sites/default/files/COVID_20-0528.pdf) (accessed Jan 26, 2021).
- 106 Douglas T, Forsberg L, Pugh J. Compulsory medical intervention versus external constraint in pandemic control. *J Med Ethics* 2020; published online Aug 20. <https://doi.org/10.1136/medethics-2020-106435>.
- 107 Department of Health & Social Care, UK Government. Joint Committee on Vaccination and Immunisation: advice on priority groups for COVID-19 vaccination, 30 December 2020. Jan 6, 2021. <https://www.gov.uk/government/publications/priority-groups-for-coronavirus-covid-19-vaccination-advice-from-the-jcvi-30-december-2020/joint-committee-on-vaccination-and-immunisation-advice-on-priority-groups-for-covid-19-vaccination-30-december-2020> (accessed Jan 26, 2021).