

by exempting custom duty on import of the drug, redistributing the drug based on urgency and need, and creating new facilities for treatment. Very little improvement has followed, however, and access to the antifungal amphotericin B remains inadequate.³

Manufacturing volumes have been low in India due to previously low occurrence rates. Following the sudden increase in cases, the current volumes of manufacture by Bharat Serums & Vaccines, BDR Pharmaceuticals, Sun Pharma, Cipla, and Life Care Innovations (companies that currently produce the drugs) are not sufficient to meet the needs of the country. Hence, India is more likely to become dependent on imports from companies like the major US pharmaceutical producer Gilead Sciences, which could be significantly delayed.^{4,5}

An added burden amid the distressing situation is the emergence of other invasive fungal infections, such as candidiasis, also referred to as “white fungus,” alongside aspergillosis. *Candida auris*, one of the organisms implicated in candidemia, is known to cause serious multidrug-resistant nosocomial infections. In a recent study, nearly all cases of *Candida auris* were fluconazole resistant, and close to 40% were resistant to amphotericin-B.² Further increases in drug-resistant fungal infections would prove disastrous in India, where the health system has already been stressed to its maximum capacity by the COVID-19 pandemic.⁶

The drug resistance that is increasingly occurring in a variety of pathogens especially in the Indian context can be attributed to the widespread and injudicious use of medications prescribed by physicians as well as self-medication among the public. With drug-resistant fungi surfacing, research is urgently needed to identify effective drugs and alternative treatment modalities to curb the negative health outcomes related to these deadly and invasive infections. Just as urgently, antibiotic stewardship must be promoted and practiced throughout the healthcare system.⁷

With the pandemic still looming, local pharmaceutical production must be undertaken to meet these demands and to simultaneously reduce dependency on expensive imports. Better policies related to drug manufacture, contingency, import, and distribution should be developed and enforced. In-house production must be encouraged to combat the pandemic and to prepare for future outbreaks. Apart from all this, the ancient field of herbal and

indigenous medicine in India, such as Ayurveda and Unani, should be re-examined and probed in the hope of finding replacements and/or cheaper, safe treatment options.⁸

Acknowledgments.

Financial support. No financial support was provided relevant to this article.

Conflicts of interest. All authors report no conflicts of interest relevant to this article.

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Needlestick and sharp injuries among healthcare workers prior to and during the coronavirus disease 2019 (COVID-19) pandemic

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To the Editor—The coronavirus disease 2019 (COVID-19) pandemic has brought various changes to healthcare systems globally. It has showcased the vulnerability of healthcare workers (HCWs) and has demonstrated the importance of ensuring their safety.¹

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Cite this article: Stojic J, Grabovac V, and Lucijanac M. (2022). Needlestick and sharp injuries among healthcare workers prior to and during the coronavirus disease 2019 (COVID-19) pandemic. *Infection Control & Hospital Epidemiology*, 43: 1966–1968, <https://doi.org/10.1017/ice.2021.498>

Personal protective equipment (PPE), in addition to providing protection, imposes some restrictions for everyday clinical work. A decrease in the number of needlestick and sharp injuries (NSIs) among HCWs during the COVID-19 pandemic has been reported in an institution treating a heterogeneous population of patients.² We evaluated NSIs among HCWs in our completely repurposed and dedicated COVID-19 tertiary-care center prior to and during the pandemic.

Methods

A retrospective cohort study was conducted using medical records of all emergency department visits at the University Hospital Dubrava, Zagreb, Croatia, that related to NSIs among HCWs from January 1, 2019, to February 28, 2021. Our institution was completely repositioned to serve as a dedicated COVID-19 tertiary-care center. The number of NSIs per month, NSIs per the total number of active hospital activities (expressed as the number of NSIs per 1,000 activities per month), and the number of NSIs per the total number of hospitalized patients (expressed as the number of NSIs per 1,000 patients per month) were compared prior to (up to February 2020) and during the pandemic period (after February 2020). We considered the following active hospital activities: all outpatient activities, surgical procedures, emergency examinations, and procedures on hospitalized patients. The study was reviewed and approved by the Ethical Committee of the University Hospital Dubrava (reference no. 2021/2503-12), and the obligation for written consent was waived due to the retrospective study design.

Statistical methods

Normality of distribution of numerical variables was tested using the Shapiro–Wilk test. Due to nonnormal distribution, numerical variables were presented as median and interquartile range (IQR) and were compared between groups using the Mann–Whitney *U* test. Categorical variables were presented as frequencies and percentages and were compared using the χ^2 test or the Fisher exact test where appropriate. The Spearman rank correlation was used to test association between 2 numerical variables. *P* values <.05 were considered statistically significant. Analyses were performed using MedCalc version 20.014 statistical software (MedCalc Software, Ostend, Belgium).

Results

In total, 134 NSIs were reported to the emergency department during the study period: 74 during the 14 months prior to and 60 during the 12 months after complete repurposing of the hospital during the COVID-19 pandemic. An overview of incidents and associated parameters is provided in Table 1.

The median age of involved HCWs was 30 years (IQR, 24–38). Of 134 HCW participants, 99 (73.9%) were female. The most common cause of NSI was a nonsterile needle in 122 HCWs (91%) followed by the surgical equipment in 10 HCWs (7.5%). We detected no significant differences in age and sex distribution nor in the cause of NSI prior to and during COVID-19 period (*P* > .05 for all analyses).

Although the total number of NSIs per month did not significantly differ (median 5 vs 5.5 per month prior to and during the pandemic; *P* = .897), a total number of active hospital activities per month was significantly higher prior to the pandemic: median 54.9 versus $17.9 \times 1,000$ (*P* < .001). Also, the hospitalized patients per month was significantly higher prior to the pandemic: median 2.8 vs $1.6 \times 1,000$ (*P* < .001). When considering number of NSIs per 1,000 activities, there was a significantly higher occurrence of NSIs during the pandemic: median 25.2 vs 8.9 per 1,000 activities per month (*P* = .021). When considering number of NSIs per 1,000 hospitalized patients, there was also a significantly higher occurrence of NSIs during the pandemic: median 3.4 vs 1.7 per 1,000 patients per month (*P* = .036). Serology for hepatitis B, hepatitis C, and HIV after NSI did not significantly differ prior to and during the pandemic, although there was somewhat lower frequency of anti-HBs positive individuals experiencing NSIs during the pandemic.

The occurrence of NSIs in an overall cohort or during each of the periods did not show significant correlation with total number of active activities, total number of hospitalized patients, age, or sex of individuals experiencing the incident (*P* > .05 for all analyses).

Table 1. Overview of NSIs and Associated Parameters Prior to and During the COVID-19 Pandemic

Variable	Prior to COVID-19 (14 months)	During COVID-19 (12 months)	<i>P</i> Value
No. of incidents	74	60	...
Nonsterile needle, n/N (%)	66/74 (89.2)	56/60 (93.3)	.411
Other equipment, n/N (%)	6/74 (8.1)	4/60 (6.7)	
Unknown, n/N (%)	2/74 (2.7)	0/60 (0)	
Median age, years, median (IQR)	31 (25–38)	29 (24–38.3)	.512
Sex, female, n/N (%)	59/74 (79.7)	40/60 (66.7)	.087
Incidents per month, median (IQR)	5 (3.25–7.5)	5.5 (2.5–7)	.897
Total no. of active activities $\times 1,000$, median (IQR)	54.9 (51.5–56.4)	17.9 (9.4–29.1)	<.001*
Total no. of hospitalized patients per month $\times 1,000$, median (IQR)	2.8 (2.7–2.9)	1.6 (1.04–1.8)	<.001*
Incidents per activity per month, median (IQR)	8.9 (5.73–14.47)	25.2 (11.52–78.71)	.021*
Incidents per no. of patients, median (IQR)	1.7 (1.12–2.71)	3.4 (1.75–6.25)	.036*
HBs-Ag positive, n/N (%)	0/71 (0)	1/58 (1.7)	.450
Anti-HBs positive, n/N (%)	66/71 (93)	50/58 (86.2)	.207
Anti-HBc positive, n/N (%)	0/71 (0)	1/58 (1.7)	.450
Anti-HCV positive, n/N (%)	2/71 (2.8)	0/58 (0)	.501
Anti-HIV positive, n/N (%)	0/71 (0)	0/58 (0)	1.000

Note. NSIs, needlestick and sharp injuries; IQR, interquartile range; HBs-Ag, surface antigen of the hepatitis B virus; HBc, core antigen of the hepatitis B virus; HCV, hepatitis C virus; HIV, human immunodeficiency virus.

*Statistically significant at *P* < .05.

Discussion

We would like to emphasize several important points. To the best of our knowledge, our study is the first to show that the occurrence of NSIs per number of active hospital activities and NSIs per number of hospitalized patients among HCWs from a dedicated COVID-19 hospital seemed to substantially increase during the COVID-19 pandemic. Only one previous report from a tertiary-care center treating heterogenous population of mostly non-COVID-19 patients reported a decrease in exposure of HCWs to NSIs during the pandemic period.² Our findings are representative of a high-volume tertiary-care hospital treating exclusively COVID-19 patients where HCWs are continuously equipped with PPE, which is probably the main reason for the observed differences. HCWs often experience difficulties in delivering a high level of care to patients while wearing multilayered PPE, and their performance may be affected to a significant degree, especially affecting their dexterity, visual impairment, communication, and risk of injury.^{3–5}

A non-significantly higher proportion of inadequately HBV-immunized personnel experienced NSIs during the pandemic period. This could indicate the higher proportion of nonprepared medical professionals that had to be engaged in the care of COVID-19 patients, which may have additionally contributed to the higher NSI rate.

This study had several limitations. It was a single-center experience with a retrospective study design and relatively small sample size. Nevertheless, our data show that the burden imposed on the healthcare system by the pandemic also resulted in the higher occurrence of NSIs despite a lower overall number of treated patients in the dedicated COVID-19 hospital. Possible reasons for this finding

might include the need for PPE and engagement of inadequately prepared medical professionals. Further studies on this topic are needed to help avoid NSIs and to improve the safety of HCWs.

Acknowledgments. We would like to thank the medical staff of the University Hospital Dubrava Zagreb, Croatia.

Financial support. No financial support was provided relevant to this article.

Conflicts of interest. All authors report no conflicts of interest relevant to this article.

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Ramifications of coronavirus disease 2019 (COVID-19) on blood donation in Africa: Challenges and solutions

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To the Editor—Blood transfusion is an indispensable life-saving treatment modality used regularly to treat a wide array of diseases, conditions, and emergencies. Blood transfusion has therefore also rightfully found its place on the World Health Organization (WHO) list of essential medications.¹ However, access to blood transfusion components and safe transfusion practices have been elusive to a large portion of the population in developing and underdeveloped countries. A plethora of pre-existing diseases, socioeconomic challenges, and a weak healthcare system have all played roles in the insufficiency of safe blood in Africa. This challenge is evident in the WHO report of 2016, in which the African region contributed to only 5.6% of the 112.5 million blood donations globally, which is disproportionate to the population density of Africa.^{2,3} None of the West African countries have met the WHO benchmark of 10 blood units per 1,000

inhabitants, per the 2016 Global Status Report on Blood Safety and Availability by World Health Organization (WHO). This lag in transfusion services in Africa existed even before the coronavirus disease 2019 (COVID-19) pandemic.²

In the wake of the COVID-19 pandemic, blood donation has fallen by 17% and blood donation drives have declined by 25% in the African region.⁴ These decreases are likely due to the widespread disruptions posed by the pandemic on health services and its effects on daily livelihood. Especially in sub-Saharan Africa, blood transfusion is critical in the management of multiple common ailments including trauma, obstetric hemorrhage, malaria-associated anemia, and neoplasms. Initially this decline in blood donation was not alarming because of a simultaneous fall in demand for blood products. Demand for blood products during the pandemic decreased by 13%, mostly as result of the suspension of elective surgeries and fewer people using health services.⁴

The substantial decline in blood donors could be attributed to a variety of reasons, one being the fear of becoming infected by severe acute respiratory coronavirus virus 2 (SARS-CoV-2) while visiting

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Cite this article: Rackimuthu S, *et al*. (2022). Ramifications of coronavirus disease 2019 (COVID-19) on blood donation in Africa: Challenges and solutions. *Infection Control & Hospital Epidemiology*, 43: 1968–1969. <https://doi.org/10.1017/ice.2021.425>