


Implementation of measures to improve blood collection center employee safety and reduce callouts during the 2019 novel coronavirus pandemic

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Abstract

Background: Blood collection center (BCC) employees are essential workers during the COVID-19 pandemic. The employee callout rate, defined as the percentage of scheduled employees unable to report to work for any cause including COVID-19 illness or asymptomatic quarantine, was tracked to determine the impact of safety measures including social distancing, masks, enhanced disinfection protocols, and temperature screening.

Study design and methods: A contact tracing and quarantine program was implemented for all employees, followed by additional safety measures including social distancing, masks, enhanced disinfection protocols, and temperature screening. The weekly callout rate was tracked nationally for 19,517 BCC employees over 9 months, from March to December 2020.

Results: Weekly employee callout rates increased after implementation of the contact tracing program due to asymptomatic employees placed into COVID-19-related quarantine. Mobile collections callouts increased by nearly fivefold the pre-pandemic baseline within the first 4 weeks, peaking at 9.7% in early April. Peaks for fixed site collections (5.0%) and manufacturing (6.7%) occurred nearly simultaneously. Shortly after implementation of all safety measures, the weekly callout rate declined for all three employee groups and has remained relatively stable with a mean callout rate of 4.3% for mobile collections, 2.4% for fixed site collections, and 3.7% for manufacturing despite further increase in new COVID-19 cases in the United States.

Conclusion: Callouts for BCC employees during the COVID-19 pandemic initially increased, but subsequently declined and stabilized after implementation of safety measures. Since multiple interventions were implemented simultaneously, it is not possible to determine the individual impact of each measure on callout rate.

1 | INTRODUCTION

Blood collection center (BCC) employees are essential workers and have continuously worked to support the blood supply throughout the COVID-19 pandemic. Although blood donors must be in good health at the time of blood donation, BCC employees must work in close contact with donors while performing donor health screening and phlebotomy, placing them at moderate risk of workplace-related exposure to COVID-19.¹ As in other healthcare settings where staffing shortages may be potentially harmful to the health system,² this unprecedented increase in employee absences in the BCCs may result in blood drive cancellations or temporary facility closures, impacting blood center operations and potentially threatening the blood supply.

The employee callout rate is defined as the percentage of scheduled employees, both full-time and part-time, who were unable to report to work for any cause including COVID-19 related illness or asymptomatic quarantine. During the COVID-19 pandemic, we tracked the employee callout rate for 19,517 BCC employees across the United States to determine the impact of the pandemic on callout rates, as well as to assess the impact of safety measures including

contact tracing and quarantine, mandatory social distancing, masks, enhanced disinfecting protocols, and temperature screening.

2 | MATERIALS AND METHODS

A comprehensive contact tracing and quarantine program was implemented for all BCC employees on March 13, 2020. The program was administered through Human Resources with the support of the Medical Office, which created a case matrix to ensure that all employee cases would be managed in a standardized manner. The matrix was closely based on guidance from the Centers for Disease Control and Prevention (CDC), and was regularly updated as new guidance and evidence became available.³ Employees who had a close contact exposure to someone with a pending COVID-19 test were quarantined until the test result became available; if the index case had a negative test the employee was allowed to return to work, but if positive the employee was required to complete a full 14-day quarantine. In alignment with CDC contact tracing guidance for community-related exposure, employees who met the time and distance requirements for an exposure were placed into quarantine regardless of the

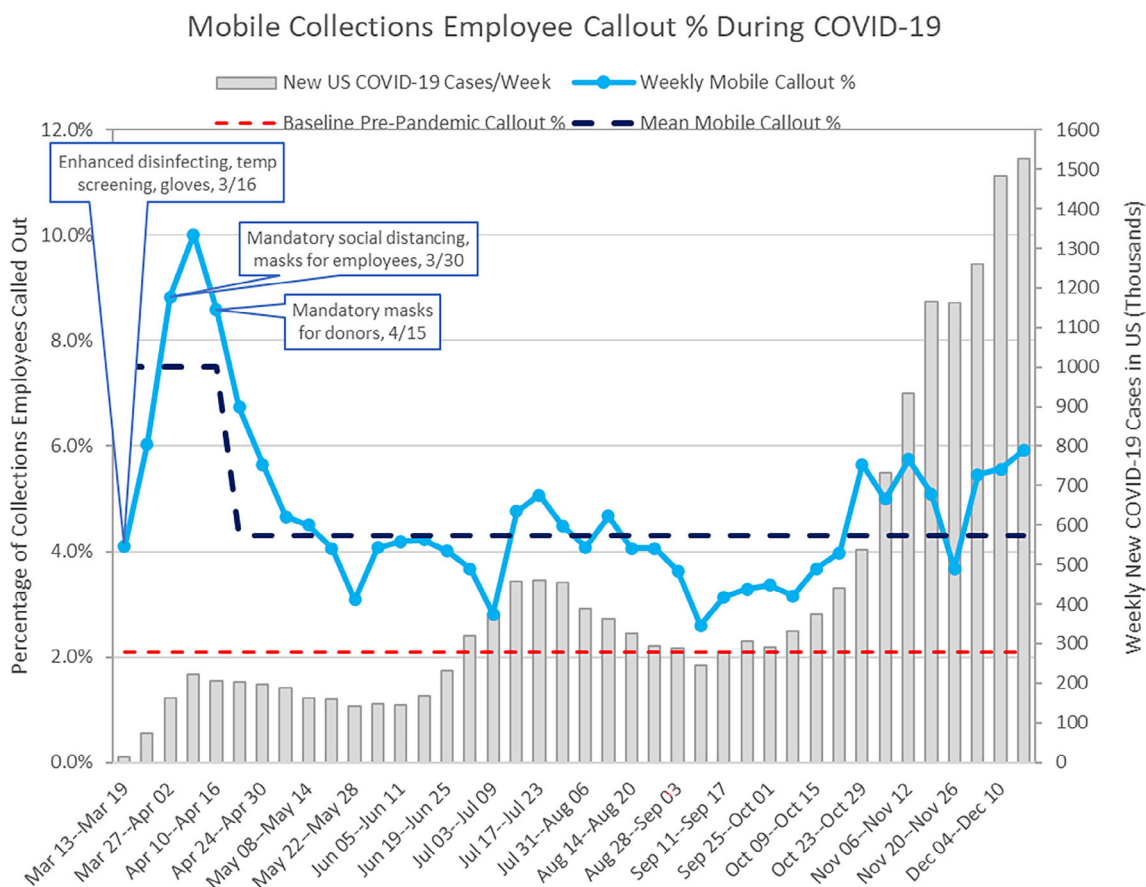


FIGURE 1 Mean weekly callout percentages for mobile collections employees from March 13 through December 17, 2020 [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.com)]

use of a mask or face covering.⁴ All reported cases were assigned a case number and were entered into a database for tracking and reporting.

Additional safety measures consistent with CDC recommendations, including social distancing whenever possible, mandatory use of masks by both donors and employees, enhanced disinfection protocols, and temperature screening were quickly implemented over the following weeks and were all in place by April 16, 2020.⁵ The weekly callout rate during and after implementation of the safety measures was tracked for 16,324 mobile and fixed site collections employees and 3193 supply chain employees including manufacturing, distribution, and reference laboratory from March 13 through December 17, 2020.

The total number of new COVID-19 cases in the United States per week was calculated from the Johns Hopkins Daily new case numbers⁶ and compared to the employee callout rates over the same period.

3 | RESULTS

Weekly employee callout rates initially increased after implementation of the contact tracing program due to an

increase in asymptomatic employees placed into quarantine after close contact exposure to someone with COVID-19 or suspected COVID-19. Callout rates for mobile collections increased nearly fivefold from a baseline rate of 2.1% to a peak of 9.7% within the first 4 weeks. Although pre-pandemic baseline callout rates for fixed site collections and manufacturing were not known, callout rates peaked nearly simultaneously at 5.0% for fixed site and 6.7% for manufacturing. These callout peaks aligned with the first “peak” in weekly total new COVID-19 cases in the United States in early April (Figures 1–3). After the implementation of all safety measures, the weekly callout rate quickly began to decline for all three employee groups, with a mean of 4.1% for mobile collections, 2.4% for fixed site collections, and 3.7% for supply chain employees between April 16 and December 11, 2020. This reduction has remained relatively stable despite a further increase in new COVID-19 cases in the United States.

Subgroup analysis of callout cases reported to Human Resources from June 1 through August 30, 2020 revealed that 9.0% of reported callouts occurred in employees who tested positive for COVID-19, 26.3% occurred in employees with illness or flu-like symptoms without a

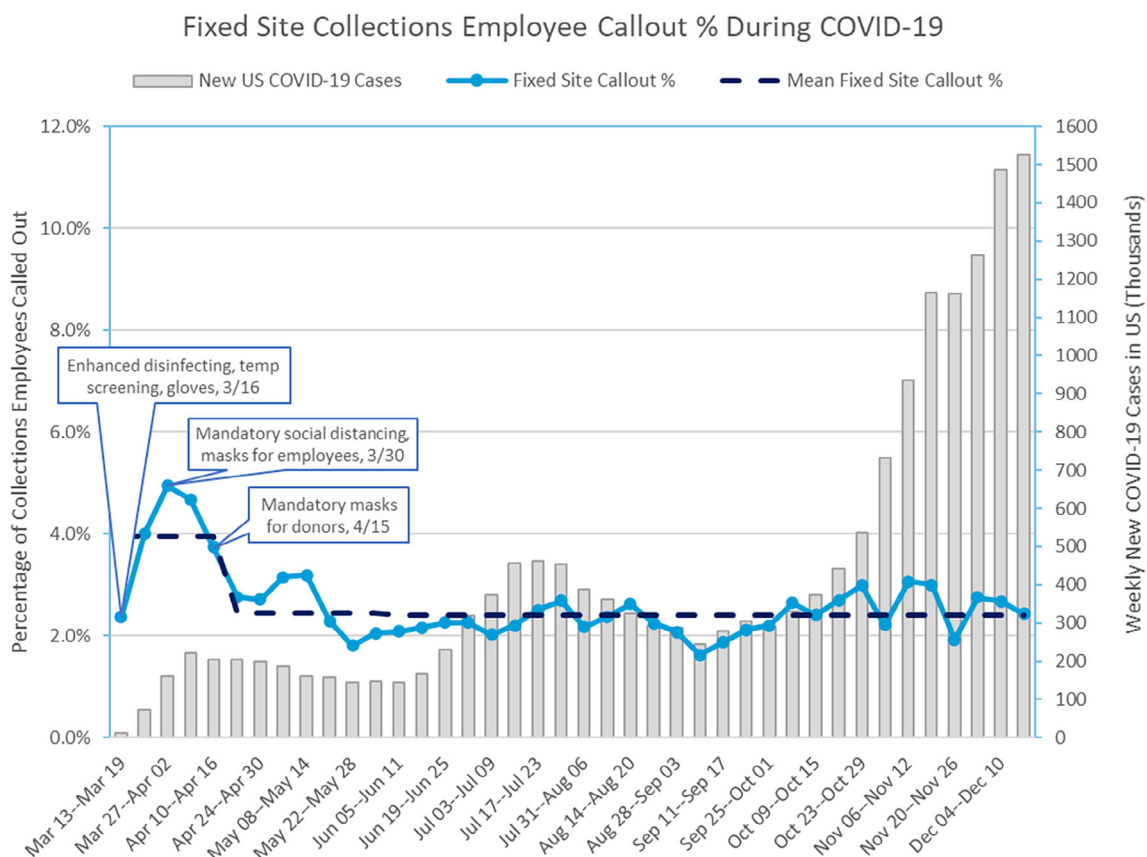


FIGURE 2 Mean weekly callout percentages for fixed site collections employees from March 13 through December 17, 2020 [Color figure can be viewed at wileyonlinelibrary.com]

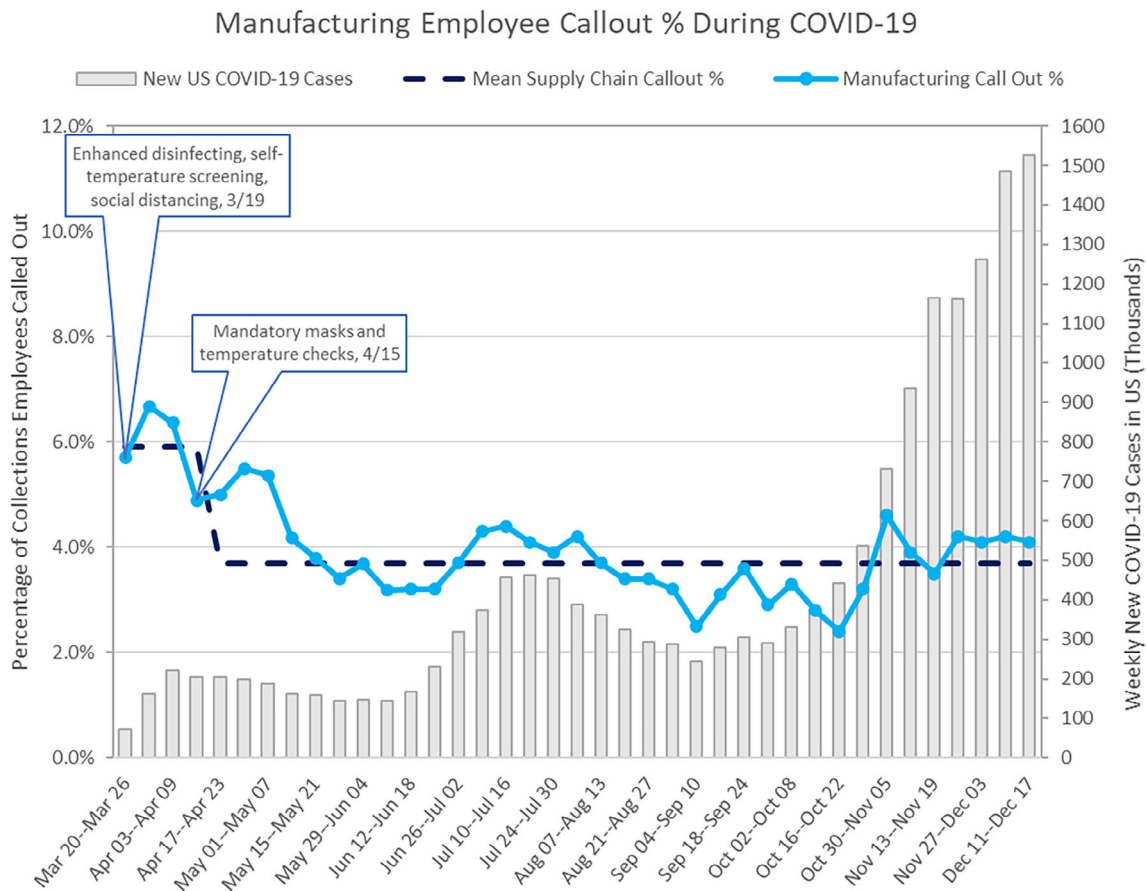


FIGURE 3 Mean weekly callout percentages for manufacturing employees from March 13 through December 17, 2020 [Color figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com)]

diagnosis of COVID-19, and the remaining 64.7% occurred in employees who were asymptomatic but under quarantine due to close contact with another person with suspected or confirmed COVID-19. Of the asymptomatic employees placed into quarantine due to close contact exposure, 42.6% were exposures to other employees at work, 42.7% were exposures to family or community members outside of work, and 14.7% were exposures from blood donors who became ill or tested positive shortly after their donation. Despite a high number of employee exposures and quarantines, cases of workplace-related transmission of COVID-19 from donor to employee or employee to employee have been uncommon. Throughout the pandemic, more than 95% of employees who test positive for COVID-19 have had either a known COVID-19 exposure outside of work or no known exposure prior to their diagnosis. This indirectly suggests that the safety measures have also been effective in keeping COVID-19 transmission rates low.

While the overall callout rate has remained relatively low, some regions have experienced intermittent high spikes in local callouts, which have impacted operations and resulted in temporary facility closures and blood

drive cancellations. In some cases, the production of blood products assigned to specific manufacturing locations, such as cryoprecipitate, has been impacted when local manufacturing callout rates at those sites exceed critical thresholds. In response to local staffing shortages, products were at times transferred to alternate manufacturing sites or products from other regions were transported into areas with staffing shortages for distribution to local hospitals. Delays due to an increase in transportation time were sometimes associated with temporary local product shortages, particularly for platelets with their short shelf life of 5 days.

4 | DISCUSSION

The COVID 19 pandemic has wreaked havoc for BCC via mass cancellations of blood drives resulting in the loss of millions of units as well as the ongoing loss of crucial staff due to illness or quarantine. The pandemic has affected all aspects of our business and has had an especially large impact on the staff in blood collections and manufacturing. In the early weeks of the pandemic, callouts increased precipitously for

both collections and manufacturing staff. Implementation of safety measures including mandatory social distancing, masks, temperature screening, and enhanced facility disinfection protocols has resulted in a decreased weekly callout rate for all groups of BCC employees during the COVID-19 pandemic. This decrease persisted despite an increase in cases of COVID-19 cases throughout the country. Although these measures resulted in an improvement in callout rates compared to the initial increase seen early in the pandemic, callout rates have remained above the pre-pandemic baseline for mobile collections employees. It is suspected that the callout rates for fixed site and manufacturing employees have also likely remained above pre-pandemic baseline; however, the true baseline callout rate for these employee groups is unknown as this information was not routinely tracked prior to the dramatic increase seen at the beginning of the pandemic. Since the implementation of workplace safety measures would not be expected to impact the rate of employee exposures or illness related to family or community transmission of COVID-19, it is not expected that these measures alone would reduce the rates to pre-pandemic baseline callout levels.

The demand for blood products has also fluctuated during the pandemic, most notably with a dramatic drop in demand early in the pandemic as hospitals canceled elective surgeries in preparation for a potential surge of COVID-19-related admissions. Since the callout rate was defined and measured as number of employees who were unable to report to a scheduled shift, increased drive cancellations and large declines in demand would result in fewer scheduled shifts and could potentially result in an underestimation of the true callout burden. Overall, mobile collections employees have experienced a higher callout rate than fixed site collections or manufacturing employees. Mobile collections employees work in a variety of environments, which include blood drives in large open areas such as gymnasiums, schools, and shopping malls as well as small areas like offices and mobile blood collection vehicles. For all collection sites regardless of physical size of the space, adjustments were made to the number of donor beds, seats, and scheduled appointments to allow donors and employees to follow social distancing policies. Both mobile and fixed collections employees may have increased risk of exposure to COVID-19 compared to manufacturing employees due to required close contact with blood donors during the donor assessment and phlebotomy as part of the regular collection employee duties. The increased callout rate in mobile collections employees compared to fixed site collections and manufacturing employees may be related to an increased exposure risk from frequent regional travel, including riding in vehicles with other employees to get to remote blood drive locations,

compared to employees who work in the same location each day. Intermittent issues with staff compliance with social distancing, masks, and other safety measures have occurred in all three employee groups.

Even though callout rates stabilized for fixed site collections staff and manufacturing staff when evaluated at the organizational level, each exposure or event that led to quarantine affected a team of staff in a given location, often meaningfully affecting operations throughout the course of the pandemic.

The strength of this study is that it reports the experience of a national blood collector with a large number of staff. The interventions were introduced with consistent messaging across the organization. Decisions regarding quarantine were made by a uniform decision matrix by the medical staff. This study is limited by a reliance on individual reporting of employee illness and absences to the reporting system. Additionally, since multiple interventions were implemented simultaneously, it is not possible to determine the individual impact of each measure.

5 | CONCLUSION

The COVID-19 pandemic has significantly impacted BCC employee callout rates; however, the callout rate decreased for both collections and manufacturing employees after implementation of safety measures including social distancing, masks, enhanced disinfection protocols, temperature screening, and contact tracing and quarantine for employee exposures. It is recommended that similar safety mitigations to reduce viral spread be implemented as soon as possible in BCCs for any future respiratory viral pandemics.

CONFLICT OF INTEREST

The authors have disclosed no conflicts of interest.

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