

COVID-19 and Newborn Care: April 2020

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Although few newborns infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) have been reported,¹ the pandemic has affected how hospitals provide care to pregnant women, infants, and families. The severity and variability of this impact are unknown. Vermont Oxford Network (VON), in partnership with the American Academy of Pediatrics Section on Neonatal-Perinatal Medicine (SONPM), conducted an audit in April 2020 to assess the impact of the coronavirus disease 2019 (COVID-19) pandemic on the care of newborn infants and families.

METHODS

Recruitment and Participation

Hospitals were recruited via e-mail. Any hospitals caring for newborn infants was eligible to participate regardless of membership in VON. Each hospital conducted an audit on a single day of their choice using an online tool.²

Audit Contents

Part 1 identified the census of infants admitted within 28 days of birth, confirmed infant cases, and suspected infant cases on the day of the audit in mother-infant rooms; level I, II, III, or IV neonatal units;³ and special units created for the care of infants with COVID-19. Confirmed cases involved infants with a positive test result for SARS-CoV-2. Suspected cases involved infants with signs of COVID-19 or who were exposed to a person with confirmed or suspected COVID-19.

In part 2, hospitals were asked about shortages of personal protective equipment, beds, medical devices or equipment, or medications; about the availability or timeliness of testing; and about the availability of physicians, nurses, respiratory therapists, or other personnel that significantly impacted the care of infants and families.

An online tool provided by the Institutional Review Board of the University of Vermont was used to determine that this audit was not research.

RESULTS

A total of 434 hospitals participated and 359 completed the audit, of which 75% were in the United States (Supplemental Table 2). The highest level of care reported was predominantly level III (63%) or IV (26%). Thirty-nine percent had special COVID-19 units.

The 275 hospitals completing part 1 reported 54 confirmed cases and 311 suspected cases of COVID-19 among 11 341 eligible infants (Table 1). Overall, 62% of hospitals reported no confirmed or suspected cases; 90% reported ≤ 3 cases.

Of the 332 hospitals completing part 2, 54% reported significant shortages of equipment, testing, or personnel (Fig 1). Seventy-three percent reported minor disruptions to care for infants and families; 3% reported an inability to provide care to some, most, or all infants.

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Dr Horbar conceptualized and designed the study and drafted the initial manuscript; Dr Edwards conceptualized and designed the study and conducted the data analyses; Drs Ehret, Hudak, and Soll and Ms Zayack conceptualized and designed the study; and all authors reviewed and revised the manuscript and approved the final manuscript as submitted.

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TABLE 1 Confirmed and Suspected COVID-19 Cases at 275 Hospitals Participating in Part 1 of the VON SONPM COVID-19 Audit, April 2020

	<i>n</i>	Census		Confirmed Cases		Suspected Cases		Total Cases	
		Total	Range	Total	Range	Total	Range	Total	Range
Mother-infant rooms	240	3707	0–100	14	0–10	91	0–13	105	0–20
Level I nursery	103	630	0–26	7	0–4	35	0–14	42	0–18
Level II unit	100	1020	0–59	1	0–1	13	0–2	14	0–2
Level III unit	181	3049	0–67	11	0–4	66	0–6	77	0–10
Level IV unit	79	2772	0–112	3	0–1	49	0–9	52	0–9
Special COVID-19 unit	109	163	0–20	18	0–10	57	0–12	75	0–20
Total	812	11 289	0–204	54	0–20	311	0–20	365	0–40

DISCUSSION

The VON SONPM COVID-19 impact audit provides a baseline for understanding the impact of COVID-19 on the care of newborn infants and families. There are reasons for optimism and concern. In April 2020, the numbers of newborns with suspected or confirmed COVID-19 were low, with many units not experiencing any cases. This finding is consistent with initial reports from China suggesting that infants and children appeared to be at lower risk for severe COVID-19.⁴ Preterm delivery and neonatal and postneonatal mortality increased during the 1918–1919 influenza pandemic,⁵ and more recent influenza

outbreaks revealed ready transmission in NICUs.⁶ Whether SARS-Cov-2 will behave similarly is unknown.

Even in units with few or no cases, there were shortages of testing, equipment, and staff. Future studies should be focused on the short- and long-term impacts of COVID-19 on families, particularly minority families given the disproportionate impact of the pandemic on minorities and the poor.⁷

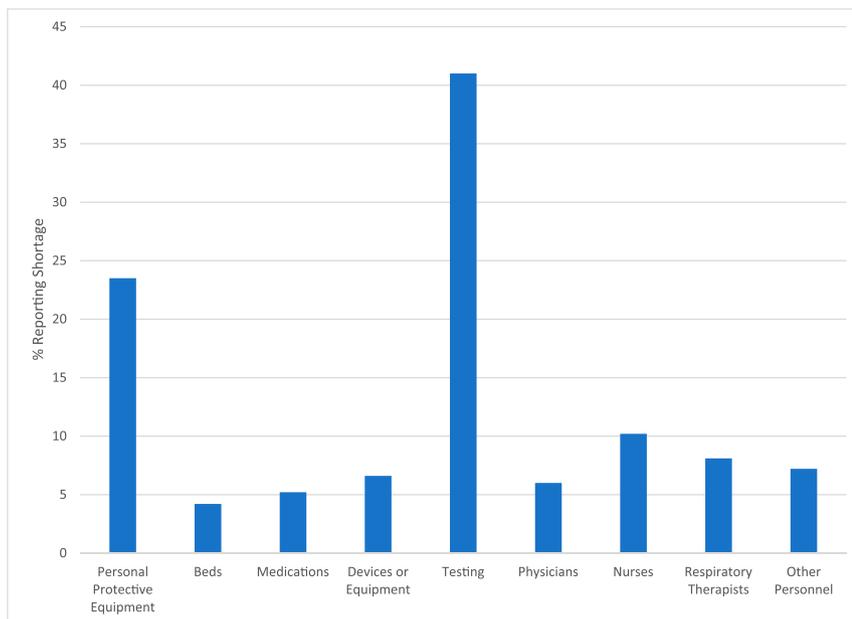
Our study has limitations. It is possible that hospitals with high numbers of COVID-19 cases were less likely to participate or that hospitals with limited numbers of cases were

more likely to participate, potentially resulting in under- or overestimates of the impact. Infants admitted to pediatric wards repurposed to care for patients with COVID-19 should have been counted by participating centers. Not doing so would have caused underestimates of infants with COVID-19.

Classification of suspected cases may have varied among units. However, hospitals may have cared for suspected cases, regardless of how they were identified, using modified interventions, such as personal protective equipment, isolation, separation of mothers and infants, restricted family presence, and limitations on breastfeeding, which have significant impacts on both staff and family. Finally, participants might have used different thresholds for classifying impacts as significant. Future studies will be needed to identify the specific modifications in care that were implemented in response to shortages of equipment, personnel, and testing.

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**FIGURE 1**

Proportion reporting shortages that significantly impacted care for infants and families in part 1 of the VON SONPM COVID-19 audit, April 2020.

ABBREVIATIONS

COVID-19: coronavirus disease 2019

SARS-CoV-2: severe acute
respiratory syndrome
coronavirus 2

SONPM: Section on Neonatal-
Perinatal Medicine

VON: Vermont Oxford Network

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