Do No Harm as we respond to COVID-19

Update on epidemiology, clinical profiles, and management of COVID-19 across the MNCH spectrum – Susan Niermeyer

Infection prevention and control – Vicky Willet

Safe and effective oxygen systems – Hamish Graham

Perspectives from the pediatric frontline in Indonesia – Aman Pulungan
DO NO HARM as we respond to COVID-19

UPDATE ON EPIDEMIOLOGY, CLINICAL PROFILES AND MANAGEMENT ACROSS THE MNCH SPECTRUM

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Colorado School of Public Health
Center for Global Health
First of all Do No Harm

Background: USAID Do No Harm briefs on inpatient newborn care

• Oxygen use
• Thermal protection
• Human milk feeding for small and sick
• Infection prevention
• Family participation in care
• Management of infections in newborns
• Prevention and screening of retinopathy

https://everypreemie.org/donoharmbriefs/
Do No Harm as we respond to COVID-19

Scope of the webinar: Do No Harm across the spectrum of MNCH services

• Maintaining essential elements of high-quality care in the face of possible disruption

• Incorporating special preparedness and protection in the COVID-19 pandemic


Credit: Visual Science vsci.me/2020
Respiratory transmission of SARS-CoV-2
potential for droplet, contact, and airborne transmission

Distribution of respiratory microdroplets in an indoor environment

Implications for
• health care workers and patients in facilities
• return to workplace and reopening of businesses
• return to school and college/university classrooms

Recommendation for face coverings at all times in public

Morawska L. Clin Infect Dis 2020
Do No Harm: COVID-19 and pregnancy

Credit: UNICEF/UNI326750//Frank Dejongh
COVID-19 and high prevalence of asymptomatic presentation in pregnancy

Pregnant women have a risk of acquiring COVID-19 similar to that of the general population

- Social determinants – occupational exposure, household composition
- **High prevalence of asymptomatic/presymptomatic positives** among pregnant women presenting to hospital

NYC March 13-27, 2020 (+N=43)
- 86% mild, 9% severe, 5% critical
- 33% asymptomatic/presymptomatic

NYC March - April 2020 (+N=70)
- 11% of total OB admissions +
- 79% asymptomatic/presymptomatic

Recommendation for screening of all pregnant women on admission to facility and best possible protection for labor/delivery staff

Prabhu M et al. BJOG 2020; doi:10.1111/1471-0528.16403
COVID-19 and risk recognition in pregnancy

Pregnant women with comorbidities might be at increased risk for severe illness compared to non-pregnant persons

- Severe disease concentrated in 3rd trimester – respiratory physiology of pregnancy
- Risk factors for severe disease – vulnerable populations, obesity, diabetes, hypertension
- More likely to be hospitalized and receive respiratory support, but no greater risk for death
- Emergent delivery for maternal and fetal indications and postpartum deterioration reported

Ellington S et al. MMWR June 26, 2020; 69(25):769-775
An P et al. CMAG June 1, 2020; 192(22)E603-6
• 427 pregnant women admitted to UK hospitals March 1 – April 14 2020
• 10% received intensive care; 5 women died
• >20% of pregnancies delivered prematurely – mostly for maternal indications or fetal compromise
• Hospital admission for COVID-19 more likely for pregnant women who are
  • from vulnerable and ethnic minority backgrounds
  • older (>35 years)
  • overweight or obese
  • suffering from diabetes or high blood pressure

Knight M, et al. BMJ 2020; 369:m2107
role of voluntary registries for real-time data collection and access

Purpose

• Prospective structured data collection as a basis for research to characterize risks of SARS-CoV-2 infection in pregnancy
• Responsive data collection system through a health facility network

Inclusion: any pregnant patient suspected of SARS-CoV-2 during pregnancy

Collaboration: anyone supporting the registry with cases will be listed as collaborator under data-sharing agreement

www.covi-preg.ch

Panchaud A et al. Lancet April 27, 2020; doi:10.1016/S0140-6736(20)30981-8
PRIORITY: Pregnancy Coronavirus Outcomes Registry

• Nationwide U.S. study of pregnant or recently pregnant people under evaluation for or confirmed to have COVID-19
• Goal: to help better understand how pregnant women are affected (symptoms, pregnancy complications, newborn infection)
• Online or phone patient enrollment with 2 year follow-up and medical record review
• Provider and patient self-referral

priority.ucsf.edu
On May 4, 2020, we launched a Reproductive Health Equity and Birth Justice Core aimed at increasing community partnerships and recruitment efforts among Black, Indigenous, and People of Color. We strive to ensure that PRIORITY participants appropriately represent racial and ethnic groups that have experienced the highest number of COVID-19 cases and deaths.
Do No Harm: What we can do now

Support women to

• Receive timely and accurate information to protect themselves from COVID-19
• Maintain continuity of prenatal care – home visits, teleconsultation
• Obtain screening/testing and deliver at an appropriate facility
• Strengthen birth planning – transportation, finances, presence of birth companion

Contribute to data collection on COVID-19 in pregnancy

Credit: Forbes, AFP via Getty Images
Do No Harm: COVID-19 and the newborn

Credit: Victor J. Blue, New York Times
COVID-19 and the newborn

Most babies born to women with COVID-19 are healthy

• some do need special care for prematurity, asphyxia, respiratory disorders
• adverse outcomes reported – miscarriage/stillbirth, other fetal disorders – often have no clear relationship to SARS-CoV-2

Rate of infection at birth appears low (0-4%)

• very low risk for intrauterine or intrapartum vertical transmission
• most infection results from immediate postnatal transmission
  • variable approaches to separation
  • variable access to strict hygiene and infection prevention for families

Walker KF et al. BJOG 12 June 2020; doi: 10.1111/1471-0528.16362
Peripartum vertical transmission of SARS-CoV-2 evidence supports immediate postnatal transmission by respiratory secretions as most common route.
Peripartum vertical transmission of SARS-CoV-2

transmission = evidence of early exposure + infectivity/persistence

- **Intrauterine transmission**
  - Blood/placental tissue
  - Amniotic fluid
  - Few positive cases
  - Rare

- **Intrapartum transmission**
  - Blood (extravascular)
  - Vaginal secretions
  - Maternal feces
  - No reports
  - Most negative; semen positive
  - Positive – long duration

- **Immediate postnatal transmission**
  - Maternal/caregiver/provider secretions
  - Breast milk
  - Positive, including asymptomatic
  - Yes
  - Few positive cases

Vivanti AJ et al. Nature Communications 2020; 11:3572
WHO Breastfeeding and COVID-19 Scientific Brief, 23 June 2020;
https://www.who.int/publications/i/item/10665332639
Neonatal outcomes (N = 265 live births)

• Almost 20% of babies were born prematurely and admitted to a neonatal unit

• 5 deaths – 3 stillborn and 2 neonates
  3 deaths were related to obstetric/fetal conditions unrelated to SARS-CoV-2 and the contribution to 2 stillbirths was unclear

• 5% of babies had a positive test for SARS-CoV-2 (N=12), half at < 12 hrs
  Criteria for establishing congenital infection were not met
  Babies positive early were not critically ill – only 1 admitted to neonatal unit compared to 5 among the later group
NPC-19 Registry

American Academy of Pediatrics
Section on Neonatal-Perinatal Medicine National Registry of
Perinatal COVID-19 Infection

July 11, 2020: 231 centers
Updated 7/11/2020

Inborn/Outborn
97%
1736 mother/infant dyads

Maternal Status at Admission
- Asymptomatic: 1,246 (72.4%)
- Symptomatic: 394 (22.9%)
- Admitted for COVID-19 treatment: 81 (4.7%)

COVID-19 Positive
- 1,503

PUI
- 233

Infant weight, gestational age
Mode of delivery, resuscitation
Maximal respiratory support
Infant SARS-CoV-2 testing
Inpatient management & length of stay, disposition
• Module in the Perinatal Information System (SIP)
• Creation of local and national databases for health surveillance of pregnant women and newborns
• Standardized maternal-perinatal medical record that guides management of COVID-19 cases in pregnancy

Perinatal-neonatal management decisions
little consensus in national practice guidelines


https://doi.org/10.1055/s-0040-1709688
Supporting the mother/newborn dyad

**goal of minimizing separation**
except in case of severe maternal or newborn illness

<table>
<thead>
<tr>
<th>Intervention</th>
<th>COVID-19</th>
<th>Need for supportive care</th>
<th>Need for intensive care</th>
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<tbody>
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<td>Delivery precautions</td>
<td>Individual space</td>
<td>Isolation room</td>
<td>Negative pressure room</td>
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<td>Neonatal stabilization</td>
<td>With mother</td>
<td>Distance/barrier separation from mother</td>
<td>Separate site</td>
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<tr>
<td>Umbilical cord clamping</td>
<td>Delayed clamping in all</td>
<td>Delayed clamping in most</td>
<td>Immediate clamping in rare cases</td>
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<tr>
<td>Skin-to-skin contact</td>
<td>Contact with mother using mask + hygiene</td>
<td>Contact with mother using mask + hygiene</td>
<td>Separation (only necessary with severe illness)</td>
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<tr>
<td>Feeding</td>
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<td>Expression of breast milk using mask + hygiene</td>
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<td></td>
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<td>Feeding by family/provider</td>
<td>Donor milk</td>
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<tr>
<td>Newborn placement</td>
<td>With mother</td>
<td>Distance/barrier separation from mother</td>
<td>Separate site (isolation/incubator)</td>
</tr>
</tbody>
</table>
Emphasis on pre-discharge preparation

Discharge from the health facility after birth should occur when criteria for safety are met

• stability of mother and newborn
• ability to care for mother and newborn in the household (infection prevention & hygiene)
• education on Danger Signs in mother and newborn (including COVID-19)
• specific follow-up arrangements
  • telephone/emergency transport resources
  • home visitation
  • timed appointments – separation of well and sick
Do No Harm: What we can do now

Protect health care workers, patients and families from infection in facilities

Review facility operational guidance to promote essential newborn care safely

• Avoid unnecessary interventions
  • Determine route of delivery on obstetrical indications (avoid routine c-section)
  • Practice delayed umbilical cord clamping

• Engage in context-specific decision-making to minimize separation
  • Location of care
  • Skin-to-skin contact
  • Breastfeeding/feeding of breast milk

• Strengthen family guidance on recognizing illness and seeking care

Umoja wa Mataifa on Twitter
Do No Harm: COVID-19 and the family

Credit: Manish Rajput/SOPA Images/Sipa USA/AAP

Credit: John Autey, Pioneer Press, Minnesota High School League
Continuity of care from facility to community

Post-natal care of the mother-infant dyad

- Monitoring: weight, breastfeeding, jaundice; blood pressure, infection, mental health and mood
- Vaccinations, family planning
- Recognition of illness
  - non-specific manifestations of COVID-19 in neonates and infants - fever, hypoxemia, poor feeding, neurologic signs
  - post-partum deterioration in mothers
  - domestic violence
  - non-accidental trauma

Promotion of nurturing care

- Food security
- Developmental stimulation and early learning

Credit: HealthyChildren.org, American Academy of Pediatrics


Sidpra J Arch Dis Child 2020; doi: 10.1136/archdischild-2020-319872
Non-specific manifestations of COVID-19 in young infants

An infant was born at term after an uneventful pregnancy.

• On day 4 after birth the infant had poor feeding without signs of respiratory distress, but some perioral cyanosis; there was no fever

• Oxygen saturations were in the 80s

Mother had developed a fever without respiratory symptoms on day 2 after delivery.

Both mother and baby tested + for SARS-CoV-2

The baby was admitted to the NICU and received 30% oxygen and nasogastric feedings of expressed milk for 2 days.

Sinelli M et al. Pediatrics July 2020; 146(1)e20201121
Do No Harm: what we can do now

Maintain monitoring, surveillance for illness, and delivery of preventive care
- Educate parents
- Provide resources for communication
- Sensitize health workers to special issues during the pandemic

Contribute to data collection on COVID-19 outcomes in neonates, young infants, children, and parturients

Credit: Reuters/Jose de Jesus Cortes
Do No Harm as we respond to COVID-19

- Protect health care providers
- Deliver high-quality care
- Take measures to limit the pandemic

Credit: Ina Stanimirova, Scientific American