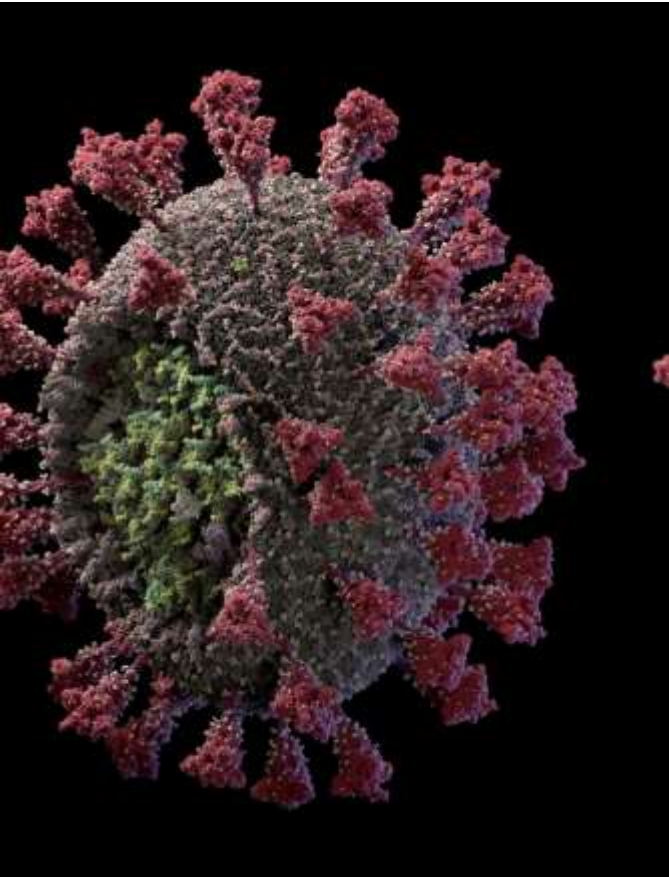


Do No Harm as we respond to COVID-19



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

Susan Niermeyer, MD, MPH, FAAP
Professor of Pediatrics
University of Colorado School of Medicine
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

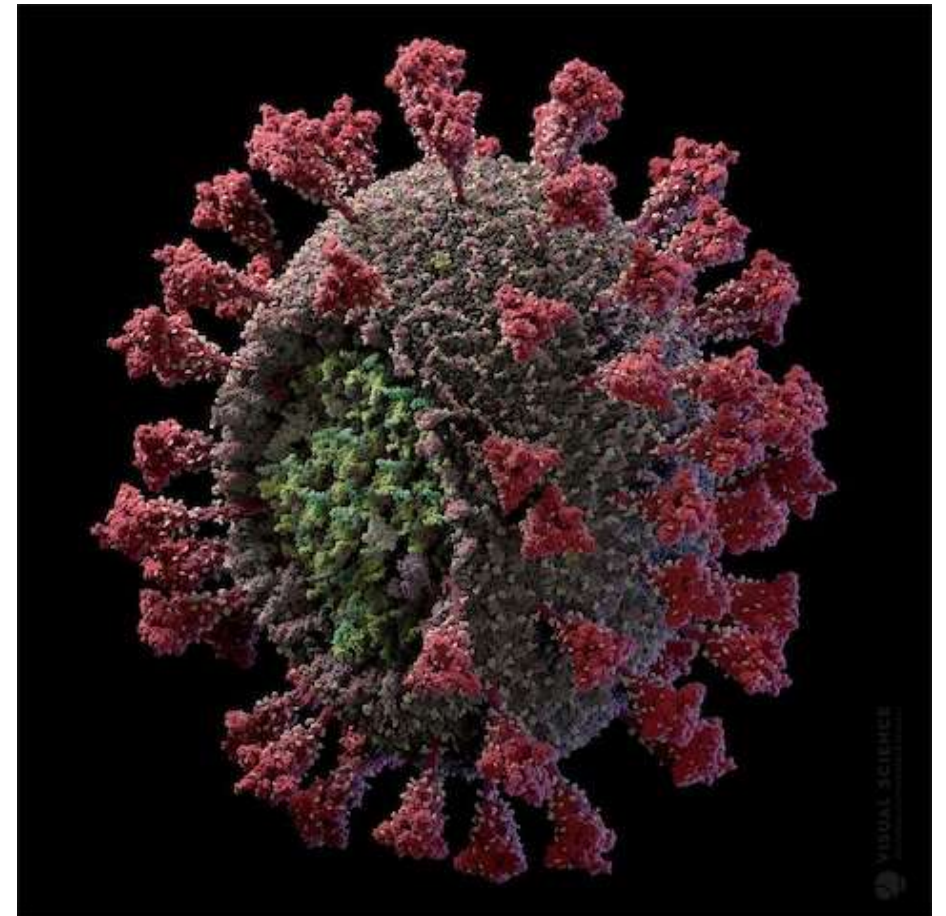


Do No Harm as we respond to COVID-19

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

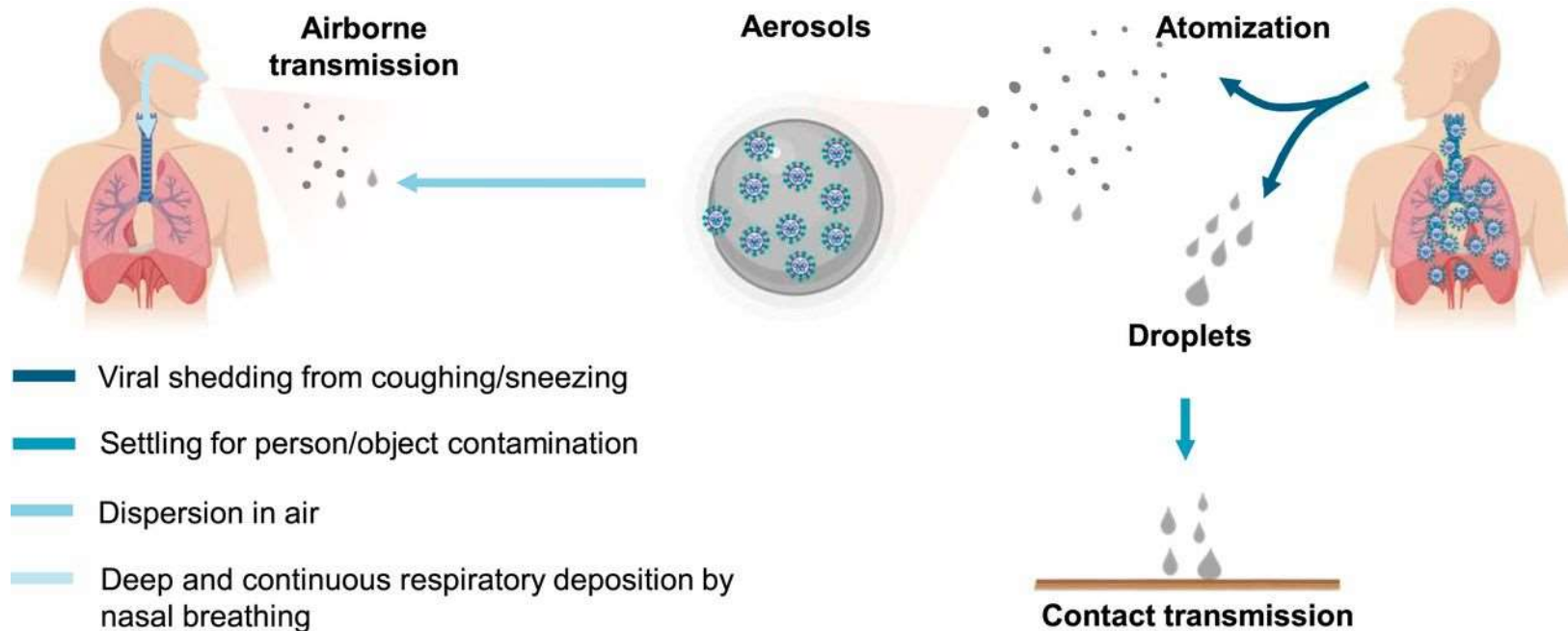
Roberton T et al. Lancet Glob Health 2020;
doi:10.1016/S2214-109X(20)30238-2



Credit: Visual Science [vsci.me/2020](https://vsci.me/)

Respiratory transmission of SARS-CoV-2

potential for droplet, contact, and airborne transmission



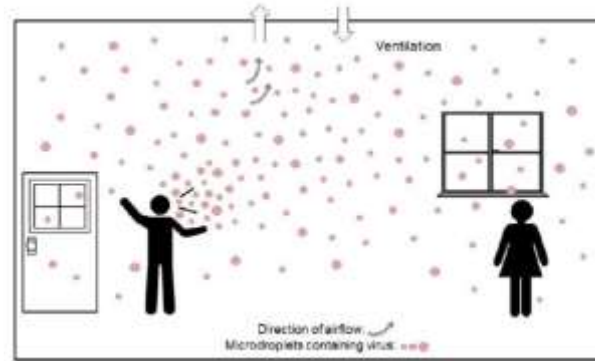
PNAS

©2020 by National Academy of Sciences
Zhang R et al. PNAS 2020;117:26:14857-14863

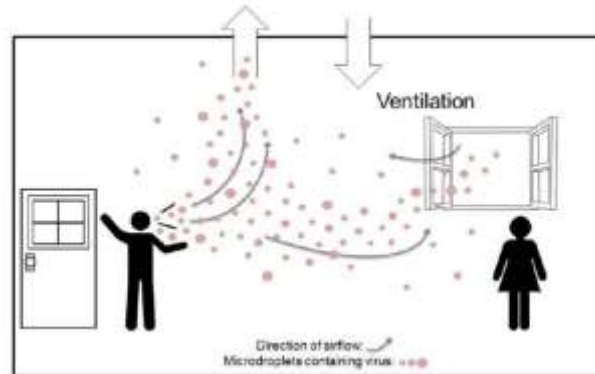
<https://www.who.int/publications/i/item/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations>

Distribution of respiratory microdroplets in an indoor environment

Inadequate ventilation



Adequate ventilation



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

<https://academic.oup.com/cid/article-abstract/doi/10.1093/cid/ciaa939/5867798>

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

Breslin N et al. Am J Obstet Gynecol MFM 2020 May; 2(2):100118
Prabhu M et al. BJOG 2020; doi:10.1111/1471-0528.16403



Credit: Victor J. Blue, New York Times

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

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/inpatient-obstetric-healthcare-guidance.html>

Ellington S et al. MMWR June 26, 2020; 69(25):769-775

An P et al. CMAG June 1, 2020; 192(22)E603-6



Credit: Victor J. Blue, New York Times



- 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



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

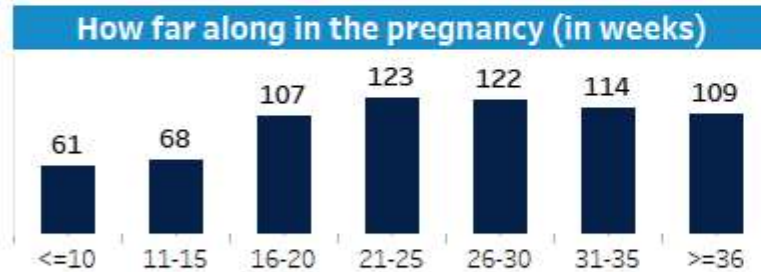
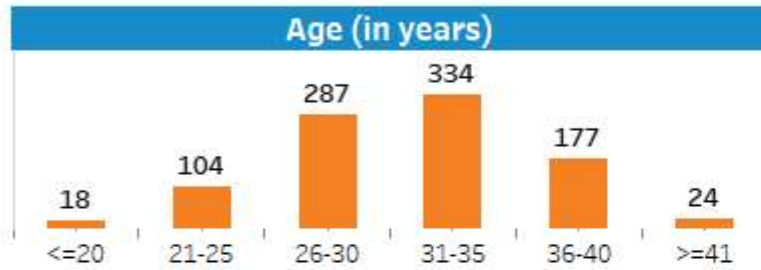
www.covi-preg.ch

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

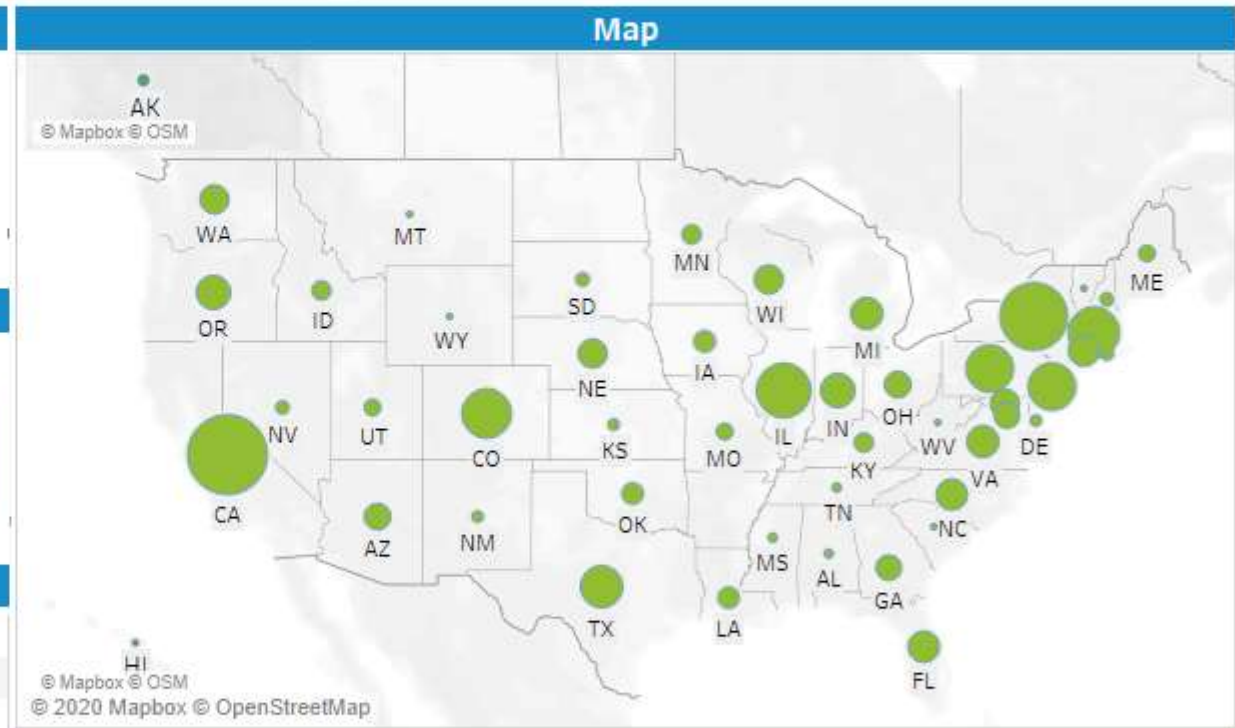
PRIORITY Study Participant Characteristics

Enrolled	COVID Status			Current Pregnancy Status	
957	607 COVID+	157 COVID-	193 Other	596 Pregnant	361 Recently Pregnant



Race/Ethnicity

American Indian/Alaska Native: 1.0%
Asian: 5.5%
Black or African American: 8.9%
Hispanic or Latina: 25.8%
Native Hawaiian or Other Pacific Islander: 0.5%
Unknown: 5.3%
White: 59.1%



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



Credit: Forbes, AFP via Getty Images

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

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

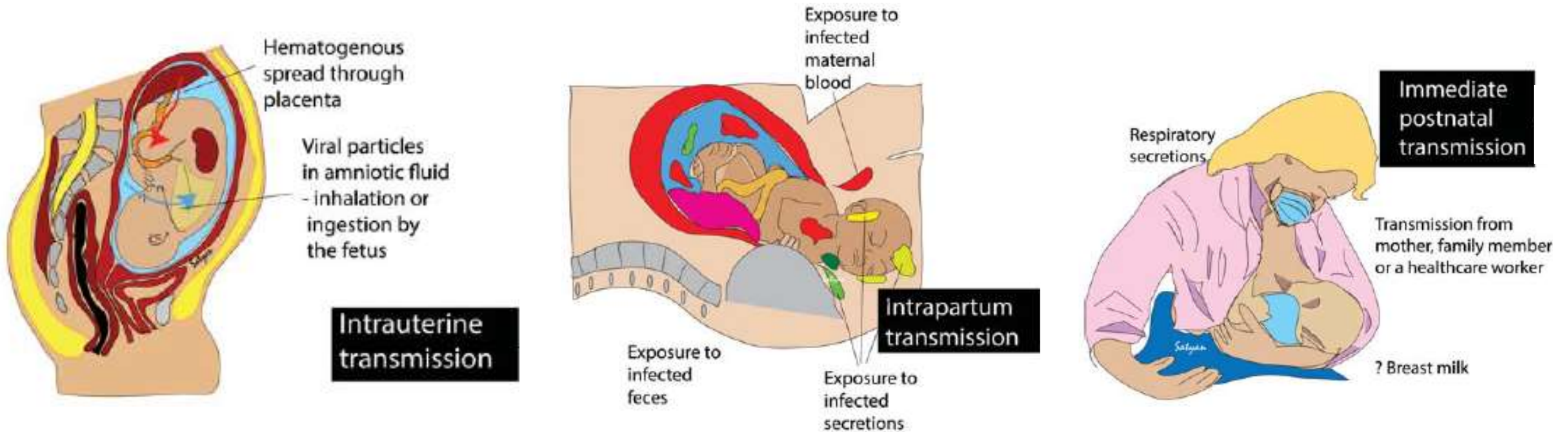
- some do need special care for prematurity, asphyxia, respiratory disorders
- adverse outcomes reported – miscarriage/stillbirth, other fetal disorders – often have no clear relationship to SARS-CoV-2

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

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

	Evidence of virus by RT-PCR	Evidence of infectivity
<ul style="list-style-type: none">• Intrauterine transmission<ul style="list-style-type: none">Blood/placental tissueAmniotic fluid	few positive cases few positive cases	rare
<ul style="list-style-type: none">• Intrapartum transmission<ul style="list-style-type: none">Blood (extravascular)Vaginal secretionsMaternal feces	no reports most negative; semen positive positive – long duration	
<ul style="list-style-type: none">• Immediate postnatal transmission<ul style="list-style-type: none">Maternal/caregiver/provider secretionsBreast milk	positive, including asymptomatic few positive cases	yes

Neonatal outcomes (N = 265 live births)

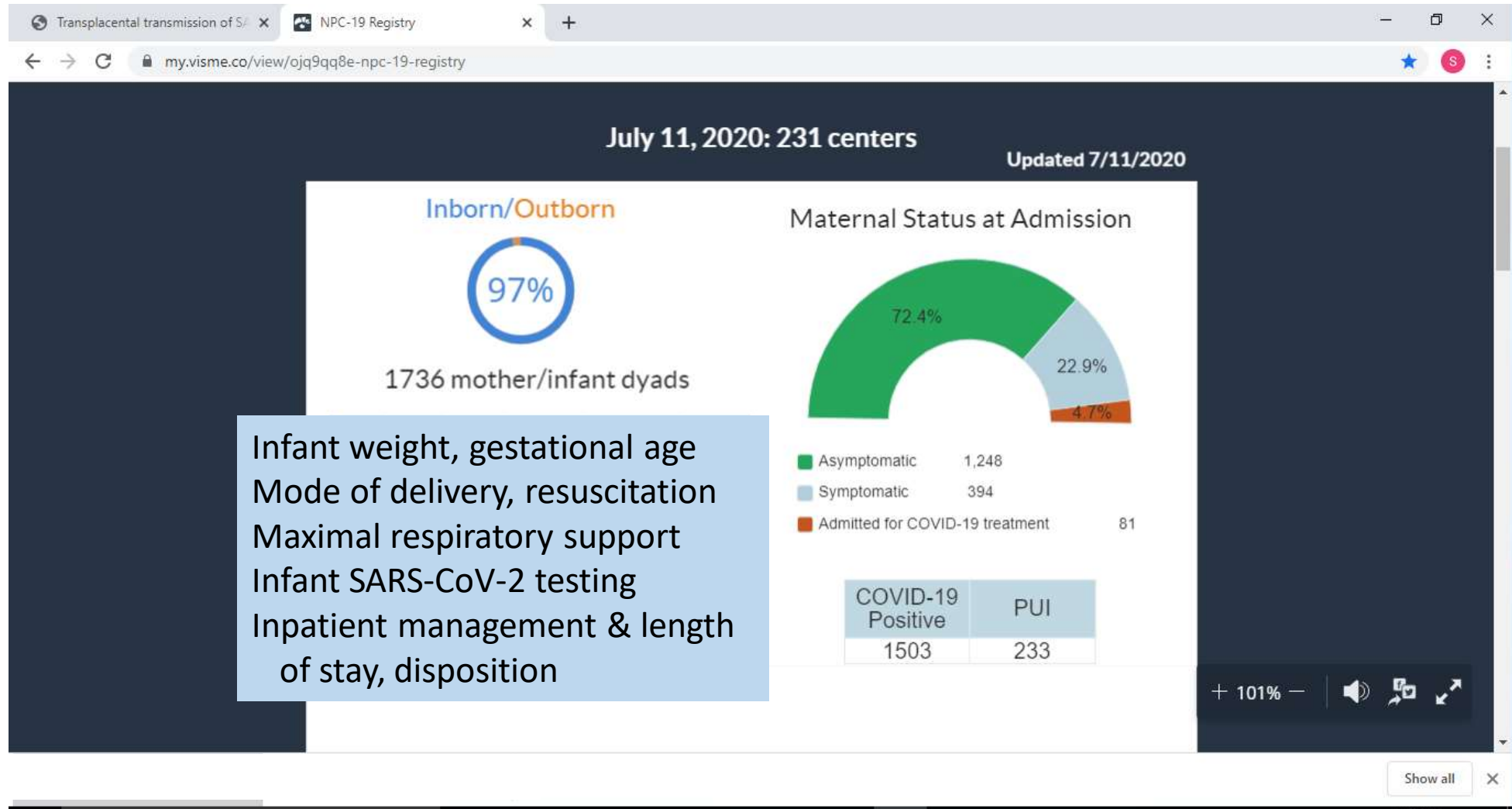
- Almost 20% of babies were born prematurely and admitted to a neonatal unit
- 5 deaths – 3 stillborn and 2 neonates
 - 3 deaths were related to obstetric/fetal conditions unrelated to SARS-CoV-2 and the contribution to 2 stillbirths was unclear
- 5% of babies had a positive test for SARS-CoV-2 (N=12), 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



OPS



Organización
Panamericana
de la Salud



Organización
Mundial de la Salud
OFICINA REGIONAL PARA LAS Américas

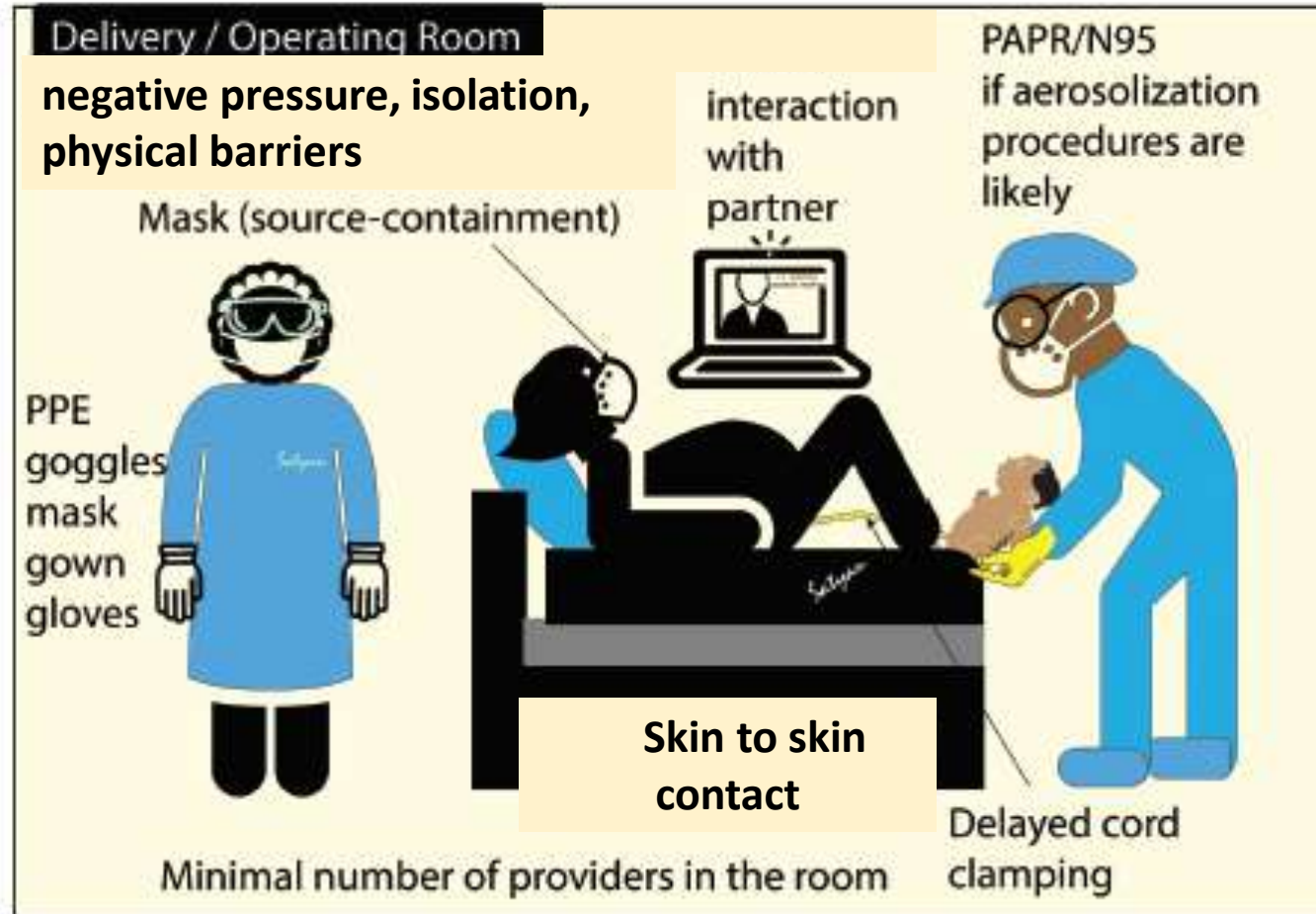
Launching of SIP COVID-19 form

The screenshot displays a complex web-based form for data entry. It features multiple sections with various input fields, including text boxes, dropdown menus, and radio buttons. A prominent button labeled 'Nuevo documento en blanco' (New blank document) is visible in the center. The interface is organized into several horizontal panels, each containing different types of data fields and navigation options.

- 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



Devane D et al. COVID-19 Review of national clinical practice guidelines. Pregnancy.Cochrane.org. 10 April 2020
Palatnik A et al. Am J Perinatol 2020; 37(08):854-6

Chandrasekharan P et al. Am J Perinatol 2020
<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

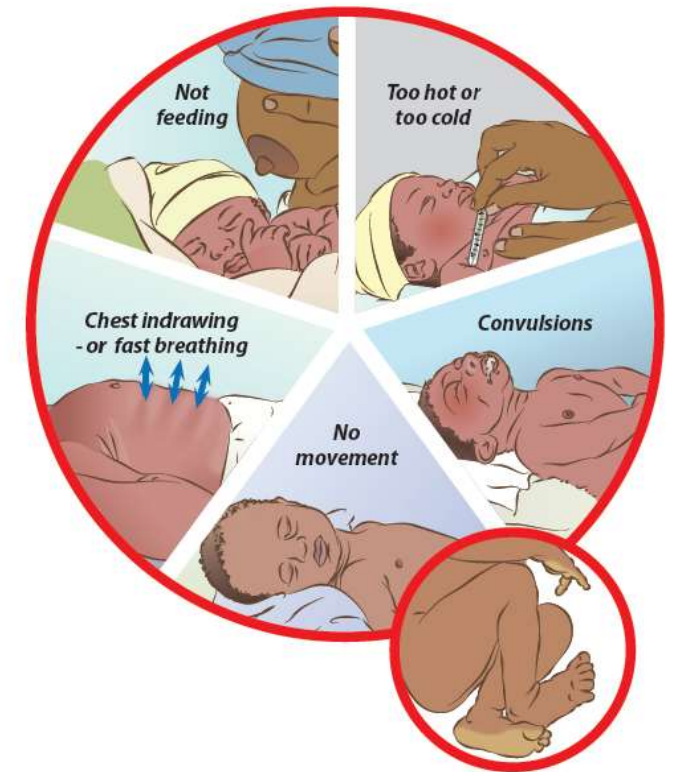
Intervention	COVID-19	Need for supportive care	Need for intensive care
Delivery precautions	Individual space	Isolation room	Negative pressure room
Neonatal stabilization	With mother	Distance/barrier separation from mother	Separate site
Umbilical cord clamping	Delayed clamping in all	Delayed clamping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

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

If you recognize one of these Danger Signs - immediately seek health care!



Yellow palms or soles of feet

Do No Harm: What we can do now



Umoja wa Mataifa on Twitter

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

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

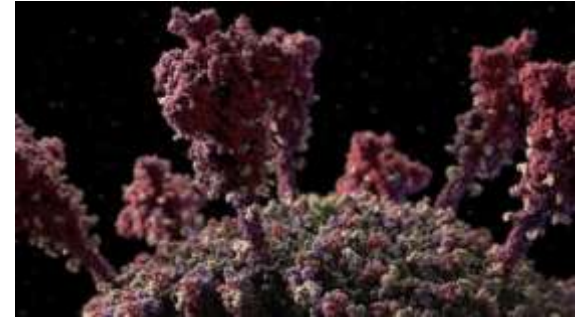


Credit: HealthyChildren.org, American Academy of Pediatrics

<https://www.governor.ny.gov/news/following-spike-domestic-violence-during-covid-19-pandemic-secretary-governor-melissa-derosa>

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.

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