# COVID-19 and Pregnancy: What do we know?

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PNQIN

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# The Problem:

- Pregnant women are at risk from respiratory viral illness

- Influenza: key example
  - Increased risk of pneumonia, hospitalization, mechanical ventilation, and mortality among pregnant vs. non-pregnant people
  - 2009 H1N1: 5-20x higher risk of mortality

- The impact of COVID-19 on pregnancy is unknown.

# Pregnant women are not more likely to become severely ill than non-pregnant people

- No studies directly compare pregnant to non-pregnant people
- Largest series from general population vs. from pregnant women:

## General population (Hubei, n > 45K)

- Mild to moderate: 81%
- Severe: 14%
  - Dyspnea, hypoxia, or >50% lung involvement
- Critical: 5%
  - Respiratory failure, shock, multiorgan failure
- ICU: 5%-23%
- Mechanical ventilation: 2.3%
- Mortality: 1.4% (4-15% of hosp.)

## Pregnant women (n = 41-55)

- Mild to moderate: Not reported
- Severe: Not reported
  - (92-100% had pneumonia)
- Critical: Not reported

- ICU: 9%
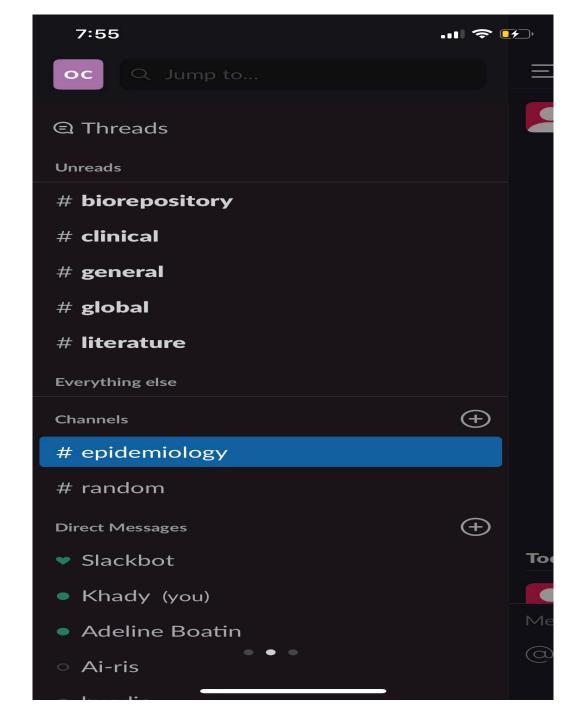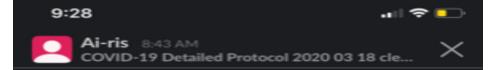- Mechanical ventilation: 2-5%
- Mortality: 0%

Guan JAMA 2020; Wu JAMA 2020; Di Mascio AJOG MFM 2020; Dashraath AJOG 2020

# Pregnancy Outcomes in COVID-19

| Meta-analysis, 41 cases, 6 studies | | |
|---|---|---|

| Pregnancy Outcomes | N | (%) of COVID-19 |
|---|---|---|
| Cesarean Delivery | 38/41 | 92% |
| Preterm Birth < 37 weeks | 14/32 | 41% |
| Preterm Birth < 34 weeks | 4/32 | 15% |
| Pre-eclampsia | 1/12 | 13% |
| Fetal growth restrictions | 0/12 | No Cases |
| Fetal Distress | 12/30 | 43% |
| APGARS < 7 | 1/41 | 2.4% |
| NICU Admission | 1/10 | 10% |
| Perinatal Death | 2/41 | 5% |
| Miscarriage | 0 | No cases |
| Vertical Transmission | 0 | No cases |

# Our Solutions: collaboration!

1. OB COVID Resource Group (review studies, clinical management guidelines)- multidisciplinary team, virtual pager

2. Boston-wide consortium of clinicians and researchers (Slack platform)

   -Shared protocol: biorepository of samples from pregnant women (BI, BMC, Tufts, MGH and BWH)
   - EHR: epi and clinical outcomes data: BWH/MGH, as well as BI

3. National Pregnancy Registry through UCSF

4. Global research consortium

 Threads

**Unreads**

# **biorepository**

# **clinical**

# **general**

# **global**

# **literature**

Everything else

Channels ⊕

# **epidemiology**

# **random**

Direct Messages ⊕

💚 Slackbot

🟢 Khady (you)

🟢 Adeline Boatin

◯ Ai-ris

**Clinical Assessment and Sampling of Individuals with or at risk for Coronavirus Disease 2019 (COVID-19)**

**Protocol Version**: 1.1
**Date Updated**: March 18th, 2020

**Principal Investigators:**
Xu Yu, M.D., M.Sc.
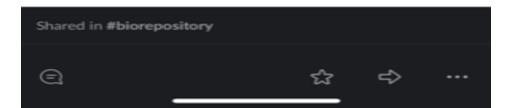Jonathan Li, M.D.
Lindsey Baden, M.D.

**I. BACKGROUND**

A novel coronavirus, SARS-CoV-2 virus, was first recognized in early December 2019 in China as the cause of a severe and rapidly spreading respiratory illness, Coronavirus Disease 2019 (COVID-19), in humans, which has since spread worldwide and infected over 110,000 people. However, much remains unknown about COVID-19, including transmission, clinical manifestations, diagnosis, pathogenesis, and management. This is an observational study that will collect clinical and laboratory data, and sample collection in 1) individuals diagnosed with COVID-19 and 2) individuals who have been exposed or at risk for COVID-19-related disease – this includes high risk contacts and health care providers, who are already known to have been infected in Boston.

Coronaviruses are a large family of viruses that cause diseases in many different species of animals, including camels, cattle, cats, and bats. In humans, these viruses cause an infection of the respiratory tract which are typically mild, including the common cold; however, some forms such as SARS and MERS have resulted in epidemic spread with case fatality rates of approximately 10% and 33% respectively. A novel coronavirus, termed SARS-CoV-2 virus, was first detected in Wuhan City, Hubei Province, China in early December 2019 as the cause of an outbreak of respiratory illnesses ranging from little or no clinical symptoms to acute respiratory distress, hypoxic respiratory failure and death. Infections were epidemiologically linked to a "wet market" in Wuhan, where live and dead animals were sold. Deep sequencing of respiratory samples from these individuals led to identification of this novel coronavirus with approximately 80% homology with the coronaviruses that caused SARS and MERS. Sequencing revealed 88% homology to two coronaviruses that originated in bats, consistent with cross-species transmission. Cases have rapidly increased in China through person to person spread, with over 150,000 confirmed cases to date, and with spread to more than 50 countries including the US, also with increasing caseloads in Boston. There are no vaccines or antiviral drugs that are approved for prevention or treatment.

**II. SPECIFIC AIMS**

1. To create a biorepository of samples to accelerate key questions in SARS-CoV-2 prevention, transmission, and treatment, including the questions listed below.
2. To determine predictors of COVID-19 severity and progression
3. To assess factors associated with COVID-19 disease pathogenesis

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Shared in #biorepository

**Ai-ris** 11:05 AM
PRIORITY Study Flyer-QR Code.pdf

## UCSF
University of California
San Francisco

# Pregnant with known or suspected Coronavirus (COVID-19)?

PRIORITY is a nationwide study of pregnant or recently pregnant women who are either under investigation for Coronavirus infection (COVID-19) or have been confirmed to have COVID-19. This study is being done to help patients and doctors better understand how COVID-19 impacts pregnant women and their newborns.

### Here's what the study involves:

- Complete questionnaires about your pregnancy, medical history, and COVID-19 symptoms-
- Receive gift cards up to $40 for your participation-
- Information will be kept confidential-

Study Name: Pregnancy coRonavIrus Outcomes RegIsTrY (PRIORITY)

If you are interested in being in this study, please contact the research coordinator:
Website: priority.ucsf.edu
Call: (415) 754-3749
Email: PRIORITYCOVID19@ucsf.edu

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**Ai-ris** 2:18 PM
PRIORITY Weekly Update 4_6.pdf

APRIL 6, 2020

# PRIORITY
## (Preganancy CoRonavIrus Outcomes RegIsTrY)
# THIS WEEK

*Weekly Update*

### ENROLLMENT UPDATES
233 Eligible patients referred
122 Enrolled

### REFERRAL NEWS

- Some hospitals have implemented universal Coronavirus screening for all patients on Labor and Delivery. **All women being tested are eligible to enroll.**
- When referring women, please let them know they will be receiving a call or text from a 415 area code.
- In order to have an accurate account of the full scope of disease, we are now enrolling women who are intubated in the ICU with consent of their proxy (*eg. family member*).

More information is available on our website:
**PRIORITY.UCSF.EDU**

**PRESS LINKS:**
3/24/2020 – *New York Times*
3/24/2020 – *NBC Los Angeles*
3/25/2020 – *Dr. Rao and Dr. Afshar YouTube talk*
3/26/2020 – *Washington Post*
3/27/2020 – *Green Journal podcast*
3/27/2020 – *Science Magazine*
3/31/2020– *AP News*
4/5/2020 – ACOG Newsletter

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# Looking into the future

- We hope to obtain data on natural history of COVID disease in pregnancy (pregnancy outcomes) and viral dynamics

- How do we include pregnant women in treatment protocols?
  - Good experience with HCQ in pregnancy
  - Remdesivir compassionate use through Gilead

- How to ensure good research collaboration?
  - Avoiding silos
  - Sharing protocols
  - Sharing EHR