

# COVID-19 and preterm birth: Understanding the relationship

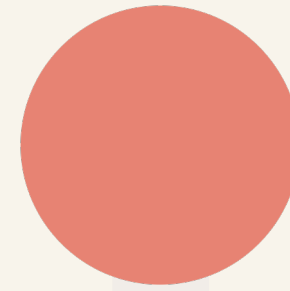
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SPER 2021 speed talk

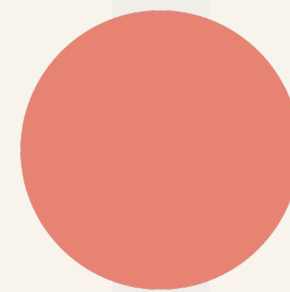
joint work with Camille Y. Dollinger, Tyler J. VanderWeele, Diego F.

Wyszynski, Sonia Hernández-Díaz



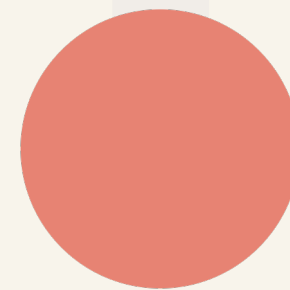
## Infections known to be harmful during pregnancy

Pregnant people may be at higher risk of infection or, more likely, bad outcomes from infection



## Preterm birth (delivery before 37 weeks' gestation) is an outcome of concern

A leading cause of neonatal death with other long-term consequences



## Some concerns with analysis

Longer pregnancies have more time to be infected; timing of infection may matter



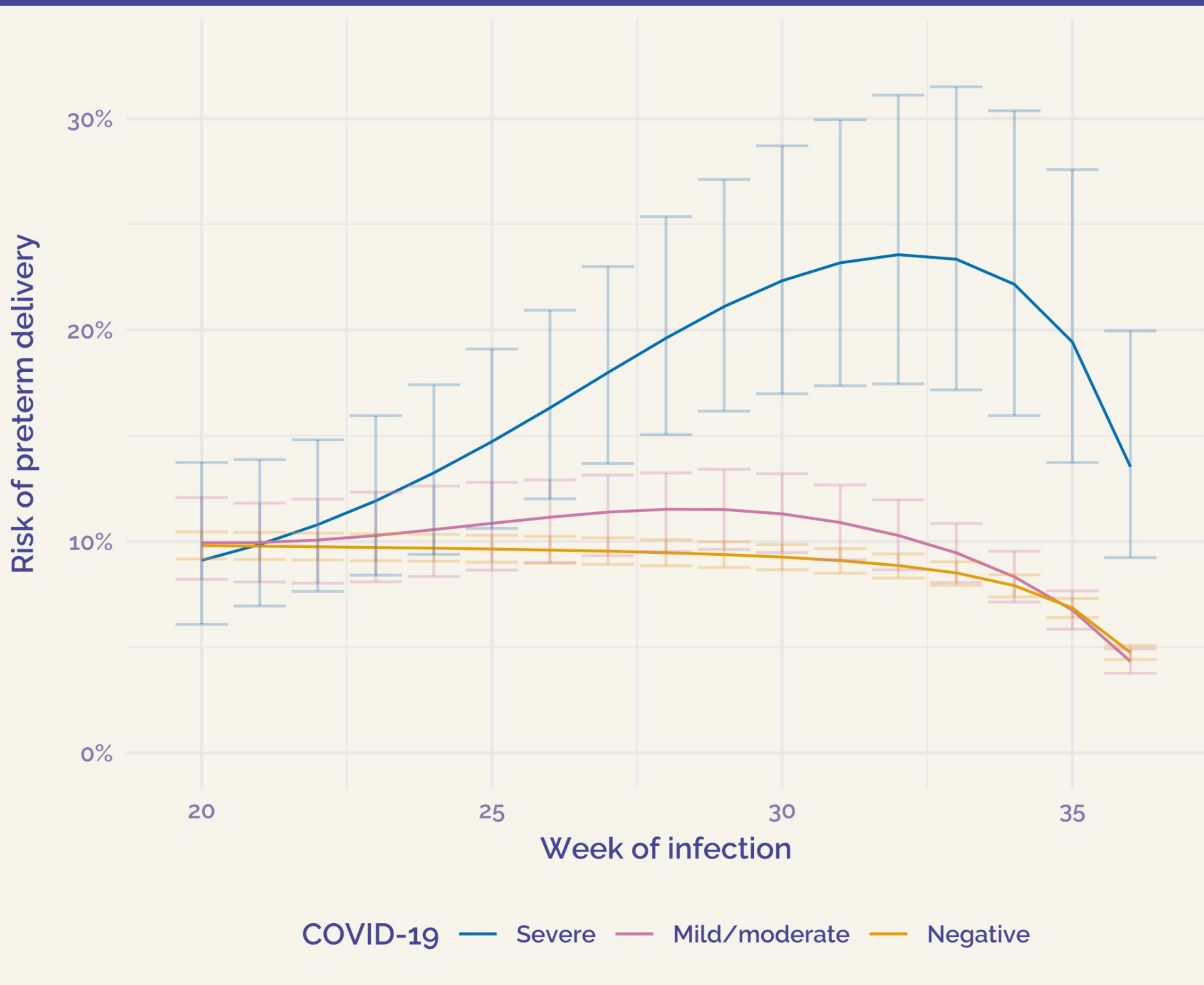
# Study design and population



- Enrollment during pregnancy or within 6 months afterward
- Must have had a COVID-19 test or clinical diagnosis of COVID-19 during pregnancy
- Study is advertised online in countries around the world
- Survey modules completed via internet
  - Demographics, reproductive and health history, COVID-19 symptoms/tests/treatments, pregnancy outcomes, infant outcomes at birth and 3 months

# Completed pregnancies by March 31

Status < 37 weeks	Preterm delivery	Term delivery
Negative	411 (9%)	4264 (91%)
Asymptomatic	22 (33%)	44 (67%)
Mild	35 (11%)	293 (89%)
Moderate	54 (13%)	360 (87%)
Severe	39 (33%)	78 (66%)



**Risks over pregnancy**

# Results

Gestational age at infection	Standardized risks			Risk ratios	
	Negative	Mild/moderate	Severe	Any positive vs. negative	Severe vs. mild/moderate
Before week 20	9.8% (9.2, 10.5)	9.9% (8.2, 12.1)	9.1% (6.1, 13.7)	1.0 (0.8, 1.2)	0.9 (0.7, 1.3)
Week 30	9.3% (8.7, 9.9)	11.3% (9.5, 13.2)	22.3% (17.0, 28.7)	1.3 (1.1, 1.5)	2.0 (1.5, 2.6)
Week 36	4.7% (4.4, 5.1)	4.3% (3.8, 4.9)	13.5% (9.2, 20.0)	1.0 (0.9, 1.2)	3.1 (2.1, 4.7)
Multivariable regression				1.3 (1.0, 1.7)	2.5 (1.6, 3.9)
Case-time-control (odds ratios)				1.5 (0.8, 2.9)	3.9 (0.7, 21.2)

# Strengths and Limitations

## For more information:

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SER presentation:

June 23 at 3:45pm ET

infectious disease session

## Loss to follow-up

Outcomes are missing for most prospective participants - some still pregnant, others lost to follow-up.

## Gestational-age-specific absolute and relative risks

We considered effects throughout gestation, including early infections.

## Self-report

We did not have clinical measures to classify severity (e.g., oxygen levels).

## Multiple analyses

We conducted multivariable regression analyses and a case-time-control analysis to support our findings, along with sensitivity analyses.