Surveillance for Emerging Threats to Mothers and Babies Network (SET-NET)
Overview

- Background of SET-NET
- SET-NET Impact
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- Looking Forward
Background
What is SET-NET?

State, local, and territorial health departments work with CDC to **identify the impact of emerging health threats**, like COVID-19, hepatitis C, syphilis, and cytomegalovirus (CMV) on pregnant people and their infants.

Information collected on pregnant people and their children through the first 3 years of life  

Used to inform clinical and public health guidance
Public Health Emergencies & Maternal and Child Health

What have we learned?

- Discovered pregnant people and infants are disproportionately affected
- Needed to collect data rapidly to inform response efforts
- Identified need to guide frontline healthcare providers in infection control or treatment

Next threat
Mother-Baby Linked Longitudinal Surveillance: Follow exposed/infected pregnancy and monitor maternal, infant, and childhood outcomes

Surveillance for Action

Approach is preparedness network for mothers and babies that can expand should new threats emerge.
Surveillance for Emerging Threats to Mothers and Babies Network (SET-NET)

Mother-Baby Surveillance of COVID-19

Mother-Baby Surveillance of Hepatitis C

Mother-Baby Surveillance of Syphilis

Mother-Baby Surveillance of cCMV

Mother-Baby Linked Longitudinal Surveillance
Jurisdictions funded for Surveillance for Emerging Threats to Mothers and Babies Network (SET-NET)*

*Jurisdictions and partners are supported through either a cooperative agreement or contractual mechanism. Jurisdictional cooperative agreements are funded through the Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC).
COVID-19 and pregnancy: Priority Questions

What is the frequency of severe illness/death among pregnant people with COVID-19? Does this differ by vaccination status or predominant variant in circulation (e.g., Delta)?

What is the clinical course of COVID-19 and does this differ by maternal vaccination status, reinfection, or predominant variant in circulation (e.g., Delta)?

What is the frequency of adverse pregnancy and birth outcomes (e.g., stillbirth, neonatal infection) among pregnant people with COVID-19? Do these differ by maternal vaccination status or predominant variant in circulation (e.g., Delta)?
COVID-19 and Infant Outcomes: Priority Questions

What is the frequency of adverse outcomes among COVID-19-exposed babies? Do these differ by maternal vaccination status or predominant variant in circulation (e.g., Delta)?

What is the frequency of post-natal SARS-CoV-2 infection among COVID-19-exposed babies? Does this differ by maternal characteristics that may influence passive immunity?

Does maternal infection status in the perinatal period impact outcomes for the infant (e.g., breastfeeding, in-person newborn visits)?
SET-NET jurisdictions funded for COVID-19 surveillance

- Arkansas
- California
- Chicago
- Florida
- Georgia
- Houston
- Iowa
- Kansas
- Los Angeles County
- Massachusetts
- Maryland
- Minnesota
- Missouri
- Nebraska
- New Hampshire
- New Jersey
- Nevada
- New York
- New York City
- Pennsylvania
- Philadelphia
- Puerto Rico
- South Carolina
- Tennessee
- Utah
- Washington

Jurisdictions participating in COVID-19 surveillance
Jurisdictions funded for other exposures
Not funded jurisdictions
Hepatitis C: Priority Questions

What is the timing of hepatitis C case diagnosis based on HCV RNA positive result (pre-pregnancy vs. during pregnancy)?

What is the full range of adverse fetal and birth outcomes among hepatitis C-exposed infants? Do outcomes differ by maternal characteristics?

What is the frequency and timing of hepatitis C screening of infants born to pregnant people with hepatitis C during pregnancy?
Hepatitis C screening for all pregnant women during each pregnancy, except in settings where the prevalence of HCV infection (HCV RNA-positivity) is less than 0.1%

Hepatitis C screening during the first prenatal blood assessment for all pregnant women during each pregnancy
SET-NET jurisdictions funded for hepatitis C surveillance

- Arizona
- Georgia
- Kentucky
- Los Angeles County
- Massachusetts
- New York City
- New York State
- Pennsylvania (Allegheny County)
- Tennessee
- Washington
Syphilis: Priority Questions

- What characteristics are associated with missed or delayed testing or treatment during pregnancy?
- Among mothers with syphilis, what characteristics are associated with delivering a baby with congenital syphilis?
- What are infant and early childhood outcomes among syphilis-exposed babies?

Newborn with congenital syphilis rash and enlarged liver and spleen (marked in black ink)
SET-NET jurisdictions funded for syphilis surveillance

Funded for syphilis surveillance in BP4
- Arizona (Maricopa County)
- Georgia
- Michigan
- New York State
- New Jersey
- Washington
Pilot Surveillance: Congenital Cytomegalovirus (cCMV)

**Objective:** Identify and develop surveillance methods for cCMV

**Activities:**
- Develop methods for case ascertainment, standardized case definitions, and case report form
- Assess feasibility of data collection (demographics, laboratory, clinical, treatment, outcomes) and data linkage from different sources

**Problems:**
- No national surveillance for cCMV; low public awareness of the disease burden
- 20,000 infants born with cCMV in the U.S. each year; ~10% symptomatic at birth and 20% will go on to develop some sequelae, most commonly sensorineural hearing loss
SET-NET jurisdictions participating in cCMV pilot

Jurisdictions participating in cCMV pilot:
- Iowa
- Minnesota
- New Jersey
- New York
- Utah

Other funded jurisdictions:

Not funded jurisdictions:
- Los Angeles
- City of Houston
- City of Chicago
- New York
- City of Philadelphia
- Puerto Rico
- USVI
SET-NET Impact
Goals and Impact

▪ Monitor and improve the health of pregnant people and infants

▪ Link families to medical and social services to get recommended care

▪ Strengthen laboratory and clinical testing to find emerging health threats quickly

▪ Ensure public health is ready and prepared to meet the needs of pregnant people and infants during emergencies
COVID-19: What Have We Learned?

Pregnant people are at increased risk for severe COVID-19 compared to non-pregnant people and increased risk for preterm birth and stillbirth compared to pregnant people without COVID-19.

Infant infection and death were more common when the pregnant person had COVID-19 within two weeks before delivery.

There was a higher rate of preterm delivery among people who were infected during the third trimester compared to people who were infected during their first or second trimester.

SARS-CoV-2 infections in neonates are uncommon. If neonates do become infected, the majority have either asymptomatic infections or mild disease.
SET-NET data lead to public health action

Identify the effects of COVID-19 infection during pregnancy, including variants

Report pregnancy and birth outcomes to public

Inform clinical and public health guidance

Ensure prioritization of pregnant people for COVID-19 vaccination and treatment
State and Local Impact

- Using Data to Care for Pregnant People and Babies
  - Inform public health policy
  - Outreach to healthcare providers and facilities to share findings and target populations in need

- Bridging Silos & Working Together to Protect Pregnant People and Babies
  - Community partnerships
  - Internal and external department collaborations
State Success Stories

“One outcome of the COVID pandemic has been that everybody realizes just how important it is to work together.

Nicole Longcore  
Evaluation Specialist, New York State Department of Health

“This is just one example of how the SET-NET infrastructure can be adapted to respond to an emerging threat to mothers and babies.

Lindsey Szemore  
Viral Hepatitis Program Director, Tennessee Health Department

“We are confident this is something that we can quickly deploy to address any rising threat to mothers and babies.

Debbie Mbotha  
Senior Epidemiologist and Program Manager, SET-NET Pregnancy Registry, Washington State Department of Health
Looking Forward
Looking Forward

- Improve data collection and reporting, especially follow-up data for infants born to pregnant people with infections from exposures of interest
- Expand data on SET-NET exposures to inform surveillance questions
- Pilot surveillance for CMV to inform other potential additions to SET-NET
- Continue collaborations and involvement with state and local health departments