

# AAP ZIKA ECHO

(EXTENSION FOR COMMUNITY  
HEALTHCARE OUTCOMES)

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Project

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# HOUSEKEEPING ITEMS

- For educational and quality improvement purposes, this ECHO session will be recorded
- Project ECHO® collects participation data for each ECHO session. This data allows Project ECHO to measure, analyze, and report on the ECHO movement's reach. Data is used in reports, on maps and visualizations, for research, for communications and surveys, for data quality assurance activities, and for decision-making related to new initiatives.
- **To protect patient privacy, please do not provide any (PHI) protected health information.**
- Please mute your microphone when not speaking. If you have video capability, please enable it.
- There is a chat function in Zoom that may be used to send messages to the group. For IT help, please chat to the AAP Admin and we will assist you.



# Zika Virus and Breastfeeding

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# ACKNOWLEDGMENTS

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# DISCLAIMERS

- Dr Ana L Medina has no financial conflicts of interest



# OBJECTIVES

1. Understand the benefits of breastfeeding
2. Discuss what is currently known about Zika virus transmission from mother to baby via breastmilk
3. Learn about current WHO and CDC recommendations regarding breastfeeding for mothers with Zika virus infection



# REFERENCES

- CDC
- WHO/PAHO
- AAP Red Book
- ZikaBra Clinical Ongoing Trials
- PLOS
- Paediatric and Perinatal Epidemiology





Source: WHO/PAHO





# BENEFITS OF BREASTFEEDING

- Breastfeeding is beneficial to mother and baby
  - Helps protect mother and baby against some short- and long-term diseases and illnesses
  - Environmental and Societal Benefits

<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Breastfeeding/Pages/Benefits-of-Breastfeeding.aspx>

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# BENEFITS OF BREASTFEEDING: INFANTS

- Breastfeeding protects against a variety of diseases and conditions in the infant such as:
  - bacteremia
  - diarrhea
  - respiratory tract infection
  - necrotizing enterocolitis
  - otitis media
  - urinary tract infection
  - late-onset sepsis in preterm infants
  - type 1 and type 2 diabetes
  - lymphoma, leukemia, and Hodgkin's disease
  - childhood overweight and obesity



# BENEFITS OF BREASTFEEDING: MOTHERS

- Decreased postpartum bleeding and more rapid uterine involution
- Decreased menstrual blood loss and increased child spacing (lactational amenorrhea)
- Earlier return to pre-pregnancy weight
- Decreased risk of breast and ovarian cancers

<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Breastfeeding/Pages/Benefits-of-Breastfeeding.aspx>

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# CONTRAINDICATIONS TO BREASTFEEDING

- The only true contraindications to breastfeeding are the following:
  - Infants with classic galactosemia (galactose 1-phosphate uridyltransferase deficiency)
  - Mothers, in the US, who are infected with human immunodeficiency virus (HIV).
- Refer to the [AAP policy statement](#) for other conditions that may require further investigation

<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Breastfeeding/Pages/Benefits-of-Breastfeeding.aspx>

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# TRANSMISSION OF ZIKA VIRUS AND BREASTFEEDING

- Zika virus RNA has been detected in breast milk from at least three known lactating mothers with confirmed Zika virus infection, and replicative virus was identified in their cell culture
  - Detection was around time of delivery (within 3 days of delivery)
  - The breast milk samples where Zika virus RNA was found, was collected at a time when the three (3) mothers were RT-PCR positive for Zika virus in serum samples and had clinical disease
  - Two (2) of the three (3) associated newborns had evidence of ZIKV infection in blood samples

Colt S, Garcia-Casal MN, Peña-Rosas JP, Finkelstein JL, Rayco-Solon P, et al. (2017) Transmission of Zika virus through breast milk and other breastfeeding-related bodily-fluids: A systematic review. PLOS Neglected Tropical Diseases 11(4): e0005528.  
<https://doi.org/10.1371/journal.pntd.0005528>



# TRANSMISSION OF ZIKA VIRUS AND BREASTFEEDING

Based on the documented presence of Zika virus RNA (detected by RT-PCR) and replicative Zika virus (detected in cell culture) in breast milk samples, **breast milk may be considered as potentially infectious**

However:

- While Zika virus was detected in breast milk of all 3 mothers, data is not sufficient to conclude ZIKV transmission via breastfeeding
- More evidence is needed to distinguish breastfeeding transmission from other **PERINATAL** transmission routes
- More evidence is needed to confirm if ZIKV is transmitted via breastfeeding



# TRANSMISSION OF ZIKA VIRUS AND BREASTFEEDING

- The frequency of Zika virus detection, virus kinetics, and size of viral load of ZIKV in breast milk is unknown
- Though ZIKV is known to circulate in the blood before the person infected is symptomatic, and the virus is detected, these parameters are not known in relation to the virus kinetics in breast milk



# TRANSMISSION OF ZIKA VIRUS AND BREASTFEEDING

- No long-term complications have been documented for either of the 2 reported cases of the formerly mentioned newborn infants with confirmed neonatal ZIKV infection
- No adverse neurologic outcomes or severe diseases have been reported to date from infants and young children (0-23 months of age) with postnatally acquired Zika infection

Colt S, Garcia-Casal MN, Peña-Rosas JP, Finkelstein JL, Rayco-Solon P, et al. (2017) Transmission of Zika virus through breast milk and other breastfeeding-related bodily-fluids: A systematic review. PLOS Neglected Tropical Diseases 11(4): e0005528.

<https://doi.org/10.1371/journal.pntd.0005528>

Read JS, Torres-Velasquez B, Lorenzi O, et al. Symptomatic Zika Virus Infection in Infants, Children, and Adolescents Living in Puerto Rico. JAMA Pediatr. 2018;172(7):686–693. [doi:10.1001/jamapediatrics.2018.0870](https://doi.org/10.1001/jamapediatrics.2018.0870)

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# TRANSMISSION OF ZIKA VIRUS AND BREASTFEEDING

- In light of available evidence, the benefits of breastfeeding for the infant outweigh any potential risk of Zika virus transmission through breast milk



# CDC RECOMMENDATIONS

- CDC continues to encourage mothers to breastfeed, even in areas with risk of Zika
- CDC continues to study ZIKV and breastmilk issues and will update any new data as is available

Source: <https://www.cdc.gov/pregnancy/zika/testing-follow-up/zika-in-infants-children.html>

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Source: WHO/PAHO

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# WHO RECOMMENDATIONS

- Infants born to mothers with suspected, probable or confirmed Zika infection, or who reside in or traveled to areas of ongoing Zika virus transmission, SHOULD BE FED ACCORDING TO NORMAL INFANT FEEDING GUIDELINES
  - Begin breastfeeding within 1 hour of birth
  - Exclusive breastfeeding for six months
  - Timely introduction of adequate, safe and properly fed complimentary foods
  - Continue breastfeeding until 2 years of age or beyond

Source: [http://www.who.int/nutrition/publications/guidelines/infantfeeding\\_zikavirus\\_transmission/en/](http://www.who.int/nutrition/publications/guidelines/infantfeeding_zikavirus_transmission/en/)

Source: [http://www.who.int/elena/titles/guidance\\_summaries/zika/en/](http://www.who.int/elena/titles/guidance_summaries/zika/en/)

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# WHO RECOMMENDATIONS

- Mothers who decide to breastfeed should receive skilled support from health-care workers to initiate and sustain breastfeeding, whether they or their infants have confirmed, probable or suspected Zika infection
- Multidisciplinary teams may be needed to support mothers and infants when breastfeeding is difficult due to maternal illness or difficulties

Source: [http://www.who.int/nutrition/publications/guidelines/infantfeeding\\_zikavirus\\_transmission/en/](http://www.who.int/nutrition/publications/guidelines/infantfeeding_zikavirus_transmission/en/)

Source: [http://www.who.int/elena/titles/guidance\\_summaries/zika/en/](http://www.who.int/elena/titles/guidance_summaries/zika/en/)

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# WHO RECOMMENDATIONS

- Mothers and families of infants born with congenital anomalies (e.g. microcephaly), or those presenting with feeding difficulties, should be supported to breastfeed their babies.
  - Skilled feeding support from health professionals, including breastfeeding support, should be provided
- Families and communities are central in supporting optimal infant and young child feeding and improving health care

Source: [http://www.who.int/nutrition/publications/guidelines/infantfeeding\\_zikavirus\\_transmission/en/](http://www.who.int/nutrition/publications/guidelines/infantfeeding_zikavirus_transmission/en/)

Source: [http://www.who.int/elena/titles/guidance\\_summaries/zika/en/](http://www.who.int/elena/titles/guidance_summaries/zika/en/)

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# ONGOING CLINICAL STUDY

- Study on the Persistence of Zika Virus (ZIKV) in Body Fluids of Patients With ZIKV Infection in Brazil (**ZikaBra**)
  - **Study Start Date: July 27, 2017**
  - **Estimated Primary Completion Date: January 2019**
  - **Estimated Study Completion Date: February 2020**
- Study Hypothesis: ZIKV can be shed in human body fluids long after the time of the acute infection. Persistence of ZIKV in different body fluids may vary due to the influence of circulating ZIKV IgM and IgG, as well as host and environmental factors.
- Observational cohort study of men and women, aged 18 years and above, incl symptomatic participants with positive RT-PCR in blood and/or urine AND their symptomatic or asymptomatic household/sexual contacts with positive RT-PCR in blood and/or urine.

Source: <https://bmcinfectdis.biomedcentral.com/track/pdf/10.1186/s12879-018-2965-4>

Source: <https://clinicaltrials.gov/ct2/show/NCT03106714>

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# ZIKABRA STUDY, CONT..

- Specimens tested for **ZIKV RNA by RT-PCR**:
  - Blood, semen, vaginal secretions, oral fluid (saliva and crevicular fluid), tears, sweat, urine, rectal swab, menstrual blood, and **breast milk** (if applicable)
- Participants: from areas of high circulation of virus, high population density, strong community network, and serviced by laboratories capable to perform tests
- All participants followed for **12 months**
- IgM, IgG, (PRNT if participant positive for DENV and ZIKV simultaneously) analysis done
- Specific analysis will be done to determine if socio-demographic characteristics, comorbidities and co-infections influence the persistence of ZIKV in body fluids

Source: <https://bmcinfectdis.biomedcentral.com/track/pdf/10.1186/s12879-018-2965-4>

Source: <https://clinicaltrials.gov/ct2/show/NCT03106714>

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# BREAST MILK TRANSMISSION OF FLAVIVIRUSES IN THE CONTEXT OF ZIKA VIRUS: A SYSTEMATIC REVIEW

- Taylor Z Mann, Lisa B Haddad, Tonya R Williams, Susan L Hills, Jennifer S Read, Deborah L Dee, Eric J. Dziuban, et al
  - Published review article
  - Paediatric and Perinatology Epidemiology: June 08, 2018
- Results: 17 studies were included, 4 animal models and 13 observational studies
- DENGUE VIRUS, WEST NILE VIRUS, and ZIKA VIRUS RNA were detected in **human milk**, including infectious Zika virus and Dengue virus viral particles.
- **Human breast-feeding transmission was confirmed for only Yellow Fever Virus**
- There was evidence of milk-related transmission of Dengue virus, Powassan virus and West Nile virus only in animal studies

Source: <https://www.ncbi.nlm.nih.gov/pubmed/29882971>

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# AAP RESOURCES ON BREASTFEEDING

- Includes variety of resources on the following topics:
  - Professional Education
  - Practice Tools
  - Supporting Breastfeeding Families
  - Infant Feeding During Emergencies and Natural Disasters

<https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Breastfeeding/Pages/Resources.aspx>
- [AAP Policy on Breastfeeding](#)
  - Related AAP Policies, and policies from other organizations, may be found at: <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/Breastfeeding/Pages/AAP-Policy-on-Breastfeeding.aspx>



# QUESTIONS



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