



# Coronavirus COVID-19

BC Centre for Disease Control | BC Ministry of Health



## HOW YOU CAN SLOW THE SPREAD OF COVID-19

**Take care of others by taking care of yourself.**

Wash your hands, don't touch your face, and stay home if you are sick.

**Stay at Home and Physically Distance**

Stay at home whenever you can. Maintain 2 meters distance from those outside of your household.

## Lactation Guidelines for Women/Individuals Who Are Confirmed or Suspect Cases of COVID-19

Updated: January 12, 2021

*Knowledge is changing rapidly. Therefore, guidance may be modified in response to new information and evidence. See summary of updates below for the latest changes in recommendations.*

### Site Applicability

Sites in British Columbia that deliver health-care to pregnant and postpartum women/individuals and their infants within birthing and postpartum units, home birth, and community settings. This document is intended for the subsequent care of the newborn/infant at and after the time of birth.

### Summary of Changes

Version	Date	Summary of Changes
2	10/01/20	Updated principle statement on detection of COVID-19 in human milk
2	10/01/20	Standardized breast pump and breast pump kit language based on requests from the field for clarification
2	10/01/20	Updated mask messaging to align with new recommendations. Linked provided to resources
2	10/01/20	Defined the term 'sterilization' as it refers to milk storage containers based on requests for clarification
2	10/01/20	Updated disinfecting milk storage container to align with new recommendations
2	10/01/20	Updated references

### General Information

- SARS-CoV-2 is a novel coronavirus that causes COVID-19 illness in adults and children. In the context of the global COVID-19 pandemic, B.C. has implemented a number of public health measures to prevent the spread of SARS-CoV-2.
- Pregnant women/individuals are not at more risk of acquiring SARS-CoV-2, nor developing severe disease compared to similarly aged adults.

- Pregnancy outcomes with confirmed COVID-19: To date, information is available for about 60 cases of pregnant women with confirmed COVID-19 in China. The pregnancy outcomes have been reported to be good overall, with spontaneous and iatrogenic preterm labour being the most reported adverse pregnancy outcomes.
- Vertical transmission: Within the small cohort referred to in a previous statement, there is no evidence of vertical transmission at this point.
- Teratogenicity: There is currently no reported increased risk of congenital anomaly, though the number of reported cases is small.
- The SARS-CoV-2 virus has a very low infection rate in children estimated at 1%-5% worldwide. The majority of cases in children are the result of household transmission by droplet and/or contact spread from another family member with symptoms of COVID-19.

## Definitions

COVID-19 disease categories as used in this document:

- **Confirmed case:** A person with laboratory confirmation of infection with the virus that causes COVID-19 performed at a community, hospital, or reference laboratory (NML or a provincial public health laboratory) running a validated assay. This consists of detection of at least one specific gene target by a NAAT assay (e.g. real-time PCR or nucleic acid sequencing).
- **Probable epi-linked case:** A person who has not had a laboratory test:
  - with fever (over 38 degrees Celsius) or new onset of (or exacerbation of chronic) cough, AND
  - close contact<sup>4</sup> with a confirmed case of COVID-19, OR
  - lived in or worked in a closed facility known to be experiencing an outbreak of COVID-19 (e.g. long-term care facility, prison).
- **Probable lab case:** A person who has had a laboratory test:
  - with fever (over 38 degrees Celsius) or new onset of (or exacerbation of chronic) cough, AND
  - who meets the COVID-19 exposure criteria<sup>5</sup> and in whom a laboratory diagnosis of COVID-19 is inconclusive.

**Newborn:** Infant in the first 28 days after birth.

**Mother/individual:** The term individual is used in this guideline to be inclusive of transgender individuals who gave birth to the newborn, and in cases where the caregiver of the newborn is not the mother i.e. foster parent.

**Mother/individual-newborn dyad:** Grouping of the mother/individual and the newborn in an interactional situation and the underlying philosophy of family-centered care, referred to, also, as dyad.

**Teratogenicity:** The property or capability of producing congenital malformation (Farlex 2012).

**Vertical transmission:** Transmission of infection directly from mother/parent to embryo, fetus, or newborn during the perinatal period through the placenta or human milk.

## Overall Principles

- Human milk has antibodies and immune factors that protect the health of infants and children.
- The SARS-CoV-2 virus has not been detected in human milk. Currently, there is no evidence of transmission of COVID-19 to infants and children from human milk feeding.
- Direct breast/chest feeding, or expressed human milk feeding, provides higher protection against infection as it provides antibodies targeted towards the microbes to which the newborn is exposed.
- Based on the factors stated above: Breast/chest feeding or expressed human milk feeding is recommended and skin-to-skin contact should be facilitated during the COVID-19 pandemic, with appropriate infection prevention and control (IPAC) measures.
- Breast/chest feeding, or expressed human milk feeding, supports infants' and young children's immunity and offers food security.
- Mother/individual and newborn should remain together, and practice safe skin-to-skin contact, especially following birth, whether the mother/individual is a confirmed or suspect case of COVID-19,

while applying IPAC measures.

Social isolation with an infant may affect some parents' mental health. Support families to remain together as much as possible. When separation is required, provide appropriate psychosocial support and connect the family virtually.

- If temporary separation of the mother/individual and infant is required and direct breast/chest feedings are not possible, the mother/individual should be encouraged and supported to express milk and safely provide to the infant, while applying IPAC measures.
- Delay weaning, if possible. Explore with parents the benefits in continuing the provision of human milk during the COVID-19 outbreak, such as increased food security and immunity protection for the infant. This is especially true for the breast/chest feeding parent of a preterm newborn in the neonatal intensive care unit (NICU) or any other ill or preterm newborn.
- Undertake thorough cleaning and disinfection of breast pumps if shared between mothers/individuals, and follow IPAC measures to avoid contamination and reduce the risk of neonatal infection.
- A hospitalized postpartum mother/individual may reuse a single-person use pump kit as long as it is properly washed, rinsed, and dried between each use as per the manufacturer's cleaning instructions or as per the facility's cleaning instructions.
- It is not recommended to wash the breast or chest before every feed or prior to expressing milk. It is only recommended as an added precaution for a mother/individual with confirmed/ suspected COVID-19 to cleanse their breast or chest area with soap and water before a feeding if they have just coughed/sneezed over their exposed breast or chest.

### Suggestions for Health-Care Providers Providing Care to Healthy Postpartum Mothers/Individuals and Infants:

- Support breast/chest feeding as per family and person-centered care principles. Learn more [here](#).
- Practice and inform families on proper infection prevention and control measures to protect the mother and infant:
  - For example, reiterate to families that even after discharged from hospital, it is not necessary to wash the breast before every breastfeed or prior to expressing milk. Encourage visitors who are not part of the mother's/individual's household to maintain physical distance from the mother/individual-infant dyad while practicing hand hygiene and respiratory etiquette.

### Caring for Postpartum Mothers/Individuals Who Are a Confirmed or Suspect Case of COVID-19 in Home and Community Settings:

- Support breast/chest feeding or expressed human milk feeding as per family and person-centered care principles.
- Discuss precautions to avoid spreading of the virus:
  - For the mother/individual-infant dyad who are directly [breast/chest feeding](#):
    - [Wash hands](#) before and after touching infant.
    - Wear a medical mask to minimize transfer of respiratory secretions during breast/chest feeding and cuddling:
      - Wear a medical mask or, if not available, a non-medical mask or face covering (e.g., constructed to completely cover the nose and mouth without gaping, and secured to the head by ties or ear loops). Learn more [here](#).
      - Masks or face coverings should never be used on infants/children under the age of two. Learn more [here](#). Visors or eye protection are not needed. Hand sanitizer should also not be used on preterm or newborn infants due to the continued developmental changes of the skin. Learn more [here](#).

- If the mask gets wet or dirty, change it and wash hands right away.
- Routinely clean and disinfect surfaces with which the symptomatic mother/individual has been in contact:
  - Use routine infection and prevention measures when providing care and support to the mother and encourage breast/chest feeding as much as possible.
  - Connect with the parent virtually to support breast/chest feeding and mental well-being.
- For the mother/individual pumping and feeding expressed human milk, follow all considerations above, as well as the following:
  - After each pumping session, thoroughly clean and disinfect all pump parts that come into contact with human milk.
  - Clean and disinfect the entire pump surface (especially high touch areas such as buttons and dials) following each session.
  - Clean and disinfect all bottles and any infant feeding devices after each use.
  - Identify a disinfectant that is food safe. If store-bought disinfectant or sterilizer is used, follow the manufacturer's instructions. For more information about cleaning and disinfecting infant feeding equipment visit [here](#).

### Caring for a Postpartum Mothers/Individuals Who Are a Confirmed or Suspect Case of COVID-19 in Hospital:

- Current guidance<sup>1</sup> recommends that when a mother/individual has mild symptoms and can participate in the care of the newborn, they should be accommodated in a private room when one is available.
- Support breast/chest feeding and/or expressed human milk feeding as per family and person-centered care principles.
- Discuss precautions to avoid spreading the virus:
  - For the mother/individual directly breast/chest feeding:
    - Hand wash before and after touching infant.
    - Wear a medical mask, when possible, to minimize transfer of respiratory secretions during breast/chest feeding, expressing milk and when skin-to-skin.
    - Wear a mask until:
      - at least 10 days have passed from the onset of symptoms; AND
      - fever has resolved without the use of fever-reducing medication; AND
      - symptoms (respiratory, gastrointestinal, and systemic) have improved.
- Use routine IPAC measures when providing care and support the mother/individual and encourage breast/chest feeding and/or expressed human milk feeding as much as possible.
  - For the mother/individual-infant dyad pumping and feeding expressed human milk, follow all considerations above, as well as:
    - Use a hospital-grade, electric breast pump and, where possible, leave a dedicated pump in the room.
    - Mothers/individuals should be provided with a sterile single-person use, reusable pump kit.
    - Single-person use, reusable pump kits should be replaced as directed by the health-care setting policy: generally a mother/individual may reuse a single-person use, reusable pump kit if it is washed, rinsed, and dried between uses:
      - After each pumping session, thoroughly rinse, wash, and dry all pump kit parts that come into contact with human milk.

---

<sup>1</sup> BCCDC/PSBC Interim Guidelines; WHO Clinical Management of Severe Acute Respiratory Infection when COVID-19 Disease is Suspected: Interim guidance; ABM Statement on Coronavirus 2019

- Clean and disinfect the entire pump surface (especially high touch areas such as buttons and dials), with a facility-approved disinfectant after session. Cover with a clean sheet between uses, learn more [here](#).
- Store dry, clean pump kit parts in a single-use plastic bag between uses:
  - a) Pump kits may be replaced more frequently for the preterm or at-risk newborn, refer to institutional policy.
  - b) It is important to assess a mother's/individual ability to clean pump equipment effectively.
  - c) If physical setting does not provide an appropriate opportunity for cleaning, or if the mother is unable to comply with cleaning instructions, a clean pump kit will need to be provided for each pumping session.
- o Routine practices such as hand hygiene and wearing gloves should be followed when handling and preparing human milk:
  - In hospital settings, use manufactured aseptic, airtight, leak-resistant, food grade safe, single use containers, and lids for the collection, storage, and feeding of expressed breast milk/human milk. A new milk storage container and lid should be used for each pumping session particularly for infants or newborns requiring intensive care.
  - Freshly expressed milk can be stored at room temperature up to six hours for healthy term infants. Ideally, unused milk should be stored in a refrigerator located in the patient's room.
  - Freshly expressed milk can be stored at room temperature up to four hours for ill/preterm newborns.
  - Unused milk should be stored in a designated fridge.
  - Expressed milk should be placed in a clean, labeled resealable plastic food storage bag and placed in an individual clean, labeled container. A clean, resealable plastic food storage bag should be used each time to store milk.
  - If expressed milk is being transported outside of the COVID-19 positive- postpartum mother's/individual's room, the Human Milk Banking Association of North America recommends the use of the bottle transfer technique or aseptic milk transfer technique. Learn more [here](#).
  - It is not recommended to wipe milk storage containers with disinfectants. If your facility IPAC requires use of a disinfectant, identify a disinfectant that is food safe to use on milk storage containers. Learn more [here](#).
  - At a minimum, a double check mechanism should be used at the time of expressed milk administration to avoid errors in administration.
  - Routinely clean and disinfect surfaces with which the symptomatic mother/individual has been in contact.

### Temporary Separation of Mother/Individual Who is a Confirmed or Suspect Case of COVID-19 and Newborn (Mother/Individual in *Intensive Care Unit*):

- Assist mother/individual to breast/chest feed or express milk to maintain lactation, if separated from newborn, as per family and person- centered care principles and institutional capacity.
  - o Optimal care in the immediate postpartum period includes:
    - Initiating hand expression early and often to establish milk supply, within six hours of birth, and preferably within one hour.
    - Establishing early skin-to-skin contact when possible.
    - Mothers/individuals and families may need additional guidance and support to continue breast/chest feeding, to utilize expressed human milk, to maintain milk production, and to store milk for later use while the mother/individual is a confirmed case of COVID-19 and

- symptomatic.
- Refer to applicable guidance for hospitalized postpartum mother/individual (see above).

### Temporary Separation of Mother/Individual Who is a Confirmed or Suspect Case of COVID-19 and Newborn (*Neonatal Intensive Care Unit (NICU)*):

- Current guidance recommends that mothers/individuals or caregivers with confirmed COVID-19 status with a newborn in the NICU, should not enter the NICU until:
  - At least ten days have passed since the onset of symptoms; AND
  - Fever has resolved without the use of fever-reducing medication; AND
  - Symptoms (respiratory, gastrointestinal, and systemic) have improved.
- Refer to site-specific guidelines.
- Family and person-centered care principles should be supported while applying infection control and protection measures.
- Mothers/individuals and families may need additional guidance and support to continue breast/chest feeding, to utilize expressed human milk, to maintain milk production and to store milk for later use while the mother/individual is a confirmed case of COVID-19 and symptomatic; follow infection and prevention control measures.
- Encourage breast/chest feedings much as possible and connect with the parent virtually to support mental well-being:
  - Encourage skin-to-skin contact and kangaroo care with an alternative healthy caregiver until mother/individual is asymptomatic.
  - Provide guidance on transporting mother/individual's expressed milk to the NICU. Learn more [here](#).
- If the mother/individual or caregiver is asymptomatic and meets the criteria for not requiring isolation:
  - Support breast/chest feeding as per family and person-centered care principles:
    - If direct breast/chest feeding is not yet possible provide additional support and guidance on expressing and maintain milk production.
  - Encourage skin-to-skin contact and kangaroo care.
  - Encourage active participation in their infant's care.

### Pasteurized Donor Human Milk in B.C. During the COVID-19 Pandemic:

- When mother's/individual's milk is not available or breast/chest feeding is not yet established, pasteurized donor human milk remains the next best option.
- Due to the current COVID-19 pandemic, there is a limited supply of donor milk. The current supply of pasteurized donor human milk is reserved for the sickest newborns in B.C. Learn more [here](#).
- B.C. Women's Provincial Milk Bank continues to screen donors and process milk.
- Milk donation is needed during the pandemic to supply as many sick newborns as possible.
  - Milk bank depots are being encouraged to accept donations using methods that involve no contact Learn more [here](#).

### Informal Milk Sharing:

- Health Canada, the Canadian Paediatric Society, and the Human Milk Banking Association of North America do not endorse the use of unpasteurized donor human milk (informal milk sharing).
- The possible risks associated with informal milk sharing may be further amplified during the COVID-19 pandemic and especially for ill or preterm newborns.
- Encourage direct breast/chest feeding as much as possible and connect with the parent virtually to provide the required support.
- More information for health-care providers can be found [here](#) and more information for families can be found [here](#).



## References:

1. Chen et al., (2020). Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *The Lancet*. 2020.
2. Zhu H, Wang L, Fang C, Peng S, Zhang L, Chang G et al. Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia. *Transl Pediatr*. 2020;9(1):51-60. Epub 2020/03/11. doi: 10.21037/tp.2020.02.06. PubMed PMID: 32154135; PMCID: PMC7036645.
3. Andreas, N. J., Kampmann, B., & Le-Doare, K. M. (2015). Human breast milk: A review on its composition and bioactivity. *Early human development*, 91(11), 629-635.
4. Cacho, N. T., & Lawrence, R. M. (2017). Innate immunity and breast milk. *Frontiers in immunology*, 8, 584.
5. Tarrant, M., Kwok, M. K., Lam, T. H., Leung, G. M., & Schooling, C. M. (2010). Breast-feeding and childhood hospitalizations for infections. *Epidemiology*, 847-854.
6. Walker, A. (2010). Breast milk as the gold standard for protective nutrients. *The Journal of pediatrics*, 156(2), S3-S7.
7. Pannaraj, P. S., Li, F., Cerini, C., Bender, J. M., Yang, S., Rollie, A., Aldrovandi, G. M. (2017). Association between breast milk bacterial communities and establishment and development of the infant gut microbiome. *Journal of the American Medical Association (JAMA)*, 171(7), 647-654.
8. Moossavi, S., Sepehri, S., Robertson, B., Bode, L., Goruk, S., Field, C. J., ... & Turvey, S. E. (2019). Composition and variation of the human milk microbiota are influenced by maternal and early-life factors. *Cell host & microbe*, 25(2), 324-335.
9. Soto-Ramírez, N., Karmaus, W., Zhang, H., Davis, S., Agarwal, S., & Albergottie, A. (2013). Modes of infant feeding and the occurrence of coughing/wheezing in the first year of life. *Journal of Human Lactation*, 29(1), 71-80.
10. British Columbia Centre for Disease Control/Perinatal Services BC (March 16, 2020). Interim Guidance: Public Health Management of cases and contacts associated with novel coronavirus (COVID-19) in the community. [http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%201%20-%20CDC/2019-nCoV-Interim\\_Guidelines.pdf](http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Guidelines%20and%20Manuals/Epid/CD%20Manual/Chapter%201%20-%20CDC/2019-nCoV-Interim_Guidelines.pdf)
11. Public Health Agency of Canada (March 3, 2020). Case Management in the Home and Co-Living Settings (self-isolation): <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/interim-guidance-cases-contacts.html>
12. World Health Organization (13 March 2020). Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: Interim guidance.
13. Mental Health and Psychosocial Support in Emergency Setting 2020 *Briefing note on addressing mental health and psychosocial aspects of COVID-19 outbreak – version 1.1*
14. World Health Organization (13 March 2020). Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: Interim guidance.
15. Academy of Breastfeeding Medicine (2020). ABM Statement on Coronavirus 19. <https://www.bfmed.org/abm-statement-coronavirus>
16. Public Health Agency of Canada (March 3, 2020). Case Management in the Home and Co-Living Settings (self-isolation): <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/interim-guidance-cases-contacts.html>
17. World Health Organization (13 March 2020). Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: Interim guidance.
18. Safelyfed Canada. <http://safelyfed.ca/covid19-resources/>

19. Unicef UK Baby Friendly Initiative: Statement on Infant Feeding During the COVID-19 Outbreak <https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2020/03/Unicef-UK-Baby-Friendly-Initiative-statement-on-infant-feeding-on-neonatal-units-during-Covid-19.pdf>
20. Jones, F. (2019). Best practices for expressing, storing and handling human milk in hospitals, homes, and child care settings. (4th ed.). Texas: Human Milk Banking Association of North America (HMBANA).
21. Peters, M. J., McArthur, A., & Munn, Z. (2016). Safe management of expressed breast milk: A systematic review. *Women and Birth: Journal of the Australian College of Midwives*, 29(6), 473-481.
22. Centers for Disease Control and Prevention. (2017). Proper Storage and Preparation of Breast Milk [Factsheet]. (July). Retrieved from [https://www.cdc.gov/breastfeeding/recommendations/handling\\_breastmilk.htm](https://www.cdc.gov/breastfeeding/recommendations/handling_breastmilk.htm) Centers for Disease Control and Prevention. (2018).
23. How to Keep Your Breast Pump Kit Clean: The Essentials. [Factsheet]. January. Retrieved from [www.cdc.gov/healthywater/hygiene/healthychildcare/infantfeeding/breastpump.html](http://www.cdc.gov/healthywater/hygiene/healthychildcare/infantfeeding/breastpump.html)
24. Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee. (2015). Best practices for infection prevention and control in perinatology. Toronto, ON: Queen's Printer for Ontario. Retrieved from [www.publichealthontario.ca/en/search#q=pidac%20documents&sort=relevancy](http://www.publichealthontario.ca/en/search#q=pidac%20documents&sort=relevancy).
25. Breastfeeding Committee for Canada. Integrated 10 steps practice outcome indicators for hospitals and community health services. 2017. [http://www.breastfeedingcanada.ca/documents/Indicators%20-%20complete%20June%202017.pdf14\\_BCC\\_BFI\\_Ten\\_Steps\\_Integrated\\_Indicators.pdf](http://www.breastfeedingcanada.ca/documents/Indicators%20-%20complete%20June%202017.pdf14_BCC_BFI_Ten_Steps_Integrated_Indicators.pdf)
26. Human Milk Banking Association of North America (HMBANA). (2020). Milk Handling for COVID-19 Positive or Suspected Mothers in the Hospital Setting. [https://www.hmbana.org/file\\_download/inline/a593dd72-be78-471e-ae5e-6490309108fd](https://www.hmbana.org/file_download/inline/a593dd72-be78-471e-ae5e-6490309108fd).
27. Human Milk Banking Association of North America (HMBANA). (2020). Rebuttal of Non-Evidence-Based Recommendations for the Safe Handling of Containers of Expressed Human Milk in all Settings During the SARS-CoV-2 (COVID-19) Pandemic. [https://www.hmbana.org/file\\_download/inline/b7473249-3839-483a-bef1-5babd46fd792](https://www.hmbana.org/file_download/inline/b7473249-3839-483a-bef1-5babd46fd792)
28. Centers for Disease Control and Prevention. (2020). Interim considerations for infection prevention and control of coronavirus disease 2019 (COVID-19) in inpatient obstetric healthcare settings. <https://www.cdc.gov/coronavirus/2019-nCoV/index.html>
29. Centers for Disease Control and Prevention. (2019). How to keep your breast pump kit clean: The essentials. <https://www.cdc.gov/healthywater/hygiene/healthychildcare/infantfeeding/breastpump.html>
30. Huslage et al. (2010). A Quantitative Approach to Defining "High-Touch" Surfaces in Hospitals. *Infect Control Hosp Epidemiol*, 31 (8), 850-853.
31. Food and Drug Administration. (2020). FDA Title 21, Chapter I, Subchapter B, Part 178, Subpart B, 178.1010: Sanitizing Solutions.
32. World Health Organization. (2020). Frequently Asked Questions: Breastfeeding and COVID-19 For health care workers. [https://www.who.int/docs/default-source/maternal-health/faqs-breastfeeding-and-covid-19.pdf?sfvrsn=d839e6c0\\_1&fbclid=IwAR1FpRjmzudtDer460VXGMclFoQU5cM1tp7Sjg6fR602J99VqmpFVmxMABQ](https://www.who.int/docs/default-source/maternal-health/faqs-breastfeeding-and-covid-19.pdf?sfvrsn=d839e6c0_1&fbclid=IwAR1FpRjmzudtDer460VXGMclFoQU5cM1tp7Sjg6fR602J99VqmpFVmxMABQ)
33. Canadian Paediatric Society. (2020) Breastfeeding when mothers have suspected or proven COVID-19. <https://www.cps.ca/en/documents/position/breastfeeding-when-mothers-have-suspected-or-proven-covid-19>
34. Lubbe, W., Botha, E., Niela-Vilen, H. et al. Breastfeeding during the COVID-19 pandemic – a literature review for clinical practice. *Int Breastfeed J* 15, 82 (2020). <https://doi.org/10.1186/s13006-020-00319-3>
35. [https://www.medicinenet.com/vertical\\_transmission/definition.htm](https://www.medicinenet.com/vertical_transmission/definition.htm)
36. Farlex Partner Medical Dictionary © Farlex 2012