

SARS-CoV-2 genome and antibodies in breast milk: a systematic review and meta-analysis

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Supplemental Material

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eTable 1. Detailed Search Strategies

Database Searched	Search Strategy
Ovid Medline(R) ALL	1 exp Coronavirus/
	2 exp Coronavirus Infections/
	3 (coronavirus* or corona virus* or corona virinae* or coronavirinae* or OC43 or NL63 or 229E or HKU1 or HCoV* or covid* or ncov* or coV or sars-cov* or sarscov* or Sars-coronavirus* or Severe Acute Respiratory Syndrome Coronavirus* or 2019-ncov or 2019-novel CoV or SARS-like coronavirus*).mp.
	4 ((novel or new or nouveau) adj2 pandemi*).mp.
	5 ((pneumonia or sars*).mp. or exp pneumonia/) and Wuhan.mp.
	6 (COVID-19 or severe acute respiratory syndrome coronavirus 2).os,ps,rs,ox,px,rx,nm.
	7 or/1-6
	8 exp Pregnancy/
	9 exp Pregnancy Complications/
	10 exp Pregnancy Outcome/
	11 exp Obstetrics/
	12 exp Breast Feeding/
	13 exp Maternal Health Services/
	14 exp Fetus/
	15 exp Fetal Therapies/
	16 exp Fetal Monitoring/
	17 exp Prenatal Diagnosis/
	18 exp Infant, Newborn/
	19 Pregnant Women/
	20 Infectious Disease Transmission, Vertical/
	21 Intensive Care Units, Neonatal/
	22 Intensive Care, Neonatal/
	23 (pregnan* or gestation* or parturition or neonatal* or neo natal* or neonate* or ante natal* or antenatal* or pre natal* or prenatal* or puerper* or postnatal* or postpartum or post partum or post natal* or peripartum or peri partum or intrapartum or intra partum or prepregnancy or pre pregnancy or preconception* or pre conception* or periconception* or peri conception* or preterm or premature or labo?r or eclamp* or preeclamp* or pre eclamp* or amniocentes* or chorion* vill* or breastfe* or breast fe* or lactation* or cesarean or caesarean or cesarian or caesarian or cesarien or caesarien or newborn* or new born* or tocoly* or fetal or foetal or fetus or foetus or miscarriage* or obstetric*).tw,kf,kw.
	24 ((Vertical or Fetomaternal or Foetomaternal or Maternal-Fetal or Maternal Fetal or Maternal-Foetal or Maternal Foetal or Mother-To-Child or Mother to child) adj2 transmission*).tw,kf,kw.
	25 or/8-24
	26 antibodies/ or antibodies, viral/
	27 immunoglobulins/ or Immunoglobulin G/ or Immunoglobulin M/
	28 Oligosaccharides/
	29 Reverse Transcriptase Polymerase Chain Reaction/
	30 (antibod* or immunoglobulin* or oligosaccharide* or reverse transcription-polymerase chain reaction or RT-PCR).tw,kf,kw.
	31 or/26-30
	32 7 and 25 and 31
	33 breast feeding/ or breast milk expression/ or Milk, Human/
	34 (breastfe* or breast fe* or lactation* or breastmilk or milk).tw,kf,kw.
	35 33 or 34
	36 7 and 35
	37 32 or 36

	38	37 and 20190101:20301231.(dt). [Create Date starting from January 2019]
Embase Classic + Embase	1	exp Coronavirinae/
	2	exp Coronavirus infection/
	3	(coronavirus* or corona virus* or corona virinae* or coronavirinae* or OC43 or NL63 or 229E or HKU1 or HCoV* or covid* or ncov* or coV or sars-cov* or sarscov* or Sars-coronavirus* or Severe Acute Respiratory Syndrome Coronavirus* or 2019-ncov or 2019-novel CoV or SARS-like coronavirus*).mp.
	4	((novel or new or nouveau) adj2 pandemi*).mp.
	5	((pneumonia or sars*).mp. or exp pneumonia/) and Wuhan.mp.
	6	(COVID-19 or severe acute respiratory syndrome coronavirus 2).os,rs,ox,px.
	7	or/1-6
	8	exp pregnancy/
	9	exp pregnancy complication/
	10	exp pregnancy outcome/
	11	exp obstetrics/
	12	exp breast feeding/
	13	exp maternal health service/
	14	fetus/
	15	fetal therapy/
	16	exp fetus monitoring/
	17	exp prenatal diagnosis/
	18	newborn/
	19	pregnant woman/
	20	vertical transmission/
	21	neonatal intensive care unit/
	22	newborn intensive care/
	23	(pregnan* or gestation* or parturition or neonatal* or neo natal* or neonate* or ante natal* or antenatal* or pre natal* or prenatal* or puerper* or postnatal* or postpartum or post partum or post natal* or peripartum or peri partum or intrapartum or intra partum or prepregnancy or pre pregnancy or preconception* or pre conception* or periconception* or peri conception* or preterm or premature or labo?r or eclamp* or preeclamp* or pre eclamp* or amniocentes* or chorion* vill* or breastfe* or breast fe* or lactation* or cesarean or caesarean or cesarian or caesarian or cesarien or caesarien or newborn* or new born* or tocoly* or fetal or foetal or fetus or foetus or miscarriage* or obstetric*).tw,kw.
	24	((Vertical or Fetomaternal or Foetomaternal or Maternal-Fetal or Maternal Fetal or Maternal-Foetal or Maternal Foetal or Mother-To-Child or Mother to child) adj2 transmission*).tw,kw.
	25	or/8-24
	26	antibody/ or virus antibody/
	27	immunoglobulin/ or immunoglobulin g/ or immunoglobulin m/
	28	oligosaccharide/
	29	reverse transcription polymerase chain reaction/
	30	(antibod* or immunoglobulin* or oligosaccharide* or reverse transcription-polymerase chain reaction or RT-PCR).tw,kw.
	31	or/26-30
	32	7 and 25 and 31

	33	breast feeding/ or breast milk expression/ or breast milk/
	34	(breastfe* or breast fe* or lactation* or breastmilk or milk).tw,kw.
	35	33 or 34
	36	7 and 35
	37	32 or 36
	38	limit 37 to dc=20190101-20301231
Pubmed (non-Medline)		<p>coronavirus[mh] or alphacoronavirus[mh] or alphacoronavirus 1[mh] or coronavirus, canine[mh] or coronavirus, feline[mh] or transmissible gastroenteritis virus[mh] or porcine respiratory coronavirus[mh] or coronavirus 229e, human[mh] or coronavirus nl63, human[mh] or porcine epidemic diarrhea virus[mh] or betacoronavirus[mh] or betacoronavirus 1[mh] or coronavirus oc43, human[mh] or coronavirus, bovine[mh] or coronavirus, rat[mh] or middle east respiratory syndrome coronavirus[mh] or murine hepatitis virus[mh] or sars virus[mh] or gammacoronavirus[mh] or coronavirus, turkey[mh] or infectious bronchitis virus[mh] OR coronavirus infections[mh] or enteritis, transmissible, of turkeys[mh] or feline infectious peritonitis[mh] or gastroenteritis, transmissible, of swine[mh] or severe acute respiratory syndrome[mh] OR coronavirus* or corona virus* or corona virinae* or coronavirinae* or OC43 or NL63 or 229E or HKU1 or HCoV* or covid* or ncov* or coV or sars-cov* or sarscov* or Sars-coronavirus* or Severe Acute Respiratory Syndrome Coronavirus* or 2019-ncov or 2019-novel CoV or SARS-like coronavirus*OR novel pandemic or novel pandemics or new pandemic or new pandemics or nouveau pandemic or nouveau pandemics OR pneumonia or sars* AND Wuhan OR COVID-19 or severe acute respiratory syndrome coronavirus 2 AND Pregnancy[mh] OR Pregnancy Complications[mh] OR Pregnancy Outcome[mh] OR Obstetrics[mh] OR (Breast Feeding[mh] OR Maternal Health Services[mh] OR Fetus[mh] OR Fetal Therapies[mh] OR Fetal Monitoring[mh] OR Prenatal Diagnosis[mh] OR Infant, Newborn[mh] OR Pregnant Women[mh] OR Infectious Disease Transmission, Vertical[mh] OR Intensive Care Units, Neonatal[mh] OR Intensive Care, Neonatal[mh] OR pregnancy[Title/Abstract] OR gestation[Title/Abstract] OR parturition[Title/Abstract] OR neonatal[Title/Abstract] OR neo natal[Title/Abstract] OR neonate[Title/Abstract] OR ante natal[Title/Abstract] OR antenatal[Title/Abstract] OR pre natal[Title/Abstract] OR prenatal[Title/Abstract] OR puerperium[Title/Abstract] OR postnatal[Title/Abstract] OR</p> <p>postpartum[Title/Abstract] OR post partum[Title/Abstract] OR post natal[Title/Abstract] OR peripartum[Title/Abstract] OR peri partum[Title/Abstract] OR intrapartum[Title/Abstract] OR intra partum[Title/Abstract] OR pre-pregnancy[Title/Abstract] OR pre pregnancy[Title/Abstract] OR preconception[Title/Abstract] OR pre conception[Title/Abstract] OR periconception[Title/Abstract] OR peri conception[Title/Abstract] OR preterm[Title/Abstract] OR premature[Title/Abstract] OR labour[Title/Abstract] OR eclamp[Title/Abstract] OR preeclamp[Title/Abstract] OR pre eclamp[Title/Abstract] OR amniocentesis[Title/Abstract] OR chorion villi[Title/Abstract] OR breastfeeding[Title/Abstract] OR breast feeding[Title/Abstract] OR lactation[Title/Abstract] OR cesarean[Title/Abstract] OR caesarean[Title/Abstract] OR cesarian[Title/Abstract] OR caesarien[Title/Abstract] OR cesarien[Title/Abstract] OR newborn[Title/Abstract] OR new born[Title/Abstract] OR tocolytic[Title/Abstract] OR fetal[Title/Abstract] OR foetal[Title/Abstract] OR fetus[Title/Abstract] OR foetus[Title/Abstract] OR miscarriage[Title/Abstract] OR obstetrics[Title/Abstract]) OR (Vertical transmission[Title/Abstract] OR Fetomaternal transmission[Title/Abstract] OR Foetomaternal transmission[Title/Abstract] OR Maternal-Fetal transmission[Title/Abstract] OR Maternal Fetal transmission[Title/Abstract] OR Maternal-Foetal transmission[Title/Abstract] OR Maternal Foetal transmission[Title/Abstract] OR Mother-To-Child transmission[Title/Abstract] OR Mother to child transmission[Title/Abstract] AND antibodies[mh] OR antibodies, viral[mh] OR Immunoglobulins[mh] OR Immunoglobulin G[mh] OR Immunoglobulin M[mh] OR Oligosaccharides[mh] OR Reverse Transcriptase Polymerase Chain Reaction[mh] OR antibody[Title/Abstract] OR antibodies[Title/Abstract] OR immunoglobulin[Title/Abstract] OR oligosaccharide[Title/Abstract] OR reverse transcription-polymerase chain reaction[Title/Abstract] OR RT-PCR[Title/Abstract] OR coronavirus[mh] or alphacoronavirus[mh] or alphacoronavirus 1[mh] or coronavirus, canine[mh] or coronavirus, feline[mh] or transmissible gastroenteritis virus[mh] or porcine respiratory coronavirus[mh] or coronavirus 229e, human[mh] or coronavirus nl63, human[mh] or porcine epidemic diarrhea virus[mh] or betacoronavirus[mh] or betacoronavirus 1[mh] or coronavirus oc43, human[mh] or coronavirus, bovine[mh] or coronavirus, rat[mh] or middle east respiratory syndrome coronavirus[mh] or murine hepatitis virus[mh] or sars virus[mh] or gammacoronavirus[mh] or coronavirus, turkey[mh] or infectious bronchitis virus[mh] OR (coronavirus infections[mh] or enteritis, transmissible, of turkeys[mh] or feline infectious peritonitis[mh] or gastroenteritis, transmissible, of swine[mh] or severe acute respiratory syndrome[mh] OR ((coronavirus* or corona virus* or corona virinae* or coronavirinae* or OC43 or NL63 or</p>

	229E or HKU1 or HCoV* or covid* or nCoV* or coV or sars-cov* or sarscov* or Sars-coronavirus* or Severe Acute Respiratory Syndrome Coronavirus* or 2019-nCoV or 2019-novel CoV or SARS-like coronavirus* OR (novel pandemic or novel pandemics or new pandemic or new pandemics or nouveau pandemic or nouveau pandemics OR pneumonia or sars* AND Wuhan OR COVID-19 or severe acute respiratory syndrome coronavirus 2 AND breast feeding[mh] OR breast milk expression[mh] OR Milk, Human[mh] OR breastfeeding or breast feeding or lactation or breastmilk or milk AND (pubstatusaheadofprint OR publisher[sb] OR in process[sb] OR pubmednotmedline[sb])) AND "2019/01/01"[CRDT] : "3000"[CRDT] OR ("2019/01/01"[EDAT] : "3000"[EDAT]) OR "2019/01/01"[MHDA] : "3000"[MHDA]	
Web of Science	Set	
	# 18	#16 OR #12 Refined by: PUBLICATION YEARS: (2020 OR 2019) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 17	#16 OR #12 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 16	#15 AND #6 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 15	#14 OR #13 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 14	TS=(breastfe* or breast feed* or breast fed or lactation* or breastmilk or milk) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 13	TS=("breast feeding" OR "breast milk expression" OR "Human Milk") <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 12	#11 AND #10 AND #6 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 11	TS=(Antibod* OR Immunoglobulin* OR Oligosaccharide* OR "Reverse Transcriptase Polymerase Chain Reaction") <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 10	#9 OR #8 OR #7 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 9	TS=((Vertical or Fetomaternal or Foetomaternal or Maternal-Fetal or "Maternal Fetal" or Maternal-Foetal or "Maternal Foetal" or Mother-To-Child or "Mother to child") NEAR/1 transmission*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 8	TS=(pregnan* or gestation* or parturition or neonatal* or neonate* or antenatal* or prenatal* or puerper* or postnatal* or postpartum or post partum or post natal* or peripartum or peri partum or intrapartum or intra partum or pre-pregnancy or pre pregnancy or preconception* or periconception* or peri conception* or preterm or premature or labor or eclamp* or preeclamp* or amniocentesis* or chorion* vill* or breastfe* or breast fed or lactation* or cesarean or caesarean or cesarian or caesarian or cesarien or caesarien or newborn* or tocoly* or fetal or foetal or fetus or foetus or miscarriage* or obstetric*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
	# 7	TS=(Pregnancy OR "Pregnancy Complications" OR "Pregnancy Outcome" OR Obstetrics OR "Breast Feeding" OR "Maternal Health Services" OR Fetus OR "Fetal Therapies" OR "Fetal Monitoring" OR "Prenatal Diagnosis" OR Newborn OR Pregnant Women OR "Vertical Transmission") <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
# 6	#5 OR #4 OR #3 OR #2 OR #1	

	<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
# 5	TS=((pneumonia or sars*) AND Wuhan) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
# 4	TS=((novel or new or nouveau) NEAR/1 pandemi*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
# 3	TS=(coronavirus* or corona virus* or corona virinae* or coronavirinae* or OC43 or NL63 or 229E or HKU1 or HCoV* or covid* or ncov* or coV or sars-cov* or sarscov* or Sars-coronavirus* or "Severe Acute Respiratory Syndrome Coronavirus*" or "2019-ncov" or "2019-novel CoV" or "SARS-like coronavirus*") <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
# 2	TS=Coronavirus Infections <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
# 1	TS=Coronavirus <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI Timespan=All years</i>
Scopus	coronavirus* OR "corona virus*" OR "corona virinae*" OR coronavirinae* OR oc43 OR nl63 OR 229e OR hku1 OR hcov* OR covid* OR ncov* OR cov OR sars-cov* OR sarscov* OR sars-coronavirus* OR "Severe Acute Respiratory Syndrome Coronavirus*" OR 2019-ncov OR "2019-novel cov" OR "SARS-like coronavirus*" OR novel OR new OR nouveau W/1 pandemi* OR pneumonia OR sars* AND wuhan AND pregnan* or gestation* or parturition or neonatal* or "neo natal*" or neonate* or "ante natal*" or antenatal* or "pre natal*" or prenatal* or puerper* or postnatal* or postpartum or "post partum" or "post natal*" or peripartum or "peri partum" or intrapartum or "intra partum" or prepregnancy or "pre pregnancy" or preconception* or "pre conception*" or periconception* or peri conception* or preterm or premature or labo?r or eclamp* or preeclamp* or "pre eclamp*" or amniocentes* or "chorion* vill*" or breastfe* or "breast fe*" or lactation* or cesarean or caesarean or cesarian or caesarian or cesarien or caesarien or newborn* or "new born*" or tocoly* or fetal or foetal or fetus or foetus or miscarriage* or obstetric* OR Vertical or F?etomaternal or Maternal-F?etal or "Maternal F?etal" or Mother-To-Child or "Mother to child" W/1 transmission* AND antibod* OR immunoglobulin* or oligosaccharide* or "reverse transcription-polymerase chain reaction" or RT-PCR OR coronavirus* OR "corona virus*" OR "corona virinae*" OR coronavirinae* OR oc43 OR nl63 OR 229e OR hku1 OR hcov* OR covid* OR ncov* OR cov OR sars-cov* OR sarscov* OR sars-coronavirus* OR "Severe Acute Respiratory Syndrome Coronavirus*" OR 2019-ncov OR "2019-novel cov" OR "SARS-like coronavirus*" OR novel OR new OR nouveau W/1 pandemi* OR pneumonia OR sars* AND wuhan AND breastfe* or "breast fe*" or lactation* or breastmilk or milk AND (LIMIT-TO (PUBYEAR,2020) OR LIMIT-TO (PUBYEAR,2019)

This table outlines the literature search strategy we used in our systematic review to assess

the presence of SARS-CoV-2 virus and antibodies in breast milk.

Search strategies are listed.

There were no restrictions to publication status or language.

All searches were run from inception to October 7, 2020, and filtered to articles since January 2019.

eTable 2. Characteristics of Included Studies

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
AlZaghal et al(1) Case report Jordan	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: No	Number of infants: 1 BW: 2500g GA: 36 ⁺³ Symptomatic: No RT-PCR: Negative Immunoglobulin: ND	BMS & BM	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: NK Type of test: RT-PCR Results: Negative	Infant received BMS until breast milk RT-PCR was negative.
Bastug et al(2) Case report Turkey	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: No Detected by: RT-PCR Mode of birth: VB Antiviral medication: No	Number of infants: 1 BW: 2980g GA: 39 weeks Symptomatic: No RT-PCR: Positive Immunoglobulin: ND	EBM & BF as of DoL 6	Number of mothers tested: 1 Number of milk samples tested: 3 DoL at test: 1 (8 hours), 4 & 5 Type of test: RT-PCR Results: All 3 samples positive	Asymptomatic mother. Infant tested negative at 8 hours of age, separated from mother at birth, but received EBM until DoL 2. Infant repeat test on DoL 4 positive. See table 1 for more details
Bertino et al(3) Case series (Preprint) Italy	Number of confirmed mothers: 12 Trimester of infection: 3 rd trimester (9), PN (3) Symptomatic at birth: Yes in 10 Detected by: RT-PCR Mode of birth: CS (7), VB (5) Antiviral medication NK	Number of infants: 12 BW: NK GA: 30-41 weeks Symptomatic: No RT-PCR: Positive in 4 Immunoglobulin: ND	BF (11), BMS (1)	Number of mothers tested: 12 (1 mother tested positive) Number of milk samples tested: NK DoL at test: NK Type of test: RT-PCR Results: Positive (3/6 samples)	See table 1 for more details

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
Buonsenso et al ^a (4, 5) Case series Italy	Number of confirmed mothers: 7 Trimester of infection: 3 rd trimester (2) Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: CS Antiviral medication: Yes	Number of infants: 2 BW: 2300-3390g GA: 35 ⁺⁵ – 38 ⁺³ weeks Symptomatic: No RT-PCR: Positive in 1 Immunoglobulin: ND	Both BMS in hospital, BF (1), EBM (1) at home	Number of mothers tested: 2 (1 mother tested positive) Number of milk samples tested: 20 DoL at test: 1-17 Type of test: RT-PCR Results: Positive (3/20 samples)	Only 2/7 mothers delivered during study period, one spontaneous abortion at 8 weeks. Both infants tested negative at birth. Infant 1 received BMS in hospital and BF at home had positive test on DoL 15. BM for this infant tested negative. Infant 2 tested negative throughout, received BMS in hospital and after discharge home, EBM was given. BM initially tested positive but negative from DoL 5. EBM given after negative tests.
Chambers et al(6) Case series USA	Number of confirmed mothers: 18 Trimester of infection: NK Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: NK Antiviral medication: NK	Number of infants: 18 BW: NK GA: NK Symptomatic: Yes in 13 RT-PCR: Positive in 2 Immunoglobulin: ND	NK	Number of mothers tested: 18 (1 mother tested positive) Number of milk samples tested: 64 DoL at test: NA Type of test: RT-PCR Results of test: Positive (1/64 samples)	Infants' age at sample collection between <1 and 25 months. BM tested negative for infants who tested positive. BM RT-PCR positive before maternal test confirmed. Viral cultures (26 samples from 9 mothers) all negative.

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
Chen et al(7) Case series China	Number of confirmed mothers: 9 Trimester of infection: 3 rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: NK	Number of infants: 9 BW: 1880-3730g GA: 36 ⁺⁰ - 39 ⁺⁴ weeks Symptomatic: No RT-PCR: All negative Immunoglobulin: ND	NK	Number of mothers tested: 6 Number of milk samples tested: NK DoL at test: NK Type of test: RT-PCR Results: All Negative	One infant had elevated myocardial enzymes on day of birth but remained asymptomatic
Chen et al(8) Case series China	Number of confirmed mothers: 3 Trimester of infection: 3 rd (1) Symptomatic at birth: No Detected by: RT-PCR Mode of birth: CS Antiviral medication: Yes	Number of infants: 1 BW: 2670g GA: 35 ⁺⁴ Symptomatic: NK RT-PCR: Negative Immunoglobulin: ND	NK	Number of mothers tested: 1 Number of milk samples tested: NK DoL at test: 2 Type of test: RT-PCR Results: Negative	
Cui et al(9) Case report China	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: NK Antiviral medication: NA	Number of infants: 1 BW: NA GA: NA Symptomatic: Yes RT-PCR: Positive Immunoglobulin: Positive	MF	Number of mothers tested: 1 Number of milk samples tested: 3 DoL at test: 61-63 days Type of test: RT-PCR Results: Negative	Infant unwell at DoL 55 with pneumonia requiring nasal oxygen in hospital. Serum IgM mildly elevated. Also had elevated cardiac and liver enzymes.
De Socio et al(10) Case report Italy	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: No	Number of infants: 1 BW: NK GA: NK Symptomatic: No	NK	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: 2 Type of test: RT-PCR	Mother had positive serum IgG and weakly positive IgM after delivery.

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Detected by: RT-PCR Mode of birth: VB Antiviral medication: No	RT-PCR: Negative Immunoglobulin: ND		Results: Negative	
Dong et al(11) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: CS Antiviral medication: Yes	Number of infants: 1 BW: 3120g GA: 37 ⁺⁶ weeks Symptomatic: No RT-PCR: Negative Immunoglobulin: Positive	NK	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: 7 Type of test: RT-PCR Results: Negative	Mother tested positive 23 days before delivery. Infant IgG and IgM levels positive at 2 hours of age, with negative PCR.
Dong et al(12) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: VB Antiviral medication: No	Number of infants: 1 BW: 2950g GA: 38+2 weeks Symptomatic: No RT-PCR: Negative Immunoglobulin: Yes	NK	Number of mothers tested: 1 Number of milk samples tested: 6 DoL at test: 12 Type of test: RT-PCR and antibody assay Results of test: PCR negative, Positive IgG (6/6), Positive IgA (4/6)	Infant serum IgG antibody positive. See table 2 for more details
Fan et al(13) Case series China	Number of confirmed mothers: 2 Trimester of infection: 3 rd Symptomatic at birth: 1 Detected by: RT-PCR Mode of birth: CS	Number of infants: 2 BW: 2890-3400g GA: 36 ⁺⁵ -38 ⁺¹ weeks Symptomatic: Yes RT-PCR: All negative Immunoglobulin: ND	NK	Number of mothers tested: 2 Number of milk samples tested: NK DoL at test: 2 Type of test: RT-PCR Results: All negative	Both infants had respiratory symptoms and lymphopenia, one had low-grade fever.

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Antiviral medication: Yes				
Fenzia et al(14) Case series Italy	Number of confirmed mothers: 31 Trimester of infection: 3 rd Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: VB (25), CS (6) Antiviral medication: 8	Number of infants: 31 BW: 2180-4165g GA: NK (1 preterm) Symptomatic: RT-PCR: Positive in 2 Immunoglobulin: IgG in 12, IgM in 1 (cord blood)		Number of mothers tested: 11 for RT-PCR, 10 for IgG & IgM (1 mother positive) Number of milk samples tested: RT-PCR (11), IgG (10), IgM (10) DoL at test: 5 Type of test: RT-PCR, IgG, IgM Results: Positive both RT-PCR and IgM. Negative IgG	One mother tested positive for both RT-PCR and IgM in BM. IgG was negative. Infant tested negative. All infants reported to be healthy
Gao et al(15) Case series China	Number of confirmed mothers: 12 Trimester of infection: 3 rd Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: VB (2), CS (12) Antiviral medication: NK	Number of infants: 14 BW: 2700-4120g GA: 36 ⁺⁴ -41 ⁺¹ weeks RT-PCR: All negative Immunoglobulin: IgG in 4 (1 cord blood), IgM in 1	BMS, EBM, BF	Number of mothers tested: 10 Number of milk samples tested: 10 DoL at test: NK Type of test: RT-PCR, IgG, IgM Results: RT-PCR all negative and IgG positive (2/10), IgM positive in (2/10)	Both infants had serum Ig positive (see table 2). Third mother with positive IgM in BM only did not have confirmed RT-PCR in throat swab.
Groß et al(16) Case series Germany	Number of confirmed mothers: 2 Trimester of infection: PN Symptomatic at birth: No	Number of infants: 2 BW: NK GA: NK Symptomatic: Yes (2)	BF	Number of mothers tested: 2 (1 mother tested positive) Number of milk samples tested: 11	Infants tested positive on DoL 9 and 10. See table 1 for more details.

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Detected by: RT-PCR Mode of birth: NK Antiviral medication: No	RT-PCR: Positive (2) Immunoglobulin: ND		DoL at test: 9-25 Type of test: RT-PCR Results: 4/11 samples positive	
Han et al(17) Case report South Korea	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: VB Antiviral medication: NA	Number of infants: 1 BW: 2730g GA: 38 ⁺⁶ weeks Symptomatic: Yes RT-PCR: Positive Immunoglobulin: ND	BF	Number of mothers tested: 1 Number of milk samples tested: NK DoL at test: NA Type of test: RT-PCR Results: Negative	Infant was 27 days old, had fever, tachycardia and vomiting. No respiratory distress or need for oxygen.
Hinojosa-Velasco et al(18) Case report Mexico	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: NK	Number of infants: 1 BW: 3075g GA: 38 Symptomatic: No RT-PCR: Positive Immunoglobulin: NK	BMS, BF	Number of mothers tested: 1 Number of milk samples tested: 2 DoL at test: 4 & 13 Type of test: RT-PCR Results: Positive (on DoL 4), Negative DoL 13	Maternal BM given only after infant tested positive
Kalafat et al(19) Case report Turkey	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: NK	Number of infants: 1 BW: 2790g GA: 36+1 Symptomatic: NL RT-PCR: NK Immunoglobulin: NK	NK	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: NK Type of test: RT-PCR Results: Negative RT-PCR	

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
Kam et al(20) Case report Singapore	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: NK Antiviral medication: NA	Number of infants: 1 BW: NA GA: NA Symptomatic: Yes RT-PCR: Positive Immunoglobulin: Positive	NK	Number of mothers tested: 1 Number of milk samples tested: NK DoL at test: 6 months Type of test: RT-PCR Results: Negative	6 month age infant with one episode of fever at time of positive testing. No respiratory support required.
Kirtsman et al(21) Case report Canada	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: No	Number of infants: 1 BW: 2930g GA: 35 ⁺⁵ weeks Symptomatic: Yes RT-PCR: Positive Immunoglobulin: ND	BF	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: 2 & 7 Type of test: RT-PCR Results: Positive (1/2 samples)	Infant was neutropenic and had mild hypothermia and feeding difficulties. Required NICU stay for management of hypoglycaemia. See table 1 for more details
Lang et al(22) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: Yes	Number of infants: 1 BW: NK GA: 35 ⁺⁴ weeks Symptomatic: No RT-PCR: Negative Immunoglobulin: ND	NK	Number of mothers tested: 1 Number of milk samples tested: NK DoL at test: 2 Type of test: RT-PCR Results: Negative	
Lei et al(23) Case series China	Number of confirmed mothers: 9 Trimester of infection: 2 nd trimester (4), 3 rd trimester	Number of infants: 4 BW: 2350-3400g GA: 34 ⁺² – 37 weeks Symptomatic: No	NK	Number of mothers tested: 4 Number of milk samples tested: 4 DoL at test: NK Type of test: RT-PCR	Only 4/9 mothers delivered during the study period. One pregnancy was terminated.

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	(5) Symptomatic at birth: No Detected by: RT-PCR Mode of birth: CS (3), VB (1) Antiviral medication: Yes	RT-PCR: All negative Immunoglobulin: ND		Results: All negative	
Li et al(24) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: No Detected by: RT-PCR Mode of birth: CS Antiviral medication: Yes	Number of infants: 1 BW: NK GA: 35 ⁺² weeks Symptomatic: No RT-PCR: Negative Immunoglobulin: ND	NK	Number of mothers tested: 1 Number of milk samples tested: 3 DoL at test: 1-3 Type of test: RT-PCR Results: Negative	
Liu et al(25) Case series (Preprint) China	Number of confirmed mothers: 3 Trimester of infection: 3 rd Symptomatic at birth: Yes (2), No (1) Detected by: RT-PCR Mode of birth: CS (2), VB (1) Antiviral medication: Yes (PN)	Number of infants: 3 BW: 3250-3670g GA: 38 ⁺⁴ – 40 weeks Symptomatic: No RT-PCR: All negative Immunoglobulin: ND	NK	Number of mothers tested: 2 Number of milk samples tested: 4 DoL at test: 1-11 Type of test: RT-PCR Results: All negative	Mothers received postpartum antiviral medication
Lugli et al(26) Case report	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: No	Number of infants: 1 BW: 1614g GA: 32 weeks Symptomatic: No	EBM	Number of mothers tested: 1 Number of milk samples tested: 2 DoL at test: 9 Type of test: RT-PCR	First sample taken without any precautions, second taken with strict precautions

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Detected by: RT-PCR Mode of birth: CS Antiviral medication: No	RT-PCR: Negative Immunoglobulin: Negative		Results: RT-PCR positive (both samples)	
Luo et al(27) Cohort study (Preprint) China	Number of confirmed mothers: 14 Trimester of infection: 3 rd trimester (12), PN (2) Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: CS (12), VB (2) Antiviral medication: Yes (6)	Number of infants: 14 BW: NK GA: NK (3 preterm) Symptomatic: No RT-PCR: All negative Immunoglobulin: ND	BF (1), AF (13)	Number of mothers tested: 14 RT-PCR, 4 antibodies Number of milk samples tested: 14 DoL at test: 1-15 days Type of test: RT-PCR and ELISA Results: PCR all Negative, IgG Negative, IgM Positive (4)	Four confirmed mothers had both serum and BM antibody testing. 3/4 had positive serum IgG and IgM before delivery and 4/4 had positive serum IgM post-delivery. See table 2 for details.
Mao et al(28) Case report China	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: NA Antiviral medication: NA	Number of infants: 1 BW: NK GA: NK Symptomatic: Yes RT-PCR: Positive Immunoglobulin: ND	BF	Number of mothers tested: 1 Number of milk samples tested: NK DoL at test: 14 months Type of test: RT-PCR Results: Negative	14 month old child with fever and coryza
Marín Gabriel et al(29) Case series Spain	Number of confirmed mothers: 7 Trimester of infection: 3 rd Symptomatic at birth: Yes (1) Detected by: RT-PCR	Number of infants: 7 BW: 2866-4574g GA: 38 ⁺³ – 41 ⁺² weeks Symptomatic: No RT-PCR: All negative Immunoglobulin: ND	NK	Number of mothers tested: 7 Number of milk samples tested: 7 DoL at test: 2 Type of test: RT-PCR Results: Negative	Samples collected were colostrum

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Mode of birth: VB (6), CS (1) Antiviral medication: No				
Menter et al(30) Case series Switzerland	Number of confirmed mothers: 5 Trimester of infection: 3 rd Symptomatic at birth: Yes (1) Detected by: RT-PCR Mode of birth: VB (3), CS (2) Antiviral medication: No	Number of infants: 5 BW: 2790-3500g GA: 39 ⁺⁰ – 40 ⁺⁵ weeks Symptomatic: Yes (1) RT-PCR: NK Immunoglobulin: ND	BF (2) MF (3)	Number of mothers tested: 5 Number of milk samples tested: 5 DoL at test: NK Type of test: RT-PCR Results: Negative	One infant had hypothermia
Molina et al(31) Case report USA	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: No Detected by: RT-PCR Mode of birth: VB Antiviral medication: No	Number of infants: 1 BW: 3810g GA: 38 ⁺¹ weeks Symptomatic: No RT-PCR: Negative Immunoglobulin: Yes	NK	Number of mothers tested: 1 Number of milk samples tested: NK DoL at test: NK Type of test: RT-PCR Results of test: Negative	First maternal positive PCR and symptoms at 28 ⁺² weeks, and remained positive for 104 days. Cord blood positive for IgG antibodies.
Oncel et al(32) Cohort study Turkey	Number of confirmed mothers: 125 Trimester of infection: NK Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: CS (89), VB	Number of infants: 125 BW: 1480-3415g GA: 26-39 weeks Symptomatic: Yes in 3 RT-PCR: Positive in 4 Immunoglobulin: ND	BF (9), EBM (45), BMS (71)	Number of mothers tested: 6 Number of milk samples tested: 6 DoL at test: NK Type of test: RT-PCR Results: Negative	Positive test on 3/4 infants on DoL 2-5, 1/4 infant positive on DoL 1. Three infants required CPAP. All 4 became negative on DoL 6-11. None of these 4 infants received BF/EBM.

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	(36) Antiviral medication: NK				
Pace et al(33) Case series (Preprint) USA	Number of confirmed mothers: 18 Trimester of infection: NK Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: CS (6), VB (12) Antiviral medication: NK	Number of infants: 18 BW: 3372 ± 560g GA: 38.6 ± 1.7 weeks Symptomatic: NK RT-PCR: Positive in 2 Immunoglobulin: ND	BF (5), MF (13)	Number of mothers tested: 18 Number of milk samples tested: 37 DoL at test: NK Type of test: RT-PCR, IgA, IgG Results: PCR Negative, IgA Positive (37/37 samples), IgM Positive (37/37 samples)	See table 2 for more details.
Peng et al(34) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: CS Antiviral medication: Yes	Number of infants: 1 BW: 2600g GA: 35 ⁺³ weeks Symptomatic: Yes RT-PCR: Negative Immunoglobulin: ND	NK	Number of mothers tested: 1 Number of milk samples tested: 8 DoL at test: 2-14 Type of test: RT-PCR Results: Negative	Infant presented with respiratory distress after birth requiring CPAP and surfactant.
Peng et al(35) Cohort study (Preprint) China	Number of confirmed mothers: 24 Trimester of infection: 3 rd trimester (2), PN (22) Symptomatic at birth: Yes in	Number of infants: 25 BW: 3000 ± 500g GA: 38.2 ± 2.1 weeks Symptomatic: No RT-PCR: NK	BF (1), BMS (10), MF (13)	Number of mothers tested: 16 RT-PCR, 15 antibodies (8 mothers tested positive) Number of milk samples tested: 44 (RT-PCR), 38 (antibodies)	Milk samples were collected from confirmed cases. Total 44 samples were tested but only 38 samples underwent both RT-PCR and ELISA tests.

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	15 Detected by: RT-PCR Mode of birth: CS (19), VB (5) Antiviral medication: NK	Immunoglobulin: ND		DoL at test: 3-70 days Type of test: RT-PCR, ELISA Results: PCR Negative, IgG Negative, IgM Positive (21/38 samples)	See table 2 for more details
Perrone et al(36) Case report Italy	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: No Detected by: RT-PCR Mode of birth: NK Antiviral medication: NA	Number of infants: 1 BW: NK GA: 32 weeks Symptomatic: NK RT-PCR: Negative Immunoglobulin: ND	EBM & BF	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: 13 Type of test: RT-PCR Results: Negative	Mother developed symptoms 11 days postpartum. Infant was premature and required 24 hours of CPAP at birth.
Piersigilli et al(37) Case report Belgium	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: No	Number of infants: 1 BW: 960g GA: 26 ⁺⁴ weeks Symptomatic: No RT-PCR: Positive Immunoglobulin: ND	EBM	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: NK Type of test: RT-PCR Results: Negative	First neonatal test at DoL 7, positive on repeat on DoL 14 but negative at DoL 21. Infant had leucopenia and lymphopenia.
Preßler et al(38) Case series Germany	Number of confirmed mothers: 5 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: NK	Number of infants: 5 BW: NK GA: NK Symptomatic: Yes in 3 RT-PCR: Positive in 2 Immunoglobulin:	NK	Number of mothers tested: NK Number of milk samples tested: NK DoL at test: NK Type of test: antibody assay Results: Positive IgG in 1 mother	Mother with BM IgG positive had symptomatic infant but negative RT-PCR test. One symptomatic infant with positive RT-PCR had positive serum IgA at 4-5 weeks. The

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Antiviral medication: NK	Positive in 1			other asymptomatic infant with RT-PCR positive at 4-5 weeks was negative for IgA and IgG at 4-5 weeks See table 2 for more details
Sahin et al(39) Cohort study Turkey	Number of confirmed mothers: 29 Trimester of infection: 1 st trimester (6), 2 nd trimester (8), 3 rd trimester (15) Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: CS (5), VB (5) Antiviral medication: 1	Number of infants: 10 BW: 1630-4010g GA: 31-40 weeks Symptomatic: No RT-PCR: All negative Immunoglobulin: ND	NK	Number of mothers tested: 10 Number of milk samples tested: NK DoL at test: NK Type of test: RT-PCR Results: Negative	Only 10/29 mothers delivered during study period.
Salvatori et al(40) Case series Italy	Number of confirmed mothers: 2 Trimester of infection: PN Symptomatic at birth: No Detected by: RT-PCR Mode of birth: NK Antiviral medication: NK	Number of infants: 2 BW: 3120-4440g GA: 39-41 ⁺² weeks Symptomatic: Yes in 1 RT-PCR: Positive in both Immunoglobulin: ND	BF	Number of mothers tested: 2 Number of milk samples tested: NK DoL at test: NK Type of test: RT-PCR Results: All negative	Infants were admitted on DoL 10-18 One infant had diarrhoea and required intravenous fluids until day 5 of admission.
Schoenmakers et al(41) Case report Netherlands	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: No	Number of infants: 1 BW: NK GA: NK Symptomatic: Yes	NK	Number of mothers tested: 1 Number of milk samples tested: 2 DoL at test: 3 Type of test: RT-PCR	Premature infant, with multi-organ failure, PPHN, and hypotension. Suspected pediatric inflammatory

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Detected by: RT-PCR Mode of birth: CS Antiviral medication: No	RT-PCR: negative Immunoglobulin: ND		Results: Negative	multisystem syndrome. Tested negative on PCR or for antibodies on multiple occasions. Both fetal and maternal sides of the placenta tested positive.
Tam et al(42) Case report Australia	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: NA Antiviral medication: NA	Number of infants: 1 BW: NA GA: NA Symptomatic: Yes RT-PCR: Positive Immunoglobulin: ND	BF	Number of mothers tested: 1 Number of milk samples tested: 7 DoL at test: NA Type of test: RT-PCR Results: Positive (2/7 samples from one mother)	Postnatal infection of 8 month old with cough and coryzal symptoms. See table 1 for more details
Van Keulen et al(43) Case control (Preprint) Netherlands	Number of confirmed mothers: 29 Trimester of infection: NK Symptomatic at birth: NK Detected by: RT-PCR Mode of birth: NK Antiviral medication: NK	Number of infants: 29 BW: NK GA: 38 ⁺⁴ – 40 ⁺⁵ weeks Symptomatic: NK RT-PCR: NK Immunoglobulin: NK	NK	Number of mothers tested: 29 Number of milk samples tested: 29 DoL at test: 12 – 39 weeks Type of test: Total Ig and IgA Results: Positive (24/29 samples)	BM RT-PCR not tested. See table 2 for more details.
Walczak et al(44) Case report Australia	Number of confirmed mothers: 1 Trimester of infection: 3rd Symptomatic at birth: Yes Detected by: RT-PCR	Number of infants: 1 BW: 3770g GA: 40 ⁺¹ weeks Symptomatic: NK RT-PCR: Negative	NK	Number of mothers tested: 1 Number of milk samples tested: NK DoL at test: NK Type of test: RT-PCR, IgA, IgG,	Authors state immunoassay not validated for sample type. Serum immunoglobulin (parent) positive for IgG and IgM

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Mode of birth: VB Antiviral medication: No	Immunoglobulin: ND		IgM Results: Negative RT-PCR; Positive IgA, IgG and IgM	
Wang et al(45) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: No	Number of infants: 1 BW: 3205g GA: 40 ⁺¹ weeks Symptomatic: No RT-PCR: Positive Immunoglobulin: ND	BMS	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: 2 Type of test: RT-PCR Results:Negative	
Wu et al(46) Case series China	Number of confirmed mothers: 13 Trimester of infection: 1 st trimester (5), 2 nd trimester (3), 3 rd trimester (5) Symptomatic at birth: Yes in 1 Detected by: RT-PCR Mode of birth: CS (4), VB (1) Antiviral medication: Yes	Number of infants: 5 BW: 2300-3910g GA: 35 ⁺⁵ – 38 ⁺⁴ weeks Symptomatic: No RT-PCR: NK Immunoglobulin: ND	NK	Number of mothers tested: 3 (1 mother tested positive) Number of milk samples tested: 4 DoL at test: 1-27 days. Type of test: RT-PCR Results: 1/4 samples positive	Only 5/13 mothers delivered. Repeat BM test subsequently all negative. See table 1 for more details
Xiong et al(47) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3 rd Symptomatic at birth: No	Number of infants: 1 BW: 3070g GA: 38 ⁺⁴ weeks Symptomatic: NK	NK	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: 1 Type of test: RT-PCR	

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Detected by: RT-PCR Mode of birth: VB Antiviral medication: Yes	RT-PCR: Negative Immunoglobulin: Negative		Results: Negative	
Yu et al(48) Case report (Preprint) China	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: NA Antiviral medication: NA	Number of infants: 1 BW: NA GA: NA Symptomatic: Yes RT-PCR: Positive Immunoglobulin: Positive	BF	Number of mothers tested: 1 Number of milk samples tested: 5 DoL at test: NA Type of test: RT-PCR and antibody Results of test: PCR Negative, IgM Negative, IgG Positive (2/2 samples)	Infant was 13 months old, weight 10kg had fever, cough and nasal congestion. See table 2 for more details
Zhang et al(49) Case report China	Number of confirmed mothers: 1 Trimester of infection: PN Symptomatic at birth: NA Detected by: RT-PCR Mode of birth: VB Antiviral medication: NA	Number of infants: 1 BW: NA GA: NA Symptomatic: Yes RT-PCR: Negative Immunoglobulin: ND	BF, EBM	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: NA Type of test: RT-PCR Results: Negative	Infant diagnosed at 3 months old.
Zhu et al(50) Case series China	Number of confirmed mothers: 5 Trimester of infection: 3rd Symptomatic at birth: Yes in 3 Detected by: RT-PCR	Number of infants: 5 BW: NK GA: 35 ⁺⁰ – 40 ⁺¹ Symptomatic: NK RT-PCR: NK Immunoglobulin: ND	NK	Number of mothers tested: 5 (1 mother tested positive) Number of milk samples tested: 8 DoL at test: NA Type of test: RT-PCR Results of test: Positive (2/8	See table 1 for more details

Author Type of Publication Country	Maternal Characteristics	Infant Characteristics	Type of Feed Given	Testing of Breast Milk	Comments
	Mode of birth: CS (4), VB (1) Antiviral medication: NK			samples)	
Zhuang et al(51) Case report China	Number of confirmed mothers: 1 Trimester of infection: 3rd Symptomatic at birth: Yes Detected by: RT-PCR Mode of birth: CS Antiviral medication: Yes	Number of infants: 1 BW: 2870g GA: 37 ⁺² Symptomatic: No RT-PCR: Negative Immunoglobulin: ND	BMS	Number of mothers tested: 1 Number of milk samples tested: 1 DoL at test: 5 Type of test: RT-PCR Results of test: Negative	

Abbreviations: BF, breastfeeding; BM, breastmilk; BMS, breastmilk substitute; BW, birth weight; CPAP, continuous positive airway pressure; CS, caesarean section; DoL, day of life; EBM, expressed breastmilk; ELISA, enzyme linked immunosorbent assays; GA, gestational age; IQR, interquartile range; MF, mixed breastmilk and breastmilk substitute feeds; NA, not applicable; NICU, neonatal intensive care unit; NK, not done; NK, not known; PN, postnatal; PPHN, persistent pulmonary hypertension of the newborn; RT-PCR, real time polymerase chain reaction; VB, vaginal birth.

^a Information collated from 2 papers by Buonsenso et al and Costa et al: same cases were reported in 2 separate papers.

eTable 3. Risk of Bias for Included Studies

Author	Inclusion Criteria	Condition Assessment	Method of Detection	Consecutive Cases	Complete Inclusion	Demographic Reporting	Clinical Reporting	Follow-up	Overall Judgement
AlZaghal et al(1)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Bastug et al(2)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Bertino et al(3)	Yes	Yes	Yes	Unclear	Unclear	No	No	Yes	High risk
Buonsenso et al ^a (4, 5)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	Yes	High risk
Chambers et al(6)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Chen et al(7)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Chen et al(8)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low risk
Cui et al(9)	Yes	Yes	Yes	NA	NA	No	Yes	Yes	Intermediate risk
De Socio et al(10)	Yes	Yes	Yes	NA	NA	No	Yes	Yes	Intermediate risk
Dong et al(11)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Dong et al(12)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Fan et al(13)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Fenzia et al(14)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Gao et al(15)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	Yes	High risk
Groß et al(16)	Yes	Yes	Yes	Unclear	Unclear	No	Yes	Yes	High risk
Han et al(17)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Hinojosa-Velasco et al(18)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Kalafat et al(19)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Kam et al(20)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Kirtsman et al(21)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Lang et al(22)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Lei et al(23)	Yes	Yes	Yes	NA	NA	Yes	No	No	High risk
Li et al(24)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Liu et al(25)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Intermediate risk
Lugli et al(26)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Luo et al(27)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Mao et al(28)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Marin Gabriel et al(29)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Menter et al(30)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	Yes	High risk

Molina et al(31)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Oncel et al(32)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Pace et al(33)	Yes	Yes	Yes	Unclear	Unclear	Yes	Yes	No	High risk
Peng et al(34)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Peng et al(35)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Low risk
Perrone et al(36)	Yes	Yes	Yes	NA	NA	No	Yes	No	High risk
Piersigilli et al(37)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk
Preßler et al(38)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Intermediate risk
Sahin et al(39)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Intermediate risk
Salvatori et al(40)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Schoenmakers et al(41)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Tam et al(42)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Van Keulen et al(43)	Yes	Yes	Yes	Unclear	Unclear	No	Yes	No	High risk
Walczak et al(44)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Wang et al(45)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Wu et al(46)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Intermediate risk
Xiong et al(47)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Yu et al(48)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Zhang et al(49)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Zhu et al(50)	Yes	Yes	Yes	NA	NA	Yes	Yes	No	Intermediate risk
Zhuang et al(51)	Yes	Yes	Yes	NA	NA	Yes	Yes	Yes	Low risk

Abbreviation: NA, not applicable.

^a Information collated from 2 papers by Buonsenso et al and Costa et al: same cases were reported in 2 separate papers.

Risk of bias based on Joanna Briggs Institute Critical Appraisal Tool for case reports and case series.

Refer to methods section for details of assessment.

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