



北京大学第三医院
Peking University Third Hospital

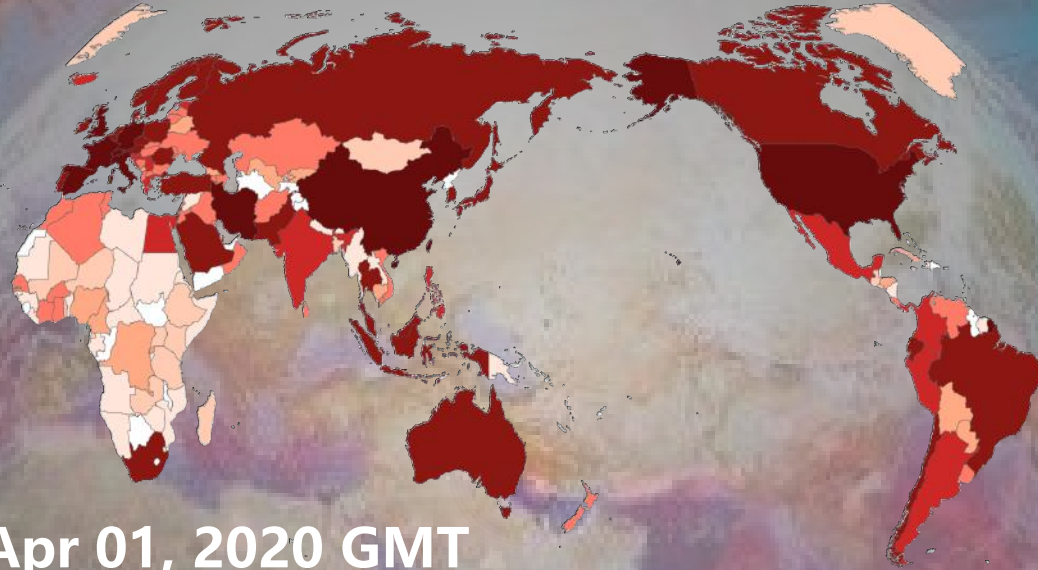
甲子薪传 积淀创新

Ensuring Maternal & Infant Safety During The Outbreak of COVID-19 —Recommendations

Jie Qiao

Peking University Third Hospital
OB&GYN Department

Pandemic Situation of COVID-19 World Wide



Updated: As of 9:12 AM, Apr 01, 2020 GMT

859032

Confirmed cases

42,322

Confirmed deaths

178,101

Recovered

203

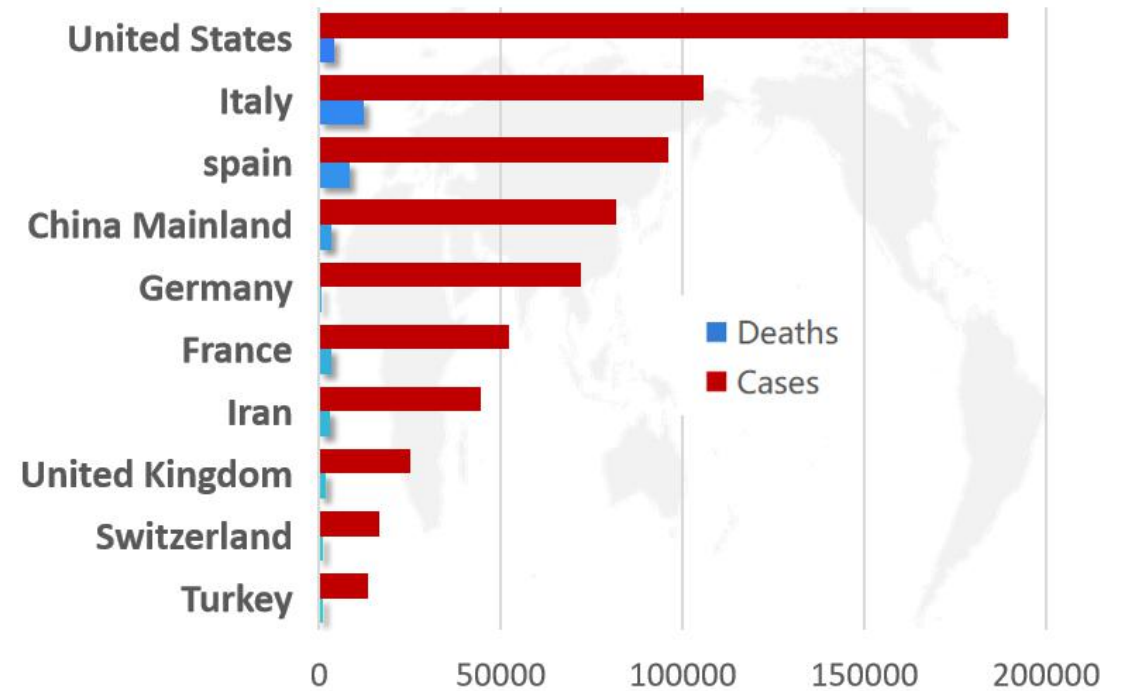
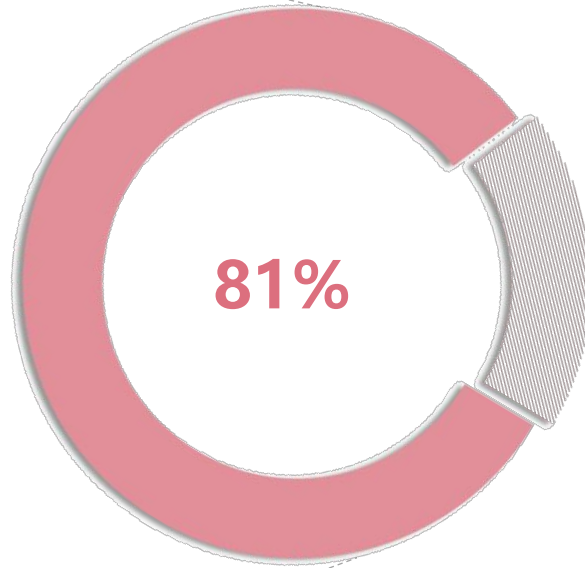
Countries, areas or territories with cases

Not Numbers, But Lives

Pandemic Situation of COVID-19 World Wide



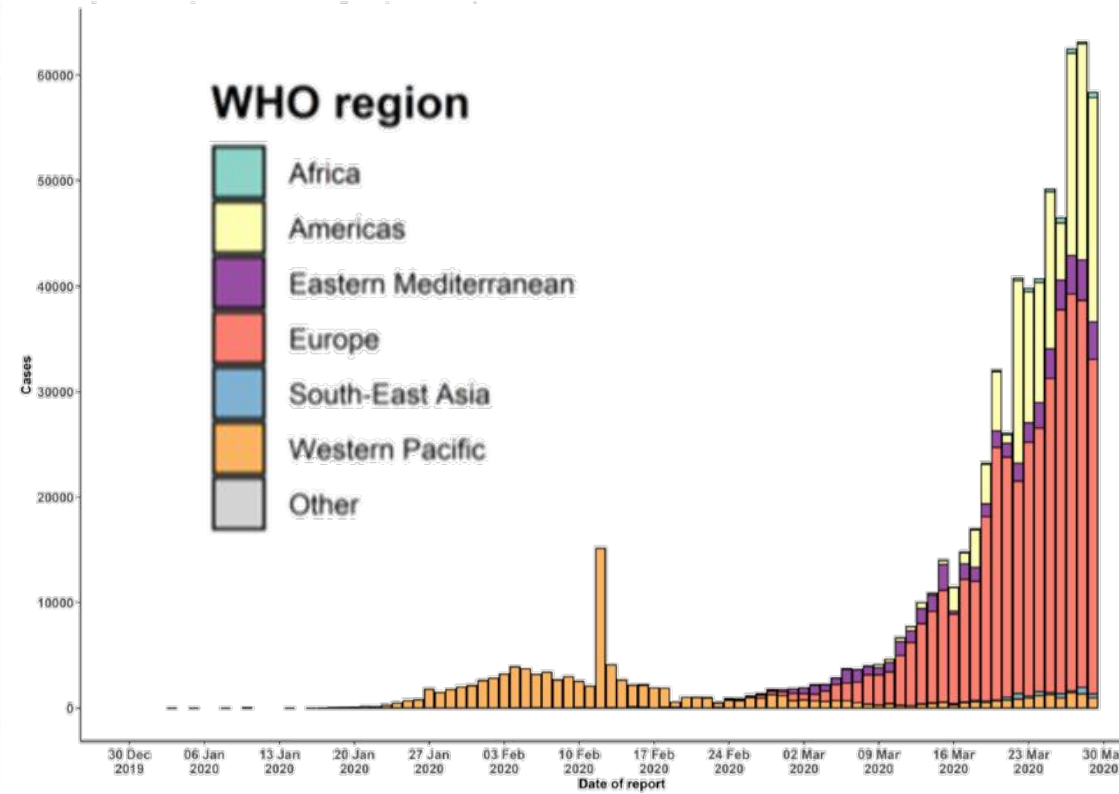
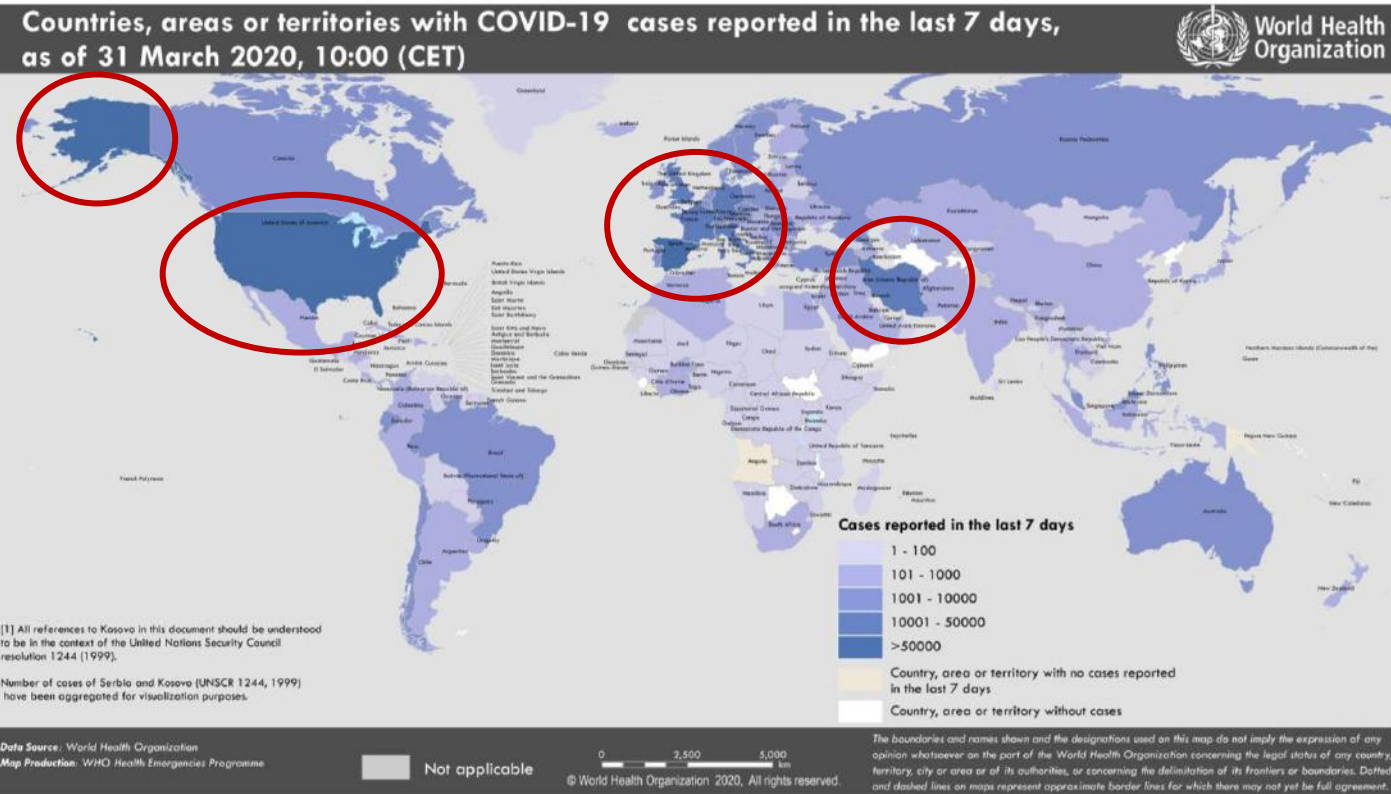
	Places	Cases	Deaths
1	United States	189,445	4,075
2	Italy	105,792	12,428
3	Spain	95,923	8,464
4	China Mainland	81,554	3,312
5	Germany	71,808	775
6	France	52,128	3,523
7	Iran	44,606	2,898
8	United Kingdom	25,150	1,808
9	Switzerland	16,597	432
10	Turkey	13,531	214



Top 10 countries of confirmed cases Until 1 April



Pandemic Situation of COVID-19 World Wide



Countries, areas, or territories with COVID-19 cases reported in the last 7 days, as of 31 March, 2020

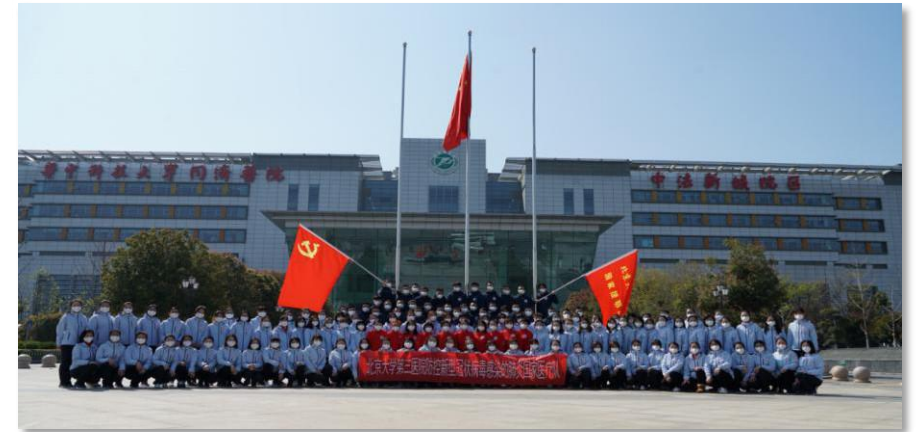
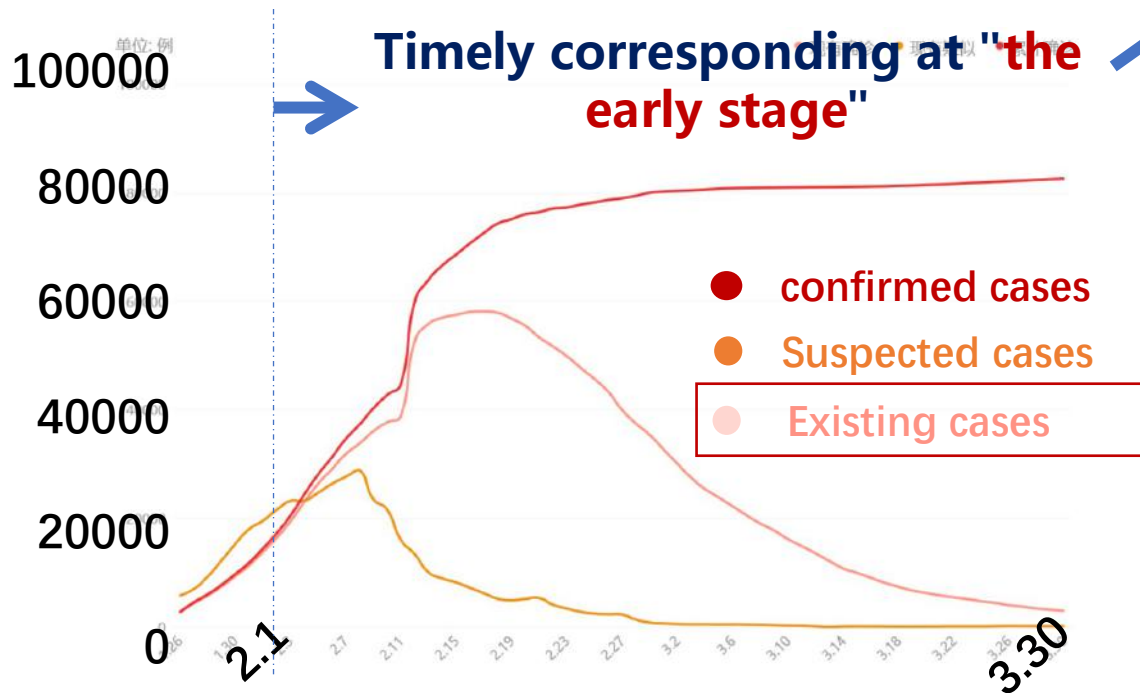


Pandemic Situation of COVID-19 in China

Updated: 17:36 PM, Apr 01, 2020 Beijing

Confirmed cases	Deaths	Imported cases	Recovered
82,691	3,321	806	76,419

Three groups of national medical teams sent by PUTH to support Wuhan



- Critically ill cases Cure
- Maternal & Infant Safety



Three hospitals of Peking University set up ICU in Tongji Medical College of HUST on February 2



Hotspots of Maternal & Infant Safety During The Outbreak of COVID-19

Major Concerns from Pregnant women And Ob specialists

Risk of expose and infection?

At community, and during routine checkups

Prenatal checkup schedule?

Which is necessary, or can be reduced/remove?

Safe Delivery?

How to avoid transmission in Hospital?



Reducing the Risk of expose and infection

- **Prevention procedures:** Home quarantine, avoid close contact, wear mask, wash hands, sanitize the room, etc.
- **Self-monitoring:** adverse symptoms related to COVID-19



Prenatal Checkup Recommendations

Find the available Hospital on the official government website



- Pregnant women should know the contents and interval of prenatal checkups. **Fetal heart auscultation at home replacing checkups is NOT recommended.**
- Under 28 gestational weeks with no discomfort: checkups can be extended appropriately, monitor fetal movements and symptoms at home.
- After 28 gestational weeks: Proceed the regular checkups as recommended
- High risk patients should go to every scheduled checkups

Online approaches should be encouraged to provide health education and counseling for pregnant women

Safe Delivery

- **Routine Screening:** Epidemic history, signs & symptoms, antibodies... for patient and her family, if positive, isolate immediately.
- **Safe distance between patients:**
Avoid crowds, less patient in one room
- **Shorter hospital stays**
- **Patient education:** Postpartum Care, especially protection
- **Follow the infection control orders strictly (for hospital)**



Situation of Infected Pregnant women in China

**For suspected or confirmed pregnant women,
It is suggested to go to the designated midwifery
medical institutions for treatment as soon as possible**



- ✓ There are **1654** designated hospitals provide medical services for infected women in China.

Major Concerns from uninfected Pregnant women And Ob specialists

- **Screening for suspected patient**
- **Management if infected during first/second/third trimester?**
- **Choice of delivery mode: Vaginal delivery or CS**
- **Postpartum care**
- **Protection of neonates**
- **Protection of medical staff**



Screening during admission

- **Epidemiological screening** (Cloud computing and big data approaches)
- **Signs and symptoms:** Fever, cough, short breath, diarrhea, Fatigue, etc.
- **Blood tests:** CBC(Lymph cell counts, etc.), NCV antibodies(IgG, IgM) ,
- **If necessary:** Nucleoid acid and CT scan.
- **If suspected:** Quarantine the patient in specific room as soon as possible.
- **Multidisciplinary Consults**



Treatment Recommendations

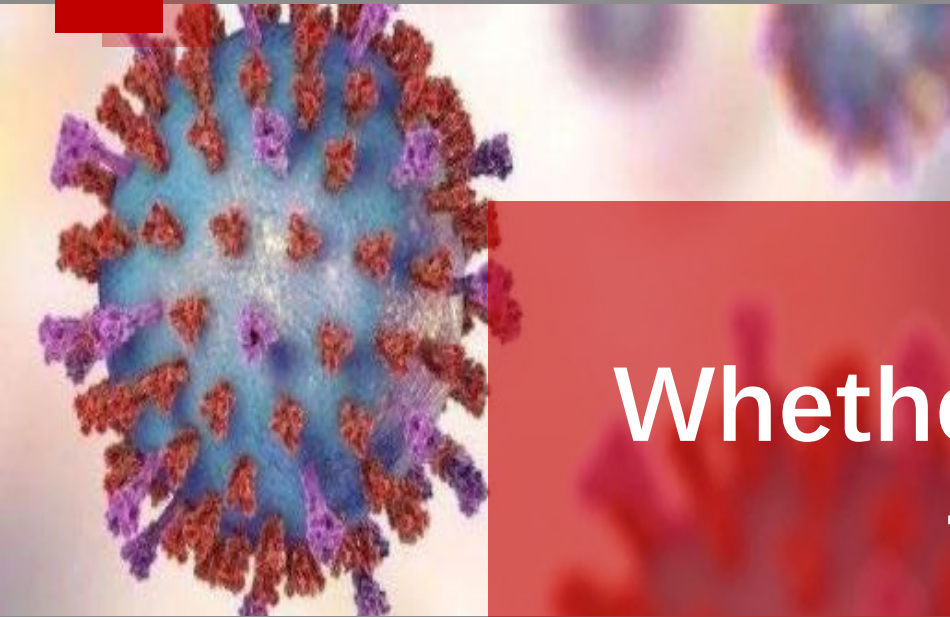
1. The suspected/infected patient should be quarantined to isolated room immediately
2. Multidisciplinary consultation is needed to give a systematic treatment plan.
3. No evidence supporting the termination of pregnancy without medical indications.



Treatment Recommendations

4. Pregnant women with severe or critical COVID-19 should terminate pregnancy, and the best choice is caesarean section
5. Refer the confirmed patients to designated hospital for more precise treatment, if the condition allows
6. Use proper protection when contacting the patient.





Whether there is vertical transmission
from mothers to babies?

Can SARS-CoV-2 be transmitted in utero?

Point 1: Have possible

Research Letter

March 26, 2020

ONLINE FIRST FREE

Possible Vertical Transmission of SARS-CoV-2 From an Infected Mother to Her Newborn

Lan Dong, MD¹; Jinhua Tian, MD¹; Songming He, MD¹; [et al](#)

The mother was suffering from coronavirus. The antibody of SARS-CoV-2 IgM was increased and the cytokine test was abnormal in the newborn 2 hours after birth

Research Letter

ONLINE FIRST

March 26, 2020

Antibodies in Infants Born to Mothers With COVID-19 Pneumonia

Hui Zeng, MD¹; Chen Xu, BS¹; Junli Fan, MD¹; Yueting Tang, PhD¹; Qiaoling Deng, MD¹; Wei Zhang, MD, PhD²; Xinghua Long, MD, PhD¹

Among the six confirmed mothers of COVID-19, 5 infants had elevated IgG concentration of SARS-CoV-2, and IgM was detected in 2 infants

Tip: the possibility of supporting vertical transmission



Can SARS-CoV-2 be transmitted in utero?

Point 1: Have possible

Clinical Infectious Diseases

BRIEF REPORT

A Case Report of Neonatal 2019 Coronavirus Disease in China

Shaoshuai Wang,¹ Lili Guo,¹ Ling Chen,² Weiyong Liu,³ Yong Cao,⁴ Jingyi Zhang,^{1,a}
and Ling Feng^{1,a}

However, whether the case is a vertical transmission from mother to child remains to be confirmed.

It is very important to shorten the delivery time of fetus and minimize the contact between fetus and maternal blood and body fluid during cesarean section.

A case of neonatal COVID-19 infection in China with pharyngeal swabs tested positive by rRT-PCR assay 36 hours after birth.



Can SARS-CoV-2 be transmitted in utero?

Point 2: Not Sure

Lancet 2020; 395: 809-15

Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records

Huijun Chen*, Juanjuan Guo*, Chen Wang*, Fan Luo, Xuechen Yu, Wei Zhang, Jiafu Li, Dongchi Zhao, Dan Xu, Qing Gong, Jing Liao, Huixia Yang, Wei Hou, Yuanzhen Zhang

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	n (%)
Gestational age at delivery	37 weeks, 2 days	38 weeks, 3 days	36 weeks	36 weeks, 2 days	38 weeks, 1 day	36 weeks, 3 days	36 weeks, 2 days	38 weeks	39 weeks, 4 days	..
Birthweight (g)	2870	3730	3820	1880	2970	3040	2460	2800	3530	..
Low birthweight (<2500 g)	No	No	No	Yes	No	No	Yes	No	No	2 (22%)
Premature delivery	No	No	Yes	Yes	No	Yes	Yes	No	No	4 (44%)
Apgar score (1 min, 5 min)	8, 9	9, 10	9, 10	8, 9	9, 10	9, 10	9, 10	9, 10	8, 10	..
Severe neonatal asphyxia	No	No	No	No	No	No	No	No	No	0
Neonatal death	No	No	No	No	No	No	No	No	No	0
Fetal death or stillbirth	No	No	No	No	No	No	No	No	No	0

Table 2: Neonatal outcomes

- 9 confirmed pregnant women all in third trimester
- **Delivery:** all cases had a caesarean section
- **6 newborns having tests for SARS-CoV-2:** amniotic fluid, cord blood, breast milk, neonatal throat swab samples

(All samples tested negative for the virus)

Interpretation

The clinical characteristics of COVID-19 pneumonia in pregnant women were similar to those reported for non-pregnant adult patients who developed COVID-19 pneumonia. Findings from this small group of cases suggest that there is currently no evidence for intrauterine infection caused by vertical transmission in women who develop COVID-19 pneumonia in late pregnancy.

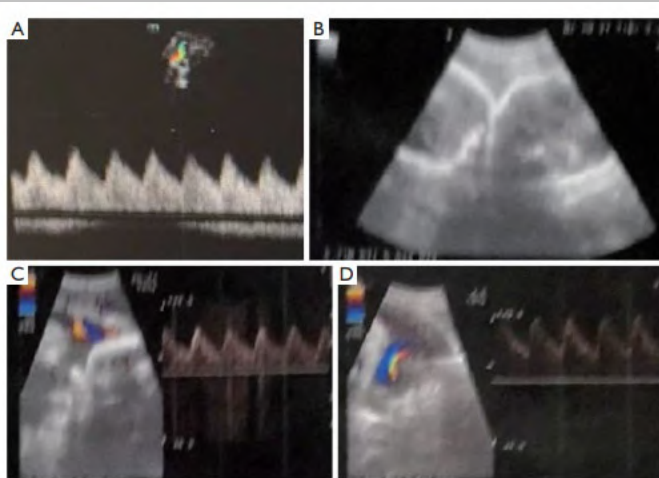
Can SARS-CoV-2 be transmitted in utero?

Point 2: Not Sure

TRANSLATIONAL PEDIATRICS
AN OPEN ACCESS JOURNAL COVERING ALL ASPECTS OF PEDIATRICS RESEARCH
Published Online February 10, 2020

Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia

Huaping Zhu^{1*}, Lin Wang^{2*}, Chengzhi Fang^{3*}, Sicong Peng¹, Lianhong Zhang⁴, Guiping Chang⁵,
Shiwen Xia¹, Wenhao Zhou⁶



- **Sample:** 9 mothers (10 neonates)
- **Delivery:** 2 vaginal deliveries (1 twin-case)+ 7 caesarean sections
- **Neonatal outcomes:** fetal distress (7/10), premature labor (4/10), respiratory distress (2/10), thrombocytopenia accompanied by abnormal liver function (2/10), death (1/10).
- **All neonatal pharyngeal swab samples were tested negative for the virus.**

Can SARS-CoV-2 be transmitted in utero?

Point 2: Not sure

New Online Views 0 Citations 0 Altmetric 0

Editorial

March 26, 2020

Can SARS-CoV-2 Infection Be Acquired In Utero? More Definitive Evidence Is Needed

David W. Kimberlin, MD¹; Sergio Stagno, MD¹

Author Affiliations | Article Information

¹University of Alabama at Birmingham

JAMA. Published online March 26, 2020. doi:10.1001/jama.2020.4868

ONLINE FIRST FREE

Comment

What are the risks of COVID-19 infection in pregnant women?   

Jie Qiao
jie.qiao@263.net



Neonatal COVID-19 nucleic acid test negative



IgM assays can be prone to false-positive and false-negative results

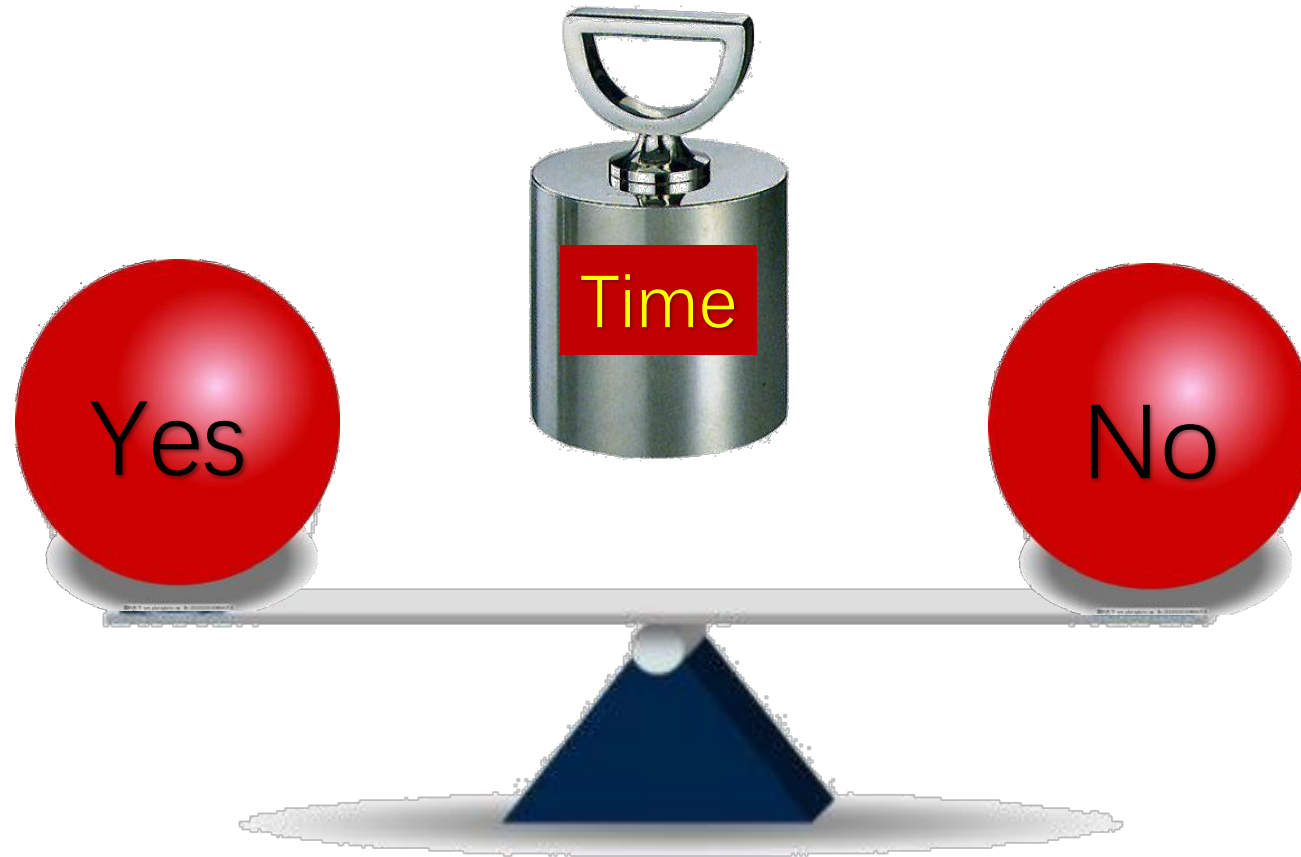


the rapid decline reported in this patient could represent artifact

➤ 2h after birth IgM 45.83 AU/ml

➤ 14d after birth IgM 11.75 AU/ml

Can SARS-CoV-2 be transmitted in utero?



more definitive evidence is needed

Infection Prevention Risk During Vaginal Birth

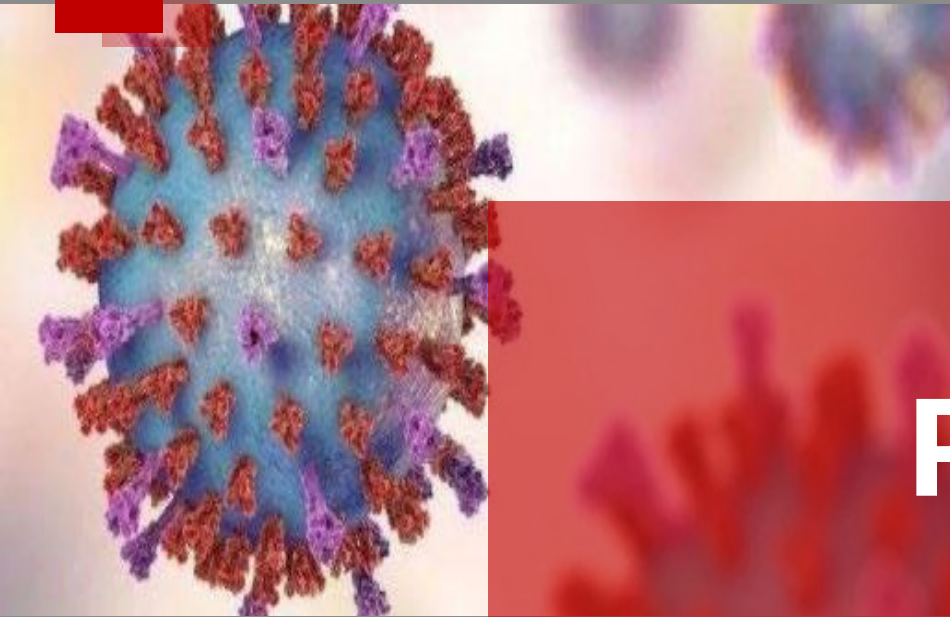
- Decreased body resistance due to physical exhaustion during labor.
- Increased infection prevention and control difficulty due to hyperventilation, amino fluids, vaginal bleeding, and vaginal discharge.
- If emergency CS needed, infection prevention procedures are hard to implement rapidly



Delivery and Post Partum Recommendations

1. Labor and delivery should be performed in a designated negative pressure isolation room; and managed by designated personnel with specialized infection control preparation and protective gear.
2. Neonates of mothers with COVID-19 should not be breastfed until the mother's isolation period is complete.
3. Neonates of mothers with COVID-19 should be isolated in a designated unit for at least 14 days after birth.
4. Maternal and neonatal follow-ups should be done to evaluate their safety and health.

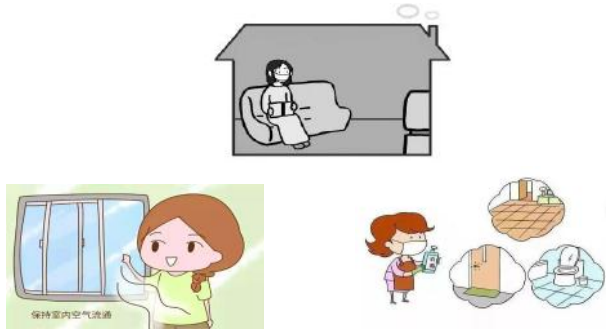




Practices in China

Isolation Categories of Pregnancy Women

Normal pregnancy women



Home – isolation
regular prenatal examination



Maternal and Child Hospital of Hubei province

Peking University Third Hospital

Delivery number: 70-80/d

Delivery number: 10-20/d
Most of them are severe cases

Suspected cases/
Confirmed mild cases



Fangcang shelter hospital
Or
Ob & Gy Hospital

- Isolate sources of infection
- Cut off transmission routes
- Close observation of patients
- Adjusting the therapy in time

Confirmed severe cases

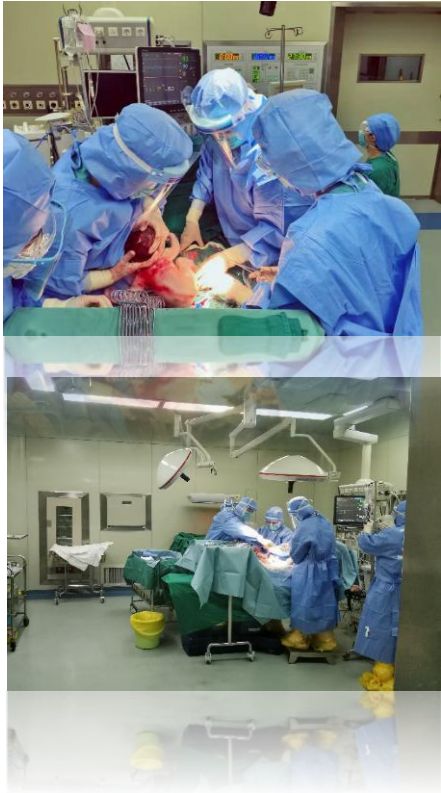


Ob & Gy Hospital
Or
**designated hospitals managed by
the national medical specialists team**



Emergency plans and infection control procedures

CS contingency plan



Delivery management



Post-delivery Sample collection



Exclusive transfer unit
(re: PUTH)

Emergency delivery

If in labor and might delivered quite immediately

- Quarantine on spot, call support, prepare protection equipment, and deliver on spot.
- Call support assisting in clean zone, avoid cross contaminate.
- Equip level 3 protective gear at every place possible encounter infected pregnancy women.
- Quarantine as required for any possible member exposed (medical staff, patients, patients' families).
- Carry the infection protection orders strictly.
- Occasionally precaution drill. Multidisciplinary, base on local conditions, pay attention to details, follow the infection protection orders.



“Closed loop process”

Prevention Drill Regardless of Delivery Mode

COVID-19 with pregnancy at **undesignated hospital**: if encountered

- Need Emergency CS
- In Labor



- Activate CS process?
- Activate labor process



Regardless of Delivery Mode
Infection Control is Crucial!
DRILL!



Psychological intervention

Psychological intervention and support is very important for pregnant women during the outbreak of COVID-19.

- **Sample:** 2002 pregnant women (183 community health centers and 67 hospitals)
- **Methods:** questionnaires
- **Main Results:** 94.6% worried about being infected
14.7% demanded for psychological consultation
71.0% would like to obtain knowledge & consultations through online APPs



Critical issues for protecting pregnancy women

4E

- ✓ Early identification
- ✓ Early reporting
- ✓ Early isolation
- ✓ Early treatment



4P

- ✓ Protection of pregnancy women
- ✓ Protection of family members
- ✓ Protection of health workers
- ✓ Protection of hospital



A Nation's War on the Epidemic



中华人民共和国国家卫生健康委员会

National Health Commission of the People's Republic of China

各省、自治区、直辖市及新疆生产建设兵团应对新型冠状病毒肺炎联防联控机制（领导小组、指挥部）：

为切实做好新型冠状病毒肺炎流行期间孕产妇和新生儿防护工作，保障母婴安全，现就有关工作提出以下要求。

一、加强孕产妇和新生儿安全管理

（一）积极指导孕产妇做好防护和孕产期保健。

通知公告

关于做好儿童和孕产妇新型冠状病毒感染的肺炎疫情防控工作的通知

发布时间：2020-02-02 来源：妇幼健康司

肺炎机制发〔2020〕17号

各省、自治区、直辖市及新疆生产建设兵团应对新型冠状病毒肺炎联防联控机制（领导小组、指挥部）：

儿童和孕产妇是新型冠状病毒感染的肺炎的易感人群。为贯彻落实习近平总书记关于新型冠状病毒感染的肺炎疫情防控工作重要指示，按照中央关于做好疫情防控工作有关要求，现就进一步做好儿童和孕产妇新型冠状病毒感染的肺炎疫情防控工作、助力打赢疫情防控阻击战提出以下要求。

一、做好居家儿童疫情防控工作

妇幼健康司

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动态

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各省（区、市）新型冠状病毒感染疑似或确诊孕妇产检和住院分娩定点医院 （截至2020年2月11日）

发布时间：2020-02-12 来源：妇幼健康司

2	武汉市中心医院（南京路）	是	是	江岸区胜利路26号	82211999
3	武汉市妇幼保健院（武昌区）	是	是	江岸区香港路100号	82433484
4	空军军医大学	是	是	江岸区工农兵路15号	83361521
5	武汉同济医院	是	是	江岸区建设大道1091号	1326065811
6	华中科技大学同济医学院附属协和医院	是	是	江岸区黄浦大街264号	13971533165
7	西院医院	是	是	武汉市汉阳门家巷141号	85881111
8	都市妇产医院	是	是	青年路322号	15623194331
9	华中科技大学协和医院（孝感）	否	是	解放大道1277号	85726137
10	中德妇产医院	是	是	武汉市江岸区黎黄路127号	18627013566
11	江宁区人民医院	是	是	江宁区大板1号	87969112
12	江宁区妇幼保健院	是	是	江宁区板桥138号	87955081
13	江宁区妇幼保健院	是	是	江宁区板桥138号	87955769
14	黄浦区妇幼保健院	是	是	黄浦区川南东安路	85807777
15	黄浦区人民医院	是	是	盘龙城经济开发区北店大街199号	61872481
16	黄浦区中医院	是	是	黄浦区川南街板桥大街83号	85832080
17	黄浦区中医院分院	是	是	黄浦区黄浦大街211号	61809595
18	黄浦区人民医院	是	是	武汉市黄浦区西秀路239号	85831736
19	华中师范大学	是	是	新洲区阳罗街汽渡路93号	13671306235
20	武汉市中心医院	否	是	新洲区阳罗街汽渡路93号	88119936
12	晋安区妇幼保健院	是	是	晋安区汉江北路473号	83782519
13	武汉市第一医院	是	是	硚口区中山大道215号	85332683
14	湖北省中医院	是	是	硚口区中山大道215号	83743365
15	仁安医院	是	是	硚口区解放大道348号	83794296
16	汉阳医院	是	是	汉阳区墨水湖路513号	51006496
17	湖北省人民医院（孝感）	否	是	武昌区解放路238号	1537788120
18	武汉市第三医院	是	是	武汉市武昌区彭家嘴241号	68894633
19	中国人民解放军总医院（北京）	否	是	武昌区武胜路627号	50771100
20	武汉市东方医院	是	否	武昌区梅家嘴255号	1267133595

National policies and technical guidelines

Optimize the operation of MCH service system

The overall arrangements



团结/奉献/求实/创新

A Nation's War on the Epidemic



第1时间 共享信息

第一时间分离鉴定出病毒毒株并向世卫组织共享病毒全基因组序列，为全球药物、疫苗、诊断研究提供重要基础。

Share information at first time

World Health Organization

人民日报 新媒体

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Yesterday at 7:42 PM · 🌐

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18 14 Comments

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Emmanuel Braschi
What's the proper PPE in China?

国务院新闻办公室
THE STATE COUNCIL INFORMATION OFFICE, P.R.C.

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中国新冠疫情防控经验国际分享交流会
China's Experiences in COVID-19 Prevention and Control

医用防护面罩

Live

COVID-19 frontline medical workers meet the press

去首页 打开APP

The overall arrangements-Share information at first time

**Miles Apart,
but Close at Heart**

