Daily COVID-19 Literature Surveillance

April 6th, 2020

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The COVID-19 pandemic in the USA: what might we expect?

PMID: 32247381, Apr 6, 2020
Chowell, Gerardo; Mizumoto, Kenji
Lancet
Level of Evidence: 5- Expert opinion
Type of Article: Comment
BLUF: Social distancing appears to have stymied the spread of COVID19 but concern for resurgence still exists.

Summarizing excerpt:
"The risk of death from COVID-19 increases with older age, suggesting that Florida, Maine, and Puerto Rico, which have the populations with the largest proportions of older people (≥65 years), might be most vulnerable to this pandemic virus… Perhaps the most reasonable scenario ahead of us is that the transmission rate will decline during the next few months, partly driven by social distancing measures, a scenario that is reminiscent of the influenza 2009 A/H1N1 pandemic. Close monitoring of the transmission potential of the virus on the basis of reliable and publicly available data in near real-time will be key to short-term forecasts and sound public health decisions."

Monitoring behavioural insights related to COVID-19.

PMID: 32247323, Apr 6, 2020
Betsch, Cornelia; Wieler, Lothar H; Habersaat, Katrine
Lancet
Level of Evidence: 5- Expert opinion
Type of Article: Correspondence
BLUF: Public trust is important. Rapid data collection and reliable information exchange between allied health professionals, journalists and the public is required to effectively implement the behavioral changes necessary to reduce transmission of COVID-19.

Summary:
1. Interventions, policies and messages from orgs to the public need to demonstrate the following to avoid eliciting distrust and fear:
    i. Consistency
    ii. Competence

iii. Fairness
iv. Objectivity
v. Empathy
vi. Sincerity

2. Other modulators of public attitude that can be monitored and regulated
   i. Risk perception that may not correlate with actual risk
   ii. Perceived uncertainty
   iii. Perceived exaggeration
   iv. Misinformation
   v. Stigmatisation
   vi. Herd behavior

3. A Blueprint of the Weekly COVID-19 Snapshot MOnitoring (COSMO) initiated in Germany has now been distributed in collaboration with the Insights Unit at the WHO in order to collect data and provide guidance.

Fangcang shelter hospitals: a novel concept for responding to public health emergencies.

PMID: 32247320, Apr 6, 2020
Chen, Simiao; Zhang, Zongjiu; Yang, Juntao; Wang, Jian; Zhai, Xiaohui; Barnighausen, Till; Wang, Chen
Lancet
Level of Evidence: 5- Expert opinion
BLUF: Fangcang shelter hospitals should be part of incident command toolkit.

Abstract:
Fangcang shelter hospitals are a novel public health concept. They were implemented for the first time in China in February, 2020, to tackle the coronavirus disease 2019 (COVID-19) outbreak. The Fangcang shelter hospitals in China were large-scale, temporary hospitals, rapidly built by converting existing public venues, such as stadiums and exhibition centres, into health-care facilities. They served to isolate patients with mild to moderate COVID-19 from their families and communities, while providing medical care, disease monitoring, food, shelter, and social activities. We document the development of Fangcang shelter hospitals during the COVID-19 outbreak in China and explain their **three key characteristics (rapid construction, massive scale, and low cost) and five essential functions (isolation, triage, basic medical care, frequent monitoring and rapid referral, and essential living and social engagement).** Fangcang shelter hospitals could be powerful components of national responses to the COVID-19 pandemic, as well as future epidemics and public health emergencies.

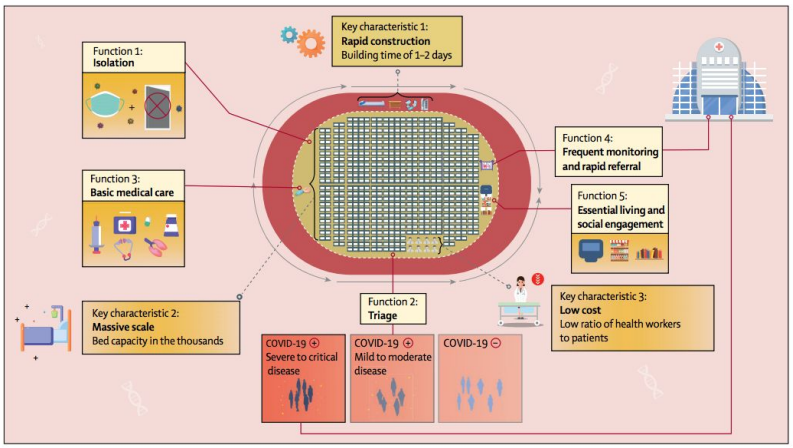


Figure 3: **Key characteristics and essential functions of Fangcang shelter hospitals**

	Reason for criterion	Alternative care pathway if criterion is not met
Positive COVID-19 test with mild signs or symptoms (mild clinical symptoms, imaging shows no signs of pneumonia) to moderate signs or symptoms (fever, respiratory tract symptoms, imaging shows pneumonia)	The primary purpose of the Fangcang shelter hospitals is to greatly expand capacity to care for COVID-19 patients with mild to moderate signs or symptoms	Patients with severe signs or symptoms are referred to higher-level hospitals; suspected cases are referred to quarantine locations with continued community screening for COVID-19
Ability to walk and live independently	Fangcang shelter hospitals cannot provide intensive care for patients who cannot take care of themselves	Referred to higher-level hospitals
Absence of severe chronic diseases, including hypertension, diabetes, coronary heart disease, malignancy, structural lung disease, pulmonary heart disease, and immunosuppression	Early evidence suggests that patients with underlying health conditions, such as hypertension, diabetes, and cardiovascular disease, are more likely than patients without these comorbidities to develop severe COVID-19[13,40,41]	Referred to higher-level hospitals
No history of mental health conditions	Fangcang shelter hospitals do not have the capacity to treat psychiatric diseases; in addition, early evidence suggests that patients with some mental health conditions, such as anorexia nervosa, are more likely to develop severe COVID-19[40]	Referred to higher-level hospitals
<65 years old	Early evidence suggests that older patients are at considerably increased risk of developing severe COVID-19[13,40,41]	Referred to higher-level hospitals
Negative influenza test	Admission to Fangcang shelter hospitals should not increase the risk of influenza co-infection[42]	Referred to higher-level hospitals
SpO2 >93% and breathing rate <30 beats per min in resting state	Oxygen saturation and breathing rate are important physiological parameters of the respiratory and circulatory system, and are used to gauge the severity of COVID-19;[43,44] early evidence suggests that patients with dyspnoea and hypoxia (SpO2 <93%) should receive supplemental oxygen and be admitted to an isolation ward[45]	Referred to higher-level hospitals

These criteria were applied during the COVID-19 outbreak in Wuhan, China in February to March, 2020.[3,42] COVID-19=coronavirus disease 2019. SpO2=blood oxygen saturation.

Table: **Fangcang shelter hospital admission criteria**

Medical student involvement in the COVID-19 response.

PMID: 32247322, Apr 6, 2020

Representatives of the STARSurg Collaborative, EuroSurg Collaborative and TASMAN Collaborative

Lancet

LOE: 5- Expert opinion

Article Type: Correspondence

BLUF: Medical students should not be part of the medical workforce during a pandemic unless there is a national level consensus on guidance, oversight and responsibilities.

Summarizing excerpt:

"Although there is no question about their willingness, given no recent precedent, the lack of guidance for any students drafted is concerning. In particular, we find an absence of official and unambiguous statements on indemnity, governing body regulation, contractual agreements, expected roles and responsibilities, and the clinical supervision expected... students could be placed in challenging and compromising situations if asked to support healthcare staff in providing care. The case of the British trainee paediatrician, Bawa-Garba, who was convicted of manslaughter and temporarily lost her medical licence despite recognition of systemic failings and extreme pressure that she was under, has eroded trust from health-care professionals that they will be adequately supported in the event of potential mistakes under mitigating factors. These points must be explicitly addressed and conveyed on national levels before any student is used within clinical practice."

Global coalition to accelerate COVID-19 clinical research in resource-limited settings.

PMID: 32247324, Apr 6, 2020
COVID-19 Clinical Research Coalition
Lancet
Level of evidence: 5- Expert opinion
Type of Article: Correspondence
BLUF: Highlights the need to develop multinational research coalitions to assist in development of effective interventions for COVID-19 specific to resource limited settings.

Summarizing excerpt:
"COVID-19 trials should be adequately powered to generate evidence. They need to be large and well designed. Priority should be given to interventions that reflect the specific needs of countries and are readily implementable. For resource-poor settings, that means interventions need to be affordable and available, and adaptable to the healthcare systems and the populations they serve. The adverse impacts of COVID-19 on health and welfare are likely to be considerable in low-income or middle-income countries (LMICs). Clinical trials, and evaluations of affordable and implementable interventions of all types—behavioural, organisational, medical, and supportive—are a priority."

Evolving epidemiology and transmission dynamics of coronavirus disease 2019 outside Hubei province, China: a descriptive and modelling study.

PMID: 32247326, Apr 6, 2020
Zhang, Juanjuan; Litvinova, Maria; Wang, Wei; Wang, Yan; Deng, Xiaowei; Chen, Xinghui; Li, Mei; Zheng, Wen; Yi, Lan; Chen, Xinhua; Wu, Qianhui; Liang, Yuxia; Wang, Xiling; Yang, Juan; Sun, Kaiyuan; Longini, Ira M Jr; Halloran, M Elizabeth; Wu, Peng; Cowling, Benjamin J; Merler, Stefano; Viboud, Cecile; Vespignani, Alessandro; Ajelli, Marco; Yu, Hongjie
Lancet Infect Dis
Level of Evidence: 4- Cohort study without concurrent control group
Article type: Research
BLUF: China was able to rapidly flatten the curb by quickly isolating infectious individuals and applying strict containment policies.

Abstract:
BACKGROUND: The coronavirus disease 2019 (COVID-19) epidemic, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), began in Wuhan city, Hubei province, in December, 2019, and has spread throughout China. Understanding the evolving epidemiology and transmission dynamics of the outbreak beyond Hubei would provide timely information to guide intervention policy.
METHODS: We collected individual information from official public sources on laboratory-confirmed cases reported outside Hubei in mainland China for the period of Jan 19 to Feb 17, 2020. We used the date of the fourth revision of the case definition (Jan 27) to divide the epidemic into two time periods (Dec 24 to Jan 27, and Jan 28 to Feb 17) as the date of symptom onset. We estimated trends in the demographic characteristics of cases and key time-to-event intervals. We used a Bayesian approach to estimate the dynamics of the net reproduction number (Rt) at the provincial level.

FINDINGS: We collected data on 8579 cases from 30 provinces. The median age of cases was 44 years (33-56), with an increasing proportion of cases in younger age groups and in elderly people (ie, aged >64 years) as the epidemic progressed. The mean time from symptom onset to hospital admission decreased from 4.4 days (95% CI 0.0-14.0) for the period of Dec 24 to Jan 27, to 2.6 days (0.0-9.0) for the period of Jan 28 to Feb 17. The mean incubation period for the entire period was estimated at 5.2 days (1.8-12.4) and the mean serial interval at 5.1 days (1.3-11.6). The epidemic dynamics in provinces outside Hubei were highly variable but consistently included a mixture of case importations and local transmission. We estimated that the epidemic was self-sustained for less than 3 weeks, with mean Rt reaching peaks between 1.08 (95% CI 0.74-1.54) in Shenzhen city of Guangdong province and 1.71 (1.32-2.17) in Shandong province. In all the locations for which we had sufficient data coverage of Rt, Rt was estimated to be below the epidemic threshold (ie, <1) after Jan 30.
INTERPRETATION: Our estimates of the incubation period and serial interval were similar, suggesting an **early peak of infectiousness, with possible transmission before the onset of symptoms**. Our results also indicate that, as the epidemic progressed, infectious individuals were isolated more quickly, thus shortening the window of transmission in the community. Overall, our findings indicate that **strict containment measures, movement restrictions, and increased awareness of the population might have contributed to interrupt local transmission of SARS-CoV-2** outside Hubei province.

Remdesivir for severe acute respiratory syndrome coronavirus 2 causing COVID-19: An evaluation of the evidence.

PMID: 32247927, Apr 6, 2020
Cao, Yu-Chen; Deng, Qi-Xin; Dai, Shi-Xue
Travel Med Infect Dis
Level of evidence: <5- Expert Opinion, case report, foundational evidence
Article type: Research

BLUF: Remdesivir is a promising nucleoside analog drug (RNA dependent RNA polymerase inhibitor) that has been effective against Ebola and Nipah virus in nonhuman primates. Phase II study in patients with Ebola was terminated as the drug had no significant effect on mortality. No phase II studies completed in COVID-19 patients, but authors allude to the case study of the first US patient who tested positive for COVID-19 and treated with remdesivir as evidence of its efficacy that requires further study, However, they present evidence that *viral Ct levels had already started to trend down prior to starting the drug. Furthermore, personal communication between this writer and the physician who responded to this specific patient described that this patient had more than 30 nasal swabs prior to his discharge with high variance in his nasal viral titers- meaning that the Ct levels on a swab test may not be a good indicator of disease.*

Abstract:
The novel coronavirus infection that initially found at the end of 2019 has attracted great attention. So far, the number of infectious cases has increased globally to more than 100 thousand and defined as a pandemic situation, but there are still no "specific drug" available. Relevant reports have pointed out the novel coronavirus has 80% homology with SARS. In the difficulty where new synthesized drug cannot be applied immediately to patients, "conventional drug in new use" has become a feasible solution. The first medication experience of the recovered patients in the US has led remdesivir to be the "specific drug". China has also taken immediate action to put remdesivir into clinical trials with the purpose of applying it into clinical therapeutics for Corona Virus Disease 2019 (COVID-19). We started from the structure, immunogenicity, and pathogenesis of coronavirus infections of the novel

coronavirus. Further, we analyzed the pharmacological actions and previous trials of remdesivir to identify the feasibility of conducting experiments on COVID-19.

Clinical features of cases and a cluster of Coronavirus Disease 2019 (COVID-19) in Bolivia imported from Italy and Spain.

PMID: 32247926, Apr 6, 2020

Escalera-Antezana, Juan Pablo; Lizon-Ferrufino, Nicolas Freddy; Maldonado-Alanoca, Americo; Alarcon-De-la-Vega, Gricel; Alvarado-Arnez, Lucia Elena; Balderrama-Saavedra, Maria Alejandra; Bonilla-Aldana, D Katterine; Rodriguez-Morales, Alfonso J

Travel Med Infect Dis
Level of Evidence: 3- Retrospective, cross sectional
Article Type: Research

BLUF: The first series of COVID-19 cases in Bolivia exhibited mild disease and were mostly managed as outpatients

Abstract:

INTRODUCTION: In March 2020, Coronavirus Disease 2019 (COVID-19) arrived in Bolivia. Here, we report the main clinical findings, and epidemiological features of the first series of cases, and a cluster, confirmed in Bolivia.

METHODS: For this observational, retrospective and cross-sectional study, information was obtained from the Hospitals and the Ministry of Health for the cases that were laboratory-diagnosed and related, during March 2020. rRT-PCR was used for the detection of the RNA of SARS-CoV-2 following the protocol Charite, Berlin, Germany, from nasopharyngeal swabs.

RESULTS: Among 152 suspected cases investigated, 12 (7.9%) were confirmed with SARS-CoV-2 infected by rRT-PCR. The median age was 39 years (IQR 25-43), six of them male. Two cases proceed from Italy and three from Spain. Nine patients presented fever, and cough, five sore throat, and myalgia, among other symptoms. Only a 60 y-old woman with hypertension was hospitalized. None of the patients required ICU nor fatalities occurred in this group.

CONCLUSIONS: This is the first report of surveillance of COVID-19 in Bolivia, with patients managed mainly with home isolation. Preparedness for a significant epidemic, as is going on in other countries, and the deployment of response plans for it, in the country is now taking place to mitigate the impact of the COVID-19 pandemic in the population.

Table 1. Clinical and epidemiological characteristics of cases of SARS-CoV-2 infection/COVID-19 in Bolivia, March 2-15, 2020.

									Clinical manifestations															
Case	Date of March 2020	Department	Age	Sex	Date Symptoms Initiated, 2020	Date Consultation (month/day)	Days	Hospitalization	Fever	Cough	Malaise	Vomiting	Abdominal Pain	Tachypnea	Myalgia	Sore throat	Diarrhoea	Cephalea	Conjunctival injection	Comorbidities or history	Traveller from	Started day	Returning day	Long of travel	Link to cases	Sampling place
1	8th	Oruro	64	F	3/2	3/3	1	Outp	Y	Y	Y	Y	Y	N	N	N	N	N	N	N	Italia	3/1	3/2	3.01 years	N	Hospital
2	9th	Santa Cruz	60	F	2/29	3/8	8	Hosp	Y	Y	Y	N	N	Y	N	N	N	N	N	HTA	Italia	2/7	3/8	30 days	N	Hospital
3	10th	Oruro	41	F	3/9	3/9	0	Outp	Y	N	N	N	N	N	Y	N	N	N	N	N	-	-	-	-	C1	Home
4	10th	Oruro	13	M	Unknown	3/8	Unknown	Outp	N	Y	N	N	N	N	N	Y	N	N	N	N	-	-	-	-	C1	Home
5	10th	Oruro	44	M	3/10	3/10	0	Outp	N	Y	N	N	N	N	Y	N	N	N	N	N	-	-	-	-	C1	Home
6	10th	Oruro	39	M	3/2	3/11	9	Outp	N	Y	N	N	N	N	N	Y	N	N	N	N	-	-	-	-	C1	Home
7	10th	Oruro	39	F	Unknown	3/10	Unknown	Outp	Y	Y	N	N	N	N	N	N	N	N	N	N	-	-	-	-	C1	Home
8	11th	Cochabamba	43	M	3/6	3/9	3	Outp	Y	Y	N	N	Y	N	Y	Y	Y	N	Y	Previous CAP	-	-	-	-	C1	Home
9	11th	Santa Cruz	27	M	3/9	3/11	2	Outp	Y	N	N	N	N	N	Y	N	N	Y	N	N	Spain	2/23	3/8	14 days	N	Hospital
10	11th	Oruro	18	M	3/8	3/11	3	Outp	Y	Y	Y	N	N	N	N	N	Y	N	N	N	-	-	-	-	C1	Home
11	13th	Santa Cruz	20	F	3/9	3/10	1	Outp	Y	Y	N	N	N	N	N	Y	N	N	N	N	Spain	2/5	3/11	35 days	N	Home
12	15th	Santa Cruz	30	F	3/13	3/15	2	Outp	Y	N	Y	N	N	N	Y	Y	N	Y	N	N	Spain	3/9	3/11	2 days	N	Hospital

F, Female; M, Male; Outp, Outpatient; Hosp, Hospitalization; Y, Yes; N, No; HTA, hypertension; CAP, Community-acquired pneumonia; C1, Case 1.

Incidence of novel coronavirus (2019-nCoV) infection among people under home quarantine in Shenzhen, China.

PMID: 32247931, Apr 6, 2020
Wang, Jingzhong; Liao, Yi; Wang, Xiaoyang; Li, Yichong; Jiang, Dan; He, Jianfan; Zhang, Shunxiang; Xia, JunjieTravel Med Infect Dis
Level of Evidence: 4- Cohort study without control group
Article Type: Research

BLUF: Most COVID-19 patients went to endemic area for a short time (less than a week). Most patients traveled there by their private car. Most did not have a positive sick, confirmed COVID-19 or suspected COVID-19 contact (0.80%, 0.86% and 0.73% respectively). This is likely accurate given Chinese legal policies that enable location tracking of COVID-19 patients using their mobile devices. Over 80% of these patients also reported use of masks, handwashing, social distancing. This latter data less likely to be accurate based on study design.

Abstract:

BACKGROUND: Since the outbreak of 2019-nCoV in December, Chinese government has implemented various measures including travel bans, centralized treatments, and home quarantines to slowing the transmission across the country. In this study, we aimed to estimate the incidence of 2019-nCoV infection among people under home quarantine in Shenzhen, China.

METHODS: We used a stratified multistage random sampling method to recruit participants and collected demographic information and laboratory results of people under home quarantine. We conducted descriptive analysis to estimate the basic characteristics and to calculate the incidence in out [sic] study population.

RESULTS: A total of 2004 people under home quarantine participated in this study, of which 1637 participants finished the questionnaire with a response rate of 81.7%. Mean age of the participants was 33.7 years, ranging from 0.3 to 80.2 years. Of people who provided clear travel history, 129 people have traveled to Wuhan city and 1,046 people have traveled to other cities in Hubei province within 14 days before the home quarantine. Few (less than 1%) participants reported contact history with confirmed or suspected cases during their trip and most of these arrived at Shenzhen between Jan 24, 2020 to Jan 27, 2020. The incidence of COVID-19 in the sample was 1.5 per thousand (95% CI: 0.31 per thousand-4.37 per thousand).

CONCLUSION: Home quarantine has been effective in preventing the early transmission of COVID-19, but that more needs to be done to improve early detection of COVID-19 infection.

Table 2. Travel history and contact history of the sample

	Frequency	Proportion (%)
Travel history		
Did not travel to epidemic areas within 14 days before the medical observation	424	25.93
Traveled to epidemic areas within 14 days before the medical observation	1,211	74.07
Wuhan city	128	10.55
Other cities in Hubei province	1,045	86.15
Other provinces	40	3.30
Vehicles		
Airplane	59	4.89
Train	186	15.41
Bus	4	0.33
Private car	947	78.46
Others	11	0.91
Length of stay (day)		
1-3	795	48.62
4-6	407	24.89
7-9	195	11.93
10-30	166	10.15
Long-term residence	72	4.40
Contact history		
Contact with people who had fever or respiratory symptom in Hubei	13	0.80
Contact with confirmed, mild, or asymptomatic cases	14	0.86
Suspected or confirmed cases in your family, or work place?	12	0.73

Table 3. Self-protection behaviors of the participants

Self-protect behaviors	Frequency (proportion %)			
	Never	Occasionally	Often	Every time
Wearing masks when going outside	48 (2.94)	48 (2.94)	87 (5.32)	1452 (88.81)
Washing hand	41 (2.51)	17 (1.04)	158 (9.66)	1419 (86.79)
Reducing outdoor events	63 (3.85)	18 (1.10)	144 (8.81)	1410 (86.24)
Cancelling parties or gatherings	84 (5.14)	8 (0.49)	101 (6.18)	1442 (88.20)
Covering mouth and nose with a tissue or towel when coughing / sneezing	39 (2.39)	31 (1.90)	165 (10.09)	1400 (85.63)

Summary of the COVID-19 outbreak in vietnam - Lessons and suggestions.

PMID: 32247928, Apr 6, 2020

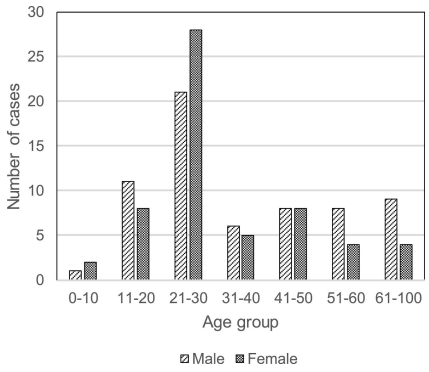
Nguyen, Trang H D; Vu, Danh C

Travel Med Infect Dis

Level of Evidence: 4- Cohort study without control group

Type of Article: Letter

Summary: Describes the demographics of COVID-19 affected individuals in Vietnam. Vietnam did not give strict containment orders but instead encouraged citizens to stay at home, wear face masks and practice good hand hygiene. The government, however, has issued a temporary suspension of entry to all foreigners coming from COVID-19 affected areas and mandates quarantine at centralized facilities for all travelers into Vietnam for 14 days. Author encourages increased measures to decrease transmission rates.



Repurposing antimalarials and other drugs for COVID-19.

PMID: 32247925, Apr 6, 2020

Schlagenhauf, Patricia; Grobusch, Martin P; Maier, Julian D; Gautret, Philippe

Travel Med Infect Dis

Level of Evidence: 5- Expert opinion

Article type: Editorial

Summarizing excerpt:"If antimalarials can be repurposed for COVID-19, travel and tropical medicine experts can bring their expertise to the table as antimalarials are the "bread and butter" of travel medicine and there is a wealth of experience and knowledge on the use and tolerability of these drugs in all ages and in persons with co-morbidities. It is time to bring this knowledge to a new front in the war on COVID-19."

A twin challenge to handle: COVID-19 with pregnancy.

PMID: 32248565, Apr 6, 2020
Sahu, Kamal K
Journal of Medical Virology
Evidence Level: Level 5
Article Type: Correspondence
Summary: COVID-19 considerations and implications in pregnancy require more study to determine the best course of care and risks for pregnant patients/healthcare workers.