# BCM Infectious Disease COVID19 Literature Review Newsletter: WEEK 14

**June 29th-July 3rd, 2020**

**Week 14 Newsletter Prepared by:**

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2. Jill Weatherhead, MD

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### The number of COVID-19 confirmed cases, related deaths, and total tests reported for State and County

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Last Updated</th>
<th>COVID-19 cases in Texas</th>
<th>COVID-19 cases in Harris County</th>
<th>COVID-19 related deaths in Texas</th>
<th>COVID-19 related deaths in Harris County</th>
<th>Total tests performed</th>
</tr>
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<tbody>
<tr>
<td>1. Texas DSHS a</td>
<td>June 28, 2020, 3:40 PM</td>
<td>148,723 (Active cases: 66,356)</td>
<td>29,163</td>
<td>2,393</td>
<td>369</td>
<td>1,775,219 Texas</td>
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<td>2. Johns Hopkins b</td>
<td>June 29, 2020, 9:33 AM</td>
<td>150,152 (Active cases: 79,924)</td>
<td>29,276</td>
<td>2,402</td>
<td>N/A</td>
<td>1,775,219 Texas</td>
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*DSHS updated the method of reporting COVID-19 cases in Texas on March 24, 2020 to provide the public with more timely information. The DSHS daily case count now includes all cases reported publicly by local health departments around the state.*

*Data sources from WHO, CDC, ECDC, NHC, DXY, 1point3acres, Worldometers.info, BNO; state and national government health departments, and local media reports.*

*Data represents viral total tests performed (positive and negative) at private and public labs in Texas. N/A = not available*
**COVID-19 Literature Review Newsletter Volume #35**

**Faculty:** Jill Weatherhead MD

**June 29th, 2020**

**Updates:** CDC updates people who are at increased risk of severe illness. June 25th, 2020.
- **High Risk:** Elderly, CKD, COPD, SOT, Obesity, series heart conditions, sickle cell disease, type 2 DM, children with complex medical conditions (neurologic, genetic, metabolic conditions, congenital heart disease)
- **Might be at High Risk:** Asthma, CVD, cystic fibrosis, hypertension, BMT, immunodeficiencies, HIV, use of corticosteroids or other immune weakening medicines, neurologic conditions including dementia, liver disease, pulmonary fibrosis, smoking, thalassemia, type 1 DM and pregnancy


**Websites:** How we reopen safely: tracking states as they make progress towards a new normal.
[https://www.covidexitstrategy.org/about](https://www.covidexitstrategy.org/about)

**Articles:**

**Background:**
- Subset of patients that are asymptomatic or minimally symptomatic that test positive by RT-PCR for SARS-CoV-2 and may play a role as “silent spreaders”
The clinical features and immune response of asymptomatic individuals with SARS-CoV-2 infection is unknown

Methods:
- Wanzhou District CDC, China conducted extensive RT-PCR screening for 2,088 close contacts under quarantine followed by screening of symptoms between Jan 21st - Feb 19th, 2020
- 60 patients with positive RT-PCR had no symptoms in the preceding 14 days and were admitted to government-designated hospital for centralized isolation
  - On admission, 17 were excluded for mild or atypical symptoms and 6 patients that developed symptoms during admission were excluded

Results:
- 37 RT-PCR positive asymptomatic cases were identified, 37 RT-PCR positive mild symptomatic patients (sex-, age-, comorbidity-matched) were used as positive controls and 37 RT-PCR negative asymptomatic patients (sex-, age-, comorbidity-matched) were used as negative controls
- Lab and radiographic results of 37 PCR+, asymptomatic patients:
  - 3 patients had lymphopenia, 1 had thrombocytopenia, 6 had elevated ALT, 11 had increased CRP
  - 11 had focal ground-glass opacities, 10 had “stripe shadows” or diffuse consolidation, 16 had no abnormality (5 developed radiographic changes during hospital admission)
- RT-PCR Ct compared to positive controls were similar 31.7 in asymptomatic vs 33.5 in symptomatic
- Viral shedding in asymptomatic was longer vs mildly symptomatic controls: 19 vs 14 days
  - ***viral shedding does not equate with viral infectivity
- Antibody testing: 81.1% of asymptomatic and 83.8% symptomatic group tested positive for IgG 3-4 weeks after exposure. Of note symptomatic group had higher antibody levels during acute and convalescent stage.
  - 93.3% of asymptomatic group and 96.8% of symptomatic group had declining antibody levels during early convalescent phase (8 weeks post exposure)
  - 40% of asymptomatic vs 12.9% symptomatic individuals became seronegative for IgG at 8 weeks
- 32 cytokines were similar between the PCR negative healthy controls and the PCR positive asymptomatic infections
  - SCF, IL-13, IL-12 p40, LIF were higher in the asymptomatic group

Discussion:
- Asymptomatic, PCR positive individuals had evidence of radiographic pulmonary changes
- Asymptomatic, PCR positive individuals had longer viral shedding compared to mild symptomatic, PCR positive individuals but likelihood of transmissibility remains unknown
- IgG levels and neutralizing antibodies in both PCR positive groups began to decrease within 2-3 months from exposure suggesting possibility of minimal sustained immunity
- Asymptomatic, PCR positive individuals had similar cytokine profile as individuals who were uninfected suggesting a minimal inflammatory response.
- Limitations: not likely reflective of general population (selection bias), small numbers

https://pediatrics.aappublications.org/content/pediatrics/early/2020/06/16/peds.2020-1140.full.pdf
- Adults are at higher risk of serious COVID-19-related illness requiring ICU care than children
- In the US there are 68558 adult ICU beds, 5137 PICU beds, 22901 NICU beds, 25157 step-down beds and 1183 burn beds, during a moderate-severe outbreak the need for adult ICU beds will meet capacity while Children’s hospitals will likely have surplus capacity
- Sharing Children’s hospital resources:
  1. Importing patients: more likely in free-standing children’s hospitals
  2. Exporting resources: more feasible in children’s hospitals that are physically part of larger medical centers.

- Ethical considerations for healthcare workers/Children’s hospitals: Pediatric clinicians practicing outside their usual scope of practice (pediatric and adult physicians and nurse are not entirely interchangeable) vs ethical principle to meet urgent needs in the community
- PICU:
  - PICU staff can provide safe and adequate care for adults with respiratory failure which is a common PICU disease process (particularly in people up to age 30)
  - Upper age limits should be considered proactively, but needs to be fluid based on current conditions
  - Triage protocols should still prioritize PICU access for children
- NICU:
  - Do not have elective admission, rates of premature birth can be expected to remain steady or perhaps increase during stress of a pandemic
  - Adults can not be admitted to NICU but some NICU resources could be allocated for older children and adults (ventilators, IV pumps)
  - NICUs should consider average daily census to plan for anticipated needs, excess should be shifted upward toward PICUs and adult ICUs
  - Pediatric clinicians will need to be called on to make difficult decisions under non-ideal conditions while balancing commitment to individual children and the larger needs of the community

*** Texas Children’s Hospital is now accepting adult patients. Criteria:
1. Adult COVID + patients will be admitted to TCH west campus Special Isolation Unit (SIU)
2. Adult non-COVID patients will be admitted to main campus (med center) to both the PICU by Pedi Intensivists and to the floor (Abercrombie building) by the Pediatric Hospitalist group

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<th>Texas Children’s Hospital Expanded Scope for Pediatric Acute Care</th>
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**Candidates for TCH Expanded Scope**  
*(list is not exhaustive)*

All patients admitted to Abercrombie Acute Care Unit to be COVID negative

- Confirmed negative COVID test
- Pneumonia / Bronchitis
- Soft Tissue/Skin infection
- Pyelonephritis
- Acute Dehydration
- Overdose/ingestion (non-suicidal)
- Medically complex patients with diseases presenting in childhood
  - Sickle cell disease
  - Cystic fibrosis
  - Genetic diseases
- Patients who meet TCH acute care criteria recovering from ICU admission for
  - Septic shock
  - ARDS
  - DKA
  - Head trauma / multi-trauma
  - Post-arrest management
  - General Surgical cases