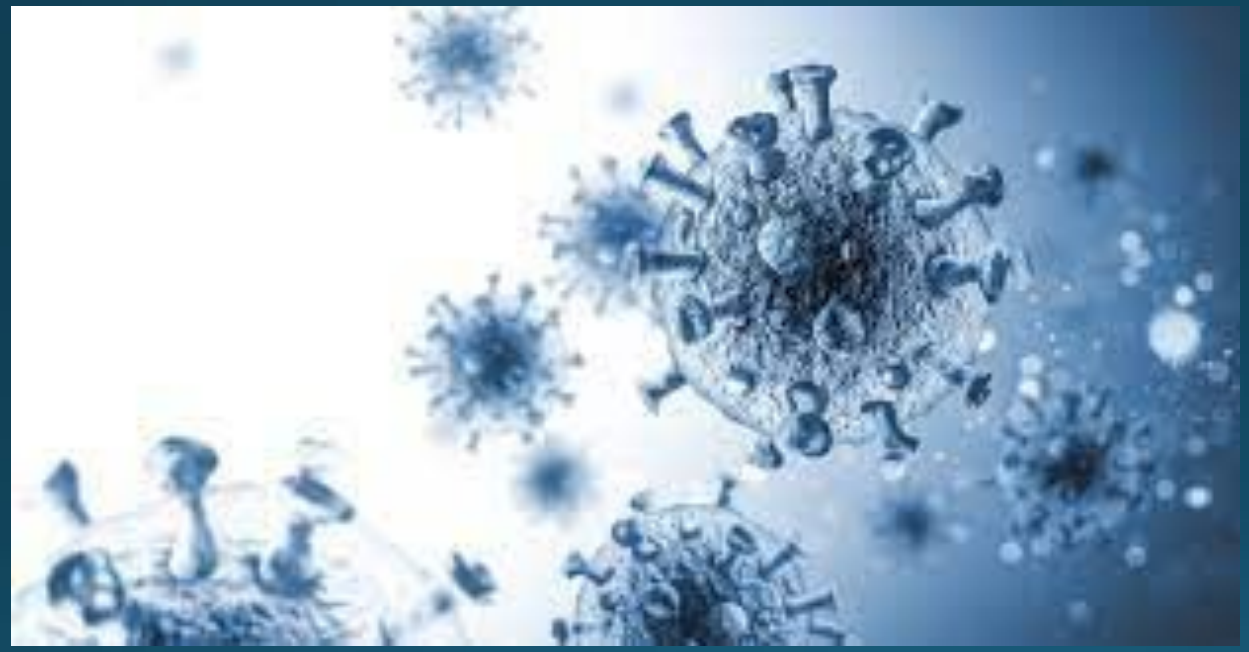
COVID-19 Treatment



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Henry County
Medical Center
Graduate Medical
Education

COVID Care-team

- Nurses
- Respiratory Therapist
- Physical Therapist
- Dietary/Nutrition
- Hospitalist
- Pulmonologist
- Case Manager/Social Workers/Home Health and Rehab
- Environmental Services, Plant Operations, IT and Device Support

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Severe Illness

- Trouble breathing
- Abnormal Lab tests indicating severe illness
- Difficulty maintaining oxygen

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Severe Illness

- Trouble breathing
- Abnormal Lab tests indicating severe illness
- Difficulty maintaining oxygen

- Treatment: hospitalization

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Treatment of Severe COVID

- Labs
- Check for Influenza
- Empiric Treatment for Bacterial Pneumonia
- Prevent Blood Clots
- Avoid Nebulized medications

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Chest XRay

(a) Normal

(b) Bacterial Pneumonia

(c) Viral Pneumonia

(d) COVID-19 Pneumonia

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Defining severity of illness

- Hypoxia less than 94% on room air
- Need for oxygen or ventilatory support
- Rapid Heart Rate
- Rapid Respiration Rate
- >50% involvement of lungs

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Medications for severe illness

- Remdesivir
  - shortens hospitalization by 5 days, 50% improved clinical status, lower incidence of mechanical ventilation
- Dexamethasone
  - lowered 28 day mortality
- Tocilizumab
  - increased survival in patients with high CRP levels

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Oxygenation status

- Pulse oximetry
- Arterial Blood Gas

Value	Normal	Abnormal	
pH	7.35–7.45	<7.35 Acidosis	>7.45 Alkalosis
PaO2	>90 mmHg	75–89 mmHg Mild hypoxia	<75 mmHg Severe hypoxia
PaCO2	35–45 mmHg	<35 mmHg Alkalosis	>45 mmHg Acidosis
HCO3	18–24 mEq/l	<18 mEq/l Acidosis	>24 mEq/l Alkalosis

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Oxygen delivery systems

Low flow delivery	Nasal canula
High flow oxygen	High flow nasal canula
Non-Invasive Ventilation	BIPAP,CPAP, Optiflow pressurized nasal canula deviecs
Mechanical Ventilation	
ECMO	

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Beginning of the Diagnosis

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Symptoms

- Timing

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Symptoms

- Timing
  - Most common 4-5 days
  - Up to 2wks
  - None at all

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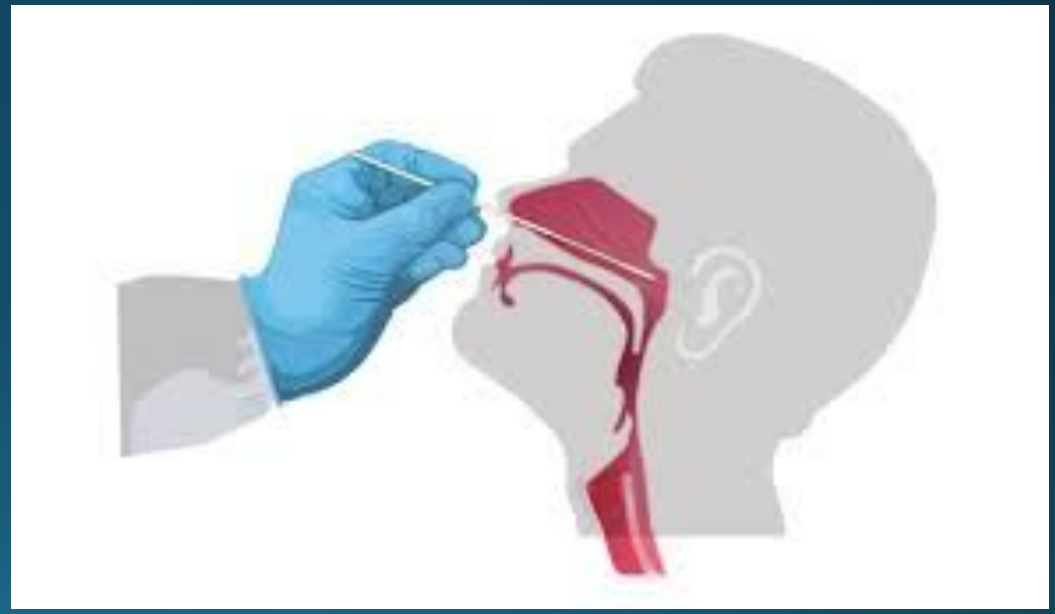
Symptoms

- Fever
- Cough
- Trouble breathing
- Feeling tired
- Shaking Chills
- Muscle aches
- Headache

COVID testing

- Nucleic acid tests
- Antigen tests



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Nucleic acid testing

- AKA molecular tests
- Look for the genetic material from the virus
- More accurate than antigen testing
- Often take longer than antigen testing

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Antigen Testing

- Look for proteins from the virus
- Faster results than nucleic acid tests
- More likely to give FALSE NEGATIVE test results

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Other Testing

- Blood Antibody Testing
- Shows if a person has had COVID-19 in the past
- Used by experts to follow infected population that may or may not have symptoms

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Test Results

Result Name	Results		Reference Range	UOM
Adenovirus	NOT_DETECT		NOT_DETECT	
Coronavirus 229E	NOT_DETECT		NOT_DETECT	
Coronavirus HKU1	NOT_DETECT		NOT_DETECT	
Coronavirus NL63	NOT_DETECT		NOT_DETECT	
Coronavirus OC43	NOT_DETECT		NOT_DETECT	
SARS-CoV-2	DETECT	!*	NOT_DETECT	
Metapneumovirus	NOT_DETECT		NOT_DETECT	
Rhino/Enterovirus	NOT_DETECT		NOT_DETECT	
Influenza A	NOT_DETECT		NOT_DETECT	
Influenza B	NOT_DETECT		NOT_DETECT	
Parainfluenza 1	NOT_DETECT		NOT_DETECT	
Parainfluenza 2	NOT_DETECT		NOT_DETECT	
Parainfluenza 3	NOT_DETECT		NOT_DETECT	
Parainfluenza 4	NOT_DETECT		NOT_DETECT	
RSV	NOT_DETECT		NOT_DETECT	
B parapertussis	NOT_DETECT		NOT_DETECT	
B pertussis	NOT_DETECT		NOT_DETECT	
Chlamydia pneumoniae	NOT_DETECT		NOT_DETECT	
Mycoplsma pneumoniae	NOT_DETECT		NOT_DETECT	

PCR

METHOD:
SPECIMEN: NP SWAB

Test Results

Result Name	Results		Reference Range	UOM
Adenovirus	NOT_DETECT		NOT_DETECT	
Coronavirus 229E	NOT_DETECT		NOT_DETECT	
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Parainfluenza 2	NOT_DETECT		NOT_DETECT	
Parainfluenza 3	NOT_DETECT		NOT_DETECT	
Parainfluenza 4	NOT_DETECT		NOT_DETECT	
RSV	NOT_DETECT		NOT_DETECT	
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METHOD:
PCR
SPECIMEN: NP SWAB

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What to do if I have Symptoms?

- Call Physician and Get Tested
- If Severe: ER or call 911

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COVID Exposed

- Unvaccinated and have not previously had COVID:
  - Get tested
  - Self quarantine for 14days

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COVID Exposed

- Unvaccinated and have had COVID 19 within the last 3 months
  - Do not need to self quarantine
  - But if greater than 3mo ago then get tested and self quarantine for 14 days

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COVID Exposed

- Fully Vacinated
  - Do not need to self quarantine
  - Should get tested 3-5 days after you were in contact with the infected person
  - Much less likely to get the infection, but still possible

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COVID Exposed

- Monitor yourself for symptoms for the full 14days
- In any symptoms, call your doctor right away
- Extra careful to wear a mask and social distance during this time

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Mild Illness

- Fever and cough
- Do NOT have trouble breathing

Mild Illness

- Fever and cough
- Do NOT have trouble breathing

- Treatment=
- Rest and symptomatic treatment at home
- Self isolate from family at home 20 days and greater than 24 hours without symptoms or fever

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Mild Illness Assessments

- Shortness of breath with normal daily activities
- If O2 is less than 94% on pulse oximetry
- Feelings of dizziness or almost passing out
- Falling
- Low blood pressure
- Confusion
- Decreased Urination
- Cyanosis

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Mild Illness Treatment

- Monoclonal Antibodies
  - Casirivimab-imdevimab Regen-COV
- Sotrovimab

  - Prevalent variant resistance to bamlanivimab-etesevimab
    -use is discontinued

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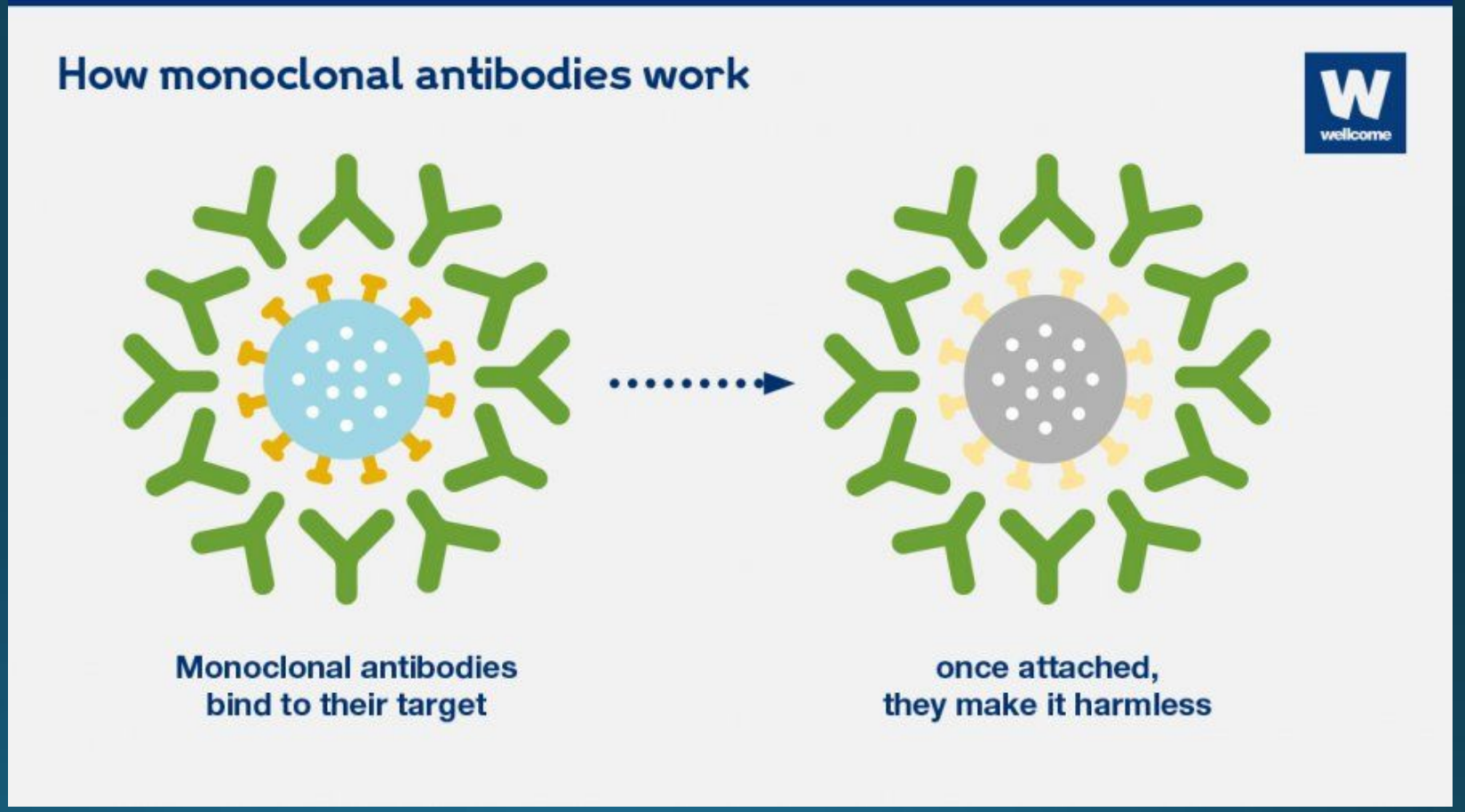
Monoclonal Antibody Therapy



Casirivimab and imdevimab are recombinant human (IgG1κ and IgG1λ, respectively) monoclonal antibodies to the spike protein of SARS-CoV-2.
Casirivimab and imdevimab bind to nonoverlapping epitopes of the spike protein receptor binding domain, blocking attachment to the human ACE2 receptor (FDA 2021)

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When Monoclonal Antibodies are used?

- •Older age (≥65 years)
- •Body mass index (BMI) ≥25 kg/m²
- •Pregnancy
- •Chronic kidney disease
- •Diabetes mellitus
- •Immunosuppression (immunosuppressive disease or treatment)
- •Cardiovascular disease or hypertension
- •Chronic lung disease •Sickle cell disease
- •Neurodevelopmental disorders
- •Dependence on a medical-related
- In addition, other conditions may place an individual at high risk for progression to severe COVID-19, and the use of monoclonal antibody therapy is not strictly limited to those with the risk factors listed above

Post-exposure prophylaxis

- Regen-COV (casirivimab and imdevimab)
  - Not fully vaccinated
  - Or not expected to mount an adequate immune response

  - AND
  - Have been exposed to COVID-19
  - High risk exposure

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Monoclonal Antibody Side Effects

- 10% local site reaction
- 1-10% nausea and vomiting

<1% severe infusion related reaction

Other Mild Illness Therapies

- High-titer convalescent plasma
  - Possible role if administered in the first 72hours of mild symptoms decrease risk of developing severe respiratory disease
  - Severe illness did not demonstrate benefit
- Steroids
  - No benefit and possible harm in patients without O2 requirement
- Colchicine
  - Mild reduction in hospitalizations 4.5% placebo group and 5.9% colchicine group
  - GI side effects ad More common Pulmonary Embolisms

Other Mild Illness Therapies

- Ivermectin
  - The Infectious Diseases Society of America's COVID-19 guidelines suggest against ivermectin use outside of the context of a clinical trial in outpatients or hospitalized patients with COVID-19. The guideline panel states that additional, sufficiently designed clinical trials are needed to inform decisions.
  - The National Institutes of Health's COVID-19 guidelines panel indicates that there are insufficient data to recommend for or against the use of ivermectin for the treatment of COVID-19 and that results from adequately powered, well-designed, and well-conducted clinical trials are needed to provide more specific, evidence-based guidance.

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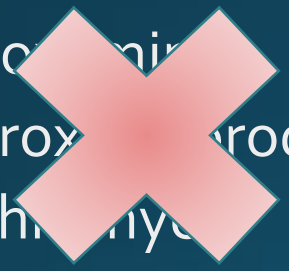
Other Mild Illness Therapies

- Inhaled steroids/inhaled budesonide: some benefit with fewer hospitalizations
- No Clinical Benefit
  - Fluvo[illegible]
  - Hydrox[illegible]roquine
  - Azith[illegible]
  - Vitamin C
  - Vitamin D
  - Zinc



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Symptom Management

- Acetaminophen
- NSAID
- Hydration
- Cough medication

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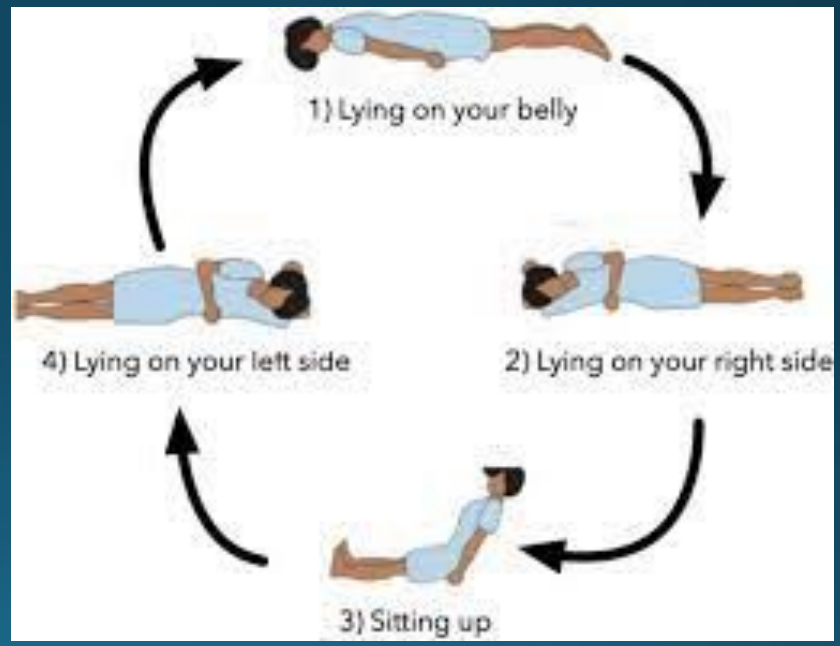
Symptom Management

- Self proning
- Breathing exercises



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Vaccinations

mRNA

Pfizer

Moderna

Vector

Johnson & Johnson

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mRNA vaccine effectiveness

- 94% effective against hospitalization if fully vaccinated
- 64% effective among partially vaccinated

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J&J vector vaccine

- 66% effective in preventing lab confirmed COVID 19

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TN.GOV COVID Dashboard

Breakthrough infection rates

- CDC estimates 0.5%
- Data for July and August appear to be at 12-24%

Summary of Recent Breakthrough Cases:

Month	% of Cases Unvaccinated	% of COVID Hospitalizations Unvaccinated*	% of COVID Deaths Unvaccinated**
May- July	90%	88%	94%

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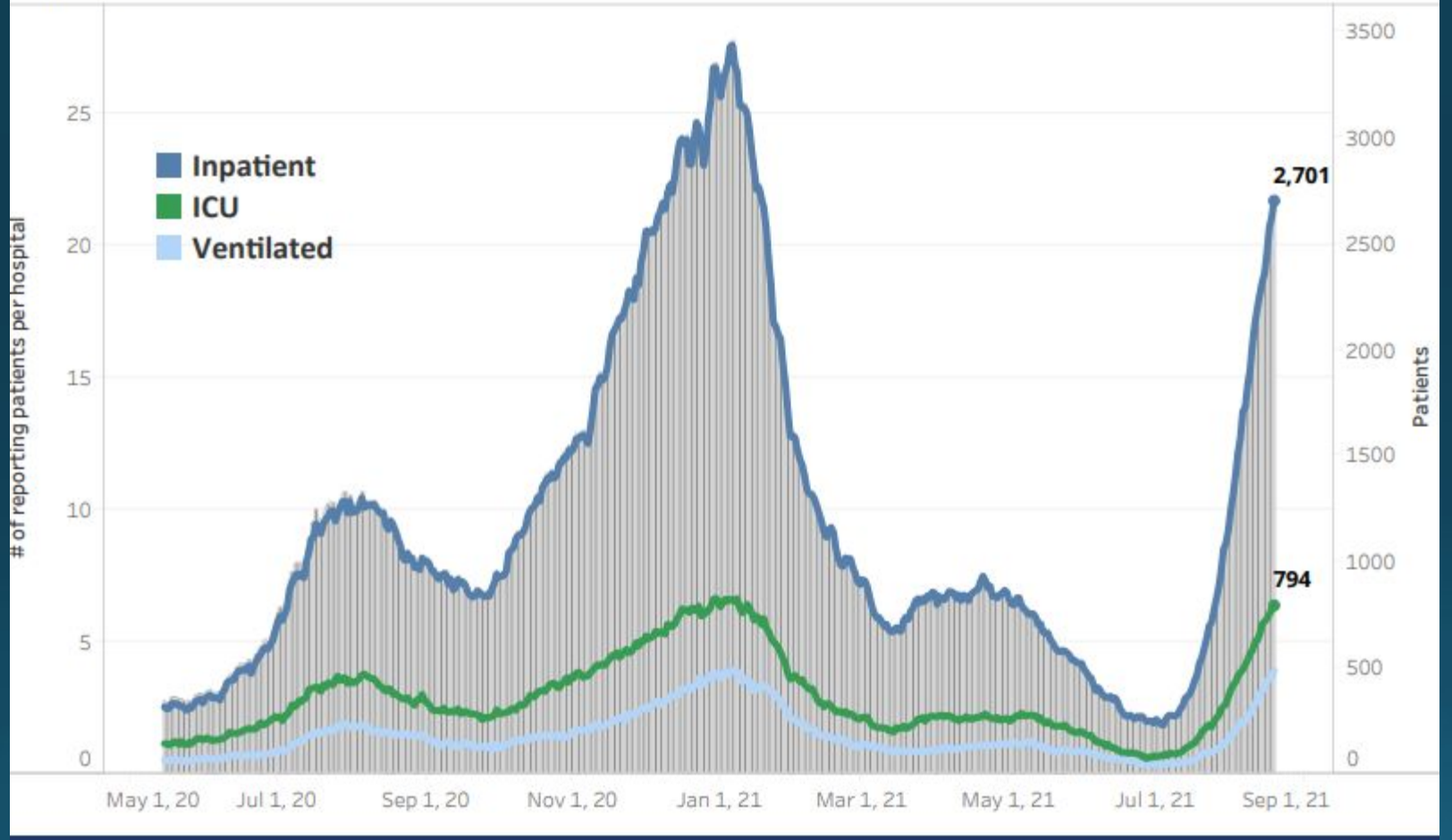
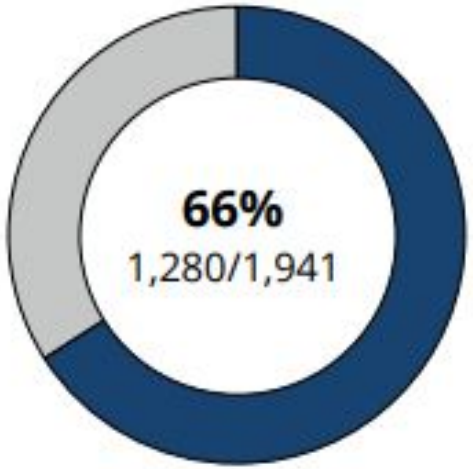
Below is the number of COVID-19 patients currently hospitalized (dark blue), and of those hospitalized who are in the ICU (green) and are using ventilators (light blue). The grey bar represents the number of patients per reporting hospital, a rate that can help us better interpret changes in COVID-19 hospitalizations (as not all hospitals report each day).

The total number of COVID-19 positive patients hospitalized across TN on August 19, 2021 was **2,701**. There are 794 COVID-19 patients currently in the ICU and 488 utilizing ventilators. The number of admitted patients per hospital reporting was 21.27 (with 114 hospitals reporting).

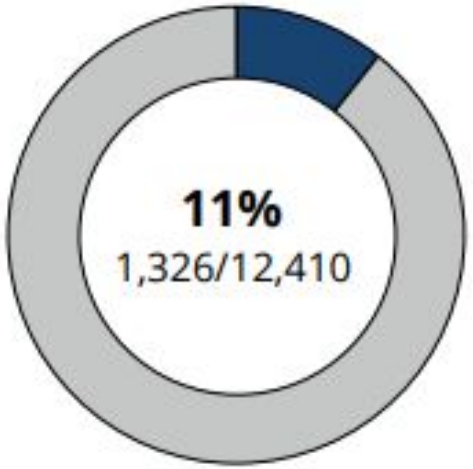


Quick Glance at Hospital Bed & Ventilator Availability[13]

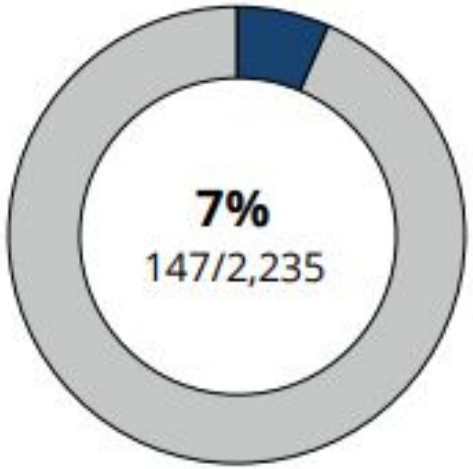
Below is a brief snapshot of the currently available floor beds, ICU beds and ventilators across TN.



Available Adult Ventilators



Available Floor Beds



Available ICU Beds

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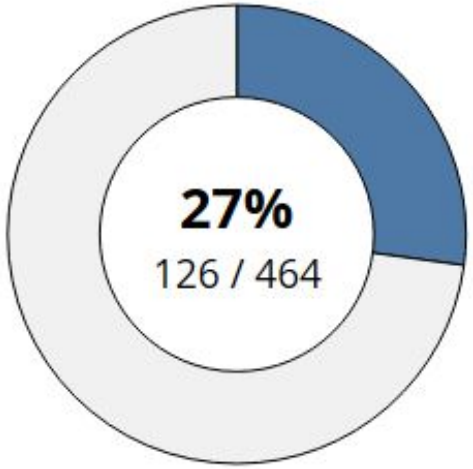
Tennessee COVID-19 Hospital Pediatric Resource Status

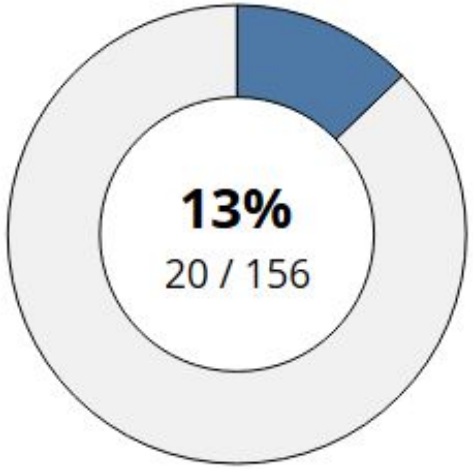
Data as of August 23, 2021

About



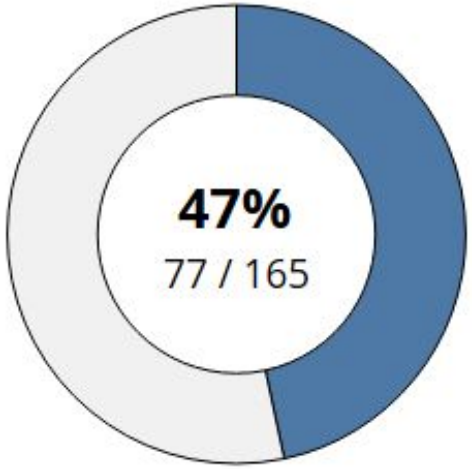
Available Floor Beds: Pediatric

The range of Available Floor Beds: Pediatric is *13%* to *56%*



Available ICU Beds: Pediatric

The range of Available ICU Beds: Pediatric is *0%* to *54%*



Available Pediatric Ventilators

The range of Available Pediatric Ventilators is *0%* to *83%*

Pediatric available resource capacity ranges vary across the state, by HCC Region

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Long Term Care Facility Data

Facilities with > 1 COVID Cases	Resident COVID Cases	Resident Deaths	Staff COVID Cases
604	19,690	2,705	16,067

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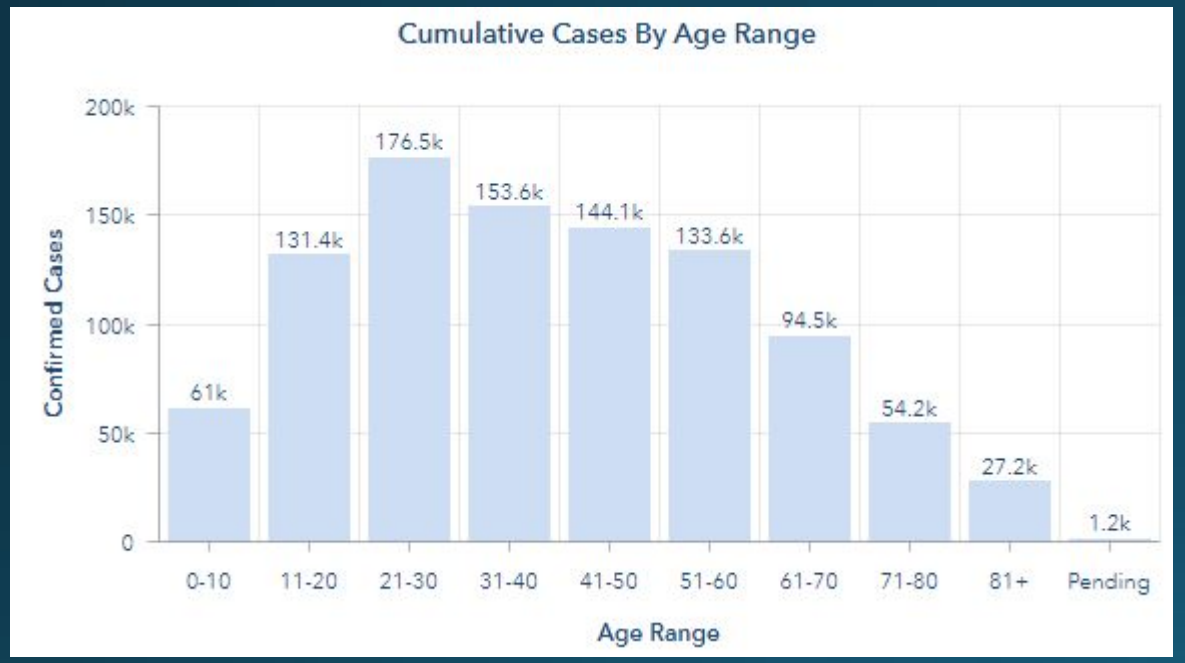

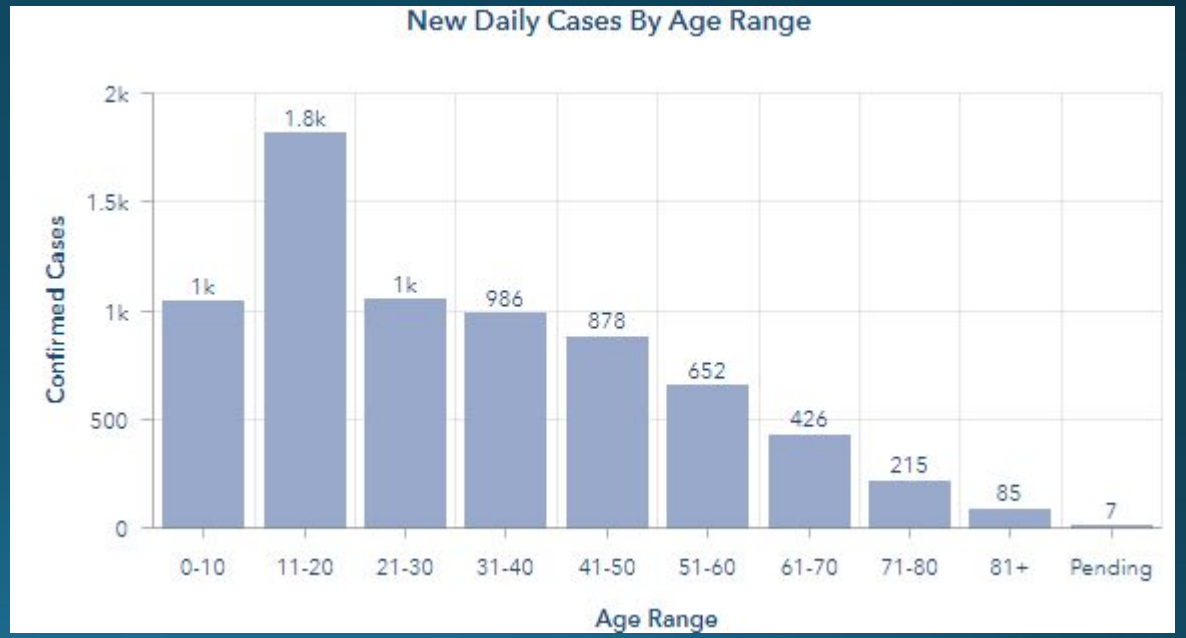

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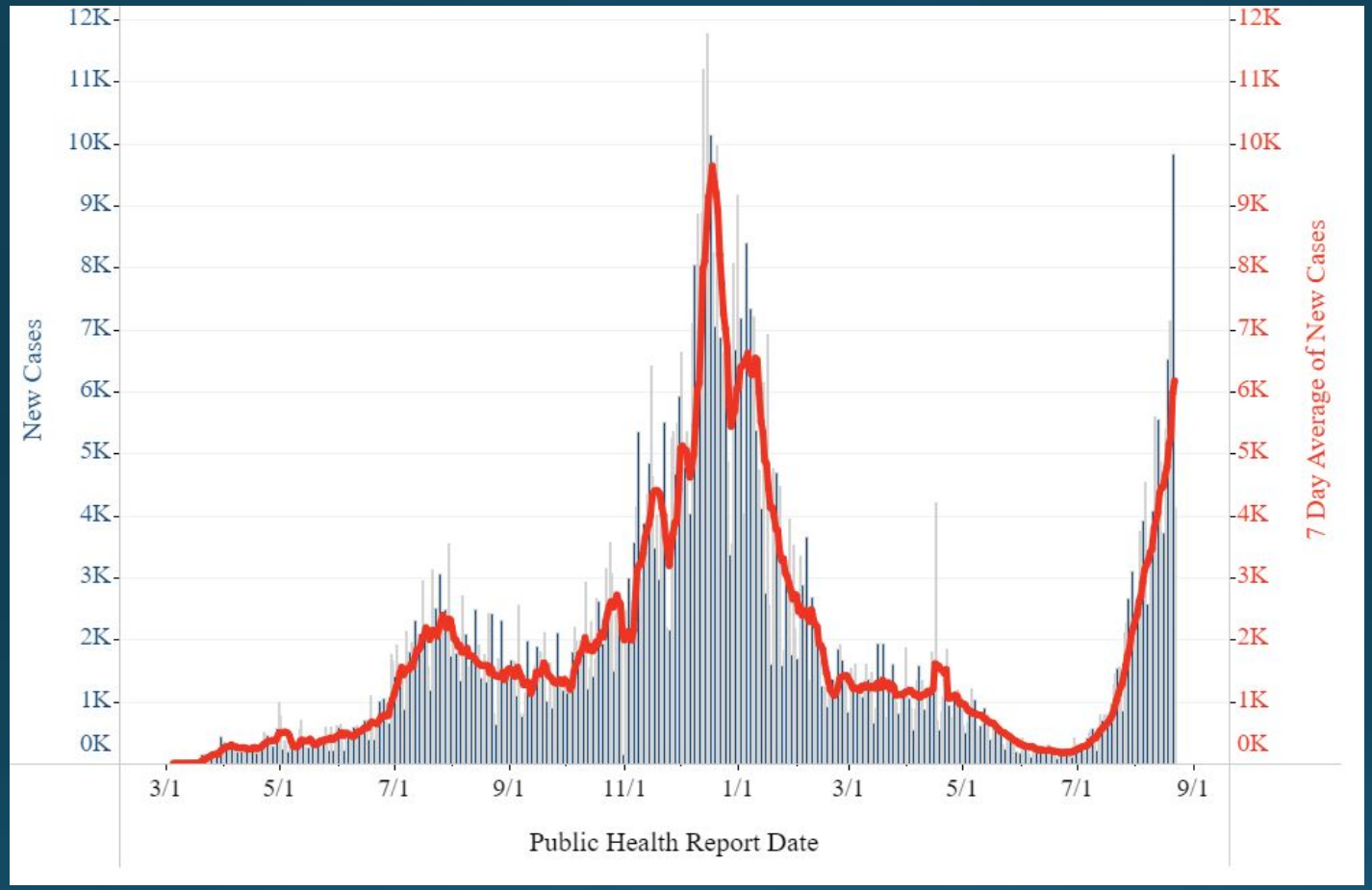

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COVID Care-team

- Nurses
- Respiratory Therapist
- Physical Therapist
- Dietary/Nutrition
- Hospitalist
- Pulmonologist
- Case Manager/Social Workers/Home Health and Rehab
- Environmental Services, Plant Operations, IT and Device Support

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