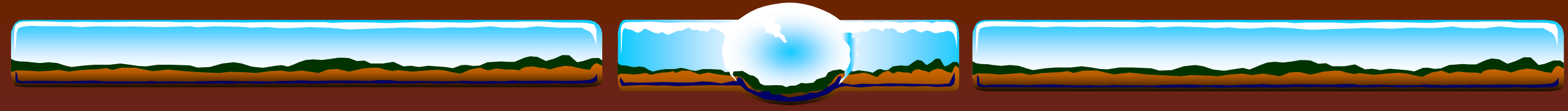




# COVID-19 Clinical Update

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# Disclosures



# Virology

## SARS-CoV-2 Variants

- ❖ **Variants of Interest:** (markers that affect transmission, Dx, potentially Rx)
  - ❖ B.1.526/B1.525 : New York
  - ❖ P2: Brazil (Contains spike E484K mutation)
- ❖ **Variants of Concern** (incr. transmission, severity, decr. neutralization by MAbs)
  - ❖ See next few slides
- ❖ **Variants of High Consequence** (Medical countermeasures don't work)
  - ❖ NONE SO FAR!




# Virology

## SARS-CoV-2 Variants

- ❖ **UK Variant. (B.1.1.7 or VOC 20212/01)**
  - ❖ N501Y is one of many mutations
  - ❖ E484K mutation appeared on this variant in 2021 in England
  - ❖ 50% higher transmission rates noted:  $R_{Ts}$  0.4-0.7 higher with higher social distancing
  - ❖ 30%-56% increased virulence
  - ❖ Increased mortality with HR 1.64 (Challen, BMJ, 2021)
  - ❖ **Minimal impact on neutralization by EUA Monoclonal Antibodies**
  - ❖ **Minimal impact of neutralization by convalescent and post vaccine sera**

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>

[https://assets.acponline.org/coronavirus/scormcontent/?&\\_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-](https://assets.acponline.org/coronavirus/scormcontent/?&_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-)




# Virology

## SARS-CoV-2 Variants

- ❖ **S African Variant (B1.351)**
  - ❖ Similar to B.1.1.7 but contains E484K and K417N
  - ❖ 50% increased transmission
  - ❖ Moderate impact on neutralization by EUA Monoclonal Antibodies
  - ❖ Moderate reduction in neutralization by convalescent/post-vaccine sera
    - ❖ Moderna vaccine produces 85% immune response to this variant
    - ❖ **Escapes the AstraZeneca-Oxford** vaccine for mild-moderate disease

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>

[https://assets.acponline.org/coronavirus/scormcontent/?&\\_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-](https://assets.acponline.org/coronavirus/scormcontent/?&_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-)



# Virology

## SARS-CoV-2 Variants

### ❖ Brazil Variant (P.1)

- ❖ Contains N501Y, E484K, and K417T mutations
- ❖ Seen in Brazil, Japan and the US
- ❖ Moderate impact on neutralization by EUA monoclonal Abs
- ❖ Moderate impact on neutralization by convalescent/post-vaccine sera

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>

[https://assets.acponline.org/coronavirus/scormcontent/?&\\_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-](https://assets.acponline.org/coronavirus/scormcontent/?&_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-)



# Virology

## SARS-CoV-2 Variants

### ❖ California Variant (B.1.427/429; CAL.20C)

- ❖ Multiple S protein mutations including L452R, D614G, S13I, W152C
- ❖ Circulating in California, Present in Four Corners States
- ❖ 20% increase in transmissibility
- ❖ Impact of neutralization by some but not all EUA monoclonal Abs
  - ❖ BAM monotherapy is 1020-fold less susceptible
  - ❖ BAM/Etesivimab is 7.4-fold less susceptible
- ❖ Moderate reduction in neutralization by convalescent/post-vaccine sera

<https://www.fda.gov/drugs/drug-safety-and-availability/fda-authorizes-revisions-fact-sheets-address-sars-cov-2-variants-monoclonal-antibody-products-under>

<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/variant-surveillance/variant-info.html>

[https://assets.acponline.org/coronavirus/scormcontent/?&\\_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-](https://assets.acponline.org/coronavirus/scormcontent/?&_ga=2.206349841.34834658.1613250214-605337699.1612635365#/lessons/6E0TP7nLkVMt7vU8rI-75a57lQjpkKb-)



# Mild-Moderate COVID-19 Treatment

## Bamlanivimab/Etesevimab

- ❖ **More Blaze-1 data (Phase 3)** 700 mg BAM/1400mg Etesevimab
  - ❖ 769 patients  $\geq$  12 yo enrolled with mild-moderate outpatient COVID-19
  - ❖ Looked at hospitalization or death as “events”
  - ❖ 4 events in treated vs 11 in control: **87% Risk Reduction**,  $p = 0.0001$
  - ❖ Observed 4 deaths total, all in the placebo group

<https://investor.lilly.com/node/44756/pdf>





# Prevention

## AstraZeneca vaccine

### ❖ University of Oxford/Vaccitech

- ❖ Replication deficient chimp adenovirus carrying SARS-CoV-2 spike protein
- ❖ 32,449 participants at 88 sites in US, Peru and Chile enrolled age  $\geq 18$
- ❖ 2 IM injections 4 weeks apart (vaccine to placebo ratio 2:1)
- ❖ 76% protection against symptomatic COVID
- ❖ 85% protection for those over age 65
- ❖ 100% efficacy against hospitalization and severe/critical disease
  - ❖ 8 cases all in the placebo group



# Prevention

## CDC: Effectiveness of Pfizer/Moderna vaccine

### ❖ HEROES-RECOVER Network Study

- ❖ Enrolled 3,950 HCPs, first responders & essential/frontline personnel
- ❖ 2,479 got two doses and 477 got 1 dose and had PCRs weekly
- ❖ Vaccinated vs not: 0.04 vs 1.38 infections/1000 person days noted
- ❖ Estimated effectiveness 90% for two doses and 80% for one dose

“mRNA COVID-19 vaccines are effective for preventing SARS CoV-2 infection regardless of symptom status among working age adults in real world conditions”

<https://www.cdc.gov/mmwr/volumes/70/wr/mm7013e3.htm>



# Infection Prevention

## New CDC Fully Vaccinated People guidance

### ❖ Fully vaccinated people can:

- ❖ Visit with fully vaccinated people indoors without masks or distancing
- ❖ Visit with unvaccinated people from a single household who are at low risk indoors without masks or distancing
- ❖ Refrain from quarantine and testing following known exposure if asymptomatic

### ❖ Fully vaccinated people should continue to:

- ❖ Wear masks and social distance
  - ❖ in public and with unvaccinated persons who are either at risk or from multiple households
- ❖ Avoid medium and large in person gatherings

<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html>



# More COVID-19 Training

- ❖ **CDC:** <https://www.cdc.gov/coronavirus/2019-ncov/hcp/index.html>
- ❖ **ACP Physician Handbook:** <https://www.acponline.org/clinical-information/clinical-resources-products/coronavirus-disease-2019-covid-19-information-for-internists>
- ❖ **UW Protocols:** <https://covid-19.uwmedicine.org/Pages/default.aspx>
- **UW IDEA Program:** <https://covid.idea.medicine.uw.edu/>
- **NIH Guidelines:** <https://covid19treatmentguidelines.nih.gov/>
- ❖ **Brigham and Women's Hospital:** [covidprotocols.org](https://covidprotocols.org)

