COVID-19: What Have We Learned?

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Disclosures

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COVID Is Real

• Global
  – Infections: 271,558,771
  – Deaths: 4,517,240

• United States
  – Infections: 38,923,013
  – Deaths: 634,320

Photo credit: New York Times, accessed 9/02/2021
COVID Care Costs

- Projected $202.6 billion lost revenue to US hospitals and health systems
- Projected global growth will shrink by 8%
- UN projects global economic cost of $2 trillion

COVID Highlights Healthcare Disparities

Figure 3a. Age-specific differences between the percent of COVID-19 deaths and the population distribution, grouped by race and Hispanic origin

https://www.cdc.gov/nchs/nvss/vsrr/covid19/health_disparities.htm#RaceHispanicOriginAge.
COVID Disproportionately Impacts BIPOC

<table>
<thead>
<tr>
<th>Rate ratios compared to White, Non-Hispanic persons</th>
<th>American Indian or Alaska Native, Non-Hispanic persons</th>
<th>Asian, Non-Hispanic persons</th>
<th>Black or African American, Non-Hispanic persons</th>
<th>Hispanic or Latino persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases</td>
<td>1.7x</td>
<td>0.7x</td>
<td>1.1x</td>
<td>1.9x</td>
</tr>
<tr>
<td>Hospitalization</td>
<td>3.4x</td>
<td>1.0x</td>
<td>2.8x</td>
<td>2.8x</td>
</tr>
<tr>
<td>Death</td>
<td>2.4x</td>
<td>1.0x</td>
<td>2.0x</td>
<td>2.3x</td>
</tr>
</tbody>
</table>

BIPOC: Black, Indigenous People of Color

COVID-19 Cases and Deaths by Race/Ethnicity

Cases by Race/Ethnicity:

Data from 31,349,273 cases. Race/Ethnicity was available for 20,193,105 (64%) cases.

Deaths by Race/Ethnicity:

Data from 530,922 deaths. Race/Ethnicity was available for 443,938 (83%) deaths.

COVID-19 Cases and Death by Age Group

Cases by Age Group:
Data from 31,349,273 cases. Age group was available for 31,017,756 (98%) cases.

Deaths by Age Group:
Data from 530,922 deaths. Age group was available for 530,871 (99%) deaths.

COVID-19 Cases and Death by Sex

Cases by Sex:

Data from 31,349,273 cases. Sex was available for 30,992,193 (98%) cases.

Deaths by Sex:

Data from 530,922 deaths. Sex was available for 529,722 (99%) deaths.

Underlying Medical Conditions Associated with High Risk for Severe COVID-19

Most Common Comorbidities

- Hypertension (HTN): 46.7%
- Hyperlipidemia (HLD): 28.9%
- Diabetes (DM): 27.9%
- Chronic Pulmonary Disease (PULM): 16.1%

Telehealth to the Rescue?

- CMS eliminated restrictions and enhanced reimbursement for telehealth March 6, 2020

Telehealth claims volumes, compared to pre-Covid-19 levels (February 2020 = 1)\(^1\)

Telehealth Disparities

- 4/10 adults without internet in their home
- 3/10 adults earning $30,000 or less do not own smartphone
- Adults over 65 owning smart phone or home broadband= 55-60%
- Rural broadband access= 63%
- BIPOC broadband access= 61-66%
- Approximately 14.5 million in US without internet access

COVID Vaccination

- Emergency authorization US:
  - December 11, 2020 Pfizer-BioNTech COVID-19 Vaccine
  - December 18, 2020 Moderna COVID-19 Vaccine
  - February 27, 2021 Janssen COVID-19 Vaccine

Vaccine Efficacy

- Pfizer: 93.7% alpha
- Moderna: 94%
- Johnson & Johnson: 64% infection prevention
- Nearly 100% prevention of severe illness and hospitalization

Vaccine Efficacy-Delta Variant

• Vaccine efficacy is maintained against symptomatic disease caused by Delta
• Observational data suggests there may be reduced efficacy against all infection with Delta, as low as 50-67%
  – Short timeframes
  – Difficult to control for confounding
  – Positive PCR without clinical symptoms may not be meaningful

Fowlkes, MMWR, 2021; Nanduri, MMWR, 2021
Vaccine Uptake Lags

Vaccine Safety

- Anaphylaxis: 2-5/1,000,000
- Thrombosis with thrombocytopenia syndrome (TTS)
  - J & J
  - 44 confirmed/14.2 million doses
- Guillain-Barre: J & J, preliminary report of 176
- Myocarditis/pericarditis: mRNA vaccines; 1377 cases reported, 798 confirmed by CDC and FDA
- Deaths: 7218 reports via VAERS over 340 million doses = 0.0020%

Recommended Therapies for COVID-19

Out-Patient
- Monoclonal antibodies
  - Casirivimab-Imdevimab
  - Sotrovimab

In-Patient
- Remdesivir
  - Antiviral, inhibits replication
- Dexamethasone
  - Corticosteroid, reduces inflammatory response
- Tocilizumab (alt. Baricitinib)
  - Anti-IL6 monoclonal antibody with additive anti-inflammatory activity

Not Recommended:
- Hydroxychloroquine
- Azithromycin
- Ivermectin
- Vitamin D
- Convalescent plasma

COVID Lessons

• COVID is real
• COVID is costly
• COVID vaccines are safe and effective
• COVID vaccine uptake needs to improve
• Telehealth can happen
• COVID highlights disparities