The First 401 COVID-19 Patients at the University of Chicago Hospitals

AIDS Foundation of Chicago
November 12, 2020

Renslow Sherer MD
Section of Infectious Diseases and Global Health
University of Chicago
Outline

• The first 401 COVID-19 patients at UCH

• Brief Update: Epi & Prevention, Treatment & Vaccine

• COVID-19, HIV, and Human Rights
Cancer, transplantation, HIV and other immunocompromising conditions were not significantly associated w/ severe COVID-19 or death in hospitalized COVID-19 patients in Chicago*

The ID COVID Consult Service Study Group

David Pitrak
Kathleen Mullane
Mai Pho
Christopher Lehman
Jessica Ridgway
Jonathan Lio
Natasha Pettit
Aniruddha Hazra
Kenneth Pursell
Jade Pagkas-Bather
Renslow Sherer
Jina Saltzman
Cynthia Nguyen
Coughi Edens
Kevin Colgan
Jennifer Pisano
Stephen Schrartz
Maggie Collison
Gregory Olson
Christopher
FrohneC
Allison Lew
Madan Kumar
Palak Bhagat
Penny Viater
Gokhan Mutlu
David Wu
Lucas Kimmig
Jennifer Collins
Pooja Gala
Ethan Molitch-Hou
Cheryl Nuss Balczo
Mengqi Zhu
Alan Hutchison
Matthew Enriquez
Hannah Pursley
Sean Lyne
Rohan Shah
Ross Han
Maximilian Hemmrich
Maya Krasnow
Henry Litt
Michelle Shang
Aaditi Naik
Yangtian Yi
Tony Da Lomba
Allison Nelson

Cancer, transplantation, HIV, and other immunocompromising conditions were not significantly associated with severe COVID-19 or death in hospitalized COVID-19 patients in Chicago*

• March 13 – April 18, 2020
• Retrospective chart review
• Definition of ‘Severe COVID’ based on respiratory status only
  – Need high flow O2, ventilation
• Inclusive definition of ‘immune compromised’
Demographics

Mean Age: 60
31% >70 yrs
52% women
90% AA, 9% Hispanic
75% south side

Symptom Onset:
Mean 6 days
Range: 0-33 days
Fever: 67%
Dyspnea: 67%
Cough: 64%
Fatigue: 38%
Myalgia: 35%
Diarrhea: 38%
Nausea: 25%
Vomiting: 15%
AMS: 22%
Found down: 5%
URI: 11%

410 ‘mild’ UC cases:
-18% return to ER
-10% admitted
-3% in ICU
-0.5% died

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18</td>
<td>3</td>
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<td>18-29</td>
<td>15</td>
<td>4%</td>
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<tr>
<td>30-39</td>
<td>35</td>
<td>9%</td>
</tr>
<tr>
<td>40-49</td>
<td>49</td>
<td>12%</td>
</tr>
<tr>
<td>50-59</td>
<td>84</td>
<td>21%</td>
</tr>
<tr>
<td>60-69</td>
<td>88</td>
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<tr>
<td>70-79</td>
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<td>17%</td>
</tr>
<tr>
<td>80+</td>
<td>58</td>
<td>14%</td>
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<td>80+</td>
<td>58</td>
<td>14%</td>
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<table>
<thead>
<tr>
<th>Sex</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Female</td>
<td>209</td>
<td>52%</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Asian/Mideast Indian</td>
<td>4</td>
<td>1%</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>360</td>
<td>90%</td>
</tr>
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</table>

<table>
<thead>
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<th>N</th>
<th>%</th>
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<tr>
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<td>360</td>
<td>90%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
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<th>%</th>
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<tbody>
<tr>
<td>Hispanic/Latino</td>
<td>9</td>
<td>2%</td>
</tr>
<tr>
<td>Not Hispanic/Latino</td>
<td>388</td>
<td>97%</td>
</tr>
</tbody>
</table>

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<th>N</th>
<th>%</th>
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<td>9</td>
<td>2%</td>
</tr>
<tr>
<td>Not Hispanic/Latino</td>
<td>388</td>
<td>97%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Zip Code</th>
<th>N</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>600637,60615,60653,60649,60657,60619,60620,60628,60621,60636,60629,60638,60632,60609,60632</td>
<td>299</td>
<td>75%</td>
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</table>

Antiviral and Immunosuppressive Therapy

<table>
<thead>
<tr>
<th>Therapy</th>
<th>ALL Pts</th>
<th>Moderate Illness</th>
<th>Severe Illness</th>
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</thead>
<tbody>
<tr>
<td>HCQ Alone</td>
<td>60</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>HCQ+LPV/r</td>
<td>66</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>RBV + HCQ</td>
<td>10</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Remdesivir</td>
<td>122</td>
<td>31%</td>
<td></td>
</tr>
<tr>
<td>TCZ</td>
<td>83</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Corticosteroids (&gt;10mg prednisone)</td>
<td>36</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Other Immunosuppressive*</td>
<td>12</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

* cyclosporine, azathioprine, methotrexate, tocilizumab, sotolizumab, everolimus, mycophenolate

Mortality

Total number of admissions, managed by COVID ID team
401

<table>
<thead>
<tr>
<th>Mortality</th>
<th>ALL Pts</th>
<th>Moderate Illness</th>
<th>Severe Illness</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>N</td>
<td>237</td>
<td>164</td>
<td></td>
</tr>
</tbody>
</table>

Total number of pts discharged (as of 4/18)
232
50%
180
76%
52
32%

Total number of deaths at 30d post discharge (as of 5/18/20)
51
13%
4
2%
47
29%

Re-admissions
9
2%
7
3%
2
1%

0.32
Days of Illness Prior to Admission

Mean 6 days
Range: 0-33 days
10% 0 days
23% ≥ 7 days
5% >15 days

Symptom Onset, Admission, D/C or Death

<table>
<thead>
<tr>
<th>Co-Morbid Conditions</th>
<th>ALL Patients</th>
<th>Moderate Illness</th>
<th>Severe Illness</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N missing</td>
<td>N</td>
</tr>
<tr>
<td>HTN</td>
<td>276</td>
<td>69%</td>
<td>1</td>
<td>147</td>
</tr>
<tr>
<td>DM</td>
<td>152</td>
<td>38%</td>
<td>3</td>
<td>76</td>
</tr>
<tr>
<td>Obese (30 &lt; BMI &lt; 40)</td>
<td>133</td>
<td>34%</td>
<td>4</td>
<td>75</td>
</tr>
<tr>
<td>Morbid Obese (BMI &gt; 40)</td>
<td>69</td>
<td>17%</td>
<td>4</td>
<td>41</td>
</tr>
<tr>
<td>CKD</td>
<td>96</td>
<td>24%</td>
<td>1</td>
<td>43</td>
</tr>
<tr>
<td>COPD</td>
<td>90</td>
<td>23%</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>CHF</td>
<td>65</td>
<td>16%</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Cancer</td>
<td>56</td>
<td>14%</td>
<td>2</td>
<td>31</td>
</tr>
<tr>
<td>CAD</td>
<td>53</td>
<td>13%</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Hgb Dx</td>
<td>5</td>
<td>1%</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Liver Dx</td>
<td>16</td>
<td>4%</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Autoimmune</td>
<td>27</td>
<td>7%</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Immuno supp.</td>
<td>21</td>
<td>5%</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Steroid</td>
<td>17</td>
<td>4%</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Chemo (for CA Pts only)</td>
<td>13</td>
<td>4%</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Solid Organ Transplant</td>
<td>9</td>
<td>2%</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>HIV</td>
<td>8</td>
<td>2%</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Stem Cell Tx</td>
<td>4</td>
<td>1%</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Immunocompromised (row 15-21)</td>
<td>55</td>
<td>14%</td>
<td>2</td>
<td>31</td>
</tr>
</tbody>
</table>

Limitations

• Retrospective chart review

• Single site with small numbers

• Inclusive definition of immunocompromised conditions

Implications

• Still incomplete understanding of immune deficiencies w/ more vulnerability to SARS-CoV-2 infx

• More precise answers will come from large cohort studies of each type of immune compromise

• High variability in reports of mortality and severe illness due to COVID-19

• Incomplete definition of severe COVID-19 illness by which to judge treatment outcomes

Mortality in Initial Hospital Cohorts
Wuhan; Spain; NYC; Detroit; UK; Chicago

- First 416 pts at Renmin Hospital, Wuhan (Jan, 2020)
  - Mean age 64; **13.7%** mortality (in hospital)
- First 100 pts in 41 hospitals in Spain (N=4,035)
  - Mean age 70; **28%** mortality (in hospital)
- First 4-500 pts in 12 NYC hospitals (N=5,700)
  - Mean age 62; **24.5%** mortality (in hospital)
- First 462 pts in Henry Ford HS, Detroit
  - Mean age 57.5 yrs; **20.2%** mortality (30 days post d/c)
- First hospital pts in UK (Recovery) (N=6,425)
  - Mean age 66 yrs; **21.6%-24.6%** mortality (in hospital)
- First 401 pts at Univ. of Chicago Hospitals (April, 2020)
  - Mean age 60 yrs; **13%** mortality (30 days post d/c)

The Chicago Dept of Health is reporting a 2-3x increased mortality rate among African Americans, **153/100,000 vs 59/100,000** in whites.*

In the US, the disparities increase to > 5x among younger African Americans under age 65.

Our findings suggest that a lower mortality rate is achievable in US African Americans with COVID-19 with access to effective treatment and supportive care.

<table>
<thead>
<tr>
<th>Syndrome</th>
<th>Total N</th>
<th>Moderate Illness N</th>
<th>Severe Illness N</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>401</td>
<td>237</td>
<td>164</td>
</tr>
<tr>
<td>N missing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza like illness</td>
<td>303</td>
<td>237</td>
<td>64</td>
</tr>
<tr>
<td>N missing</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Diffuse bilat CXR Infiltrates</td>
<td>221</td>
<td>107</td>
<td>114</td>
</tr>
<tr>
<td>Abnormal D-dimer</td>
<td>214</td>
<td>80</td>
<td>134</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>185</td>
<td>91</td>
<td>94</td>
</tr>
<tr>
<td>Acute Kidney Injury</td>
<td>173</td>
<td>67</td>
<td>106</td>
</tr>
<tr>
<td>Coinfection</td>
<td>102</td>
<td>37</td>
<td>65</td>
</tr>
<tr>
<td>Altered Mental status</td>
<td>101</td>
<td>31</td>
<td>70</td>
</tr>
<tr>
<td>Cytokine Release Syndrome</td>
<td>80</td>
<td>13</td>
<td>67</td>
</tr>
<tr>
<td>DM Uncontrolled</td>
<td>71</td>
<td>29</td>
<td>42</td>
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<td>Arrhythmia</td>
<td>68</td>
<td>23</td>
<td>45</td>
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<tr>
<td>ARDS</td>
<td>63</td>
<td>0</td>
<td>63</td>
</tr>
<tr>
<td>Deep Vein Thrombosis</td>
<td>37</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>DKA</td>
<td>17</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>CVA</td>
<td>12</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>MI</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>PE</td>
<td>9</td>
<td>0</td>
<td>9</td>
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</table>

Our findings suggest that a more inclusive definition of ‘Severe COVID-19 Illness’ is needed to more accurately capture the short and long term morbidity due to COVID-19, and the effectiveness of antiviral and immunomodulatory Rx.

Conclusions

- In a cohort of mostly black Chicagoans with COVID-19, age > 60, HTN, DM, CKD, CHF and obesity were associated with severe illness
  - In multivariate analysis, age > 70 was the strongest predictor of severe illness
  - 31% received Remdesivir, 35% HCQ, and 9% received steroid Rx during hospital stay
  - Mortality 30 days post-d/c was 13% (51/401)

- Cancer (current or past), current chemotherapy, transplant, current immunosuppressive therapy, HIV, & autoimmune dx were \textit{not} associated with severe illness
  - Large aggregated cohorts for each condition needed to address risk of severe disease

- Incident COVID-19 clinical syndromes were strongly associated with severe illness
  - hepatitis, AKI, co-infx, altered MS, CVA, CRS, uncont DM, DKA, high D-DIMER, DVT, PE, arrhythmia, and MI.
  - ‘Severe COVID Illness’ should include these outcomes as metrics for treatment efficacy

HIV and COVID-19

• No evidence of greater risk of severe COVID-19 overall
  – Recent study found more risk in PWHIV w/ CD4<200 c/ml

• Health Care and social disruptions
  – Appointments, lab tests, visits, insurance
  – Rise of virtual encounters
  – Devastating impacts: housing, job security, food security
  – HIV, COVID-19 and human rights
COVID-19 in the VACS Cohort

- Study design: To examine COVID-19 testing and outcomes in persons with HIV (PWH) and uninfected persons in the Veterans Aging Cohort Study (VACS).

### COVID-19 testing and outcomes by HIV status

<table>
<thead>
<tr>
<th></th>
<th>PWH</th>
<th>Uninfected</th>
<th>OR*</th>
<th>(95% CI)</th>
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</thead>
<tbody>
<tr>
<td>Total alive in 2020</td>
<td>30,981</td>
<td>76,745</td>
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<td></td>
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<tr>
<td>Total tested for COVID-19</td>
<td>2,599 (8.4%)</td>
<td>4,977 (6.5%)</td>
<td>1.36</td>
<td>(1.29, 1.43)</td>
</tr>
<tr>
<td>Total COVID-19+</td>
<td>253 (0.8%)</td>
<td>504 (0.7%)</td>
<td>1.38</td>
<td>(1.18, 1.61)</td>
</tr>
<tr>
<td>Outcomes</td>
<td>253 (9.7%)</td>
<td>504 (10.1%)</td>
<td>1.05</td>
<td>(0.89, 1.24)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome</th>
<th>N (% of COVID-19+)</th>
<th>HR†</th>
<th>(95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalization</td>
<td>86 (34.0%)</td>
<td>1.09</td>
<td>(0.85, 1.41)</td>
</tr>
<tr>
<td>ICU admission</td>
<td>35 (13.8%)</td>
<td>1.08</td>
<td>(0.72, 1.62)</td>
</tr>
<tr>
<td>Intubation</td>
<td>16 (6.3%)</td>
<td>0.89</td>
<td>(0.49, 1.59)</td>
</tr>
<tr>
<td>Death</td>
<td>24 (9.5%)</td>
<td>1.08</td>
<td>(0.66, 1.75)</td>
</tr>
</tbody>
</table>

*Odds ratio (OR): PWH compared to uninfected, adjusted, adjusted for age, race/ethnicity, sex, BMI, alcohol consumption, and smoking
†Hazard ratios (HR): PWH compared to uninfected, adjusted for age, race/ethnicity, and sex
COVID-19 and HIV: Multicenter Cohort

- 286 people with HIV and COVID-19 from 36 institutions collected over 3 months from mostly US sites
- Age, chronic lung disease, hypertension, and lower CD4 counts associated with decreased survival rates

HIV and COVID 19

DHHS Guidelines: Interim Guidance for COVID-19 and Persons with HIV

- Last Updated: March 20, 2020
- Assume higher risk for all, esp CD4 < 200
  ...and CVDx, DM, COPD, smoker, age>60, other immune compromised states
- Hand washing, social distancing
- ART supply; LPV/r negative trial
- Postpone visits, lab tests; e-visits if possible
- COVID in Pregnancy, children, Opioid addx
- Home care, isolation, quarantine
- When to send to ER/hospital
- HCWs self care, mental health & morale

- Viral loads: prioritize recent starts, low adh
- COVID testing for symptomatic pts w/ HIV+, DM, CVDx, COPD, smokers, age > 60
- Maintain social contact virtually

The limited data currently available do not indicate that the disease course of COVID-19 in persons with HIV differs from that in persons without HIV. Before the advent of effective combination antiretroviral therapy (ART), advanced HIV infection (i.e., CD4 cell count <200/mm³) was a risk factor for complications of other respiratory infections. Whether this is also true for COVID-19 is yet unknown.
COVID-19 Update and Human Rights

Contemporary Issues in Human Rights
November 9, 2020

Renslow Sherer MD
Section of Infectious Diseases and Global Health
University of Chicago
COVID-19 and Human Rights

• Brief Epidemiology and Prevention
• COVID-19 and Human Rights
• Prospects for Treatment and Vaccine
Average daily cases per 100,000 people in past week

Use two fingers to pan and zoom. Tap for details.

In the past week in the U.S.:

New daily reported **cases rose 28%**

New daily reported **deaths rose 21%**

Covid-related **hospitalizations rose 17.9%**

Sources: State and local health agencies. Population and demographic data from Census Bureau.

About this data
### Epidemiology & Context: University of Chicago

<table>
<thead>
<tr>
<th>Date</th>
<th>Cases</th>
<th>Deaths</th>
<th>Recovered</th>
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<tbody>
<tr>
<td>5/7/20</td>
<td>3.8M</td>
<td>267,000</td>
<td>1.1M</td>
</tr>
<tr>
<td>7/25/20</td>
<td>1.25M</td>
<td>75,000+</td>
<td>140k</td>
</tr>
<tr>
<td>10/3/20</td>
<td>66,000</td>
<td>2,800</td>
<td>? 4k</td>
</tr>
<tr>
<td>11/9/20</td>
<td>1,600</td>
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</table>

#### Cumulative Totals

<table>
<thead>
<tr>
<th>Region</th>
<th>Cases</th>
<th>Deaths</th>
<th>Recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td><strong>15.8M</strong></td>
<td><strong>641k</strong></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td><strong>4.1M</strong></td>
<td><strong>146,000</strong></td>
<td></td>
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<tr>
<td>IL</td>
<td><strong>169k</strong></td>
<td><strong>7,397</strong></td>
<td></td>
</tr>
<tr>
<td>UC hospital</td>
<td><strong>3,200</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Daily Totals

<table>
<thead>
<tr>
<th>Region</th>
<th>Cases</th>
<th>Deaths</th>
<th>Recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cook County</td>
<td><strong>101k</strong></td>
<td><strong>4,800</strong></td>
<td></td>
</tr>
<tr>
<td>U of C Hospitals</td>
<td><strong>20-25 in pts</strong></td>
<td><strong>10-15 in pts</strong></td>
<td><strong>66 in pts</strong></td>
</tr>
</tbody>
</table>

- 3-4,000+ cases/d (peak, previously 1,800/d on 4/24)
- 28-33 dths/d (peak 70/d) [500c/10d]
- 113 proven, 80 susp cases (peak 133+90)
- Of first 414 cases (3/13-4/18):
  - 242 discharged, 10 re-admits
  - 51 (13%) deaths (30 days post d/c).
  - As of 5.8.20, 165 (31%) pts on remdesivir
COVID-19 Racial & Ethnic Disparities: Chicago and US

### Cases

<table>
<thead>
<tr>
<th>Race-ethnicity2</th>
<th>Number</th>
<th>percent of total</th>
<th>Rate/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latinx</td>
<td>27,182</td>
<td>47.4%</td>
<td>3,499.7</td>
</tr>
<tr>
<td>Black, non-Latinx</td>
<td>16,307</td>
<td>28.4%</td>
<td>2,079.2</td>
</tr>
<tr>
<td>White, non-Latinx</td>
<td>9,542</td>
<td>16.6%</td>
<td>1,060.2</td>
</tr>
<tr>
<td>Asian, non-Latinx</td>
<td>1,493</td>
<td>2.7%</td>
<td>830.0</td>
</tr>
<tr>
<td>Other, non-Latinx</td>
<td>2,827</td>
<td>4.9%</td>
<td>2,365.8</td>
</tr>
<tr>
<td>Under investigation</td>
<td>12,958</td>
<td>18.4%</td>
<td>-</td>
</tr>
</tbody>
</table>

### Deaths

<table>
<thead>
<tr>
<th>Race-ethnicity2</th>
<th>Deaths</th>
<th>percent of total</th>
<th>% within group</th>
<th>Rate/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latinx</td>
<td>933</td>
<td>32.7%</td>
<td>3.4%</td>
<td>120.1</td>
</tr>
<tr>
<td>Black, non-Latinx</td>
<td>1,228</td>
<td>43.0%</td>
<td>7.5%</td>
<td>156.6</td>
</tr>
<tr>
<td>White, non-Latinx</td>
<td>550</td>
<td>19.3%</td>
<td>5.8%</td>
<td>61.1</td>
</tr>
<tr>
<td>Asian, non-Latinx</td>
<td>123</td>
<td>4.3%</td>
<td>8.2%</td>
<td>68.4</td>
</tr>
<tr>
<td>Other, non-Latinx</td>
<td>21</td>
<td>0.7%</td>
<td>0.7%</td>
<td>17.6</td>
</tr>
<tr>
<td>Under investigation</td>
<td>13</td>
<td>0.5%</td>
<td>0.1%</td>
<td>-</td>
</tr>
</tbody>
</table>

Race-ethnicity percentage is calculated among those with known race-ethnicity as reported by the medical provider.
**The Three Ws**

- Watch your distance – 6’+
- Wear a mask
- Wash your hands
- 4th for HCWs: Wear eye protection

President-elect Biden, on the day of the announcement of 90% preliminary vaccine efficacy:

- Wear a mask….
- To protect your child’s teacher
- To protect yourself
- To protect health workers
- To protect the grocery worker
- To protect your family
- To protect the transit worker
- To protect the elderly

...its not a political action, and it’s not forever.

This is the way that we ‘get back to normal.’
COVID-19: Prevention and Treatment

• Brief Epidemiology and Prevention
• COVID-19 and Human Rights
• Prospects for Treatment and Vaccine
Outline

• Vulnerable populations
• Human Rights Implications
  – Free speech & whistleblowing
  – Access to health care & prevention
  – Right to truth & scientific advances (& from misinformation)
  – Freedom of mobility: Isolation, Quarantine, & Containment
  – Stigma and discrimination
  – Economic disruption
  – COVID as excuse for excessive state power; abortion limitation; voting rights restrictions
COVID-19: Vulnerable Populations

• Impoverished individuals, regions, countries, ethnicities
• Homeless, Prisoners, institutionalized persons, elderly in NH
• US: Communities of color, native Americans, Asians
• Migrant/Immigrant, Refugees
• Women: caregivers, domestic violence
• US: 10% unemployed (16M)
• Essential workers: HCWs, transit & food service workers
  – COVID infection
  – Lack of health insurance (Note: ACA before Supreme Court this week)
YOU WILL WORK IN UNSAFE CONDITIONS.
YOU WILL RISK YOUR LIFE TO FEED ME.

IF YOU REFUSE TO WORK YOU WILL BE DENIED JOBLESS PAY.
YOU WILL STARVE.

THE ESSENTIAL WORKER
Human Rights and COVID-19

• Access to health care
  – Testing; new treatment; effective public health; ICU beds & ventilators
• Housing equity; food insecurity (10% of US)
  – ‘shortage of 8B meals in next 12 mos’ (Feeding America 10.5.20)
• Free speech & whistleblowing
  – Active internet misinformation: Cornell: Single greatest factor = POTUS
• Shared research, public health acts, reliance on science & public health
• Isolation & Quarantine in the face of uncertainty
  – Testing, screening, ‘search & find’
• Stigma and discrimination: US, global
• Devastating economic impact: 50% at risk; 28M face evictions
WHO IS AT HIGH RISK?

INDIVIDUAL “ATTRIBUTES” THAT CREATE RISK

- Hypertension & other cardiovascular conditions
- Diabetes
- Cancer & others who are immunosuppressed
- Asthma & other respiratory diseases
- Older than 65 years
- Dialysis
- Chronic liver or kidney disease
- Morbid Obesity BMI > 40

Fried chicken & tortillas are NOT risk factors.
WHO IS AT HIGH RISK?

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STRUCTURAL FACTORS THAT CAUSE HIGHER RATES OF DISEASE & DEATH

- STRUCTURAL RACISM
  - Oppression based on race/ethnicity
- Living in poor & oppressed communities
- Confined in a congregate setting
  - Jails & prisons
  - ICE detention centers
  - Nursing homes
  - Military barracks, ships
- Forced to work as low paid essential worker
- Unhoused or without documents
- Without adequate medical insurance
- Living where the government refuses to protect people

Fried chicken & tortillas are NOT risk factors.
US Remedies: Painfully Clear Need

- National health service
  - Funded public health – state + federal
  - Pandemic preparedness & planning
  - Separate health insurance from employment
- Responsible, transparent leadership based on science
- Jobs with effective worker protections
  - EG McDonalds: no sick leave
  - Unemployment coverage
  - Health worker, transit worker masks, gloves, PPE

Biden COVID-19 Task Force as of 11/9/20:
Co-Chair: Vivek Murthy MD, former Surg Gen
Co-Chair: David Kessler MD, former FDA chair
Marcella Nunez-Smith, MD, Yale
Rick Bright, PhD, former BARDA head
Luciano Borio, MD, NSC Biodefense
Ezekial Emmanuel, MD, U Penn
Atul Gawande, MD, Brigham & Women’s Hosp
Celine Gounder, NYU
Julia Morita, RWJ Foundation, former CDPH
Michael Osterholm, MD, MPH, U Minn
Loyce Pace, Global Health Council
Robert Rodriguez, MD, UCSF ER
Eric Goosby, MD, UCSR, former PEPFAR director
Access to Health Care & Prevention

• Massive demand for diagnosis, clinic/hospital care, Rx, ICUs
  – Far exceeding capacity; limitation of ‘non-essential’ care
  – Demand for test kits, PPEs ASAP
  – Remarkable WU response: 2 new ‘hospitals’ x 2,000 beds in 2 weeks
  – Ventilators, ICU beds, HCWs: McCormick Place in Chicago 2,000 beds

• Equity in vaccine access!

• Health worker safety, exhaustion, burnout
  – Home care, isolation protocols, quarantine protocols
  – Stigma towards health workers: India, Malaysia

The Americas
As coronavirus fears grow, doctors and nurses face abuse, attacks
Washington Post 4.6.20
COVID-19 and Human Rights

- Brief Epidemiology and Prevention
- COVID-19 and Human Rights
- Prospects for Treatment and Vaccine
COVID-19 Natural History

<40% Asx

80% mild-mid
20% severe
-15% hospital
-5% ICU

1% mortality

Of hosp admis: 5-20% mortality

410 ‘mild’ UC cases:
-18% return to ER
-10% admitted
-3% in ICU
-0.5% died

Uddin S et al.
RIME Conf., UC, 11.5.20
Approach to Patient with COVID-19

- **Risk assessment**: Likelihood of severe disease
  - Older age, co-morbid conditions

- **Management of viral pneumonia**
  - Oxygenation, benefits of positive pressure, helmet, HF 02*
  - Avoidance of intubation, proning

- **Treatment (as early as possible for moderate-severe disease)**
  - Remdesivir 200mg IV, 100mg IV daily x 5 days
  - Dexamethasone 6 mg po x 10 days for pts on ventilator, +/- on 02 supplement

- **Effective management of co-morbidities**
  - DVT/PE prophylaxis; anticoagulation for D-Dimer > 10
  - CV toxicity
  - DM control, DKA Rx
  - AKI prevention & management
  - ID & Rx for co-infections (uncommon)

- **Uncertain role of CRS treatment w/ IL-6 inhibitor (tocilizumab)**
Pfizer mRNA Vx
preliminary results 11.9.20

2 doses, 3 weeks apart
Protection 1 wk later
-measured at 7 days post last dose

Data at DSMB (independent scientific review)
Planned Interim Analysis: 38,955 subjects w/ 2 doses:

94 endpoints (i.e. COVID infections)
-90% reduction in Vx recipients
-awaiting full efficacy and safety data
-study ongoing until 164 cases accrued

Caveats:
-endpoint time too short? Need 14+ days after last dose
-uncertain length of time of protection
-2 doses, separated by 3 weeks: complex logistics
-requires cold storage chain at <70*
-safety data takes time! So far, so good....

Phase II-III Trials

- Moderna (mRNA)*
- Gamalaya – Sputnik V
- Janssen, J&J (Ad26CoV2.S)*
  - Pfizer/BioNTech/Fosun (mRNA)
  - Murdoch (Aus) (BCG)
  - AstraZeneca/Oxford (ChAdOx1)
    - Transverse myelitis hold

200+ candidates in Phase I & II & pipeline

* Enrolling at University of Chicago in 2020
Long Term Sequelae of COVID-19

Largely unknown to date w/ potential cost of $50-200B

• 20% of hospitalized pts in Wuhan w/ abn PFTs at 3 mos

• Evidence of chronic heart disease in 75% of survivors of cardiac toxicity with high troponins

• Long term renal dialysis for AKI -> CRF
  – 1/3 of NY pts had AKI, 15% required dialysis

• Emerging evidence of a ‘brain fog’ & chronic fatigue-like syndrome in 10-15%, even in younger patients

A growing challenge for primary caregivers and health systems

NYTimes 8.4.20
Clinical Summary

- The COVID-19 pandemic remains volatile and unstable
- Transmission includes aerosol & droplet
  - Prevention via the Three Ws – Wear mask, wash hands, watch 6’ dist
  - Contact tracing, isolation & quarantine are key to control
- Age >70 yrs are most vulnerable
  - HTN, DM, CKD, CHF, obesity increase risk of mortality
- 80% have mild-mod illness; unpredictable course for 15%
  - Overall mortality 1-3%, 10-20% for hospitalized pts
- No cure to date; Rx improves mortality & shortens hospital
- Many promising vaccine candidates; early results in 2021
- One key strategy for COVID-19: Respect for Human Rights
Human Rights and COVID-19

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  – Testing; new treatment; effective public health; ICU beds & ventilators
• Housing equity; food insecurity (10% of US)
  – ‘shortage of 8B meals in next 12 mos’ (Feeding America 10.5.20)
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