Presentation to Louisiana Governor’s Taskforce on COVID-19 and Health Equity

Health Equity and COVID-19 Data in Maryland

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Outline of Data Presentation

• Health Disparity Data Basics: Social Determinant Role
• Some Maryland COVID-19 Data by Race/Ethnicity
• Data on Disparity in Some Relevant Co-morbidities
• Data on Social Determinants and Comorbidities
# Health Disparity Causal and Data Model

## Causal Chain of Health Disparities from Social Determinants to Ultimate Outcomes

<table>
<thead>
<tr>
<th>Social Determinants of Health</th>
<th>Prevalence of Causes of Disease (&quot;risk factors&quot;)</th>
<th>Frequency of Disease: Number of Cases New cases = incidence All cases = prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>Access to and quality of prevention services</td>
<td><strong>Ultimate Outcomes:</strong> Death, Disability, Amputations, ED Visits, Hospital Admissions, and Costs</td>
</tr>
<tr>
<td>Employment</td>
<td>Severity of Causes of Disease (&quot;risk factors&quot;)</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>Access to and quality of treatment services</td>
<td></td>
</tr>
<tr>
<td>Wealth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Insurance</td>
<td></td>
<td></td>
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<tr>
<td>Housing</td>
<td></td>
<td></td>
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<tr>
<td>Transportation</td>
<td></td>
<td></td>
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<tr>
<td>Food security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety/Violence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td></td>
<td></td>
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<tr>
<td>Racism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Many of these vary by place)
Three Roles of Data in Health Equity

• Needs assessment: who has the problem, where, and how big or bad is the problem?
  • Usually done by public health using surveillance data

• Intervention Planning: why do we see this (causes) and how do we fix it (evidence-based interventions)?
  • What to do is found by academia using research data
  • Where to do is found by public health surveillance data

• Evaluation: are we making progress?
  • Repeat the needs assessment analysis over time
## Challenge of Disaggregated Data – Tons of It

<table>
<thead>
<tr>
<th>How does</th>
<th>Outcomes</th>
<th>Demographics</th>
<th>Geography</th>
<th>Metric type</th>
<th>Time options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total tests</td>
<td>Age</td>
<td>Statewide</td>
<td>*Count</td>
<td>1 day snapshot</td>
</tr>
<tr>
<td></td>
<td>Positive tests</td>
<td>Sex</td>
<td>Regions</td>
<td>*Rate/pop</td>
<td>Cumulative</td>
</tr>
<tr>
<td></td>
<td>Total CV admits</td>
<td>Race/ethnic</td>
<td>Jurisdictions</td>
<td>*Age-adjusted</td>
<td>Daily trend</td>
</tr>
<tr>
<td></td>
<td>ICU CV admits</td>
<td>Age x R/E</td>
<td>ZIP codes</td>
<td>rate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CV Deaths</td>
<td>Age x Sex</td>
<td>Census tracts</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total bed use</td>
<td>Sex x R/E</td>
<td></td>
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<tbody>
<tr>
<td></td>
<td>8 options</td>
<td>7 options</td>
<td>5 options</td>
<td>3 options</td>
<td>3 options</td>
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<td>24 jurisdict</td>
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<td></td>
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<td>500+ ZIPs</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1406 tracts</td>
<td></td>
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</tr>
</tbody>
</table>

This results in 2,520 Analytic Frameworks (or research questions) that can be requested on the COVID-19 data (not all of which can be fulfilled). This does not even include breaking out nursing homes and jails/prisons, and by staff and residents/inmates.
Reasons for Minority Excess COVID Events

- Higher minority **frequency** [incidence (more cases)]:
  - More employment in essential occupations
  - Less ability to telework (*between household spread*)
  - More likely to be in larger, high density, multigenerational households (*within household spread*)
  - *If 2x between household and 2x household size => 4x incidence*

- Reasons for higher minority **severity** once infected:
  - Higher general stress due to violence, poverty and racism
  - Less access to resources due poverty and racism
  - Higher preval/sever of comorbids (HTN, Diabetes, Asthma, etc.)
Maryland COVID Cumulative Case Count by “County”

https://coronavirus.maryland.gov/

Pop:
- Maryland: 6.0 Mil
- B City: 0.6 Mil
- B Co: 0.8 Mil
- Anne A: 0.6 Mil
- Mont: 1.1 Mil
- Prince G: 0.9 Mil
- Big 5: 4.0 Mil

67%
- Cases: MD has 79,545
- B5 has 60,087

The count shows you burden
MD COVID Cumulative Case Rate per 1,000 by “County”


Confirmed cases per capita by Maryland jurisdiction

Balt County 11.9/K
Balt City 16.0/K
Montgomery 15.6/K
Prince George’s 22.8/K
Anne Arundel 10.4/K

% of pop Black
Maryland: 31%
B City: 63%
B Co: 30%
Anne A: 18%
Mont: 20%
Prince G: 64%

% of Black pop
B City: 20%
B Co: 13%
Anne A: 6%
Mont: 11%
Prince G: 31%

% of Hispanic pop
Mont 33%
Prince G 28%

The rate shows you risk
Maryland Disparities in COVID Cases, Hosp, Deaths

Race/Ethnic Distribution of Cumulative COVID Cases, Hospitalizations, Deaths and Population, Maryland 7/29/2020

(Percent of Events of Known Race
Missing race: 18% of cases, 1% of Hosp, 1% of deaths)

- Black excess in all three metrics vs population.
- Whites low in all three metrics vs population, deaths high for case and hospital share.
- Hispanics high in cases and hospital but not deaths
Maryland New Case Trends by Race/Ethnicity

Prior 7-Day Average Daily New Case Count by Race/Ethnicity, Maryland, April 22 to July 29 2020

Prior 7-Day Average Daily New Case Rate (per 100K Pop) by Race/Ethnicity, Maryland, April 22 to July 29 2020
Interpretation of Case Trend Data

- Asian daily rate and trajectory matched White rate until July, when the White rate diverged up from Asian rate
- Black daily rate is consistently higher than the White rate
  - Black rate trajectory had converged toward White
  - However, Black and White rates are diverging in July (Black up)
- Hispanic daily rate had been dramatically highest
  - Hispanic trajectory rose much higher and peaked much later
  - Hispanic and Black rates have now converged to equality
Interpretation of Death Trend Data

• Asian daily rate is at or below the White rate
  • Asian daily rate trajectory is generally similar to White

• Black daily rate is higher than the White rate
  • Black daily rate trajectory is converging to White trajectory
  • “Curve-bending” is similar for Blacks and Whites

• Hispanic daily rate started out similar to the White rate and ended up higher than Black rate and White rate

• All death rates are falling since early May
COVID-19 is Not Flu: Flu and Pneumonia Mortality Rate

Maryland Vital Statistics Annual Report 2018

While COVID-19 has Black and Hispanic death rate disparities,

Flu and Pneumonia death rates do not show disparities

COVID-19 is not Flu
Maryland Disparities in COVID-19 Relevant Comorbidities

Minorities have higher disease prevalence for several relevant high-risk COVID comorbidities

And higher severity (seen in the huge ED visits disparities that exceed prevalence disparities)

Age-adjusted rate per 100,000 population, 2017 data, HSCRC
Income/Education matters regardless of race, Race matters regardless of income/education. Minorities have lower income/education, and do worse at every level of income/education.
Blacks are more likely to be at low income or education, and less likely to be at high income or education.
End of Data Presentation