Our understanding of COVID-19 is evolving rapidly. This presentation is based on our knowledge as of July 23, 2020, 5 PM.
OUTLINE

WHERE WE ARE NOW

RECENT EPIDEMIOLOGY OF COVID-19 IN NYC

IMPROVING DATA FOR A BETTER PUBLIC HEALTH RESPONSE TO COVID-19

CLINICAL UPDATE: VITAMIN D AND COVID-19

QUESTIONS AND DISCUSSION
WHERE WE ARE NOW

- Over 15 million cases and 623,000 deaths due to COVID-19 confirmed worldwide
- Cases are surging in many regions, with some areas seeing second or third waves of infections
- Daily case counts are increasing in much of the United States; some areas are re-opening while others impose restrictions
- New York City (NYC) began Phase Four of reopening on July 20
- Indicators of viral circulation in the community are being monitored closely to gauge success of suppression measures
COVID-19 WORLDWIDE

>15 million cases
>623,000 deaths

7/23/20

New York Times. Coronavirus map: tracking the global outbreak
CUMULATIVE CASES AND DEATHS, U.S.  
7/23/20

> 4 million cases  
(~27% of confirmed global cases)

> 143,000 deaths  
(~23% of reported global deaths)

CHANGE IN NUMBER OF NEW CASES IN THE U.S. IN THE PAST TWO WEEKS

7/23/20

How the number of new cases has changed in the last two weeks

- Falling
- About the same
- Rising
- Few or no cases

• Understanding demographic and clinical characteristics of persons who died due to COVID-19 can inform prevention efforts

• Study sample: decedents with laboratory-confirmed infection with COVID-19, February 12-May 18, 2020

• Data sources
  • Standardized CDC COVID-19 case reports from 57 jurisdictions
  • Supplementary data from 15 states and NYC (Feb 12-Apr 24, 2020)
    • Race/ethnicity
    • Underlying medical conditions
    • Clinical course
    • Location of death

## CHARACTERISTICS OF DECEDENTS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Case-based surveillance N= 52,166</th>
<th>Supplemental surveillance N=10,647*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years (median, IQR)</td>
<td>78 (67-87)</td>
<td>75 (64-84)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>55%</td>
<td>61%</td>
</tr>
<tr>
<td>Female</td>
<td>44%</td>
<td>39%</td>
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<tr>
<td>Other/unknown</td>
<td>1%</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>40%</td>
<td>35%</td>
</tr>
<tr>
<td>Black</td>
<td>21%</td>
<td>25%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>14%</td>
<td>24%</td>
</tr>
<tr>
<td>Asian</td>
<td>4%</td>
<td>6%</td>
</tr>
<tr>
<td>Multiracial/other</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Unknown</td>
<td>18%</td>
<td>6%</td>
</tr>
</tbody>
</table>

* 9,997 (93.9%) resided in New York City, New Jersey, or the state of Washington

Wortham JM, et al. *MMWR Morb Mortal Wkly Rep.* 2020;69(28):923-929. [http://dx.doi.org/10.15585/mmwr.mm6928e1](http://dx.doi.org/10.15585/mmwr.mm6928e1)
Among 10,647 decedents with supplemental data

Most common conditions:
- Cardiovascular disease (61%)
- Diabetes (40%)
- Chronic kidney disease (21%)
- Chronic lung disease (19%)

Among 10,647 decedents with supplemental data

### CLINICAL COURSE

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Overall</th>
<th>&lt;65</th>
<th>≥65</th>
<th>65-74</th>
<th>75-84</th>
<th>≥85</th>
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<tbody>
<tr>
<td>N=10,647</td>
<td>n=2,681</td>
<td>n=7,966</td>
<td>n=2,463</td>
<td>n=2,900</td>
<td>n=2,603</td>
<td></td>
</tr>
<tr>
<td>Median illness duration (days)</td>
<td>10</td>
<td>11</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Hospitalized</td>
<td>84%</td>
<td>89%</td>
<td>83%</td>
<td>88%</td>
<td>84%</td>
<td>76%</td>
</tr>
<tr>
<td>Unknown</td>
<td>16%</td>
<td>11%</td>
<td>17%</td>
<td>12%</td>
<td>16%</td>
<td>24%</td>
</tr>
<tr>
<td>Location of death</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital</td>
<td>62%</td>
<td>59%</td>
<td>63%</td>
<td>66%</td>
<td>65%</td>
<td>58%</td>
</tr>
<tr>
<td>Long-term care facility</td>
<td>5%</td>
<td>1%</td>
<td>7%</td>
<td>2%</td>
<td>5%</td>
<td>13%</td>
</tr>
<tr>
<td>Emergency department</td>
<td>5%</td>
<td>7%</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
<td>4%</td>
</tr>
<tr>
<td>Home</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Hospice</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Other/Unknown</td>
<td>27%</td>
<td>32%</td>
<td>25%</td>
<td>25%</td>
<td>24%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Wortham JM, et al. MMWR Morb Mortal Wkly Rep. 2020;69(28):923-929. [http://dx.doi.org/10.15585/mmwr.mm6928e1](http://dx.doi.org/10.15585/mmwr.mm6928e1)
• Convenience sample (not representative)
• Data on clinical outcomes and location of death missing for high proportion of cases
• Statistical comparisons, calculations of rates, and assessment of interactions among factors (age, race/ethnicity, underlying conditions) were not possible

KEY POINTS

• Most decedents were aged ≥ 65 years
• Over 3/4 had ≥ 1 underlying medical condition
  • Diabetes prevalence among decedents aged < 65 years (50%) was higher than that reported previously among patients hospitalized with COVID-19 (35%) and persons aged < 65 years in the general population (< 20%)
• Over 1/3 of Hispanic decedents and nearly 1/3 of nonwhite, non-Hispanic decedents were aged < 65 years, whereas only 13% of White decedents were aged < 65 years
• Among decedents aged < 65 years, 8% died in the ER or at home
  • May reflect lack of health care access, delays in seeking care, diagnostic delays
  • Encourage patients, particularly those with underlying medical conditions, to seek medical care early in COVID-19 illness
  • Consider the possibility of severe disease among younger persons who are Hispanic, nonwhite, or have underlying medical conditions
• Understanding factors contributing to racial/ethnic mortality differences and out-of-hospital deaths might inform targeted, community-level mortality prevention initiatives

Confirmed COVID-19 cases do not account for individuals who were not tested (recovered after mild or no symptoms or had limited access to testing)

CDC partnered with commercial labs at 10 U.S. sites to conduct serologic testing on 16,025 de-identified blood specimens, including specimens collected for reasons unrelated to COVID-19 (e.g., routine visit)

- Presence of antibodies to SARS-CoV-2 spike protein estimated using an enzyme-linked immunosorbent assay
- Age- and sex-adjusted seroprevalence estimates were extrapolated to site populations to estimate overall number of infections
- Estimates were divided by cumulative case counts reported to health departments

Seroprevalence of Antibodies to SARS-CoV-2

- Seroprevalence ranged from 1.0% in San Francisco Bay area (collected April 23-27) to 6.9% in NYC metropolitan area (collected March 23-April 1).
- Many limitations:
  - Samples not representative of the populations studied
  - Factors including race/ethnicity and occupation not studied
  - Results are preliminary
- For most sites, including NYC metropolitan area, it is likely that > 10 times more infections occurred than the number of reported COVID-19 cases.
- Nonetheless, only a minority of people across sites, including NYC, are estimated to have antibodies.

SEROPREVALENCE, NYC METRO AREA, APRIL 25-MAY 6, 2020

23.2% (95% confidence interval: 19.9 - 25.3%)
Age and sex standardized seroprevalence estimate

April 25 - May 6 2020
When samples were collected

281,670
Cases reported by 5/6/2020

2,832,000
Estimated infections based on seroprevalence

At Least 10x higher
Difference between estimated number of infections based on seroprevalence and reported case counts

Catchment area: Suffolk, Kings, Queens, Nassau, New York, Westchester, Richmond, Bronx

Number of samples collected: 1,116

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Samples</th>
<th>Sex-Specific Seroprevalence Estimate</th>
<th>Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-18</td>
<td></td>
<td>23.6%</td>
<td></td>
</tr>
<tr>
<td>19-49</td>
<td>238</td>
<td>Male 21.0%</td>
<td>584</td>
</tr>
<tr>
<td>50-64</td>
<td>170</td>
<td>Female 29.1%</td>
<td>532</td>
</tr>
<tr>
<td>65+</td>
<td>440</td>
<td>15.6%</td>
<td></td>
</tr>
</tbody>
</table>

Corinne Thompson, PhD
Co-Lead, Epi Data Unit, COVID-19 Response
NYC Department of Health and Mental Hygiene
IMPROVING DATA FOR A BETTER PUBLIC HEALTH RESPONSE TO COVID-19

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Gender Justice Manager and LGBTQ+ Liaison
Race to Justice, Office of the Chief Operating Officer

Ellen Weiss Wiewel, DrPH, MHS
Director of Research and Evaluation, Housing Services Unit, Division of Disease Control

NYC Department of Health and Mental Hygiene
ISSUES WITH COVID-19 DATA

- Due to historical, institutional, and structural oppression, Black, Brown, people of color, and LGBTQ+ people experience more health disparities\(^1\)

- Data collection systems have not been collecting standard demographic information, and some haven’t used current identity terms

- Race/ethnicity data are missing for roughly half of reported COVID-19 cases nationwide\(^2\)

- Most state and federal data lack inclusive collection, analysis, and reporting of sexual orientation and gender\(^3\)
• There is much more diversity within race/ethnicity and sexual orientation/gender identity than we capture; for example:
  • The US Census Bureau reports that two-thirds of persons living in NYC are Hispanic/Latino and/or do not identify as white
  • Based on multiple studies, there are ~756,000 LGBTQ New Yorkers, of whom ~50,000 may be transgender
• Many people identify in more nuanced ways than we currently capture in race/ethnicity categories; for example:
  • The NYC Health Department found that, without being asked, 22% of Latinos and 5% of non-Latino persons residing in NYC volunteer additional identity information
• The NYC Health Department recommends systematic ascertainment of these data and is piloting new approaches in ongoing COVID-19 work
COVID-19: COLLECTION OF RACE, ETHNICITY, SEXUAL ORIENTATION, AND GENDER IDENTITY

- New race, ethnicity, sexual orientation and gender identity questions have been added to questionnaires, databases, data abstraction forms.
- Interviewers received training on how to ask these questions and were provided with guides to explain terminology.
- Questions are being used during COVID-19 case investigations, contact tracing, evaluation of social distancing, plasma donation, epidemiologic studies, and cluster investigations.
COVID-19 RACE/ETHNICITY QUESTIONS

Do you identify as Hispanic, Latino or Latina? Please select one.
- Yes, Hispanic, Latino or Latina
- No, not Hispanic, Latino or Latina

Which of the following races do you identify as? You may select all that apply.
- Asian, including South Asian
- Black, including African American or Afro-Caribbean
- Native American or Alaska Native
- Native Hawaiian or Pacific Islander
- White
- I do not identify as any of these races
COVID-19
RACE/ETHNICITY QUESTIONS

Which specific ethnic or cultural groups do you identify as, if any? You may choose more than one.

❑ Arab
❑ Chinese
❑ Dominican
❑ Guyanese
❑ Haitian
❑ Indian
❑ Italian
❑ Jamaican
❑ Jewish
❑ Mexican
❑ Puerto Rican
❑ Russian
❑ Another group or groups. Please specify: ________________
❑ I do not identify as any specific ethnic or cultural group
CAPTURING SEXUAL ORIENTATION, GENDER IDENTITY, AND SEX ASSIGNED AT BIRTH FIELDS

Among NYC REACH member hub practices using electronic medical records:

- **13%** of practices have used the sexual orientation field
- **17%** of practices have used the gender identity fields
- **19%** of practices have used the sex assigned at birth field
COVID-19 QUESTIONS:
SEXUAL ORIENTATION, GENDER IDENTITY, AND SEX ASSIGNED AT BIRTH

How do you currently identify your gender? Please select the one that best describes you. Do you identify as a:

- Woman or girl
- Man or boy
- Transgender woman or Transgender girl
- Transgender man or Transgender boy
- Non-binary or genderqueer person
- A gender identity not listed above: ______________________

What sex were you assigned at birth? Please select one:

- Female
- Male
- Neither female nor male

Which of the following best describes your sexual orientation? Please select the one that best describes you:

- Gay or lesbian
- Straight or heterosexual
- Bisexual
- Queer
- Questioning or not sure
- A sexual orientation not listed above: ______________________
Create a welcoming environment for LGBTQ+ people in general

• Routinely ask about all three categories
• When possible, use open-ended questions
• Ask sexual orientation or gender identity questions during the social or sexual history portion of the patient interview
• Ask only necessary or relevant questions and explain why you’re asking them
• Normalize: “This is something I ask all of my patients.”
RECOMMENDATIONS FOR PROVIDERS

• Promote inclusive data collection as an important issue

• Use more inclusive questions and terminology for race/ethnicity, sexual orientation, gender identity, and sex assigned at birth as a step towards ending health disparities

• Call the Provider Access Line (PAL): 866-692-3641 with questions or concerns

• Learn more: Dear Colleague COVID-19 Updates Health Inequities and COVID-19


CLINICAL UPDATE: VITAMIN D AND COVID-19

Madhury (Didi) Ray, MD, MPH
Critical Care Planning Lead
VITAMIN D AND RESPIRATORY INFECTIONS

• Vitamin D insufficiency has been linked to acute respiratory infections in observational studies


• Proposed mechanisms
  • Vitamin D activity in the lungs
  • Modulation of innate and adaptive immune responses
  • Suppression of cytokine response may reduce risk for severe lung injury


• Some studies have suggested a role for vitamin D supplementation in preventing respiratory illnesses
  • Evidence is currently insufficient to support routine supplementation for respiratory illness prevention


VITAMIN D AND COVID-19

• Lower vitamin D levels noted to be:
  • Common in older adults, persons who are obese, persons with diabetes
  • Common among patients with severe COVID-19¹
  • Correlated with poorer outcomes in observational study of COVID-19²

• Some observational studies have noted a correlation between COVID-19 severity or mortality and latitude
  • Inverse correlation between mean national levels of vitamin D and poor COVID-19 outcomes in European countries has been reported³

• Retrospective review of 780 patients in Indonesia found association between low vitamin D and death, controlling for age, sex, and comorbidities⁴

• Study of > 500,000 UK Biobank participants, 449 who had confirmed COVID-19, did not find an association between vitamin D level measured in 2006-2010 and COVID-19


VITAMIN D AND COVID-19

• Reports to date are preliminary and observational
  • Correlation between vitamin D deficiency and poorer COVID-19 outcomes does not substantiate a causal relationship

• Reasonable to treat vitamin D insufficiency as per usual practice
  • Excess vitamin D can be toxic

• No current recommendation for vitamin D supplementation for COVID-19 prevention or treatment
  • Some papers have suggested dosages for supplementation in Vitamin D insufficiency in the context of COVID-19
• Treatment may include oral ergocalciferol (vitamin D$_2$) at 50,000 IU per week for eight weeks.

• After vitamin D levels normalize, maintenance cholecalciferol (vitamin D$_3$) at 800 to 1,000 IU per day from dietary and supplemental sources.

ADDITIONAL RESOURCES ON COVID-19

NYC Health Department
- Provider page: https://www1.nyc.gov/site/doh/covid/covid-19-providers.page
- Data page: https://www1.nyc.gov/site/doh/covid/covid-19-data.page
- Weekly webinars: Fridays, 2 p.m. (sign up on provider page)
- Dear Colleague COVID-19 newsletters (sign up for City Health Information subscription at: nyc.gov/health/register)
- NYC Health Alert Network (sign up at https://www1.nyc.gov/site/doh/providers/resources/health-alert-network.page)
- Provider Access Line: 866-692-3641
- Neighborhood resource snapshots: https://www1.nyc.gov/site/doh/covid/covid-19-communities.page

NYC COVID-19 Citywide Information Portal
- Includes information on > 150 testing sites in NYC: NYC.gov/covidtest

Other sources