Post-Vaccination Outcomes: Report for August 23, 2021

Background:
The City of New York monitors reported COVID-19 cases to determine if infections and illness are occurring among people who are fully vaccinated against COVID-19, also known as vaccine breakthroughs. All three COVID-19 vaccines available in the U.S. — Pfizer-BioNTech (Pfizer), Moderna and Johnson & Johnson/Janssen (Johnson & Johnson) — have been shown to be very effective at protecting people from severe COVID-19 illness, hospitalization and death. Hundreds of millions of doses of vaccine have been administered in the U.S.

Although the vaccines are effective at preventing serious illness and death from COVID-19, no vaccine is 100% effective. Rarely, people who have been fully vaccinated can be infected and become ill.

To monitor post-vaccination outcomes, the NYC Health Department uses information from the Citywide Immunization Registry (CIR) matched to reports of confirmed and probable COVID-19 cases.

Summary of findings:

- COVID-19 cases have recently increased in NYC, likely driven by the dominant and highly contagious delta variant.
- Vaccine breakthroughs remain uncommon among people who are fully vaccinated, but have increased in recent weeks as a proportion of all new cases, also likely driven by the delta variant and higher levels of community transmission in NYC.
- The COVID-19 vaccines continue to offer good protection and are particularly strong at preventing severe disease.
  - From January 17, 2021 through August 7, 2021, 96.1% of COVID-19 cases, 96.9% of COVID-19 hospitalizations, and 97.3% of COVID-19 deaths in NYC have been in people who are unvaccinated.
Key findings of post-vaccination outcomes in NYC:

The hospitalization rate\(^1\) has been consistently lower for fully vaccinated people, compared to the rate among unvaccinated people.

Unvaccinated people are much more likely to get COVID-19. The crude case rate for unvaccinated people has been 2.3 to 3.7 times the rate for fully vaccinated people.

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\(^1\)Includes hospitalizations within 14 days before or after COVID-19 diagnosis date or at time of COVID-19 death. Recent data are incomplete. Data are preliminary and subject to change.
Very few fully vaccinated New Yorkers are being infected and getting severely sick from COVID-19

- As of the most recent week (August 7, 2021):
  - 0.33% of fully vaccinated New Yorkers have been diagnosed with COVID-19.
  - 0.02% of fully vaccinated New Yorkers have been hospitalized for COVID-19.
  - 0.003% of fully vaccinated New Yorkers have died from COVID-19.

Cumulative cases, hospitalizations, and deaths among fully vaccinated New Yorker since January 17, 2021

<table>
<thead>
<tr>
<th>As of:</th>
<th>Fully vaccinated:</th>
<th>— Number among fully vaccinated people —</th>
<th>— Percent of fully vaccinated people —</th>
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<tbody>
<tr>
<td></td>
<td>Cases</td>
<td>Hospitalizations</td>
<td>Deaths</td>
</tr>
<tr>
<td>6/26/21</td>
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<td>14,986</td>
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</table>

Overwhelmingly NYC COVID-19 illness, hospitalizations and deaths are among people who are not fully vaccinated.

- As of the most recent week (August 7, 2021):
  - 96.1% of COVID-19 cases are among those not known to be fully vaccinated.
  - 96.9% of COVID-19 hospitalizations are among those not known to be fully vaccinated.
  - 97.3% of COVID-19 deaths have been among those not known to be fully vaccinated.

Notes on this data:
• **Data include:** COVID-19 laboratory positive cases, hospitalizations and deaths — starting on January 17, 2021 (the first Sunday a NYC resident could qualify as fully vaccinated) through August 7, 2021 — that occurred among fully vaccinated people and all residents of NYC living in congregate (which include residents and employees of long-term care facilities, jails, shelters, and other types of congregate living facilities) and community settings in New York City.

• **Fully vaccinated cases (vaccine breakthroughs):** persons with a diagnosis date or reinfection (i.e., positive specimens collected 90 or more days from a previous positive) that occurred 14 or more days after a second dose of mRNA vaccine (Moderna or Pfizer) or 14 or more days after a single dose for viral vector vaccines (Johnson & Johnson).

• **COVID-19 hospitalizations:** hospitalization within 14 days before or after COVID-19 diagnosis date or at time of COVID-19 death.

• **COVID-19 deaths:** death within 60 days of COVID-19 diagnosis date or where COVID-19 cause of death is listed on the death certificate.

• **Vaccination records:** vaccinations of NYC congregate and community setting residents are obtained from a weekly bulk match to the CIR or are imported directly for individual cases from CIR via the Electronic Disease Reporting Infrastructure.