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# Transit Cooperative Research Program –

# Air Quality in Transit Buses

June 21, 2022

Herold Humphrey, Deputy Chief of Bus Operations, MARTA

Richard Gonzalez, Director of Bus Operations, DART (Dallas)



## Overview

- Introductions
- COVID 19 timeline
- Impact to transit ridership
- Air quality concerns for buses
- Agency responses; successes and challenges
- Concerns and uncertainties for the future
- Event and guidance

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# COVID 19 - Timeline

## OUR PANDEMIC YEAR—A COVID-19 TIMELINE

On March 11, the WHO declared COVID-19 a pandemic. Here is a look back at a year in disruption.

### A MYSTERIOUS NEW ILLNESS

Images appear of Wuhan in lockdown, where officials attempt to contain a mysterious virus. Soon after, new cases of and deaths related to (what's later named) COVID-19 surge in Europe.

### THE WORLD SHUTS DOWN

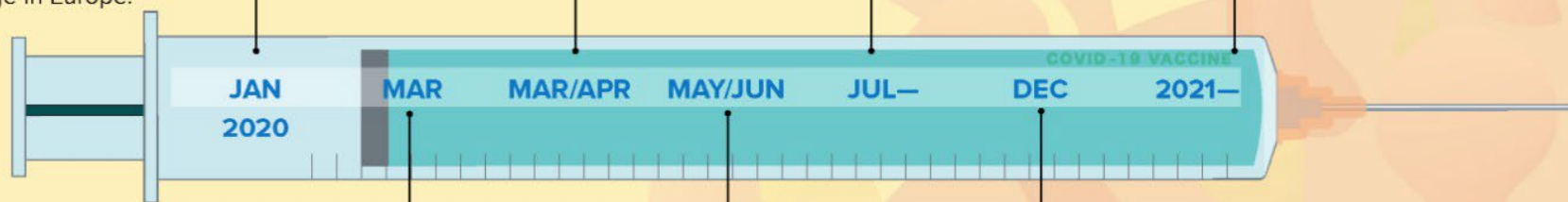
Countries seal borders; sports teams cancel seasons; schools close and employees go home. People start wearing masks and "social distancing."

### UPTICK IN MENTAL HEALTH ISSUES

People struggle as continued unemployment and/or working from home without childcare/school takes its toll. U.S. break records for daily cases/deaths.

### LIGHT AT THE END OF THE TUNNEL?

2021 begins with a race to vaccinate. Cases and deaths begin to fall. But the variants are still a threat, vaccine rollout is uneven, and we are still wearing masks.



### THE VIRUS SPREADS, CASES MULTIPLY

The Grand Princess cruise ship, docked outside of San Fran, has passengers with COVID-19; Bay Area is first in the U.S. to announce shelter-in-place orders; hospitals become overwhelmed as cases grow; there is a nationwide shortage of PPE.

### FLATTENING THE CURVE—FOR A WHILE

After "flattening the curve," cases begin to skyrocket again as states "reopen" in different phases. Researchers continue to race to identify treatments and make vaccines.

### NEW HOPE, NEW MUTATIONS

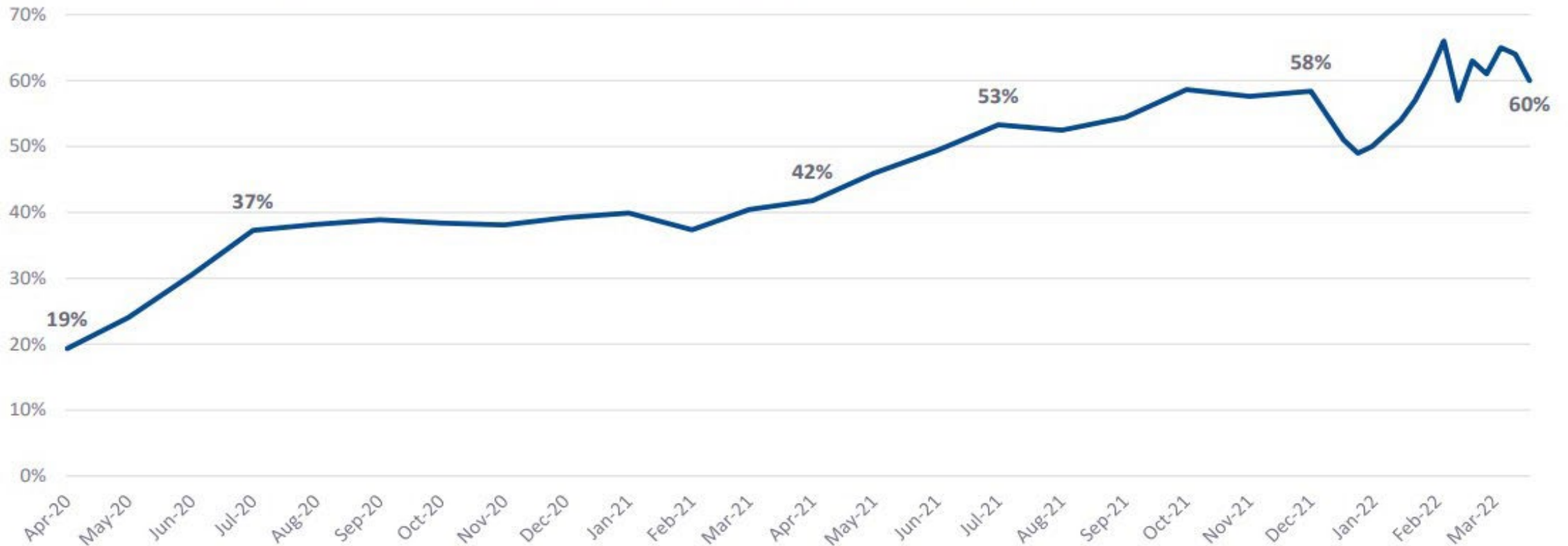
The FDA authorizes two vaccines. Major variants begin to circulate, some of which might impact the effectiveness of vaccines.

# Impact to transit ridership

## Public Transportation Ridership, April 2020-April 2022

Percent of Same Period in 2019

Source: APTA Ridership Report Data through December 2021, APTA Ridership Trends Dashboard January-April 2022



# Air quality concerns for buses



- Concerns for the safety of operators, mechanics and the customers
- Awareness of allergens and other COVID variants which may be circulating in the air

# Agency responses; successes and challenges



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## Successes –

- Installation of operator barriers
- Rear door boarding for buses
- Contactless fare systems development
- Improved cleaning/sanitizing regimens
- Initial PPE issuance

## Challenges –

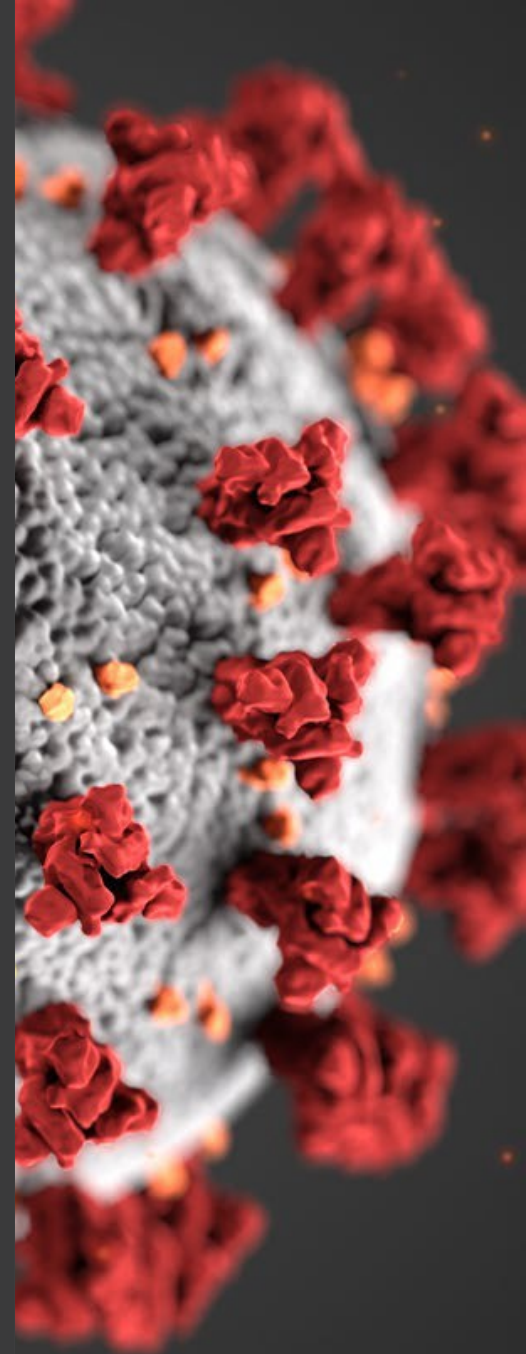
- Supply chain for PPE
- Employee and customer concerns of air quality on buses
- Multiple products; mists, sanitizers, etc. determining which one is the most effective
- Vaccine mandates

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## Concerns and uncertainties for the future

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- Interior cleaning, air quality, and sanitizing of buses
- Effectiveness and the improvements in air purification technology
- New COVID variants
- Other viral diseases
- Supply chain and delivery of PPE



# Air Quality in Transit Buses – June 21-22, 2022

- Airflow patterns and improving filtration
- Modeling and simulations for transmission risk decision making
- Bringing forward the best strategies for improving air quality in transit buses in the new normal

Thank you

