

Archived Editions (COVID-19 Genomics and Precision Public Health Weekly Update)

Published on 09/24/2020

COVID-19 Genomics and Precision Public Health Weekly Update Content

- Pathogen and Human Genomics Studies
- Non-Genomics Precision Health Studies
- News, Reviews and Commentaries

Pathogen and Human Genomics Studies

- Measurement of SARS-CoV-2 RNA in wastewater tracks community infection dynamics (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=194)
J Peccia et al, Nature Biotechnology, September 18, 2020

We measured SARS-CoV-2 RNA concentrations in primary sewage sludge in the New Haven, Connecticut, during the COVID-19 outbreak in Spring 2020. SARS-CoV-2 RNA was detected throughout the more than 10-week study and, when adjusted for time lags, tracked the rise and fall of cases seen in SARS-CoV-2 clinical test results and local COVID-19 hospital admissions.

- In-Flight Transmission of Severe Acute Respiratory Syndrome Coronavirus 2. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=196)
Choi Edward M et al. Emerging infectious diseases 2020 Sep (11)

Given the case histories and sequencing results, the most likely sequence of events is that one or both of passengers A and B contracted SARS-CoV-2 in North America and transmitted the virus to flight attendants C and D during the flight. The only location where all 4 persons were in close proximity for an extended period was inside the airplane....Our results strongly suggest in-flight transmission of SARS-CoV-2.

- Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 During Long Flight. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=197)
Khanh Nguyen Cong et al. Emerging infectious diseases 2020 Sep (11)

We traced 217 passengers and crew to their final destinations and interviewed, tested, and quarantined them. Among the 16 persons in whom SARS-CoV-2 infection was detected, 12 (75%) were passengers seated in business class along with the only symptomatic person (attack rate 62%). Seating proximity was strongly associated with increased infection risk (risk ratio 7.3, 95% CI 1.2-46.2)...In-flight transmission that probably originated from 1 symptomatic passenger caused a large cluster of cases during a long flight. Guidelines for preventing SARS-CoV-2 infection among air passengers should consider individual passengers' risk for infection, the number of passengers traveling, and flight duration.

- Viable SARS-CoV-2 in the air of a hospital room with COVID-19 patients. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=198)
Lednicky John A et al. International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases 2020 Sep

Viable (infectious) SARS-CoV-2 was present in aerosols within the hospital room of COVID-19 patients. Airborne virus was detected in the absence of health-care aerosol-generating procedures. The virus strain detected in the aerosols matched the virus strain isolated from a patient with acute COVID-19.

- Studies trace COVID-19 spread to international flights (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=199)
Van Beusekom M. CIDRAP, Sep 21, 2020.

[News story] Three studies published late last week describe in-flight COVID-19 transmission, with one involving a single symptomatic passenger who likely infected at least 12 others during an international flight. [Note: the first two studies are in

AMD Clips; the third one, linked here, includes only epi data (no sequencing) so is not in AMD Clips.]

Non-Genomics Precision Health Studies

- Measurement of SARS-CoV-2 RNA in wastewater tracks community infection dynamics (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=194)

J Peccia et al, Nature Biotechnology, September 18, 2020

We measured SARS-CoV-2 RNA concentrations in primary sewage sludge in the New Haven, Connecticut, during the COVID-19 outbreak in Spring 2020. SARS-CoV-2 RNA was detected throughout the more than 10-week study and, when adjusted for time lags, tracked the rise and fall of cases seen in SARS-CoV-2 clinical test results and local COVID-19 hospital admissions.

- In-flight Transmission of Severe Acute Respiratory Syndrome Coronavirus 2. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=196)

Choi Edward M et al. Emerging infectious diseases 2020 Sep (11)

Given the case histories and sequencing results, the most likely sequence of events is that one or both of passengers A and B contracted SARS-CoV-2 in North America and transmitted the virus to flight attendants C and D during the flight. The only location where all 4 persons were in close proximity for an extended period was inside the airplane....Our results strongly suggest in-flight transmission of SARS-CoV-2.

- Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 During Long Flight. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=197)

Khanh Nguyen Cong et al. Emerging infectious diseases 2020 Sep (11)

We traced 217 passengers and crew to their final destinations and interviewed, tested, and quarantined them. Among the 16 persons in whom SARS-CoV-2 infection was detected, 12 (75%) were passengers seated in business class along with the only symptomatic person (attack rate 62%). Seating proximity was strongly associated with increased infection risk (risk ratio 7.3, 95% CI 1.2-46.2)....In-flight transmission that probably originated from 1 symptomatic passenger caused a large cluster of cases during a long flight. Guidelines for preventing SARS-CoV-2 infection among air passengers should consider individual passengers? risk for infection, the number of passengers traveling, and flight duration.

- Viable SARS-CoV-2 in the air of a hospital room with COVID-19 patients. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=198)

Lednicky John A et al. International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases 2020 Sep

Viable (infectious) SARS-CoV-2 was present in aerosols within the hospital room of COVID-19 patients. Airborne virus was detected in the absence of health-care aerosol-generating procedures. The virus strain detected in the aerosols matched the virus strain isolated from a patient with acute COVID-19.

- Studies trace COVID-19 spread to international flights (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=199)

Van Beusekom M. CIDRAP, Sep 21, 2020.

[News story] Three studies published late last week describe in-flight COVID-19 transmission, with one involving a single symptomatic passenger who likely infected at least 12 others during an international flight. [Note: the first two studies are in AMD Clips; the third one, linked here, includes only epi data (no sequencing) so is not in AMD Clips.]

News, Reviews and Commentaries

- Measurement of SARS-CoV-2 RNA in wastewater tracks community infection dynamics (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=194)

J Peccia et al, Nature Biotechnology, September 18, 2020

We measured SARS-CoV-2 RNA concentrations in primary sewage sludge in the New Haven, Connecticut, during the COVID-19 outbreak in Spring 2020. SARS-CoV-2 RNA was detected throughout the more than 10-week study and, when adjusted for time lags, tracked the rise and fall of cases seen in SARS-CoV-2 clinical test results and local COVID-19 hospital admissions.

- In-Flight Transmission of Severe Acute Respiratory Syndrome Coronavirus 2. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=196)
Choi Edward M et al. Emerging infectious diseases 2020 Sep (11)

Given the case histories and sequencing results, the most likely sequence of events is that one or both of passengers A and B contracted SARS-CoV-2 in North America and transmitted the virus to flight attendants C and D during the flight. The only location where all 4 persons were in close proximity for an extended period was inside the airplane....Our results strongly suggest in-flight transmission of SARS-CoV-2.

- Transmission of Severe Acute Respiratory Syndrome Coronavirus 2 During Long Flight. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=197)
Khanh Nguyen Cong et al. Emerging infectious diseases 2020 Sep (11)

We traced 217 passengers and crew to their final destinations and interviewed, tested, and quarantined them. Among the 16 persons in whom SARS-CoV-2 infection was detected, 12 (75%) were passengers seated in business class along with the only symptomatic person (attack rate 62%). Seating proximity was strongly associated with increased infection risk (risk ratio 7.3, 95% CI 1.2-46.2)....In-flight transmission that probably originated from 1 symptomatic passenger caused a large cluster of cases during a long flight. Guidelines for preventing SARS-CoV-2 infection among air passengers should consider individual passengers? risk for infection, the number of passengers traveling, and flight duration.

- Viable SARS-CoV-2 in the air of a hospital room with COVID-19 patients. (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=198)
Lednicky John A et al. International journal of infectious diseases : IJID : official publication of the International Society for Infectious Diseases 2020 Sep

Viable (infectious) SARS-CoV-2 was present in aerosols within the hospital room of COVID-19 patients. Airborne virus was detected in the absence of health-care aerosol-generating procedures. The virus strain detected in the aerosols matched the virus strain isolated from a patient with acute COVID-19.

- Studies trace COVID-19 spread to international flights (/PHGKB/phgHome.action?action=forward&dbsource=covUpdate&id=199)
Van Beusekom M. CIDRAP, Sep 21, 2020.

[News story] Three studies published late last week describe in-flight COVID-19 transmission, with one involving a single symptomatic passenger who likely infected at least 12 others during an international flight. [Note: the first two studies are in AMD Clips; the third one, linked here, includes only epi data (no sequencing) so is not in AMD Clips.]

Disclaimer: Articles listed in COVID-19 Genomics and Precision Public Health Weekly Update are selected by the CDC Office of Public Health Genomics to provide current awareness of the scientific literature and news. Inclusion in the update does not necessarily represent the views of the Centers for Disease Control and Prevention nor does it imply endorsement of the article's methods or findings. CDC and DHHS assume no responsibility for the factual accuracy of the items presented. The selection, omission, or content of items does not imply any endorsement or other position taken by CDC or DHHS. Opinion, findings and conclusions expressed by the original authors of items included in the Clips, or persons quoted therein, are strictly their own and are in no way meant to represent the opinion or views of CDC or DHHS. References to publications, news sources, and non-CDC Websites are provided solely for informational purposes and do not imply endorsement by CDC or DHHS.

Page last reviewed: Oct 1, 2020

Page last updated: Jan 12, 2021

Content source: Office of Genomics and Precision Public Health (<http://www.cdc.gov/genomics/>), CDC Office of Science (<https://www.cdc.gov/od/science/index.htm>)