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Published on 10/15/2020

COVID-19 Genomics and Precision Public Health Weekly Update Content

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Pathogen and Human Genomics Studies

- Detection of SARS-CoV-2 with SHERLOCK One-Pot Testing.**
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- Large-scale Multi-omic Analysis of COVID-19 Severity**
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We surveyed biomolecules in 102 COVID-19 and 26 non-COVID-19 patient blood samples. We found 219 biomolecules strongly associated with COVID-19 status and severity. We observed pronounced dysregulation of lipid transport and neutrophil degranulation.
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This is a prospective, interventional, non-randomized, controlled study of molecular point-of-care testing in patients aged 18 years or older presenting with suspected COVID-19. Point-of-care testing was associated with large reductions in time to results and could lead to improvements in infection control measures and patient flow compared with centralized laboratory PCR testing.
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A 25-year-old man who was a resident of Washoe County in the US state of Nevada presented to health authorities on two occasions with symptoms of viral infection. The patient had two positive tests for SARS-CoV-2, separated by two negative tests done during follow-up. Genomic analysis of SARS-CoV-2 showed genetically significant differences between each variant associated with each instance of infection.
- SARS-CoV-2 sequencing reveals rapid transmission from college student clusters resulting in morbidity and deaths in vulnerable populations**
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La Crosse County, Wisconsin experienced a substantial SARS-CoV-2 outbreak (2,002 cases in September 2020) that coincided with the return to in-person instruction at three local academic institutions. Genomic sequencing found rapid expansion of two viral substrains. Although the majority of cases were among college-age individuals, from a total of 111 genomes sequenced we identified rapid transmission of the virus into more vulnerable populations.
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