Gruppo A)

- La gestione delle schede di sicurezza dei prodotti e certificati di analisi utilizzati all'interno di un laboratorio biologico.
- La gestione delle apparecchiature all'interno di un laboratorio accreditato secondo la norma UNI CEI EN ISO/IEC 17025.
- La gestione e i controlli ambientali in un laboratorio biologico accreditato secondo la norma UNI CEI EN ISO/IEC 17025.

Gruppo B)

- I controlli necessari e loro significato, all'interno di una analisi di tipo PCR.
- Impostazione di un saggio di analisi quantitativa con apparecchiatura Real-time PCR.
- Wastewater Base Epidemiology: possibili applicazioni di tecniche di biologia molecolare.

Gruppo C)

- Che cos'è la carta dei servizi e delle attività di Arpa Piemonte.
- Il modello organizzativo di ARPA Piemonte prevede una articolazione gerarchica e in Strutture organizzative secondo criteri geografici e di prodotto. Il candidato illustri gli elementi principali su cui si basa tale organizzazione.
- Quali sono i compiti istituzionali di ARPA Piemonte secondo quanto prevede la L.R. 18/2016

DOMANDA 1

Che cos'è e a che cosa serve la PEC?

DOMANDA 2

In Excel qual è la sintassi corretta per le operazioni di somma, sottrazione, moltiplicazione e divisione?

DOMANDA 3

Che cos'è un back-up dei dati

AMERICAN SOCIETY FOR MICROBIOLOGY | Microbiology Spectrum

Check for updates

3 | Environmental Microbiology | Research Article

Analytical validation of a semi-automated methodology for quantitative measurement of SARS-CoV-2 RNA in wastewater collected in northern New England

Ashlee A. Robbins,[1] Torrey L. Gallagher,[1] Diana M. Toledo,[1,2] K. Chase Hershberger,[1] Sabrina M. Salmela,[1] Rachael E. Barney,[1] Zbigniew M. Szczepiorkowski,[1] Gregory J. Tsongalis,[1] Isabella W. Martin,[1] Jacqueline A. Hubbard,[1] Joel A. Lefferts[1]

AUTHOR AFFILIATIONS See affiliation list on p. 13.

ABSTRACT Wastewater-based epidemiology (WBE) can be used to monitor the community presence of infectious disease pathogens of public health concern such as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Viral nucleic acid has been detected in the stool of SARS-CoV-2-infected individuals. Asymptomatic SARS-CoV-2 infections make community monitoring difficult without extensive and continuous population screening. In this study, we validated a procedure that includes manual pre-processing, automated SARS-CoV-2 RNA extraction and detection workflows using both reverse-transcriptase quantitative polymerase chain reaction (RT-qPCR) and reverse transcriptase droplet digital PCR (RT-ddPCR). Genomic RNA and calibration materials were used to create known concentrations of viral material to determine the linearity, accuracy, and precision of the wastewater extraction and SARS-CoV-2 RNA detection. Both RT-qPCR and RT-ddPCR perform similarly in all the validation experiments, with a limit of detection of 50 copies/mL. A wastewater sample from a care facility with a known outbreak was assessed for viral content in replicate, and we showed consistent results across both assays. Finally, in a 2-week survey of two New Hampshire cities, we assessed the suitability of our methods for daily surveillance. This paper describes the technical validation of a molecular assay that can be used for long-term monitoring of SARS-CoV-2 in wastewater as a potential tool for community surveillance to assist with public health efforts.

IMPORTANCE This paper describes the technical validation of a molecular assay that can be used for the long-term monitoring of SARS-CoV-2 in wastewater as a potential tool for community surveillance to assist with public health efforts.

KEYWORDS COVID-19, sewage, wastewater, RT-ddPCR, RT-qPCR, accuracy, precision

W astewater-based epidemiology (WBE) monitors real-time data about the content of certain biomarkers or chemicals of public health importance in wastewater. Wastewater monitoring has been established in many regions as a tool to detect pathogens and/or community-wide use of chemicals (1–3). A particularly important use of WBE can be found in the detection of poliovirus from asymptomatic community members, enabling targeting of vaccination efforts (4, 5).

The coronavirus disease 2019 (COVID-19) pandemic presents the possibility of using WBE as a lead indicator of community spread of the SARS-CoV-2 virus (6). Nucleic acids of SARS-CoV-2 have been detected in the stool of 40%–60% of patients with an active infection (7). As individuals infected with SARS-CoV-2 do not always present with symptoms, actual community prevalence is difficult to determine without extensive and continuous population screening. WBE has the potential to capture the collective