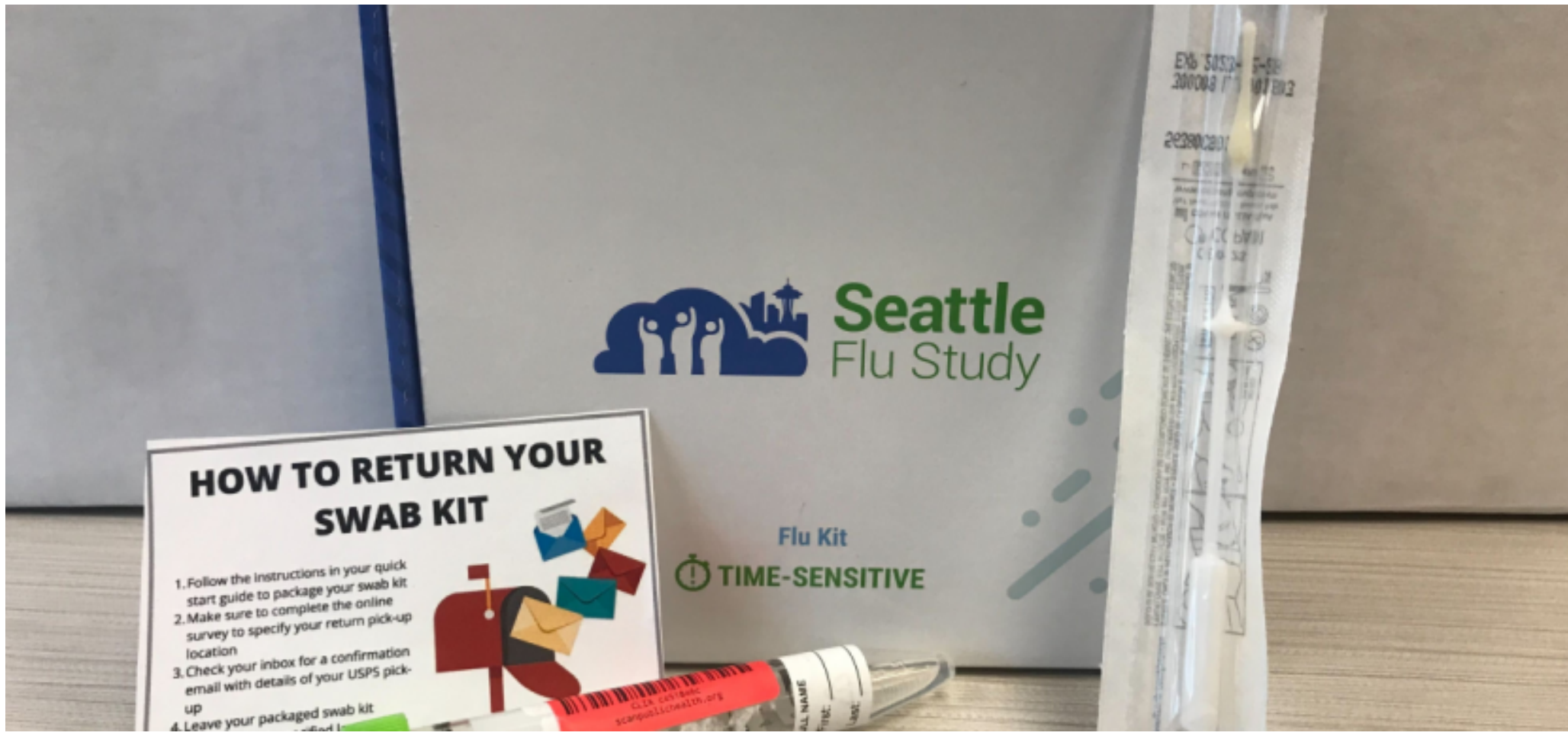


# JMIR Public Health and Surveillance | Diagnostic Accuracy of Self-test for Influenza

On July 31, 2022 | Tagged acute respiratory illness, home collection, home testing, influenza, mHealth, mobile health, mobile phone, rapid testing, self-collection, self-testing | Edit This



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- July 2022
- June 2022
- May 2022
- April 2022
- March 2022
- February 2022
- January 2022
- December 2021
- November 2021
- October 2021
- September 2021
- August 2021
- July 2021
- June 2021
- May 2021
- April 2021
- March 2021
- February 2021
- December 2020
- November 2020
- October 2020
- September 2020
- August 2020
- June 2020
- May 2020
- April 2020
- February 2020
- May 2019
- April 2019
- January 2019
- December 2018
- November 2018
- October 2018
- July 2018
- May 2018
- March 2018

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- Industry News
- Job Postings
- Press Releases
- Uncategorized

JMIR Publications recently published "Diagnostic Accuracy of an At-Home, Rapid Self-test for Influenza: Prospective Comparative Accuracy Study" in JMIR Public Health and Surveillance which reported that rapid diagnostic tests (RDTs) for influenza used by individuals at home could potentially expand access to testing and reduce the impact of influenza on health systems. Improving access to testing could lead to earlier diagnosis following symptom onset, allowing more rapid interventions for those who test positive, including behavioral changes to minimize spread.

This study aims to assess the accuracy of an influenza RDT conducted at home by lay users with acute respiratory illness compared with that of a self-collected sample by the same individual mailed to a laboratory for reference testing.

Participants were mailed the influenza RDT and reference sample collection materials, which they completed and returned for quantitative reverse-transcription polymerase chain reaction influenza testing in a central laboratory.

The JMIR Public Health and Surveillance authors explored the impact of age, influenza type, duration, and severity of symptoms on RDT accuracy and on cycle threshold for influenza virus and ribonuclease P, a marker of human DNA.

The overall sensitivity and specificity of the RDT compared with the reference test were 61% and 95%, respectively.

Dr. Matthew J Thompson from The University of Washington said, "In the most recent influenza season in the United States (October 2019 to April 2020), an estimated 39 to 62 million people were infected, resulting in 18 to 26 million health care visits and 24,000 to 62,000 deaths."

Diagnosis of influenza based on clinical features alone is inaccurate; therefore, several clinical guidelines support laboratory testing of respiratory tract specimens to detect the influenza virus.



Increasingly, laboratory testing for influenza has shifted to in-clinic testing using point-of-care (POC) devices.

Rapid diagnostic tests are a class of POC tests that can be performed with a few simple steps and typically do not require instrumentation or special supplies, raising the possibility for untrained individuals to use these tests outside of clinical settings.

RDTs tested in routine health care settings have shown sensitivities and specificities of 60% to 70% and 90% to 100%, respectively; however, owing to the novelty of home testing, few RDTs have been studied in the home environment.

A primary hurdle to at-home testing for influenza or other respiratory viruses is that RDTs are typically less accurate than laboratory-based assays, even when used by health care workers.

Dr Thompson and the research team concluded in their JMIR Publications Research Output that, using an entirely community-based remote recruitment study design, their findings showed that the Ellume Home Flu Test (EHFT) had comparable accuracy to many influenza RDTs used in clinical settings.

However, the sensitivity of the EHFT was only moderate and was higher when the test was used within 72 hours of symptom onset when virus shedding was likely the highest. Their findings support a new form of trial design, in which recruitment and self-sampling for reference testing can be performed successfully by lay users in the communities and populations in which these tests will be implemented.

Such study designs could be used to assess the accuracy of tests for other viral respiratory tract pathogens, such as SARS-CoV-2 and respiratory syncytial virus.

Home tests have the potential to expand access to testing for infectious diseases, with potential benefits for individuals and the health care system.

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