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# Improving biosafety measures in high containment laboratories and patient care: a systematic analysis of Orthoebolavirus and Henipavirus stability

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Emerging and re-emerging high-risk pathogens demand strong biosafety protocols for both patient care and laboratory practices. This study aimed to produce experimental data to support evidence-based guidelines for improving safety measures related to Orthoebolavirus and Henipavirus. Viruses in solution were applied to materials commonly found in hospital and lab settings—stainless steel, glass, plastics, cotton, nitrile and rubber gloves, and protective suits. Stability and infectivity were monitored over time under two conditions: (1) a typical indoor lab/hospital environment and (2) warmer, humid conditions resembling a European summer. While laboratory and clinical environments are typically climate-controlled, inclusion of the higher temperature and humidity condition provides comparative data relevant for situations where environmental controls may be less consistent, such as in public or outdoor settings. Results show that virus stability depends on both the suspension medium and the surface texture. Personal protective materials generally retained the virus for shorter durations. No viable virus was found after 112 days, with most becoming undetectable by day 28. Routine chemical disinfection protocols remain the primary biosafety measures, and our findings offer key insights for refining disinfection strategies and enhancing biosafety in high-containment settings and clinical care environments.

## Keywords

`biosafety, high containment laboratory, patient care, orthoebolaviruses, henipaviruses`

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## Professional Status of the Speaker

`Senior Scientist`

## Junior Scientist Status

`No, I am not a Junior Scientist.`

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