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Review of Phenotypic and Genotypic Methods for Isolating Antiviral Resistance in Clinical Settings

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Abstract: *Antiviral resistance has emerged as a significant challenge in the effective management of viral infections, particularly in chronic and rapidly mutating viruses such as HIV, hepatitis viruses, influenza, and herpesviruses. Accurate detection of antiviral resistance is crucial for guiding therapeutic decisions, improving patient outcomes, and preventing the spread of resistant strains. Two primary approaches phenotypic and genotypic methods are employed in clinical settings to identify antiviral resistance. This review critically examines the principles, methodologies, advantages, limitations, and clinical applications of phenotypic and genotypic resistance testing. The review highlights their complementary roles and discusses emerging trends aimed at improving resistance surveillance and personalized antiviral therapy*

Keywords*:* Antiviral resistance, phenotypic methods, genotypic methods