Strengthening the Molecular Diagnosis of Respiratory Viral Infections through an Extension Initiative in Partnership with the Minas Gerais State Health Department

Paloma Coutinho Campos[1], Danielle Oliveira da Fonseca[1], Yasmim Passos Lima[2] Aripuanã Sakurada Aranha Watanabe[2], Claudio Galuppo Diniz[2], Vania Lúcia da Silva[2], Vanessa Cordeiro Dias[2]

[1] Doctoral Student in the Postgraduate Program in Biological Sciences, Federal University of Juiz de Fora – UFJF Rua José Lourenço Kelmer, S/N, São Pedro, Juiz de Fora, 36036 900, Brazil;

[2] Department of Parasitology, Microbiology, and Immunology. Federal University of Juiz de Fora – UFJF Rua José Lourenço Kelmer, s/n, São Pedro, Juiz de Fora, MG 36036 900, Brazil.

E-mail do autor principal: vanessa.dias@ufjf.br

Grupo Temático: Eixo VI: Saúde

Abstract: Emerging and re-emerging pathogens represent increasing challenges to global public health, particularly those responsible for respiratory infections, frequently associated with high hospitalization rates. Among the main viral agents are Influenza, Respiratory Syncytial Virus (RSV), and SARS-CoV-2, among others. This study reports the contribution of an extension initiative focused on the molecular diagnosis of respiratory viral infections and interdisciplinary academic training, in partnership with the Minas Gerais State Health Department (SES/MG). This study reports the contribution of an extension initiative focused on the molecular diagnosis of respiratory viral infections and interdisciplinary academic training, in partnership with the Minas Gerais State Health Department (SES/MG). This initiative aimed to perform molecular detection tests for prevalent infectious diseases in the regional health districts of Barbacena and Leopoldina, including COVID-19, Influenza, Respiratory Syncytial Virus, and other viral infections. The project fostered interaction among students from different courses, encouraging interdisciplinarity and integration with healthcare professionals and users of the Brazilian Unified Health System (SUS). Activities included technical training, observation and discussion of clinical cases, patient preparation, collection and transport of biological samples, laboratory processing, RNA extraction, RT-qPCR, report generation, and scientific production. The target population consisted of SUS users requiring laboratory diagnosis and healthcare professionals seeking training. A key social benefit was the decentralization of diagnostic tests – previously performed exclusively in Belo Horizonte – to UFJF, with the participation of undergraduate and graduate students, as well as faculty. Patients received free access to high-quality diagnostic services with reduced turnaround times of up to 72 hours. In the last year, more than 2055 tests were performed, and by March 2026, we had totaled approximately 685 services. The project achieved its objectives, contributing to academic qualification, interdisciplinary training, and the strengthening of actions for the diagnosis and control of infectious diseases, as well as promoting integration between the university, health services, and society.

Keywords: Molecular Diagnosis; University Extension; Public Health; Unified Health System (SUS).