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diagnostic capabilities, enabling more personalized and precise management of respiratory conditions. Molecular diagnostics have revolutionized the detection and characterization of respiratory diseases by allowing for the precise identification of pathogens and genetic mutations. Techniques such as polymerase chain reaction (PCR) and next-generation sequencing (NGS) offer high sensitivity and specificity, enabling the early detection of infections and genetic predispositions. Molecular diagnostics facilitate targeted therapies and personalized treatment plans, improving the management of diseases such as tuberculosis, lung cancer, and cystic fibrosis [5].

Artificial intelligence (AI) and machine learning (ML) represent cutting-edge advancements in respiratory diagnostics. AI algorithms are increasingly being applied to the analysis of medical images, such as chest X-rays and CT scans, to enhance diagnostic accuracy and identify patterns that may be missed by human observers. Machine learning

the potential of these innovations. Continued research, collaborative efforts, and effective integration into clinical practice will be key to advancing the field and improving respiratory health outcomes.

Ac edge e .

None

C c. f I . e e .

None

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