

The Comparison Between Microfluidic Vs E-Nose Poc-Tests: Innovations to End Tb by 2030

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Abstract. In many countries, tuberculosis (TB) remains a quite common disease and is a major contributor to death from infectious diseases. According to WHO, in 2021, 10,6 million people have infected by *Mycobacterium tuberculosis* (MTB) with 1.4 million HIV negative and 187,000 HIV positive have died from TB, making it the leading cause of death from infectious diseases other than HIV/AIDS and COVID-19. Thus, there is an urgent need to use strategies to improve diagnosis and initiation of treatment for those with TB, one of them is early detection for TB diseases. To compare and determine the type of early diagnosis technology, as a preventive and innovative move toward end TB in 2030. This study used a thematic analysis by searching for articles using the PubMed, Science Direct, Gale and Google Scholar databases. The journal or an article selection process is based on the inclusion and exclusion criteria. The keywords used were innovation technology for screening TB, "E-Nose for screening TB", and "Microfluidics for TB diagnosis". The results showed that E-nose technology is more effective than microfluidic based POCT for early TB diagnosis in terms of sensitivity, specificity, samples, detection methods, duration for detection TB, and cost. E-nose can be used as an early-diagnosis technology because the duration to detect tends to be faster and simpler, and thus more effective to prevent TB transmission.

Keywords: E-Nose, Microfluidics, POC-T, TB