Updates on Latest TB Diagnostics: Results from Korean NIH TB Biomarker Study, Tongue Swabs Study and R2D2 Updates

Charles Y. Yu

Organization National Academy of Science and Technology, Philippines De La Salle Medical and Health Sciences Institute
Current Position National Academician, Professor of Medicine (Retired)

Educational background

1994	M.Sc., Clinical Epidemiology UP Manila
1987	Fellowship, Pulmonary Medicine, UP PGH
1986	Residency, Internal Medicine, UP PGH
1982	Doctor of Medicine, University of the Philippines College of Medicine
1978	BS Pre-med cum laude University of the Philippines Diliman

Professional experience

2023-Present	Founding Chairman and CEO, Care Clincal Trials Group
2023-Present	Head, Asian Hospital and Medical Center
2025	National Academician, NAST Philippines
2024-2025	Congress President, 2025 Asia Pacific Society of Respirology
2021-2025	Lead PI, Rapid Research in Diagnostics Development (R2D2) and Pi, Korean KBoP study

The plenary presentation initially presents the TB situation in the Philippines and Korea and also gives a global update on the state of Tb diagnostics and the massive gap in the cascade pf Tb care particularly in diagnosis. The global R2D2 and Report International TB networks are described. The Tongue swab study funded by the R2D2/ Gates Foundation is described and the results of both the local and global results are discussed particularly introducing the concept of over-all yield as an important new indicator for diagnosing TB. Diagnostic yield was non-inferior with tongue swabs compared to sputum (3.8% [63/1639] vs. 4.2% [68/1639], 95% CI -0.6 to +1.2). Combined yield of tongue swab plus sputum testing (5.5% [90/1639] was higher than that of either specimen type alone. Swab-based molecular testing (MiniDock MTB) offers lower per-test costs compared with sputum Xpert Ultra. In terms of cost-effectiveness, replacement, complementary and dual testing strategies could deliver considerable health impact at a reasonable cost, compared to the status quo Complementary and dual testing strategies offer highest net monetary benefits, but are more costly than the replacement strategy. The KBoP study sought to determine specific cytokines/chemokines that distinguish the immune profiles of active (DS and DR) TB, LTBI and healthy individuals as part of the over-all Report Tb common protocol. It also analyzed mRNA signatures or markers that discriminate active (DS and DR) TB, LTBI and healthy individuals and to determine changes in the levels of biomarkers (cytokines, mRNA signatures) from LTBI and healthy household contacts who later developed active TB disease. The results showed potential biomarkers for active TB disease correlated with IP-10, IL-1RA (INHIBITOR OF IL 1 beta), IL-12 .Potential biomarkers for Latent TB infection were CD40 ligand, EOTAXIN . Potential biomarkers for healthy household contacts were MCP1, VEGF, MDC. A discussion of these results compared to the published literature will also be discussed. These ground-breaking results will be of great impact in moving forward with advancing TB diagnostics.