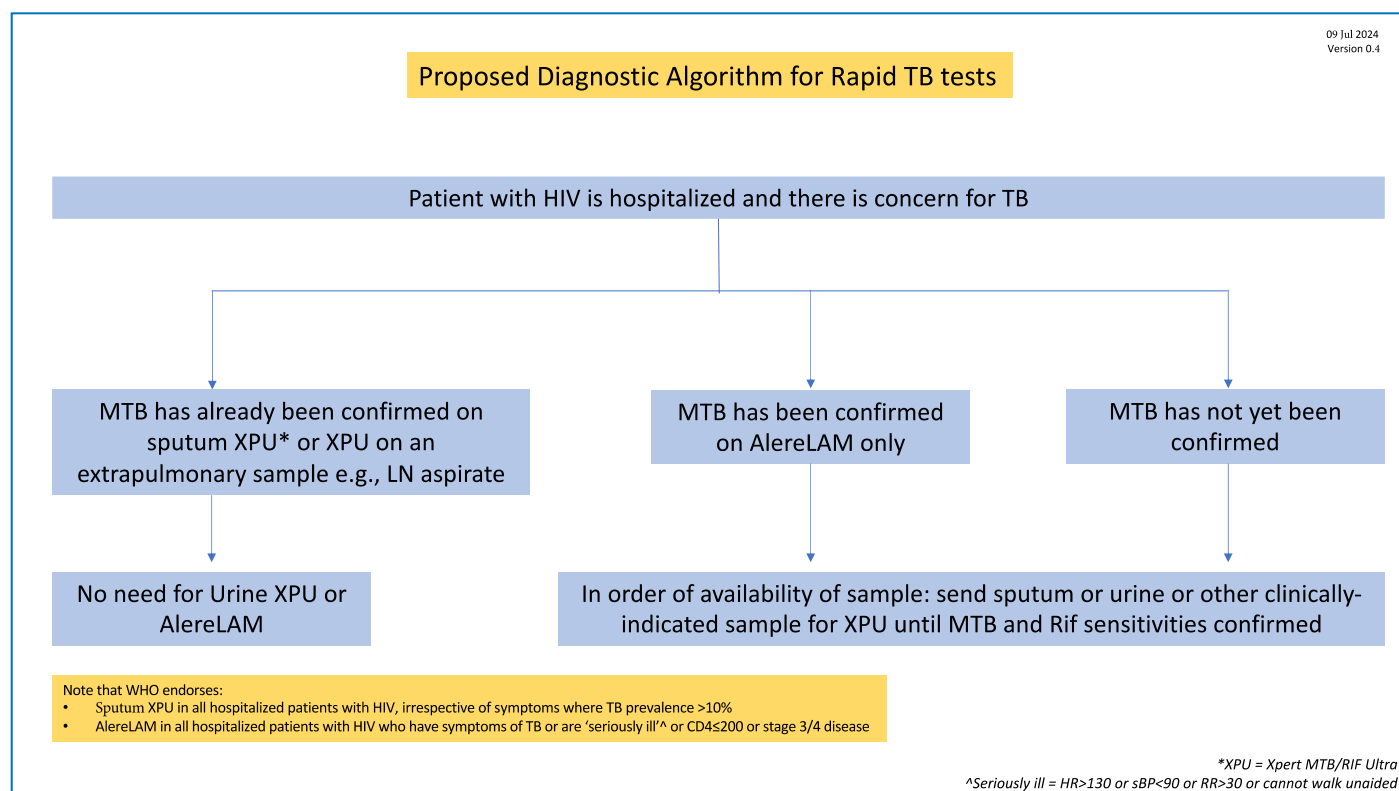


Policy brief: Urine Xpert Ultra for the diagnosis of TB in hospitalized people with HIV

Tuberculosis (TB) is the leading cause of death, hospitalisation and inpatient death in adults with HIV being admitted to hospital. Currently, a Sputum Xpert Ultra (Sputum-XPU) is recommended on all people with HIV (PWH) being hospitalized, but many of these patients are unable to produce the required sputum specimen. An LF-LAM is also recommended in PWH being hospitalized, but it will miss a large proportion of patients who truly have TB, and there is always a requirement to do confirmatory testing after a positive LF-LAM: towards confirming *Mycobacterium tuberculosis* and rifampicin sensitivity.

Urine is a sample that is easy to collect and is recommended by the World Health Organisation (WHO) as an option for diagnosing extrapulmonary TB in a policy brief on opportunistic infections in advanced HIV. Urine-XPU sensitivity for diagnosing TB has been 45-70% across studies of people with HIV in hospital i.e. just as good or better than LF-LAM. Urine-XPU has excellent specificity (>95%) and therefore one can be confident that a positive test means definite TB. In studies that have compared Urine-XPU, Sputum-XPU and LF-LAM within hospitalized PWH that have any form of pulmonary or extrapulmonary TB: Urine-XPU was able to diagnose ~52%, Sputum-XPU was able to diagnose ~56%, LF-LAM was able to diagnose ~41%, and using all 3 tests meant that 85% of these patients could have a rapid diagnosis of TB made. In patients with TB bacteraemia, who are at high risk of early death, Urine-XPU is the single best performing rapid test.

Below is a proposed diagnostic algorithm for PWH who are admitted medical wards in hospitals in South Africa. Important tips for clinicians and the lab are also below.



| Clinical Tips | Laboratory tips |
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| <ul style="list-style-type: none"> There is <u>no evidence</u> of urine volume affecting diagnostic sensitivity, but you should aim to send 10ml, or more if possible There is <u>not yet evidence</u> that collecting urine at a particular time of day makes a difference to the results If the sample is not able to be taken to the lab within 4-6 hours, it should be kept on ice or in a fridge | <ul style="list-style-type: none"> On receipt, the urine should be centrifuged at 3000g for 15 minutes Then resuspend the pellet in 0.75ml PBS and 1.5ml of Xpert reagent buffer and run the test If the sample is not able to be processed soon after arrival, it should be kept on ice or in a fridge |