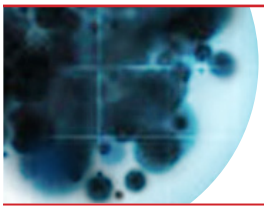
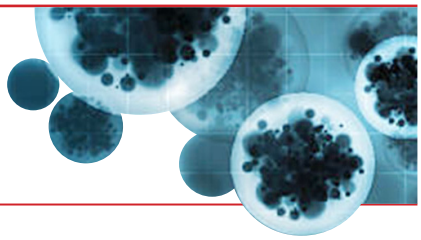
THE PATHCARE NEWS



– The diagnosis of tuberculosis –

introducing the Xpert® MTB/RIF Ultra assay



The WHO recommends that each patient with suspected tuberculosis should benefit from at least one NAAT (nucleic acid amplification test), as these tests have enhanced sensitivity and specificity above conventional microscopy. Over the past years, the Xpert® MTB/RIF test has been used as the test of choice, replacing staining techniques such as ZN or Auramine on the first respiratory specimen submitted for each patient.

The Xpert MTB/RIF Ultra assay (Ultra) now replaces the Xpert® MTB/RIF as the next-generation assay. It has a higher sensitivity than Xpert MTB/RIF for the detection of *Mycobacterium tuberculosis,* particularly in smear-negative culture-positive specimens and in testing specimens from HIV-infected patients and children. It is also superior in testing extra pulmonary specimens such as CSF. The Ultra is also better able to differentiate silent mutations from rifampicin resistance conferring mutations (i.e. less false-resistant results than with the Xpert® MTB/RIF assay).

- The Xpert ® MTB/RIF Ultra assay (Ultra) uses the same platform as the Xpert® MTB/RIF assay and the price of the test will remain the same.
- Because of the enhanced sensitivity of the assay, it may detect non-replicating or non-viable bacilli. It is therefore of optimal use in patients that have not received treatment for TB (or less than 3 days treatment in the last 6 months).

What will be different?

- The limit of detection of the Xpert ® MTB/RIF Ultra assay approaches that of culture, and it is therefore able to detect paucibacillary disease. A "trace call" category can now be reported for these very low numbers of bacilli.
- For "trace" MTB detected results, the susceptibility to rifampicin cannot be determined due to the paucity of DNA in the sample, and is reported as being indeterminate.

How should "trace call" results be interpreted?

- Among persons with HIV, children and extra pulmonary specimens, "trace calls" should be considered to be true positive results for use in clinical decisions.
- Among persons without HIV infection with an initial "trace call" positive result, a fresh specimen should be submitted for repeat testing. A second "trace call" positive should be sufficient to make a diagnosis of pulmonary TB.

Culture still remains the gold standard of diagnosis. It is used to assess the viability of bacilli detected, especially in cases where a patient has been treated for TB previously. Culture is also required for further sensitivity testing, especially in specimens that contain very low numbers of organisms.

Preferred specimen types and recommended volumes:

	Requirements*
Respiratory Specimens	≥1ml
Fine Needle Aspirates	in MGIT or Transport bottles#
Gastric Fluid	≥1ml
CSF	≥1ml (unspun)
Urine	≥1ml
Tissue (Pleural Biopsy‡ and others)	Neat or in Saline

* Less than the recommended volume may be processed, but a negative result should be interpreted with caution.
\# Specialised culture bottles available from the laboratory on request.
‡ Pleural biopsy is the preferred sample type for diagnosing pleural TB (not pleural fluid).