

# Minimum Diagnostic Equipment At Referral Level

## Investigations for inpatient care of HIV/TB patients

- Ensure there is a system for obtaining results rapidly
- CSF results should be available within 2 hours, blood results within 4 hours, geneXpert 24 hours if working day

### Basic package of point of care tests:

These should be available 24/7, and all clinical, nursing and lab staff trained in their use

- HIV test
- Serum/CSF CrAg
- TB LAM
- Rapid malaria test
- Glucose (also for CSF)
- Haemoglobin
- Urine dipstick
- Pregnancy test (at least for women of reproductive age Who are confused, reduced consciousness, etc)

#### Plus:

- PoC creatinine
- PoC CD4 (when rapid test available)

### Chest X ray:

Ideally – need xray machine that can do supine/sitting x rays for sick patients: and access to the room for a bed/trolley and availability of oxygen cylinder

### CD4 testing:

- If not PoC, should still be available on site

### GeneXpert:

#### TB:

- Sputum and non-sputum samples: most of the latter need centrifuging, so need this too

#### Plus:

- EID
- Viral Load

### Abdominal ultrasound:

- Portable USS
- Train MOs/COs in FASH USS (Focussed Assessment with Sonography for HIV/TB)
- Also enables ultrasound guided aspiration (eg if difficult pleural effusion, ascitic tap)

### Pan-ophthalmoscope:

- CD4 < 100

### Light Microscopy:

- Essential for CSF and other body fluids

#### cell count and differential:

- lymphocyte count
- neutrophil count
- RBC
- Useful for pleural fluid, ascitic fluid, pus

#### gram stain for bacteria:

- Very under-rated, very, very useful
- CSF, pus

### Biochemical tests for protein:

- Pandy test: CSF
- Rivalta test: ascites
- Assuming that sites do not have access to protein as part of biochemical testing: both of the above are simple and 'rapid tests'

### Blood tests:

- Creatinine, sodium, potassium
- Full blood count
- VDRL rapid test
- hepatitis B rapid test (hepatitis C)
- bilirubin, ALT (GGT – but not so important): do not need AST as well as ALT, similarly do not need Alk Phos as well as GGT)

### Bacterial culture:

Would be ideal...

- Blood
- Urine
- CSF

**Red:** absolute basic package: all rapid PoC tests – unstable and very poorly resourced sites, no lab or lab techs, erratic electricity supply

**Blue:** these are the add-on investigations (ie added to the red) that should be expected to be available at most HIV IPD sites where there is a basic lab and lab techs

**Green:** the additional add-on investigations for better resourced sites, with adequate staffing levels: access to microbiology laboratory (not necessarily onsite) may not be feasible at present, but preliminary steps can be taken. Bacterial cultures can either be for surveillance, and/or directed (to guide treatment for individual patients).

**Red:** absolute minimum; **Blue:** basic; **Green:** more resourced referral centers