## 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:
- 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)

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

#### 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 (Focused Assessment with Sonography for HIV/TB)
  - Also enables ultrasound guided aspiration (e.g. 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

#### 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

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**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).