**Figure 11.6 Management if transfer to hospital is delayed**

**DANGER SIGNS**

- Respiratory rate >30/min
- Temperature >39°C
- Heart rate >120/min
- Systolic BP <90mm Hg
- Saturation <90%
- Moderate/severe dehydration
- Unable to walk unaided
- Altered mental state: confusion, strange behaviour, reduced level of consciousness
- Any other neurological problem: new onset severe headache, seizures, paralysis, difficulty talking, cranial nerve problems, rapid deterioration in vision

**Disseminated TB is the most common cause of mortality**

1. ART failure
2. Neurological disease (Big 3):
   - TB
   - Cryptococcal meningitis
   - Toxoplasmosis
3. Respiratory disease (Big 3):
   - Pneumocystis pneumonia
   - Pulmonary TB
   - Bacterial pneumonia
4. Severe diarrhoea
5. Other bacterial infections
   - Bacterial meningitis
   - Blood stream infections
   - Urinary tract infection
6. Other non-infectious causes
   - Hypoglycaemia
   - Renal failure
   - Abnormal sodium, potassium
   - Liver disease
   - Drug side effects

**Common causes of mortality: see box**

Often there is more than one cause
- Take a good history
- Examine the patient
- Focus on respiratory & neurological systems and ART history

**Investigations:**

**DO IMMEDIATELY**

Basic package of point-of-care tests
- HIV testing
- CD4
- Serum CrAg
- TB LAM
- Rapid malaria test
- Glucose
- Haemoglobin
- Urine dipstick

Basic TB investigations:
- GeneXpert (sputum)

For TB LAM or GeneXpert: treat if positive, but a negative result does not exclude TB.

Other TB investigations:
- Sputum microscopy
- GeneXpert on non-sputum. Samples: urine, CSF, pus
- CXR
- Abdominal ultrasound

Lumbar puncture:
- Necessary if there is any abnormal neurology

Request: CrAg, cell count and differential, protein, glucose, gram stain, geneXpert

If LP not possible or inevitable delay: do serum CrAg and give empiric treatment as indicated (see pages 228, 292).

**Blood tests:**
- Creatinine, sodium, potassium
- Full blood count
- VDRL
- Jaundice or hepatomegaly: bilirubin, ALT
- Bacterial infection possible: blood/urine cultures

Continues on next page
Start empiric treatment for diseases where clinical suspicion is high, but where there is no diagnostic test available or where diagnostic tests cannot exclude the disease.

**Emergency management**

**Hypoglycaemia**: 50 mls of 50% dextrose

**Dehydration, renal impairment** (see Chapter 17):
- IV fluids, electrolytes
- Chronic watery diarrhoea: empiric treatment for *Isospora belli* (cotrimoxazole)
- Beware nephrotoxic drugs

**Liver failure**: Beware hepatotoxic drugs (see Chapter 16)

**Severe anaemia (Hb <5g/dL)**: Transfuse, oxygen (see Figure 18.1 in Chapter 18)

**Bloodstream infection**: If fever and other danger signs or other evidence suggesting bacterial infection, give empiric antibiotics

**Respiratory disease**

**Respiratory danger signs**: RR >30 or saturation <90%
- Give oxygen
- Empiric treatment for pneumocystis and bacterial pneumonia
- Empiric treatment for TB if indicated

**No danger signs**:
- CXR – treat accordingly
- CXR not available, consider empiric treatment: pneumocystis, bacterial pneumonia, TB

**Clinical indications for immediate empiric TB treatment**:
Do available investigations while starting treatment.
- CNS TB likely
- Miliary TB or other CXR evidence of TB
- Clinical presentation strongly suggests TB; investigations not available or unable to exclude TB
- Clinical condition life-threatening, patient deteriorating, or not improving after 3 days of hospitalisation

**Neurological disease**

**Treat for cryptococcal meningitis if**:
- CSF CrAg positive
- Abnormal neurology, serum CrAg positive and LP not possible (or CSF CrAg unavailable)

**Give fluconazole prevention regimen if**:
Serum CrAg positive and CSF CrAg negative

**Treat for CNS TB if**:
Neurology signs AND:
- Proven TB (LAM/GXP) or strongly suspected clinically
- CSF CrAg negative

**Treat for toxoplasmosis if**:
CD4 <200; new focal neurology; or other abnormal neurology and no other diagnosis