# **Melioidosis**

**Causative organism**

* *Burkholderia pseudomallei*
  + Motile, aerobic, oxidase-positive, Gram-negative bacillus.
  + Environmental saprophyte (soil & water, especially rice paddies).
  + Closely related to *B. mallei* (glanders).
  + Hazard Group 3, potential biothreat agent.

## **Epidemiology**

* Endemic in **SE Asia (Thailand, Vietnam, Malaysia, Singapore)** and **Northern Australia** (Darwin, Top End).
* Increasing recognition in S. Asia, China, parts of Africa, Middle East, Central & South America.
* Reservoir: moist clay soils, surface water.
* Transmission:
  + Percutaneous inoculation (skin abrasions, wounds).
  + Inhalation (esp. heavy rainfall, cyclones).
  + Ingestion (contaminated water).
* Risk groups: farmers, construction workers; travellers to endemic areas.
* Host risk factors: **diabetes (major)**, ETOH, CKD, chronic lung disease, immunosuppression.
* Incubation: days to weeks, but may remain latent for years (“Vietnam time-bomb”).

## **Clinical Presentation**

* Broad spectrum – “the great mimicker”:
  + **Acute fulminant sepsis**: severe pneumonia ± bacteraemia, high mortality.
  + **Chronic disease**: weight loss, prolonged cough, resembles TB.
  + **Localized abscesses**: liver, spleen, prostate abscess, parotiditis, skin/soft tissue.
  + **CNS disease**: encephalomyelitis, brain abscess.
* Mortality: up to 40% (higher if untreated).
* Relapse common without prolonged eradication therapy.

## **Microbiology / Laboratory**

* Culture is gold standard.
* Growth on routine media within 24–48 h.
  + Colonies: dry, wrinkled, metallic; earthy/putrid odour.
  + Ashdown’s agar (selective): wrinkled, purple colonies.
* Biochemically: oxidase positive, resistant to many antibiotics.
* May be misidentified as *Pseudomonas* or *Burkholderia cepacia* complex on automated systems.
* Susceptibility:
  + Intrinsic resistance to aminoglycosides, colistin, macrolides, 1st/2nd gen cephs.
  + Active agents: ceftazidime, meropenem, TMP-SMX, doxycycline, amoxicillin-clavulanate.
* BSL-3 handling recommended due to lab-acquired infection risk.

## **Treatment**

Two phases essential (to reduce relapse):

**1. Intensive phase (10–14 days, longer if deep organ/CNS disease):**

* **Ceftazidime IV** (standard first-line).
* **Meropenem IV** (preferred for CNS/severe septic shock).
* Alternatives if allergy: imipenem, amox-clav (less effective).

**2. Eradication phase (3–6 months, sometimes longer):**

* **Trimethoprim-sulfamethoxazole (TMP-SMX)** PO (± doxycycline).
* Monitor renal/hepatic function, cytopenias.
* Doxycycline or amox-clav if TMP-SMX contraindicated.

**Adjuncts**

* Drainage of abscesses critical.
* Supportive ICU care.

## **Key Points for Exams**

* Endemic tropical infection, environmental reservoir.
* Diabetes = strongest risk factor.
* Presents as sepsis, pneumonia, or chronic TB-like illness; multiple abscesses typical.
* Culture diagnosis, but mis-ID is common.
* Requires prolonged two-phase therapy (IV ceftazidime/meropenem → oral TMP-SMX).
* High relapse/mortality if inadequately treated.
* Hazard Group 3, risk of lab-acquired infection.