Sepsis Diagnostics and Laboratory Capacity in Uganda

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Introduction

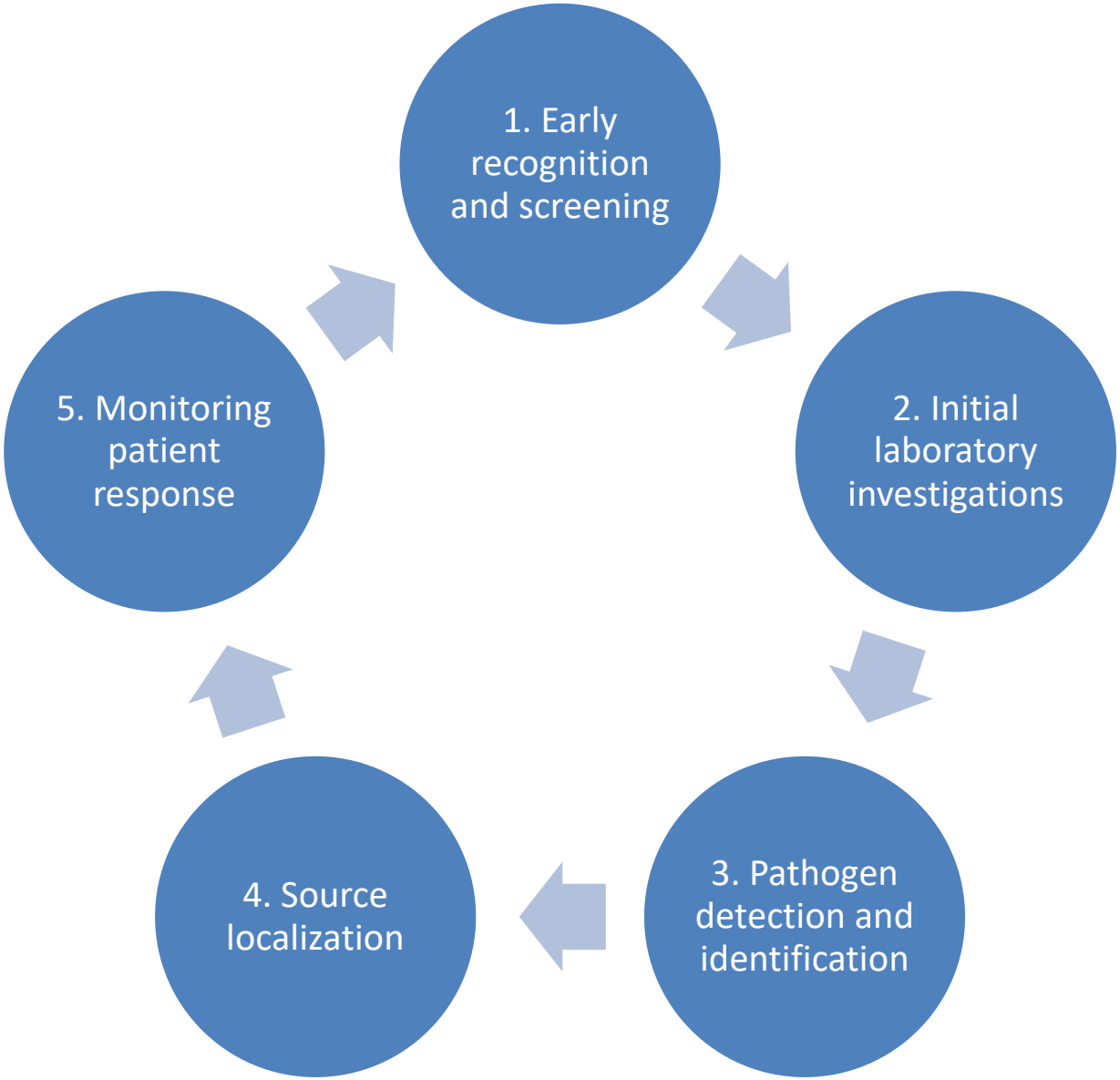
- In sepsis, every hour counts — early diagnosis is the difference between life and death.

- Sepsis is a major cause of preventable mortality in Uganda.
- Diagnostics are central to early detection, management, and surveillance.

Why Diagnostics Matter

- Early recognition improves survival.
- Diagnostics guide targeted therapy and reduce antibiotic misuse.
- Better diagnostic capacity helps combat complications, death and AMR.
- Timely lab confirmation supports rational clinical decisions.

Sepsis Diagnostic Pathway



Early Recognition Tools

- Vital signs monitoring: BP, RR, HR, O_2 saturation.
- Scoring systems like qSOFA, NEWS2 scoring
- Point-of-care lactate measurement.

Challenge: Limited lactate testing outside referral hospitals in public facilities

Biomarkers in Sepsis

- Lactate – Severity & mortality predictor
- Procalcitonin – Differentiates bacterial vs viral
- CRP – Common inflammation marker
- WBC Count – Routine test in all hospitals

Pathogen Detection & Identification

- Blood cultures – gold standard.
- Other cultures: urine, CSF, pus, sputum.
- AST – Kirby-Bauer or automated systems.
- GeneXpert & PCR panels expanding use

Imaging in Sepsis Diagnosis

- Chest X-ray – pneumonia/empyema
- Ultrasound – abscesses, biliary, appendicitis sepsis
- CT/Echo – for deep-seated infections

Monitoring Response

- Serial lactate – perfusion
- RFT/LFT – organ function
- ABGs – oxygenation & acid-base
- Coagulation – detect DIC early

Current Laboratory Capacity in Uganda

- National: CPHL, 5 National referral labs – confirmatory & surveillance, molecular like Biofire
- Regional: 16+ referral, some district hospitals and a HCIV, PLUS PNFPs and PFPs – blood cultures & AST with some automation (VITEK, Phoenix)
- District: Basic microscopy, limited cultures

Key Gaps & Challenges

- Limited infrastructure at all levels of care
- Delayed blood culture results because of the nature of lab tests 3-4days
- Inadequate AST capacity
- Minimal rapid diagnostics.
- Gaps in sample transport & feedback for some tests

Proposed Diagnostic Roadmap

- Short-Term: Screening & lactate at triage.
- Medium-Term: Reduce culture TAT via automation
- Long-Term: Integrate rapid diagnostics into EDL for facilities to all facilities with admission capacity

Ongoing National Actions

- Integration with AMR surveillance.
- Rollout of WHONET & LabWare.
- SOPs for sepsis specimen handling.
- Expnsion blood culture capacity to district hospitals
- Sepsis indicators in lab M&E framework

Key Messages & Call to Action

- Sepsis is a medical emergency — every minute counts.
- Diagnostics save lives when applied early.
- Strengthen lab-clinician collaboration.
- Invest in diagnostic infrastructure and workforce.