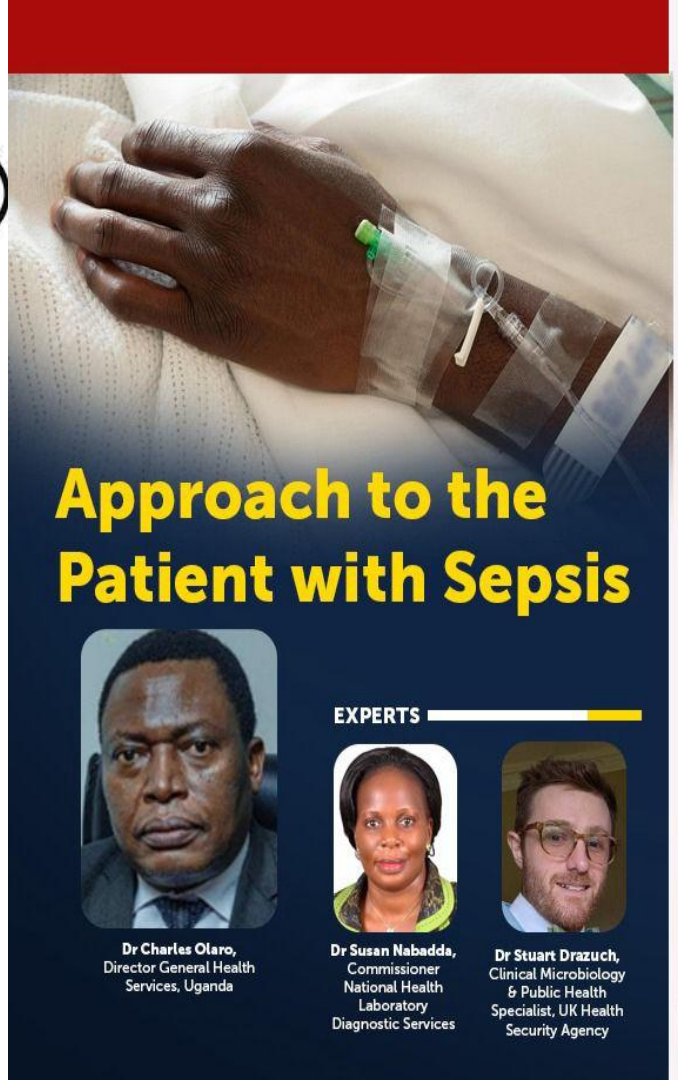
EMS ECHO 103



This session will delve into areas such as;

1. Clinical manifestations of sepsis
2. Laboratory capacity and sepsis diagnostics
3. National insights and commitments on sepsis
4. Roundtable discussion on management of a patient with sepsis

scan to register

FRIDAY
24th October 2025
2-4pm EAT

Meeting ID: 942 1941 7289
use link:
https://shorturl.at/EASy1

MODERATOR
Dr Saudah Namubiru Kizito,
Clinical Microbiologist (AMR Services)

CASE PRESENTER
Dr Modesto Odur,
Clinical Microbiology Resident at MakCHS

Brief History

85Y/M, a referral from a peripheral facility; Hypertensive x 5years, diabetic x 1 year with poor glycemic control on oral hypoglycemic, with worsening LOC x 3/7, worsening DIB, productive cough, progressive body swellings, and a wound on the left leg for 1/12which was debrided 3/7 prior

Primary Survey (Assessment & Intervention)

A	Patent but threatened by reduced LOC	- Monitor and maintain airway patency
B	Marked R.D, SPO2 60% on RA, RR= 23 bpm, wheezing & crackles bilaterally	- O2 therapy 10L/min by NRM - Salbutamol nebulization 2.5mg/5ml

Primary Survey (Assessment & Intervention)

C	Cool extremities, oedema 3+, CRT>2s, PR= 67bpm, thin and thready, BP=87/44 mmHg (MAP=62 mmHg), HS1 & 2 heard, no added sounds	- IV N/S 500ml boluses - Noradrenaline - Transfuse with 2 units of fresh whole blood
D	GCS=12/15, PERRL, no neck stiffness or lateralizing signs, no seizures reported, RBS not recorded. RBS=15 mmol/L	- IV PISA 4.5g 8hourly - IV metro 500mg 8hourly
E	T= 35.0°C, necrotic wound on the medial left thigh, hyperpigmentation of feet, soiled dressing, serous discharge, deep jaundice,	- Wound debridement - Daily wound dressing

SAMPLE History

Signs & Symptoms	- Worsening LOC x 3/7, worsening DIB, productive cough, progressive body swellings, loss of appetite, wound on the left thigh. Deteriorating LOC (GCS 12/15), marked R.D, with wheeze and crackles, delayed CRT, cold extremities, oedema 3+, thin and thready pulses, hypotensive
Allergies	-No known drug or food allergies
Medications	- Ceftriaxone-Salbactam 1.5mg o.d, Metronidazole 500mg tds, glibenclamide 5mg o.d, metformin 1g b.d, amlodipine 10mg o.d & Telvas-H 80mg/12.5mg

SAMPLE History

Past Medical History	Hypertension × 5 years, Diabetes Mellitus × 1 year with poor glycemic control, recent wound debridement
Last Oral Intake	4 days ago
Events Leading Up to Presentation	Referral from peripheral facility due to worsening LOC, progressive DIB, generalized edema, and infected leg wound; initial management included oxygen therapy, IV fluids, and antibiotics

Secondary Survey (Head-to-toe examination)

RELEVANT POSITIVES	RELEVANT NEGATIVES
General: Sick-looking elderly male, unconscious, GCS dropped from 12/15 to 8/15	No convulsions, no headache, no limb weakness
Airway/Breathing: Wheezing, prolonged expiration, labored breathing, SPO2 60% on room air, improved to 95% on NRM	No chest pain, no palpitations, no auscultatory crackles initially
Circulation: Hypotension (BP 87/44), thready radial pulse, cold extremities, grade 3 edema, shifting dullness, hepatomegaly	No murmurs, no palpable masses
Disability (CNS): Drowsy, reduced GCS, hepatic encephalopathy, deep jaundice	Pupils equal/reactive, no lateralizing signs, no neck stiffness
Exposure/Local Exam: Extensive wound on medial thigh with necrotizing fasciitis, hyperpigmentation, soiled dressing, serous discharge	No signs of trauma elsewhere, no facial asymmetry

Investigations

Investigation	Result
Serum Radom Blood Sugar (RBS)	15 mmol/L
Malaria Blood smear	No Mps Seen
CRP	10 mg/dL
CBC (Complete Blood Count)	WBC: 15.0K (elevated) range 4.0 -10.5k/uL, Absolute Neut; 10 (1.8-7.8) HB: 7g/dl
Electrolytes (Venous)	Hyperkalemia(5.5 mEq/L)
Liver Function Tests (LFTs)	ALT – raised; 101.2u/l, Alkaline phosphatase; - 436 u/l, Direct bilirubin; raised 6.07
Urea/Creatinine (RFT)	Urea; 259.7mg/dl, creatinine, 3.11mg/dl – Egfr: 18.9ml/min/1.73m2
HbA1c	11.4% (poor glycemic control over the last 90 days)
Serum Albumin	2.57 g/dL (low)
Urinalysis + culture and sensitivity	Ketones neg, Pus cells +, NBG

Blood Culture

Sets from Left and Right Cubital Fossae

- A1 - Flagged +ve after 24 hours
- A2 – Negative @5days
- B1 – Negative @5days
- B2 – Negative @5days

Sub-cultured

- CBA 3+ growth of entire, raised, smooth, greyish colonies; MAC; NBG

- Gram; Gr +ve cocci majorly in clusters
  - Catalase; +ve
  - Slide coagulase; -ve
  - MSA; -ve
  - DNase: -ve

ID: Coagulase-negative staphylococcus (S. epidermidis, S. saprophyticus)

Pus Swab

- Appearance: Moist, blood-stained
- Gram stain : 1+ Gram positive cocci in clusters, 1+inflammatory cells (PMNCs)
- MAC: NBG
- BA + CHO: NBG

Differential diagnoses

Diagnosis with;

1. Sepsis in septic shock
2. T2DM in DKA with Diabetic Foot

DDx

1. Necrotizing fasciitis
2. Chronic Kidney Disease
3. Uremic encephalopathy
4. Electrolyte imbalance with metabolic acidosis
5. Hepatic encephalopathy

Supportive Management

Supportive Area	Interventions	Rationale
Airway & Breathing	- Oxygen via non-rebreather mask (NRM) at 10 L/min - Nebulized salbutamol (5 mg/5 ml × 3 cycles)	hypoxia (SPO_2 60% on room air), relieve bronchospasm, and support ventilation
Circulation	- IV normal saline 500 ml 6–8 hourly - IV noradrenaline infusion (4 ml in 500 ml NS over 3 hrs) - Blood transfusion (3 units)	hypotension (BP 87/44), improve MAP, and correct anemia (Hb 7 g/dL)
Renal Support	- Nephrology review - Withhold nephrotoxic drugs (e.g., metformin, glibenclamide)	acute kidney injury (urea 259 mg/dL, creatinine 3.11 mg/dL, eGFR 18.9) and prevent further renal compromise
Glycemic Control	- Switch to SC mixtard insulin (PB 25 IU, PS 10 IU) - Monitor blood glucose closely	To manage hyperglycemia and avoid hypoglycemia in context of poor glycemic control (HbA1c 11.3%)

Supportive Management

System/Problem	Targeted Interventions
Gastrointestinal Protection	- IV Omeprazole 40 mg OD × 5/7
Cardiovascular Risk Management	- Rosuvastatin 20 mg OD × 5/7
Monitoring & Escalation	- Transfer to HDU - Hourly vitals and urine output - Multidisciplinary reviews (surgical, nephrology)

Specific Management

System/Problem	Targeted Interventions
Sepsis & Necrotizing Fasciitis	- IV PISA 4.5 g stat, then 2.5 g OD × 4/7 - IV Cef-sulbactam 1.5 g BD × 5/7 - IV Metronidazole 500 mg TDS × 5/7 - Surgical team review for wound debridement
Renal Dysfunction (AKI on CKD)	- Withhold nephrotoxic drugs (e.g., metformin, glibenclamide) - Nephrology review - IV fluids cautiously (500 ml 6hrly) - Monitor electrolytes, urine output
Hepatic Encephalopathy & Liver Failure	- IV Albumin 100 ml OD × 5/7 - Rifaximin 550 mg TDS × 5/7 - Lactulose syrup 15 ml OD × 5/7 - Hepto-vit BD × 2/52
Hyperglycemia	- Switch to SC Mixtard insulin (PB 25 IU, PS 10 IU; later 20/10) - Discontinue glibenclamide and glyformin
Thromboembolism Prophylaxis	SC Clexane 80 IU OD × 5/7

Role of Clinical Microbiology

Signs & Symptoms	- altered mentation, respiratory distress, hypotension, and oliguria—hallmarks of multi-organ dysfunction syndrome (MODS). - Extensive wound with **necrotizing fasciitis** on the medial thigh was the likely **septic focus**, requiring surgical intervention. - Persistent **hypotension (BP 87/44)** and **MAP** required **vasopressors**, **IV fluids**, and **blood transfusion**
Investigations	- Serum Lactate, CRP, procalcitonin, CBC, BS, LFTs, RFTs, Urinalysis, Blood culture & sensitivity. Wound swab (microscopy, culture and sensitivity)
Escalation of Care	- Timely transfer to HDU, initiation of broad-spectrum antibiotics, anticoagulation, and supportive therapies (albumin, lactulose, rifaximin) aligned with sepsis protocols.

Missed and Corrected

- Urine sample collected from an old catheter
- Serum lactate was not requested
- Procalcitonin

- Clinical team advised to insert a new catheter and collect a urine sample
- Clinical team advised to do S. lactate
- Team advised to do

Follow-up

Day 2

- Caretaker reports DIB, altered mentation, still has productive cough, reduced urine output despite Lasix, patient now switched to mixtard insulin, BP= 139/58 mmHg, cold LLL with dressing soiled with serous discharge, dark surrounding skin

- **Key issues**: oliguria, hypoglycemia, septic ulcer, hypoxia, urea 259.1, creatinine 3.11

- Management; follow-up labs: CBC HB; 7g/dl PLT, 500 (high), WBCS 15,000/ul, HBA1C, L/RFT, electrolytes, sputum gene xpert, d-dimers, urinalysis, chest X–ray, IV PISA 4.5g stat, then 2.5g od x 4/7. SC Clexane 80iu od x 5/7. Cef salbactam 1.5g BD x 5/7, iv omeprazole, 40mg od x 5/7, tabs rosuvastatin 20mg od x 5/7, review by surgical team, review by nephrology. Stop glibenclamide, Lasix, metformin,

Follow-up

Day 3

Dx;

1. Necrotizing fasciitis,
2. ALI
3. Hepatic encephalopathy

Plan

- Withhold all previous medications
- IV albumin 100mls od x 5/7
- Tabs rifaximin 550mg tds x 5/7
- Tabs hepto vit bd x 2/52
- Syr lactulose 15mls od x 5/7
- IV fluids, 500mls 6hrly x 1/7
- Transfer to HDU for neuro-critcal support
- SC mixtard 20/10 pb/ps
- Clexane 80iu od 5/7
- Nephron review, surgical review, BT with 3 units of blood
- IV noradrenaline 4mls in 500mls ns slowly over 3 hours,

Disposition Plan

MONITORING

- Hourly vitals (BP, SPO_2, RR, GCS)
 - Strict input/output charting
 - Daily labs: CBC, LFTs, RFTs, electrolytes, glucose

- Stabilize hemodynamics (MAP >65 mmHg)
- Control infection source
- Support renal and hepatic function
- Prevent complications (DVT, hypoglycemia, aspiration)

ESCALATION CRITERIA

- Worsening GCS
- Refractory hypotension
- Anuria or rising creatinine/urea
- Signs of respiratory failure or ARDS

Transfer to **High Dependency Unit (HDU)**

- Review by nephrology, surgery and physician review

Thank you