### OPERATIONAL RESEARCH ON BACTERIAL DIARRHEAL DISEASE AT KITALE COUNTY HOSPITAL.

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Venue: Enashipai Hotel, Naivasha (17-21 Nov 2015)

### OUTLINE

Background information **Problem statement Justification** Acknowledgement

# **Background information**

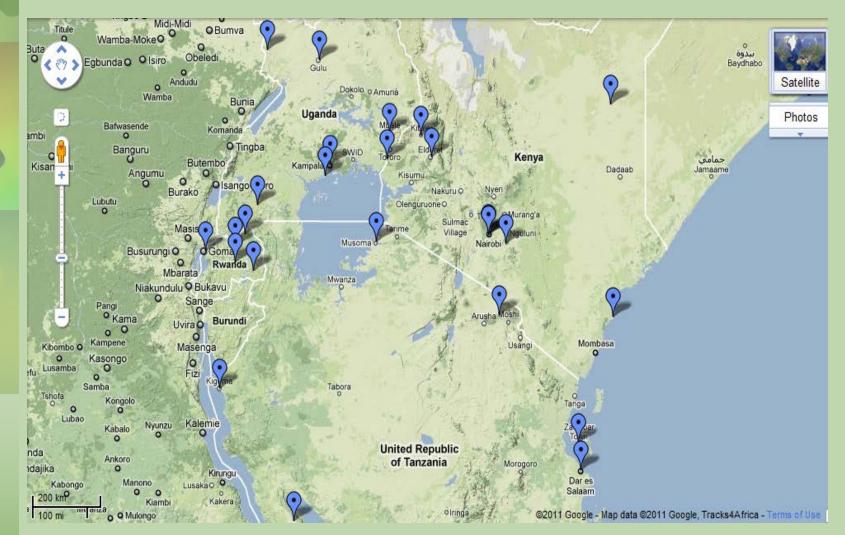
The East Africa Public Health Laboratory Networking Project, a World Bank funded project established with the core mandate of enhancing project sites' capacity for:

- Doperational research,
- □disease surveillance,
- Daccreditation,
- □ information communication technology,
- □training and capacity building,

The project in collaboration with Kenya medical research institute (KEMRI) initiated an operational research study on enteric disease at Kitale County referral hospital's outpatient clinic.(May 2013 to date)  Kitale county referral hospital is one of the six satellite laboratories in Kenya and 31 in the East African region supported by the East Africa Public **Health Laboratory** Networking Project. It has a staff population of 18. Others include : MALINDI, BUSIA, WAJIR, MACHAKOS, And NPHLs



### **Project sites in East Africa**



### **Problem Statement**

- Diarrheal disease alone accounts for an estimated 4.1 % of the total DALY global burden of disease.
- Responsible for the deaths of 1.8 million people every year and 1 in 9 child deaths (Warren, 2004).
- Forty two percent of these deaths occur in sub Saharan Africa (CDC 2013).
- Scarcity of new classes of antibacterial drugs for gram negative bacterial infections makes it necessary to prevent their spread and preserve the efficacy of the existing drugs so that common and life threatening infections can be cured.

### **Justifications**

- In Africa, there is no regional framework for collaborative surveillance of antibiotic resistance.
  - This hampers efforts to track and contain emergence of resistant organisms and systematically evaluate trends and resistance containment activities (WHO, 2014).
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### **OBJECTIVES**

To determine the prevalence of common circulating enteric pathogens and antimicrobial susceptibility patterns in Trans Nzoia county

1. To determine the prevalence of the common circulating enteric bacterial pathogens in faecal specimens from diarrheal patients in Trans Nzoia County...

2. To determine antimicrobial susceptibility patterns of enteric bacterial pathogens

3. To characterize genetic resistance among enteric bacterial pathogens to the antimicrobial agents.

# Methodology

#### **Study Area and Design**

Hospital based cross-sectional study of all diarrheal patients

seeking treatment at Kitale County Referral Hospital.

#### **Population**

The target population included patients of all ages attending Kitale County Referral Hospital, presenting with acute diarrheal illness (3 or more passages of loose or watery stool within 24 hrs).

#### Eligibility

Inclusion criteria All consenting outpatients and inpatients of all ages seeking treatment for diarrheal illness at Kitale county referral hospital.

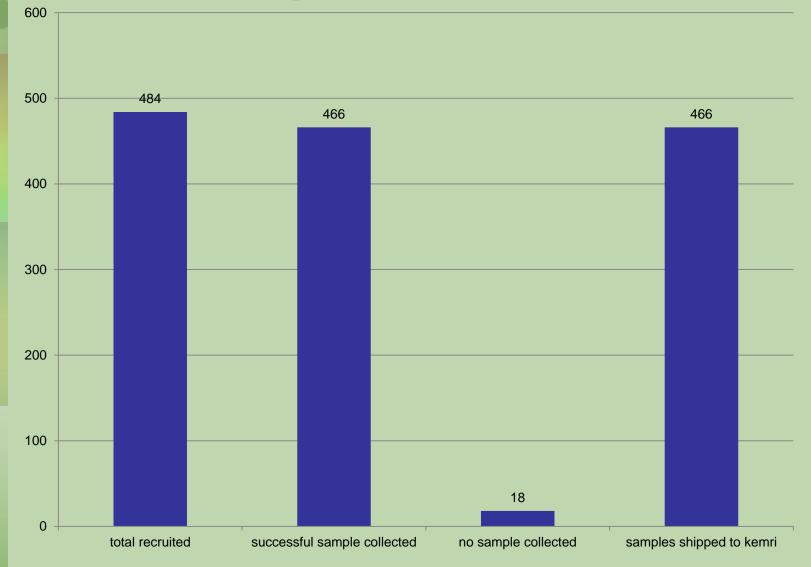
#### **Exclusion criteria**

Patients who had taken antibiotics within 72hrs of the onset of symptoms and those who were unwilling to participate or give stool samples. Sample Size Cochran (1977) 384 patients

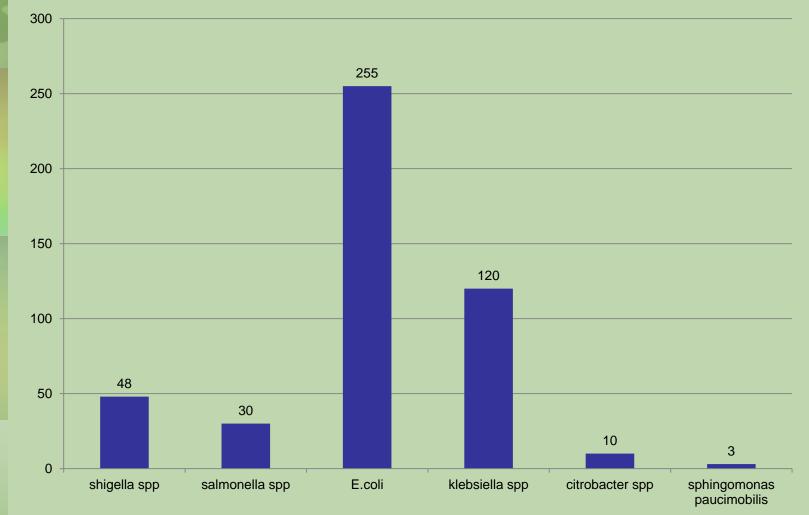
Quality control Protocol guidelines Media prep,viability and sterility

Data collection Questionnairre laboratory analysis

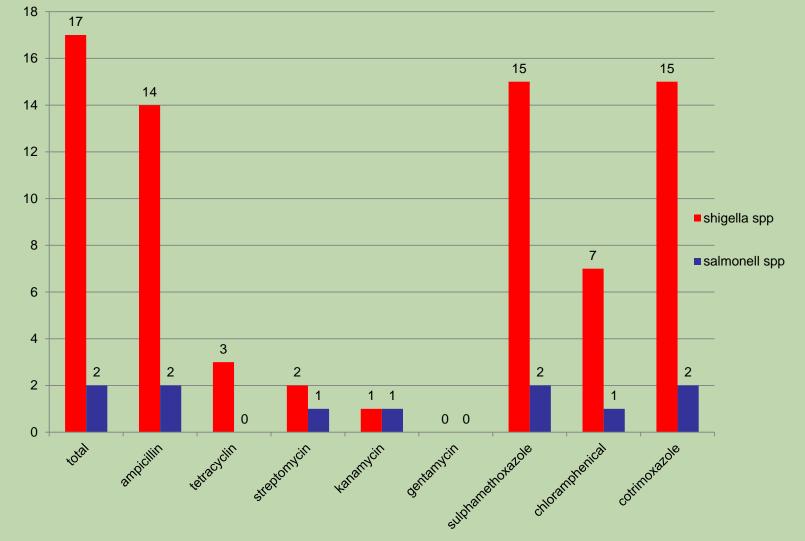
### RESULTS-participants verses samples collected



### **Enteric isolates**



## ANTIBIOTIC RESISTANCE PROFILE



### CHALLANGES

- Participants recruited but fail to produce stool sample.
- Lack of capacity to identify organisms to the species/strain level
- Lack of capacity for speciation of Escherichia coli.
- Workload
- Transfer of staff
- Erratic supply of reagents and consumables

## CONCLUSION

- The most common circulating pathogen is *Escherichia coli* followed by *Shigella* and *Salmonella*.
- Ampicillin has the highest resistance while gentamicin is the most effective drug for treatment.
- Further research on atypical non Enterobacteriaceae organisms such as Sphingomonas paucimobilis as a cause of diarrhoea is required.

# ACKNOWLEDGEMENT

- Kenyan government
- World bank
- EAPHLN project main stakeholder
- County government of Trans Nzoia
- KEMRI team
- Medical superintendent/HMT
- Laboratory staff
- Clinicians
- IPNET

# END THANK YOU