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LABORATORY QUALITY CONFERENCE

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# Blood Stream Infection detect from patient at Battambang Provincial Referral Hospital between 2014-2017

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# Hospital Demographics

Geographical location :	Battambang
Number of beds :	Total 270
Bed occupancy :	119
Services available :	OPD & Triage, Dental clinic, Diabetic and Hypertension clinic, Mental health, ANC- PNC and Birth spacing, Dermato and Hansen, ICU, ER, Internal Medicine, Pediatric, OB/GY Surgery, Ophthalmology, TB, ENT, OI/AR, Foot care Unit,
Staff :	324
# doctors :	76
# nurses :	169
Microbiology lab	Start since 2011

Should have photo of  
lab since 2011 to  
2019

# Background



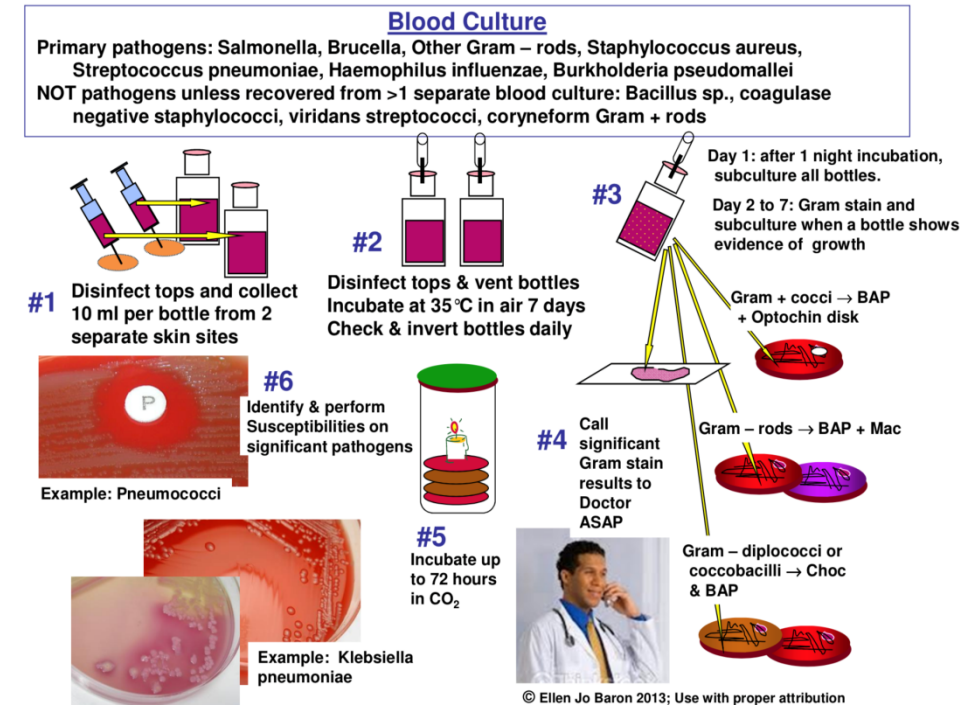
# Objective

- To share blood stream infection data detected in patients in routine blood cultures submitted to BBPRH laboratory
- Build health care worker capacity to improve
  - Blood culture collection indications
  - Blood culture collection technique
  - Detection of pathogens
  - Detection of mechanisms of resistance



# Method

- Retrospective data of blood culture from database from January 1, 2014 to December 31, 2017
- Consulted with:
  - SOPs and Flowchart of Dr. Ellen Jo Baron for specimen processing and identification
  - Up to date Clinical Laboratory and Standard Institute (CLSI) M02 and M100 for Antibiotic Susceptibility Testing and Interpretation
- Internal Quality Control performed with American Type Culture Collection (ATCC)
- Laboratory participated with External Quality Assessment program three times per year
- Technical and supply support from Hospital, BMLS and DMDP
- Reporting to clinicians and hospital management



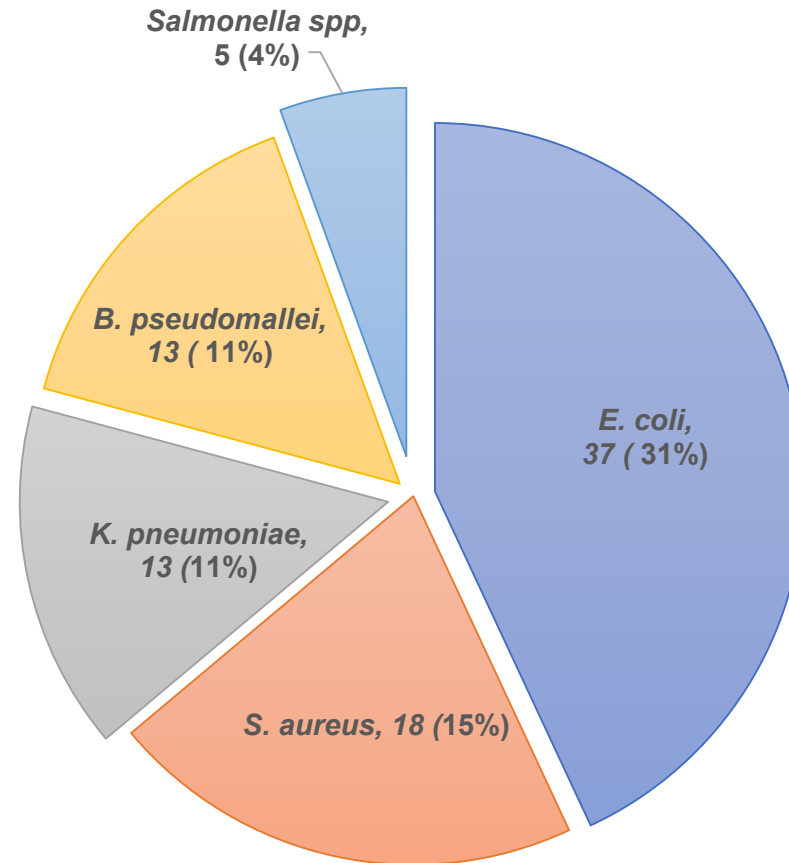
# Results



Total blood culture requested: 1,988  
Total blood culture positive: 157 (8%)

True positive: 119 (6%)

Contamination: 38 (2%)



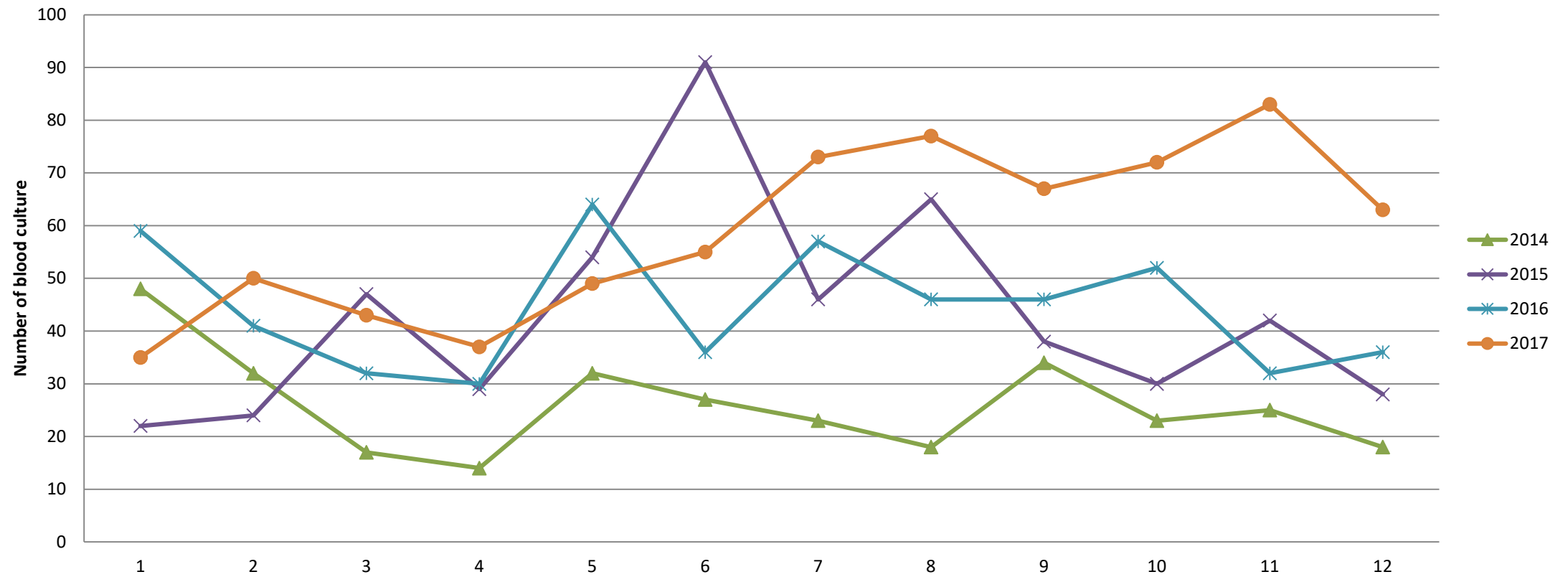
The most common blood culture pathogen isolated from 2014 to 2017 in Battambang laboratory (n=86)

## Resistance pattern:

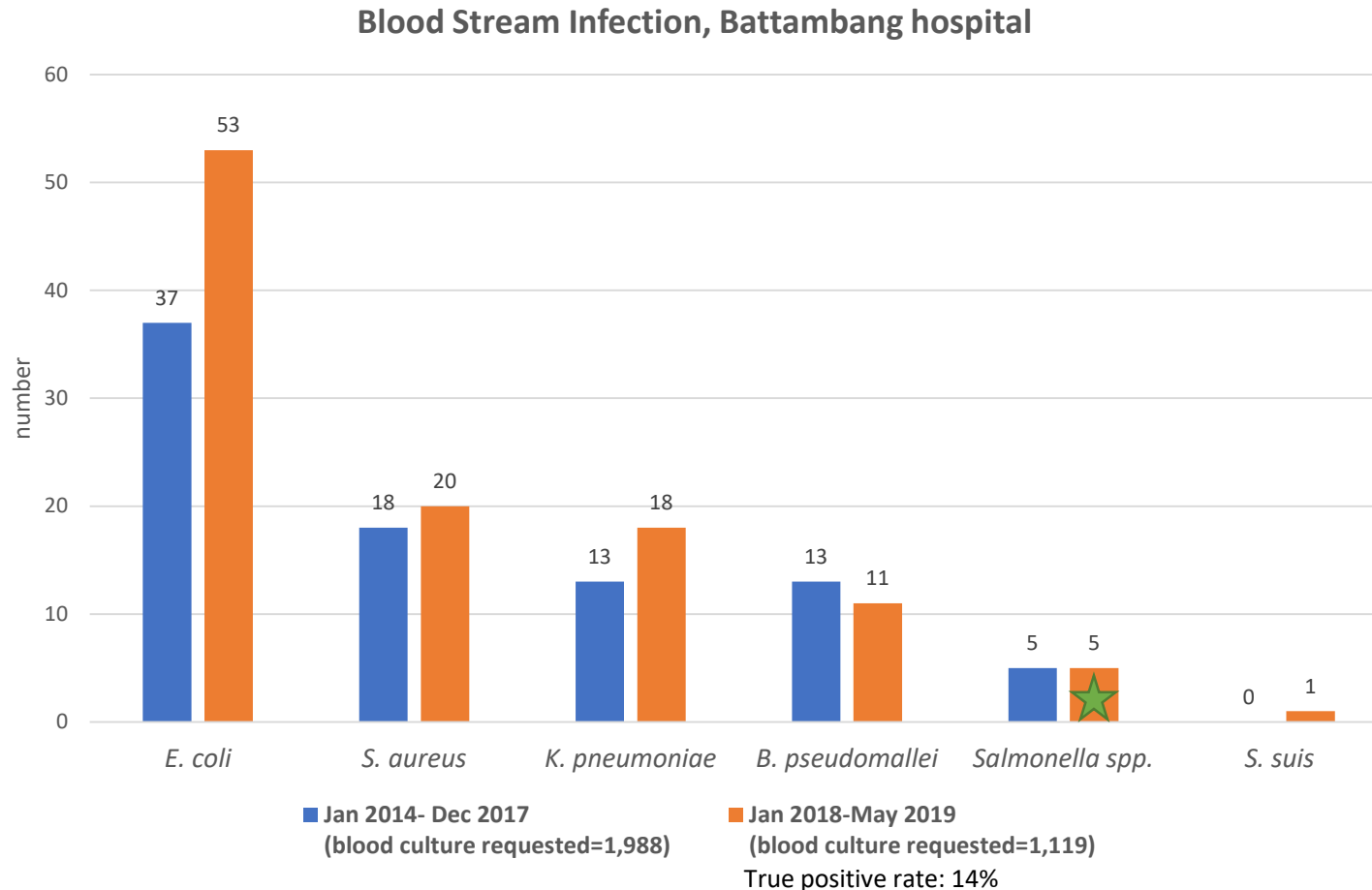
- Methicillin Resistant *Staphylococcus aureus* (MRSA) 6 cases
- Extended-spectrum beta lactamases (ESBL) in *Escherichia coli* (21 cases) and *Klebsiella pneumoniae* (11 cases) by keyhole and combination disk method.
- Neither *Escherichia coli* nor *Klebsiella pneumoniae* produced carbapenemase enzyme.
- Fluoroquinolone resistance in *Salmonella spp* 2 cases


# Results

Blood culture evaluation from 2014-2017 at BTB lab



# Discussion/Conclusion



 *Salmonella spp.* isolated in 2018 and 2019 not susceptible to Ciprofloxacin

- Introduction blood culture indication in 2018 may help to select infection patient.
- High true positive rate in 2018 and 2019 showing selective patient for blood culture collection.
- Insufficient blood culture requested, problematic for producing evidence based treatment guideline.



# Discussion/Conclusion

- Lack of understanding of data could produce and circulate wrong message to healthcare worker.
- Expanding patient data collection could improve awareness of Hospital and Community acquired infection
- Improved appropriate and timely collection of blood cultures is required to better understand pathogen epidemiology and resistance data.
- Patient results contribute to improved patient care and Infection Prevention and Control in the facility.

# Thank you

- ✓ Bureau of Medical Laboratory Services,  
Department of Hospital Services,  
Ministry of Health, Cambodia
- ✓ Diagnostic Microbiology Development Program
- ✓ International Training & Education Center for  
Health
- ✓ World Health Organization, Cambodia
- ✓ Battambang laboratory staff
- ✓ Hospital management
- ✓ Battambang PHD
- ✓ Merieux foundation

