



Demographic and Clinical Characteristics of Adult Patients with Typhoid Fever in Cipto Mangunkusumo General Hospital Jakarta - Indonesia in 2012-2014

Bonita Effendi¹, Robert Sinto², Suhendro Suwanto²

¹Department of Epidemiology, Faculty of Public Health, Universitas Indonesia, Jakarta, Indonesia

²Division of Tropical and Infectious Diseases, Department of Internal Medicine, Faculty of Medicine, Universitas Indonesia, Jakarta, Indonesia

OUTLINE

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**Over 2.16 million episodes of typhoid, worldwide
→ 216,000 death(year 2000)**

>90% of morbidity and mortality occurred in Asia

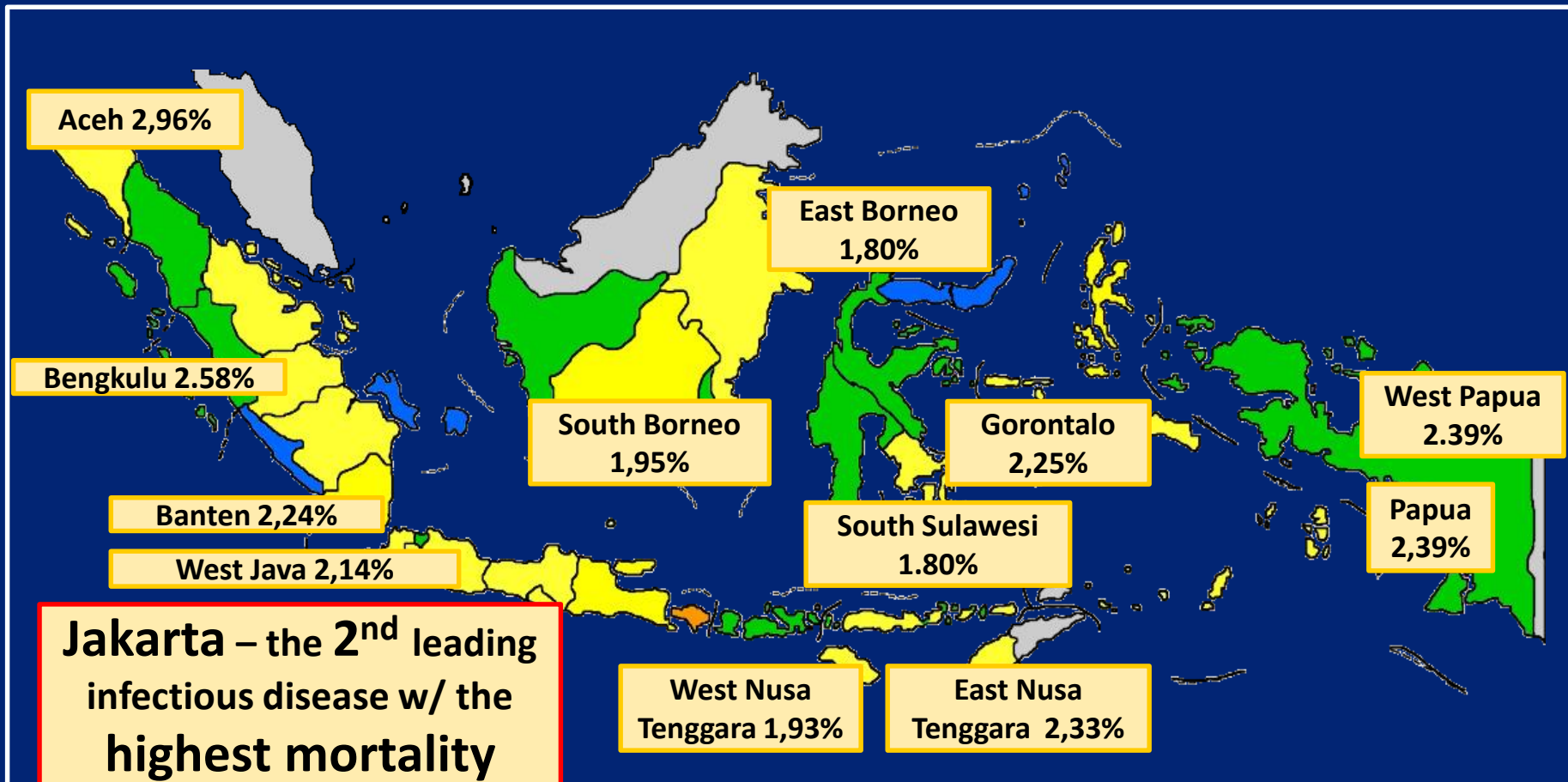


**Indonesia : Case Fatality
Rate 1.25% (year 2009)**

Epidemiology

- Indonesia 358-810 per 100,000 population of typhoid fever caused by *Salmonella typhi* (CDC, 2007)
- 64% typhoid fever in Indonesia occurs in 3-19 years old
- Mortality rate in Jakarta : 3.1-10.4% in hospitalized patients.
- North Jakarta study : the characteristic of typhoid patients varies - mostly occurs in urban area with poor sanitation.

INDONESIA



National prevalence 1,6% (0.3% - 3%)

12 provinces with prevalence above the national rate : Aceh, Bengkulu, Jawa Barat, Banten, NTB, NTT, South Borneo, East Borneo, South Sulawesi, Gorontalo, West Papua, Papua



http://www.worldvision.com.au/issues/MaternalChildHealth/Who_is_it_happening_to_/Mothering_in_Jakarta%27s_slums.aspx
<http://health.kompas.com/read/2013/01/17/14161695/IDI.Selalu.Gunakan.Sepatu.ke.Lokasi.Banjir>
<http://megapolitan.kompas.com/read/2015/03/26/22490051/Camat.Tambora.Sindir.Dinas.Kebersihan.soal.Sampah>



- National average of households clean water utilization of < 20 liters per person per day is 14.4%.
- National average of households without any waste water disposal : 24.9%

(Risksdas,2007)



Methods

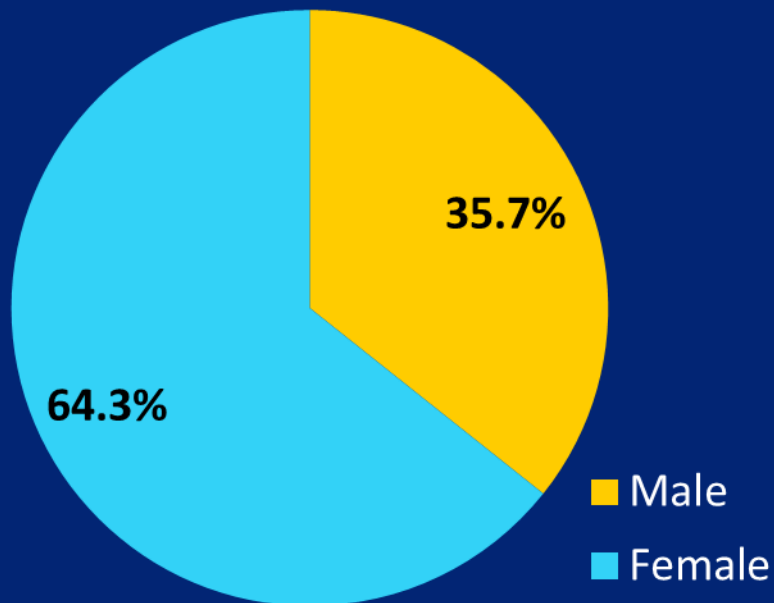
- Cross sectional study.
- Medical records in Cipto Mangunkusumo General Hospital during January 2012-December 2014.
- Total sampling from medical record consisted of adult patients with diagnosis of typhoid fever.
- Data analysis - SPSS ver 17.0.

Results

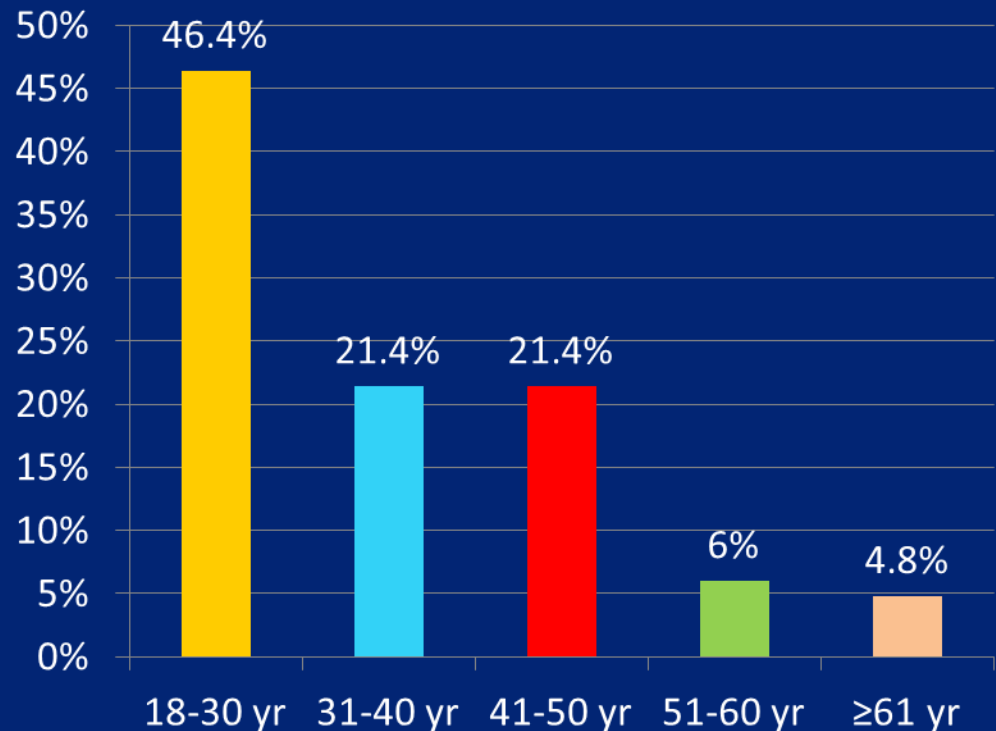
Characteristic of the Patients

- 84 adult patients with diagnosis of typhoid fever

Gender (%)



Age (%)

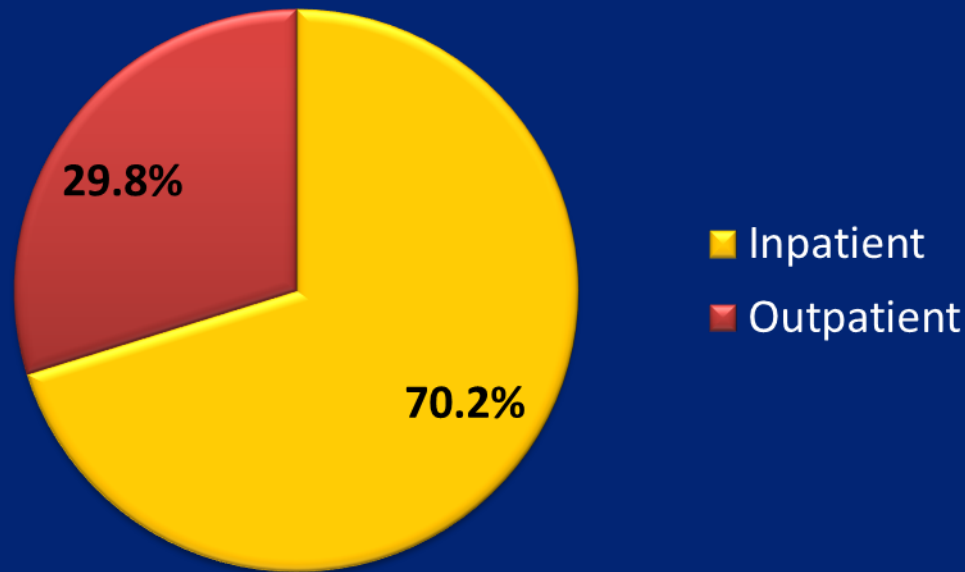


- Clinical manifestations of Patients in RSCM (year 2012-2014)**

Clinical manifestation	N (n=84)	%
Fever (T >37.2C)	73	86.9
Nausea	56	66.7
Vomitus	34	40.5
Epigastric pain	27	32.1
Reduced appetite	17	20.2
Myalgia	17	20.2
Headache	17	20.2
Diarrhea	15	17.9
Reduced consciousness	10	11.9
Constipation	7	8.3

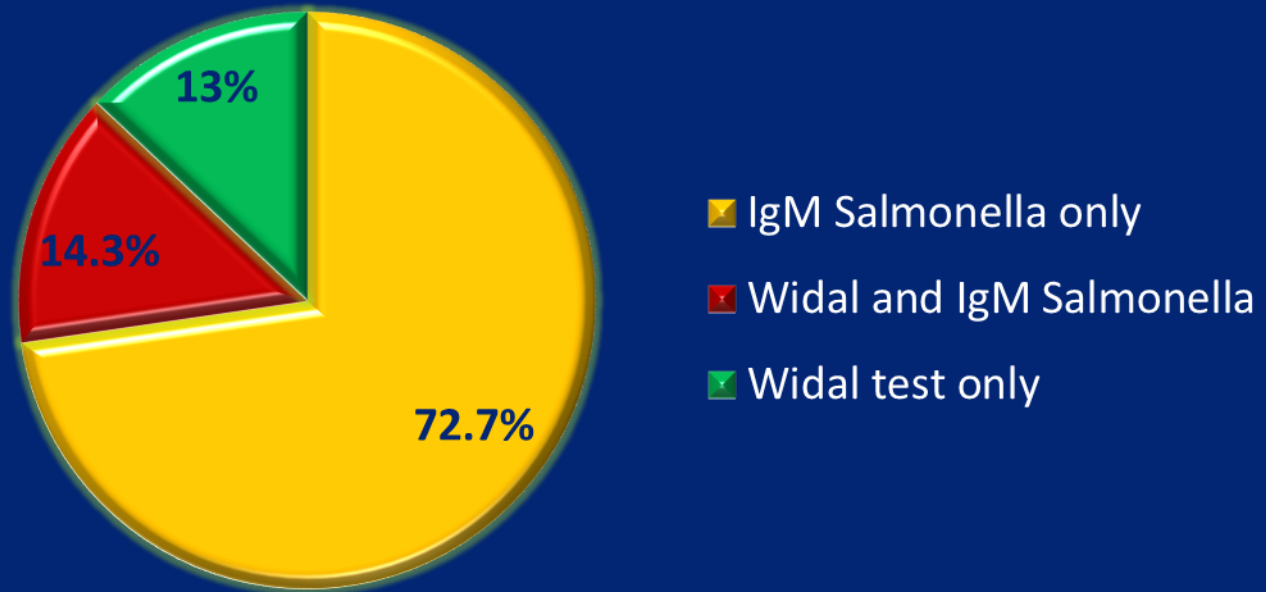
Clinical Manifestations

- The mean \pm SD duration (days) of fever before hospital admission : 7.9 \pm 10.6 days
- The mean \pm SD length of hospitalization : 5.4 \pm 4.7 days



Laboratory Examination

- Laboratory examination was conducted by :



Blood Culture

- Positive blood culture – typhoid (+)
- Negative blood culture –
 - Antibiotic administration
 - Lack of blood collection
 - Vaccination
- Standard diagnostic method, provided a large volume of blood (10-15 ml in adults).
- It shows 60-80% of patients with typhoid
- Blood culture : higher sensitivity in the first week of illness, yet reduced by prior use of antibiotics

Bone marrow culture

- More sensitive
- It is positive in 80-95% in patients with typhoid, history of antibiotics

Stool culture

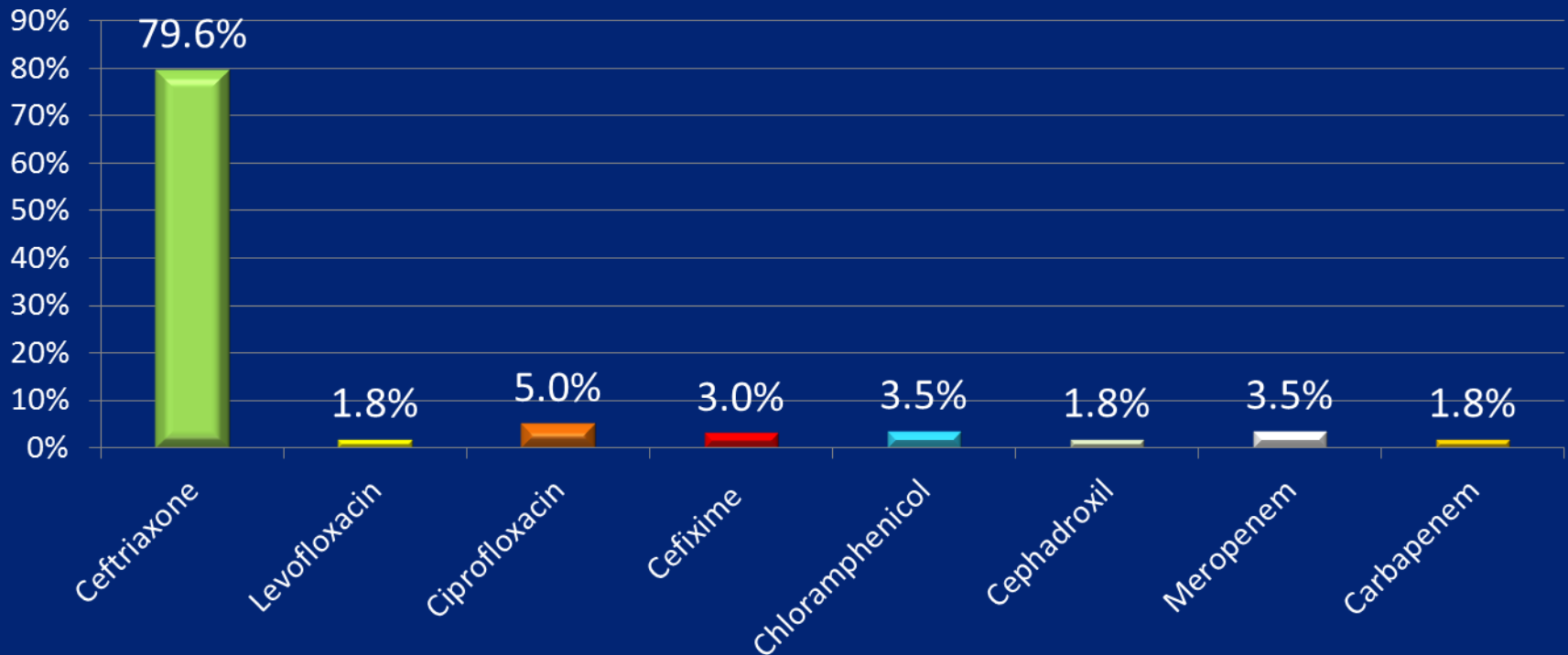
- Depends on the amount of feces cultured (standard = 1 g)
- It is positive in 30% of patients with acute typhoid
- For the detection of carriers

Diagnostic test	Sensitivity range (%)	Specificity range (%)	Comments
Microbiological tests			
Blood culture	40-80	NA	Widely regarded as the gold standard, but sensitivity may be low in endemic areas with high rates of antibiotic use—hence true specificity is difficult to estimate
Bone marrow cultures	55-67	30	Greater sensitivity but invasive and thus of limited clinical value, especially in ambulatory management
Urine culture	0-58	NA	Variable sensitivity
Stool culture	30	NA	Sensitivity lower in developing countries and not used routinely for follow-up
Molecular diagnostics			
Polymerase chain reaction	100	100	Promising, but initial reports indicated similar sensitivity to blood cultures and lower specificity
Nested polymerase chain reaction	100	100	Promising and may replace blood culture as the new “gold standard”
Serological diagnosis			
Widal test (tube dilution and slide agglutination)	47-77	50-92	Classic and inexpensive. Despite mixed results in endemic areas, still performs well for screening large volumes. May need standardisation and quality assurance of reagents
Typhidot	66-88	75-91	Lower sensitivity than Typhidot-M
Typhidot-M	73-95	68-95	Higher sensitivity and specificity than classic Typhidot in some series, but other evaluations suggest that the performance may not be as robust in community settings as in hospital
Tubex	65-88	63-89	Promising initial results but has yet to be evaluated in larger trials in community settings
Others			
Urine antigen detection	65-95	NA	Preliminary data only
NA=Not available.			

Therapy

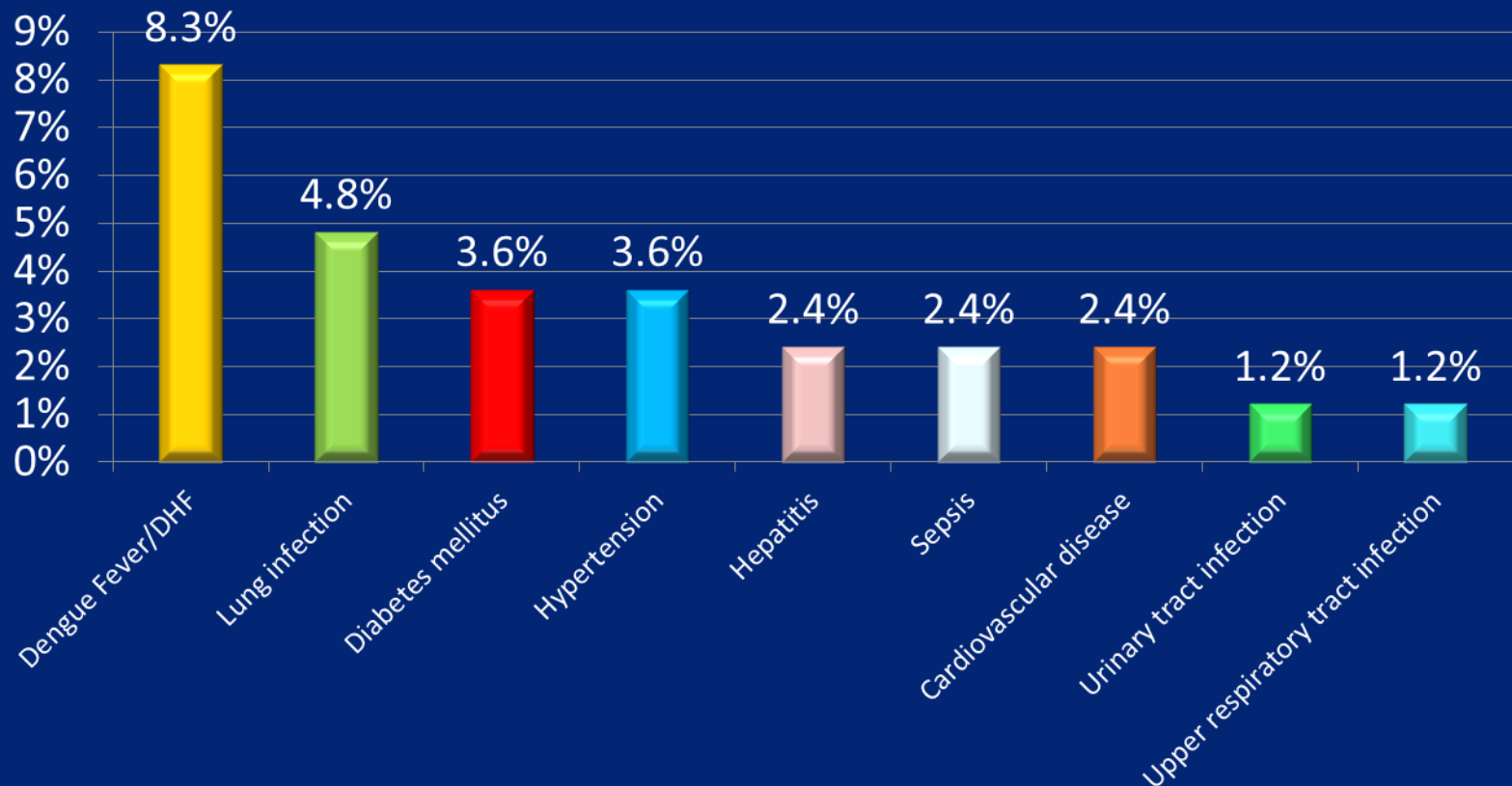
- Most of inpatients were treated with ceftriaxone 3-4 g per day (79.6%) and outpatients were treated with ciprofloxacin 500 mg b.i.d (34.7%).

Antibiotic Therapy for Inpatient



Comorbidities

- Several comorbid : dengue fever (8.3%), lung infection (4.8%), hepatitis, urinary tract infection, diabetes mellitus, and hypertension.



Conclusion

- Indonesia – endemic area
- Young adult are common sufferers of typhoid fever in this hospital.
- In endemic area, typhoid fever needs to be considered in patients with fever, since it is the major clinical symptoms.
- Early diagnosis is important in order to administer adequate treatment and prevent complication
- Ceftriaxone and ciprofloxacin were the most chosen antibiotics in hospitalized and outpatients, respectively.

Suggestions

- Further documentation of typhoid cases in Indonesia.
- Further study regarding to diagnostic, therapeutic, and prevention of typhoid fever.

Thank You