



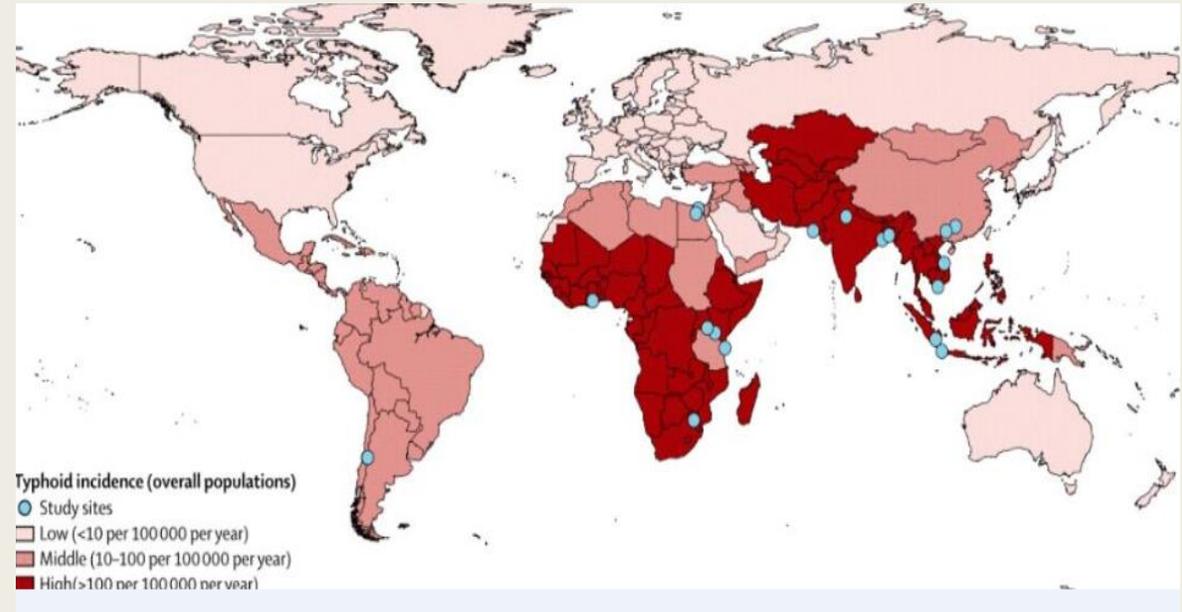
DIAGNOSTIC VALUE OF NELWAN SCORE TO DIAGNOSE TYPHOID FEVER IN ADULT PATIENTS

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BACKGROUND

Typhoid fever is a communicable disease with a heavy public health burden estimated over 17-22 million cases globally and more than 200.000 deaths with the majority of disease burden in South and South-East Asia.



- In Indonesia, typhoid fever should receive serious attention as it is endemic, increasing cases every year and increasing carrier cases.
- Diagnosis at early stage is important. It is not only for treatment but also it is identify individuals that may serve as potential carrier

Mogasale V, Vijayalaxmi V, Ramani E, Lee JS, Park JY, Lee KS, et al. Revisiting typhoid fever surveillance in low and middle income countries: lessons from systematic literature review of population based longitudinal studies. *BMC Infectious Diseases*. 2016;16:35-47

Azmatullah A, Qamar F, Thaver D, Zaidi A, Bhutta Z. Systematic review of the global epidemiology, clinical and laboratory profile of enteric fever. *Journal of Global Health*.

Purba IE, Wandura T, Nugrahini N, Nawawi S, Kandun N. Program Pengendalian demam tifoid di Indonesia : tantangan dan peluang. *Media Litbangkes*. 2016;26(2):99-108

BACKGROUND

- Diagnosis is usually made according to clinical findings → no specific sign and symptom → challenge to clinicians
- Definitive diagnosis : blood, bone marrow and stool culture -> not always feasible as it is either unavailable or unaffordable
- Culture can be falsely negative due to prior antibiotic therapy
- Serological approaches still have substantial limitation of reliability, sensitivity and specificity
- Clinical syndrome can help clinician to predict the diagnosis and differentiate patients with typhoid fever from those with other causes of febrile illness

Wain J, Hosoglu S. The laboratory diagnosis of enteric fever. J Infect Dev Ctries. 2008;2(6):421-52015;5(2):1-12

Haq SA, Alam MN, Hossain SM. Value of clinical features in diagnosis of enteric fever. Bangladesh Medical Research Council Bulletin. 1997; 23(20):42-6

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Nelwan score

Score of 13 or more is most likely to be positive for typhoid fever

Score within range 8 to 12 will give a fifty percent probability to be positive.

Score of 7 or less have a very limited chance of suffering from typhoid fever

No	Sign and/or symptom	Score
1	Fever < 1 week	1
2	Headache	1
3	Weakness	1
4	Nausea	1
5	Abdominal pain	1
6	Anorexia	1
7	Vomiting	1
8	Disturbed GI motility	1
9	Insomnia	1
10	Hepatomegaly	1
11	Splenomegaly	1
12	Fever >1 week	2
13	Relative bradycardia	2
14	Typhoid tongue	2
15	Melena stools	2
16	Impaired consciousness	2
	Total score	20

OBJECTIVE

- *To get the cut off point and the diagnostic value of Nelwan score in diagnosing typhoid fever in adult patients*

METHODOLOGY

- Diagnostic test with a cross sectional method
- Consecutive sampling method
- Target population : subjects with 3-14 days fever and gastrointestinal complaints from polyclinic, emergency department and hospital ward in Persahabatan Hospital, Budhhi Asih Hospital, South Tangerang Hospital, Hermina Ciputat Hospital, MMC Hospital, Jatinegara and Gambir Primary Health Centre
- Exclusion criteria : prior antibiotic use
- Gold standard : Culture or PCR positive. Patients with fever more than 7 days also performed rectal swab culture
- Culture and PCR test was performed in the microbiology laboratory of Eijkman Institute for Molecular Biology

RESULTS

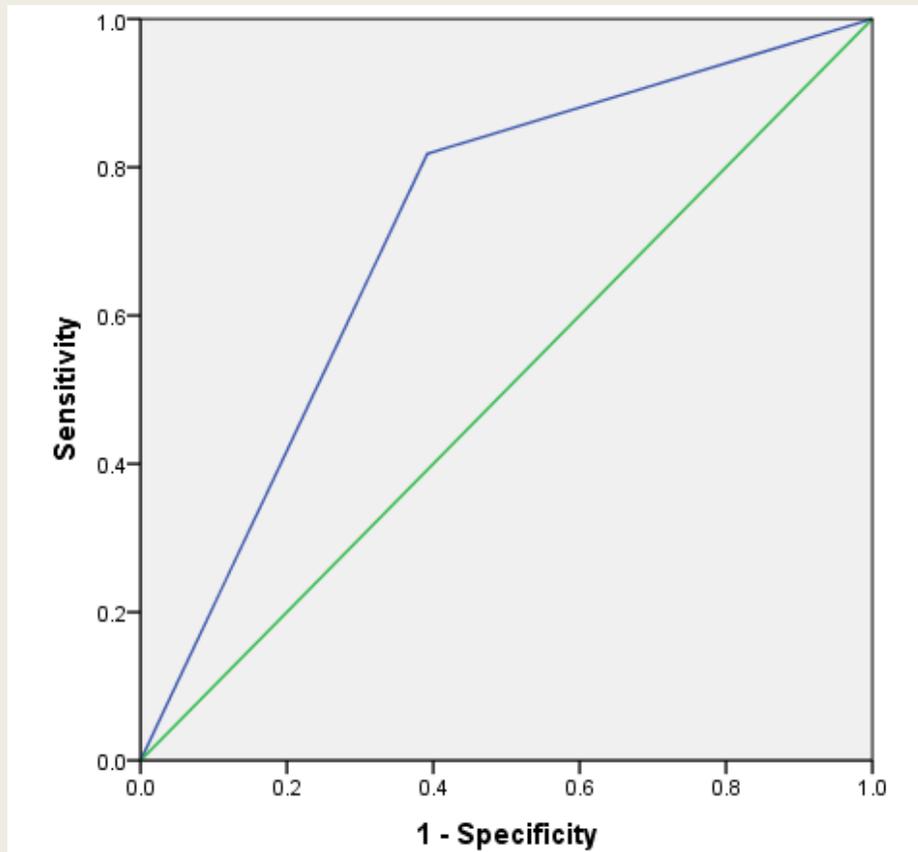
Total 233 patients were studied

*Proportion of typhoid fever is
4,72%.*

The proportion of women from the typhoid fever confirmed patients are 54.5%

The median age of typhoid fever confirmed patients is 26

ROC curve (*Receiving Operator Characteristics*) of Nelwan score at cut off 10



- *The optimal cut off point of Nelwan score is 10 with AUC 71,3% (95% IK 65,9% - 88,7%).*
- *Sensitivity 81,8%*
- *Specificity 60,8%*
- *PPV 9,3%*
- *NPV 98,5%*

CONCLUSION

Nelwan score with cut off point 10 has a good diagnostic value as a screening tool for patients with typhoid fever clinical presentation

This score can be implemented in many healthcare facilities with limited laboratory examination as typhoid fever screening tools and also make empirical therapy which is the most used form of therapy in our country, more scientific.

THANK YOU