Title: High Prevalence of Ceftriaxone Resistance among Invasive *Salmonella enterica* Serotype Choleraesuis Isolates in Thailand: The Emergence and Increase of CTX-M-55 in Ciprofloxacin-Resistant *S.* Choleraesuis Isolates

Authors: Sirirat Luk-in, Tanittha Chatsuwan, Chaiwat Pulsrikarn, Aroon Bangtrakulnonth, Ubolrat Rirerm, Wanla Kulwichit

PII: S1438-4221(17)30574-X
DOI: https://doi.org/10.1016/j.ijmm.2018.03.008
Reference: IJMM 51222

To appear in:

Received date: 20-11-2017
Revised date: 19-3-2018
Accepted date: 21-3-2018

Please cite this article as: Luk-in S, Chatsuwan T, Pulsrikarn C, Bangtrakulnonth A, Rirerm U, Kulwichit W, High Prevalence of Ceftriaxone Resistance among Invasive *Salmonella enterica* Serotype Choleraesuis Isolates in Thailand: The Emergence and Increase of CTX-M-55 in Ciprofloxacin-Resistant *S.* Choleraesuis Isolates, *International Journal of Medical Microbiology* (2010), https://doi.org/10.1016/j.ijmm.2018.03.008

High Prevalence of Ceftriaxone Resistance among Invasive *Salmonella enterica* Serotype Choleraesuis Isolates in Thailand: The Emergence and Increase of CTX-M-55 in Ciprofloxacin-Resistant *S.* Choleraesuis Isolates

Sirirat Luk-in[a, b], Tanittha Chatsuwan[b, *], Chaiwat Pulsrikarn[c], Aroon Bangtrakulnonth[c], Ubolrat Rirerm[b], Wanla Kulwichit[d]

[a] Medical Microbiology Interdisciplinary Program, Graduate School, Chulalongkorn University, Bangkok, Thailand

[b] Department of Microbiology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

[c] *Salmonella* and *Shigella* Center, National Institute of Health, Department of Medical Sciences, Nonthaburi, Thailand

[d] Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

[*] Corresponding author. Department of Microbiology, Faculty of Medicine, Chulalongkorn University, Rama IV Road, Bangkok 10330, Thailand; Tel: +66-2-256-4132; Fax: +66-2-252-5952.

E-mail: Tanittha.C@chula.ac.th (T. Chatsuwan).

S. Choleraesuis is a highly invasive zoonotic pathogen that causes a serious systemic infection in humans. The emergence and increase of resistance to ceftriaxone and ciprofloxacin among *S.* Choleraesuis has become a serious therapeutic problem. The present study demonstrated high frequency of antimicrobial resistance in *Salmonella* Choleraesuis among 414 nontyphoidal *Salmonella* isolates from bacteremic patients in Thailand. High rates of ceftriaxone (58.3%) and ciprofloxacin (19.6%) resistances were observed in *S.* Choleraesuis isolates. The dissemination of the self-transferable $bla_{\text{CTX-M-14}}$-carrying IncFII$_s$, IncFII, and IncI1 plasmids and $bla_{\text{CMY-2}}$-carrying IncA/C plasmid along with the clonal spread of $bla_{\text{CMY-2}}$-harbouring *S.* Choleraesuis isolates contributed to the high frequency of resistance to extended-spectrum cephalosporins (ESCs; third- and fourth-generation cephalosporins)