

SYMPOSIUM 3 – INFECTIOUS DISEASES

FOCUS: ANTIBIOTIC RESISTANCE AND CROSS CONTAMINATION

Plasmid-Mediated Colistin Resistance in Brunei Darussalam: A Cause for Concern?

Md Haziq Fikry Hj Abd Momin

Department of Laboratory Services, Ministry of Health, Brunei Darussalam

The use and misuse of antibiotic in humans and animals has contributed to an advancing crisis in antibiotic resistance. A major problem is when the treatment of common infections is now compromised. This has led to the repurposing of old antibiotics particularly for Gram-negative infections. Colistin is one such drug considered as a treatment of last resort the treatment for multidrug resistant (MDR) bacterial infections. Recent reports from China have identified the emergence of a new plasmid-mediated mechanism of colistin resistance (MCR-1) circulating in food animals, humans and the environment. Regrettably, *mcr* genes and plasmids have rapidly disseminated worldwide and extensively in South East Asian countries (Cambodia, Laos, Malaysia, Singapore, Thailand and Vietnam). We have recently shown this also in Brunei Darussalam.

Phenotypic and molecular analysis of clinical human and veterinary strains of *Escherichia coli* present in Brunei Darussalam showed a very high prevalence of existing *mcr-1* genes and novel variants. Of great concern is the horizontal transmission of the gene to other bacteria with additional mechanisms of multidrug resistance genes. Although reports have shown that food producing animals may act as significant reservoirs and a gateway to the human food chain. Rather than attributing blame, interventions should be focused on improved understanding of the transmission dynamics and a unified collective reduction in total antibiotic use.

With the increasing threat of resistant bacteria in the farming, healthcare, environmental and cultural activities in Brunei Darussalam, implementing the 'One Health Approach' would surely be valuable. The One Health Approach recognizes that the health of humans, animals and the environment are closely linked and the overall goal to reduce the consumption of antibiotics in each will be beneficial. This requires national and global action plan that incorporate enhanced surveillance, development of rapid diagnostics, effective antimicrobial stewardship programs and restricted use of agents such as colistin in human, veterinary and agricultural practices.

Back to [Table of Contents](#)