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**Short-duration selective decontamination of the digestive tract infection control does not contribute to increased antimicrobial resistance**

Kean I, Clark J, Zhang Z, et al. [Short-duration selective decontamination of the digestive tract infection control does not contribute to increased antimicrobial resistance burden in a pilot cluster randomised trial (the ARCTIC Study).](https://gut.bmj.com/content/73/6/910) Gut 2024; 73: 910-921. doi: 10.1136/gutjnl-2023-330851.

Selective Digestive Decontamination (SDD) is a prophylactic strategy to prevent or minimize nosocomial infections in critically ill patients. Antibiotics are used to prevent or eradicate potentially pathogenic microorganisms in the oropharyngeal and intestine. Kean et al., aimed to characterise the changes to the microbiome and antimicrobial resistance (AMR) gene profiles in critically ill children treated with SDD-enhanced infection control compared with conventional infection control.

Shotgun metagenomic microbiome and resistome analysis was conducted on serial oropharyngeal and faecal samples collected from critically ill, mechanically ventilated patients in a pilot multicentre cluster randomised trial of SDD. The microbiome and AMR profiles were compared for longitudinal and intergroup changes.

SDD affected the alpha and beta diversity of critically ill children to a greater degree than standard care. At cessation of treatment, the microbiome of SDD patients was dominated by Actinomycetota, specifically Bifidobacterium, at the end of mechanical ventilation. Altered gut microbiota was evident in a subset of SDD-treated children who returned late longitudinal samples compared with children receiving standard care. Clinically relevant AMR gene burden was unaffected by the administration of SDD-enhanced infection control compared with standard care. SDD did not affect the composition of the oral microbiome compared with standard treatment.

Kean et al., concluded that short interventions of SDD caused a shift in the microbiome but not of the AMR gene pool in critically ill children at the end mechanical ventilation, compared with standard antimicrobial therapy.