Comment on: Selective decontamination of the oropharynx and the digestive tract, and antimicrobial resistance: a 4 year ecological study in 38 intensive care units in the Netherlands


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Sir,

We read with interest the report by Houben et al.1 entitled ‘Selective decontamination of the oropharynx and the digestive tract, and antimicrobial resistance: a 4 year ecological study in 38 intensive care units in the Netherlands’. Although this type of ecological study is evaluated as 2C, having a low level of evidence,2 the results are still remarkable. Three years ago the same group published their first ecological study claiming the emergence of resistant microorganisms during selective decontamination of the digestive tract (SDD).3 Although the authors cite their earlier ecological study in their recent paper, they fail to try to explain why they found the opposite results, that SDD does not increase but rather reduces resistance. This is puzzling.

The design of the two ecological studies differs considerably and might explain the opposite outcomes. The earlier Oostdijk et al.3 study is a post hoc ecological analysis of the results of a Dutch cluster-randomized study in 13 intensive care units demonstrating reduced rates of antibiotic resistance among aerobic Gram-negative bacilli (AGNB) during SDD or a modification of SDD, termed selective oropharyngeal decontamination (SOD). However, there was an abrupt increase after discontinuation of SDD/SOD, suggesting a rebound effect on resistance in the intestinal tract, probably due to the recolonization of the patient by the surrounding microbiological flora.3 The Houben et al.1 ecological study shows resistance patterns over time at the intensive care unit level, not the patient level, and has a relatively long-term follow-up period for 17 intensive care units.

We welcome both reports and interpret the two studies as proof of overall reduced resistance during the use of SDD. Oostdijk et al.3 show that SDD reduces the prevalence of resistant AGNB in rectal swabs compared with standard care and SOD. Houben et al.1 show that SDD/SOD intensive care units have a significant reduction in the incidence of resistant AGNB in the respiratory tract.

Concerns were raised in editorials4 and commentaries5 that from the first ecological study the use of SDD might accompany a risk of promoting antibiotic resistance to third-generation cephalosporins. Hopefully, with this further long-term comparative risk study on antibiotic resistance6,5 those with genuine concerns will re-evaluate the mounting evidence that SDD reduces resistance when given on intensive care units and for years afterwards. This could allow more patients to benefit from this effective and safe way of decreasing infection rates and mortality in intensive care units.

Transparency declarations
None to declare.

References
5 Opal SM, Dellinger RP. The authors reply (2B or not 2B for selective decontamination of the digestive tract in the surviving sepsis campaign guidelines). Crit Care Med 2013; 41: e386 – 7.