**O033**

**2-hour Oral Session**

## High percentage of multiple infections in European soldiers with diarrhoea on deployment in Western African Mali

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Introduction. During a nine-months-intervall between December 2013 and August 2014, stool samples of deployed European soldiers with diarrhoea from the European Union Training Mission (EUTM) in Mali were analyzed for surveillance purposes. Between December 2013 and March 2014, PCR analyses were performed in theatre with mobile real-time PCR equipment, followed by sample transfer to Germany and analyses in the home country between April and August 2014.

Material and Methods. In total, 54 stool samples from soldiers with acute diarrhoea could be obtained. All samples were analyzed with a panel of real-time multiplex PCRs comprising two in-house protocols, targeting invasive enteropathogenic bacteria *Salmonella* spp., *Shigella* spp./enteroinvasive *Escherichia coli* (EIEC), *Campylobacter jejuni* and *Yersinia* spp. as well as enteropathogenic protozoa *Entamoeba histolytica*, *Giardia duodenalis*, *Cyclospora cayetanensis* and *Cryptosporidium* spp., three commercial Rida®Gene PCR kits 'EAEC', 'EHEC-EPEC' and 'ETEC-EIEC', targeting enteroaggregative *E. coli* (EAEC), enterohaemorrhagic *E. coli* (EHEC), enteropathogenic *E. coli* (EPEC), enterotoxic *E. coli* (ETEC) and *Shigella* spp./EIEC, and the commercial fast-track diagnostics PCR kit 'viral gastroenteritis' targeting norovirus G1 and G2, astrovirus, rotavirus, adenovirus and sapovirus.

Results. Positive PCR results for diarrhoea-associated pathogens could be detected in 43/54 (83.3%) patient samples. The five quantitatively dominating pathogens were EPEC (n=21, 38.9%), ETEC (n=19, 35.2%), EAEC (n=15, 27,8%), norovirus (n=10, 18.5%), and *Shigella*/EIEC (n=6, 11.1%), followed by *Cryptosporidium* spp. (n=3, 5.6%), *Giardia duodenalis* (n=2, 3.7%), *Salmonella* spp. (n=1, 1.9%), astrovirus (n=1, 1.9%), rotavirus (n=1, 1.9%), and sapovirus (n=1, 1.9%). DNA of two and more pathogens could be detected in 23 (42.6 %) of the samples, DNA of three and more pathogens in 11 (20.4%) samples, DNA of four and more pathogens in 2 (3.7%) samples and DNA of as many as five pathogens in 1 (1.9%) sample.

Discussion. The study impressively describes the potential multicausal etiology of acute diarrhoea on tropical deployments that has to be considered if targeted therapy of a specific identified pathogen fails. Asymptomatic carriage was not excluded but is unlikely, because the analyzed deployed soldiers did not arrive from high-endemicity settings. Multiplex real-time PCR proved to be a suitable platform for the identification of multiple pathogens in parallel assays, thus allowing for a rapid diagnosis with subsequent enforcement of adequate hygiene precautions.

Acknowledgement. Simone Priesnitz is gratefully acknowledged for excellent technical assistance.