

Publication

PCR-based verification of positive rapid diagnostic tests for intestinal protozoa infections with variable test band intensity

Journal Article (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 3870839

Author(s) Becker, Sören L.; Müller, Ivan; Mertens, Pascal; Herrmann, Mathias; Zondie, Leyli; Beyleveld, Lindsey; Gerber, Markus; du Randt, Rosa; Pühse, Uwe; Walter, Cheryl; Utzinger, Jürg

Author(s) at UniBasel [Becker, Sören Leif](#) ; [Müller, Ivan](#) ; [Gerber, Markus](#) ; [Pühse, Uwe](#) ;

Year 2017

Title PCR-based verification of positive rapid diagnostic tests for intestinal protozoa infections with variable test band intensity

Journal Acta Tropica

Volume 174

Pages / Article-Number 49-55

Mesh terms Animals; Cryptosporidiosis, diagnosis; Diarrhea, parasitology; Feces, parasitology; Giardiasis, epidemiology; Humans; Longitudinal Studies; Multiplex Polymerase Chain Reaction; Polymerase Chain Reaction, methods; Sensitivity and Specificity; South Africa, epidemiology

Stool-based rapid diagnostic tests (RDTs) for pathogenic intestinal protozoa (e.g. *Cryptosporidium* spp. and *Giardia intestinalis*) allow for prompt diagnosis and treatment in resource-constrained settings. Such RDTs can improve individual patient management and facilitate population-based screening programmes in areas without microbiological laboratories for confirmatory testing. However, RDTs are difficult to interpret in case of 'trace' results with faint test band intensities and little is known about whether such ambiguous results might indicate 'true' infections. In a longitudinal study conducted in poor neighbourhoods of Port Elizabeth, South Africa, a total of 1428 stool samples from two cohorts of schoolchildren were examined on the spot for *Cryptosporidium* spp. and *G. intestinalis* using an RDT (Crypto/Giardia DuoStrip; Coris BioConcept). Overall, 121 samples were positive for *G. intestinalis* and the RDT suggested presence of cryptosporidiosis in 22 samples. After a storage period of 9-10 months in cohort 1 and 2-3 months in cohort 2, samples were subjected to multiplex PCR (BD MaxTM Enteric Parasite Panel, Becton Dickinson). Ninety-three percent (112/121) of RDT-positive samples for *G. intestinalis* were confirmed by PCR, with a correlation between RDT test band intensity and quantitative pathogen load present in the sample. For *Cryptosporidium* spp., all positive RDTs had faintly visible lines and these were negative on PCR. The performance of the BD MaxTM PCR was nearly identical in both cohorts, despite the prolonged storage at disrupted cold chain conditions in cohort 1. The Crypto/Giardia DuoStrip warrants further validation in communities with a high incidence of diarrhoea.

Publisher Elsevier

ISSN/ISBN 0001-706X ; 1873-6254

edoc-URL <http://edoc.unibas.ch/55636/>

Full Text on edoc No;

Digital Object Identifier DOI 10.1016/j.actatropica.2017.06.012

PubMed ID <http://www.ncbi.nlm.nih.gov/pubmed/28634143>

ISI-Number WOS:000408299300008

Document type (ISI) Journal Article