As the contact person of the Reference Center for C. difficile, you will be consulted every day with the problems of rapid diagnostics and elucidation of outbreaks by this pathogen. What are the advantages of molecular biological procedures compared to conventional C. difficile diagnostics? How does the selected detection method affect the patient? C. difficile diagnostic remains a challenge to this date. According to current ESCMID guidelines a screening test such as glutamate dehydrogenase (GDH) or PCR is proposed in combination with toxin testing methods e.g. using ELISA or toxigenic culture. Since toxin testing (ELISA) are often false negative due to toxin degradation in the sample and toxigenic culture might take some time rapid diagnostic tools are needed. PCR may serve as a primary tool to exclude toxigenic infection with high sensitivity. Some commercial PCR methods include the detection of strains of higher epidemiological importance such as the classical “hypervirulent” outbreak strain ribotype 027 (RT027) which has become epidemic in some areas showing global spreading. Since other ribotypes are also well known to cause outbreaks (e.g. RT001) the lack of this strain does not elucidate such an event. In these cases culture is needed to collate C. difficile isolates to their specific ribotype. In cases of an accumulation of one ribotype it is necessary to subtype the strains in order to show potential clonal transmission and the degree of relatedness. Whole Genome Sequencing (WGS) and Multi Locus variable number of tandem repeats analysis (MLVA) are suitable tools for further molecular investigation.

What are your expectations of manufacturers of diagnostic products? Diagnostic tools should cover major virulence factors and if technically possible identify more virulent strains (e.g. RT027 and others).

Which importance do you see in the Robert Koch Institute (RKI) where the National Advisory laboratory is assigned to? The RKI plays a leading role in establishing measures to prevent C. difficile infection (CDI). In Great Britain for example it could be shown that through active measures like national control policies the CDI incidence could be significantly reduced.

Which strategies are used and developed against hospital infections to reduce the spread of multi-resistant pathogens? Due to spore formation C. difficile is a challenge in hygiene. Since disinfectants used for hand and skin hygiene use alcohols that are not able to eliminate spores, hand washing is the only option. For disinfection of surfaces sporocidal disinfectants are needed that are not regularly used in hospitals. The teaching of healthcare personnel about the correct execution of these measures including isolation of CDI patients and personal protective measures may proof useful. When in suspicion of an ongoing outbreak it is mandatory to type the C. difficile isolates with molecular genetic methods to receive an epidemiological overview and to identify the source of the outbreak. Rapid and effective countermeasures may be able to stop an outbreak in its tracks.

We would like to thank Dr. Fabian Berger for the Interview and wish him all the best and a lot of success when doing his responsible work.