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Comparison of three molecular assays for detection of enteric viruses in stool samples.

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Abstract:

Three molecular assays (FTD® Viral GE from Fast-track diagnostics, RIDA®GENE VSP1 from R-Biopharm, and Xpert *Norovirus* from Cepheid) were compared for virus detection in acute diarrhea samples. RIDA®GENE and FTD® Viral GE showed perfect/almost perfect agreement for *Rotavirus*, *Sapovirus* and *Norovirus*, substantial agreement for *Adenovirus*, and moderate agreement for *Astrovirus*.

Keywords: *Norovirus*; *Adenovirus*; *Astrovirus*; *Sapovirus*; *Rotavirus*; molecular assay

In hospital, viruses frequently cause acute gastroenteritis outbreaks. The associated mortality and morbidity rates are especially high in pediatric, elderly and immunocompromised patients. The cost of controlling acute outbreaks of viral gastroenteritis is related to the duration of the outbreak, the number of infected cases, and the type of measures taken to control the infection (e.g. the closure of care units) (Danial et al., 2011; Navas et al., 2015; Sadique et al., 2016).

The viruses responsible for these acute gastroenteritis outbreaks are typically members of *Caliciviridae* (such as *Norovirus* and *Sapovirus*), *Rotaviridae*, *Adenoviridae* and *Astroviridae* families. The *Norovirus* genus is the most common cause of acute viral gastroenteritis worldwide, and affects all age groups. The genus comprises six genogroups (Vinjé, 2015). Although both genogroups I and II are frequently detected in human *Norovirus* infections, genogroup II is particularly implicated in hospital and food-borne outbreaks (Iturriza-Gómara and Lopman, 2014; Navarro et al., 2005; Sheahan et al., 2015; Sommer et al., 2009). In France (where the vaccination against *Rotavirus* is not recommended), *Rotavirus* is the leading cause of acute gastroenteritis in children (Parez et al., 2007). Of the 57 identified types of *Adenovirus*, types 40 and 41 are mainly associated with diarrhea (primarily acute in children under the age of 4) whereas the serotypes 31, 12, 18, 1, 2, 5 and 6 are less often associated with gastroenteritis (Oude Munnink and van der Hoek, 2016). *Sapovirus* causes acute diarrhea (especially in infants and young children) and is frequently associated with food-borne outbreaks (Kobayashi et al., 2012; Usuku et al., 2008). *Astrovirus* predominantly affects

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