

Call: 9th Call – JPIAMR Joint Call on Diagnostics and Surveillance 2019

Title: Prevention of antibiotic resistance by TARGETed Treatment of pneumonia in children

Acronym: TARGET

Project composition

Type	Name	Institute	Country
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Abstract

Lower respiratory tract infections (LRTI), such as pneumonia, are a leading cause of death especially in children below the age of 5 years. Low and middle-income countries (LMIC) suffer the highest burden of childhood pneumonia. Most LRTIs are caused by viruses, but differentiating viral from bacterial causes is frequently impossible in LMIC due to lack of diagnostics. As a consequence, most cases are treated empirically with antibiotics leading to overuse and misuse of antibiotics, which is an important driver of the global epidemic of antimicrobial resistance. Therefore, we propose to apply a newly developed diagnostic device, the modular breath sampler (MBS), which is based on the entrapment of aerosols from the lower respiratory tract to identify the etiological agent in children with LRTI. Because the MBS is a non-invasive, patient-friendly device and easy applicable for repeated measurements, it allows direct monitoring of the effect of antibiotic treatment. In addition, the identification of pathogens will not only be determined by PCR but also by loop-mediated isothermal amplification (LAMP) that amplifies DNA with high specificity, efficiency and rapidity in a single tube under isothermal conditions, and does not require a thermal cycler, which would make it easy to apply in LMICs.