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POC Device to Differentiate Bacterial and Viral Infections

Patients admitted with serious infections require prompt detection, identification and susceptibility of the infectious agent for selecting appropriate treatment. The ability to differentiate bacterial from viral infections and the ability to determine if a patient is infected with drug resistant microorganism are critical both for effective treatment and infection control. Currently there is no definitive test that distinguishes between a viral and bacterial infection, other than by testing all of the possible pathogens and/or biomarkers which could take anywhere from 2-14 days. Thus a very much needed point of care device able to rapidly (in less than an hour) identify bacteria or viruses in clinical samples would provide more immediate and accurate information for better treatment options at clinical or primary care facilities.

Our proposed POC device would be used to classify bacterial and viral infections into groups based on their chromogenic enzyme substrate reactivity and ultimately antibiotic susceptibility for their treatment plan. This POC device will rapidly detect bacterial or viral infections and would rapidly determine not only if a patient needs antibiotics or viral treatment therapy, but also which antibiotic would be efficacious to treat the infection. This proposed POC device would require no special equipment and a very minimum level of training to operate. This POC device is intended for use in inpatient and /or outpatient settings. This diagnostic test will produce actionable results as the time between when the sample is collected from a patient and the time that the results are available to the health care provider would be 15-30 min. The low cost will also make this proposed POC Device very successful as a commercial diagnostic system.
Our proposed POC device would be easy to use, low cost and would be of significant clinical and public health utility in fighting antibiotic resistant.