



CDaaS—Clinical Data as a Service

The Clinical Data as a Service Platform (CDaaS) brings to GPs, surgeons and third parties, synthesized information of PoC diagnosis data, specifically in this case for the detection of acute infection with the identification of either bacterial or viral causes

Background

With increasing focus on the link between infectious disease and poverty in the developing world, there is a commensurate effort to develop better mobile alternatives to infectious disease detection contributing to improved global health. Faster diagnosis of acute infection at the Point-of-Care (PoC) is needed in both inpatient and outpatient settings largely contributing for the global attempt to reduce antimicrobial resistance (AMR), with a rate of inappropriate antibiotic prescription at 30-50%. Thus, there is a growing need for an early and accurate POC infection diagnosis solution that collects, stores and integrates the spatially distributed bacterial/viral mutations that affect billions of lives. Current PoC technology presents numerous issues due to the lack of connectivity, which inhibits success and economic impact. Enabling connectivity to lab-on-a-chip devices can have a dual impact on the performance of the system; 1) Offloading the biomarkers data processing to the cloud can increase their analysis with enhanced computational power using correlated multivariable analysis with data mining technique; 2) the infection data is collected real-time from different GPs can be analyzed with a geographical distribution, which can assess the infection distribution behavior in the society.

The Technology

A cloud-based system has been created to support a distributed collection, storage, processing and analysis of patients' biomarkers data to the designed users (GPs, surgeons, and third parties). This system is based on a

microservices architecture that allows dynamic inclusion of different features and easier integration with POC devices. A mobile application has been developed to interface with the PoC device and the CDaaS platform to perform the diagnosis of acute infection and identifying if the cause of such is either bacterial or viral. A clinical database containing infection information was developed based on the same cloud-based technology but as a complete separate system, but with easy deployment based on the shared cloud platform.

Benefits

CDaaS drives the efficiency of pharma companies, research labs, GPs and other healthcare providers (HCPs) with faster and more accurate diagnosis. 1) increase acceptance of the lab-on-a-chip device adoption by GPs by offering flexibility and user friendly environments 2) increase the development of more lab-on-a-chip applications that rely on the clinical database of the CDaaS 3) reduce GP appointment durations, thus increasing the number of patients that a GP can see on a daily basis, achieved through a reduction in the number of blood samples sent off-site and the typical patient return visit to receive results and 4) increase the prescription of more accurate medicine based on accurate assessment of a patients' infection. This also contributes to the efficacy of the medication, which is vitally important to pharma industry.

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