

Point of Care Device for HbA1C

Problem Statement: HbA1c, glycated haemoglobin test indicates an average level of blood sugar over the past two to three months. Individuals with diabetes need this test regularly to see if their levels stay within range. The current cost of the point-of-care test in laboratories for HbA1c is around INR 200/- per test, which is expensive for the low socio-economic class in India. India has an estimated 77 million people with diabetes; thus, the Indian market needs an affordable test system to detect HbA1c. Lateral flow-based methods are simple and quick tests to determine the presence and amount of a substance in the sample. They work on urine, blood, saliva, sweat, serum, and other fluid samples. The researchers have designed a diagnostic device that uses the paper shunt technology in lateral flow assay based testing and addressed the problem of making HbA1c testing in India affordable, accessible and easy.

Uniqueness of the Solution: A shunt is

essentially a flexible tube, also popularly called a catheter. Such a shunt or a catheter has an inflow, a valve mechanism and an outflow to regulate the flow of the fluid. For instance, in treating hydrocephalus, a shunt is placed into the area of the brain where cerebrospinal fluid is produced. In this case, Paper shunt technology is used for making the lateral flow assay a more affordable point of care test for HbA1c by minimising the use of antibodies in the assay.

Current Status of Technology:

The prototype development stage is complete; The researchers have performed a small-scale clinical study with blood samples.

Societal Impact: The proposed device for the detection of haemoglobin A1c is economical compared to the commercially available devices. The testing meter will cost approximately INR 2500, and each testing strip about INR 100 per test. Hence, this device is a

budget-friendly testing method even for the low-income group.

Patent(s): Filed

Relevant Industries: Healthcare, Medical Devices.

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