

## Point of Care Device for Total Cholesterol, Triglycerides and HDL Cholesterol

**Problem Statement:** Cholesterol, triglycerides, and high-density lipoproteins are important constituents of the lipid fraction of the human body. High cholesterol and triglyceride levels increase the risk of developing heart disease. Recent studies have reported high cholesterol levels in 25-30% of urban and 15-20% of rural subjects in India. Early detection, proper medication, and lifestyle changes can help maintain cholesterol levels, triglycerides, and high-density lipoproteins. The researchers have come up with an economical point of care device to measure the lipids and help to monitor the levels easily and in a budget-friendly way.

**Uniqueness of the Solution:** The researchers have made the colorimetric strip by immobilisation of the enzyme onto a paper surface by conjugation with polymer and specific surfactant solubilisation chemistry. This method is capable of determining free, bound HDL-C and LDL in blood without pre-

treatment for separation of RBCs. The meter's function is similar to a diabetes blood glucose meter and is easy to use. The user needs to insert the test strips into the electronic device, and it measures the amount of cholesterol automatically. The device quantifies total cholesterol, free and bound cholesterol along with high-density lipoprotein-cholesterol (HDL-C) and low-density lipoprotein (LDL) from blood.

**Current Status of Technology:** The product is in the clinical validation stage. The researchers have completed the prototype development and academic clinical validation.

**Societal Impact:** The point-of-care meter fabricated for the detection of cholesterol, triglycerides and high-density lipoproteins is economical compared to the commercially available devices. This device can be used in rural areas or any place as it is easy to use, like a glucometer.



**Patent(s):** Filed

**Relevant Industries:** Healthcare, Medical Devices.

**Faculty:** Prof. Rohit Srivastava, Biosciences & Bioengineering.