

## Utility of Dried Blood Spots for Measurement of Cholesterol and Triglycerides in a Surveillance Study

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### Abstract

#### Background:

Developing countries are facing a rise in noncommunicable diseases (NCD), which is a cause for concern. The World Health Organization has recommended a stepwise approach for NCD risk factor surveillance. Screening for risk factors in remote populations is difficult due to lack of resources and technical expertise, including standardized laboratory facilities. The collection of samples on filter paper for the assessment of risk factors circumvents the need for blood processing, storage, and shipment at ultralow temperatures.

#### Method:

Samples were collected on 3-mm Whatman filter paper from one industry (National Thermal Power Corporation) located in the periphery of Delhi as part of a surveillance carried out in industries from different parts of India. Total cholesterol was measured in serum and dried blood by the cholesterol oxidase/*p*-aminophenazone method and triglycerides by the glycerophosphate oxidase–peroxidase/*p*-aminophenazone method. Values obtained by the two methods were compared using Pearson correlation, and Bland–Altman plots were prepared to assess bias.

#### Results:

The correlation coefficient “*r*” was 0.78 for cholesterol and 0.94 for triglycerides between dried blood spots and serum. Bland–Altman plots suggest that differences in values obtained by the two methods were within two standard deviations for most of the samples.

#### Conclusions:

Blood samples dried on filter paper can be a successful option for population screening in remote areas, provided preanalytical variations arising due to the method of blood spot preparation and storage are well controlled.

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**Abbreviations:** (NCD) noncommunicable diseases, (SD) standard deviation

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