

Global Summit on **Telemedicine & eHealth**

August 17-18, 2015 Houston, USA

Addressing anemia among women and children through non-invasive monitoring of haemoglobin in the communities

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This study describes the development and testing of non-invasive haemoglobin monitor using integrated innovation approach, comprising of technological, business and social innovations, to achieve greatest impact on women's and children's health by reducing morbidity and mortality due to anemia. It can also be used for mass screening and regular monitoring of anemia in general population. Statistics show that every second pregnant woman dies because of anemia related causes in developing countries, and it is in those same developing areas that 40% of preschool children are anemic. This non-invasive device uses spectrophotometry technique to detect haemoglobin in blood stream, using the index finger for the source and receiver placement in order to predict the Hb value. A double blinded clinical trial was conducted at Dow University of Health Sciences, Karachi and CitiLab, to compare the results of non-invasive monitoring against the laboratory testing of haemoglobin for measuring the accuracy. The results showed 92% accuracy (difference of less than 20%), with 89% sensitivity and 76% specificity. While the accuracy was almost the same among women and men (91% vs 94% respectively), sensitivity was much higher among women (91% vs 74%). Non-invasive haemoglobin monitor has shown high degree of accuracy against the gold-standard in the clinical trial in Pakistan. Further validation is being conducted in partnership with World Vision in Kenya, Burundi, and India.

Biography

Shariq Khoja is a seasoned researcher and high profile leader in the area of eHealth and eLearning. He has experience of over 15 years leading Health systems initiatives which focus on evidence and policies towards implementation of eHealth in developing countries. He is also an Adjunct Assistant Professor at the University of Calgary and has written over 50 papers and several book chapters, along with developing tools for organizational needs and readiness assessment, and evaluation of eHealth initiatives. He currently leads eHealth initiatives in South and Central Asia and East Africa.

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