

Digital innovation in blood pressure monitoring

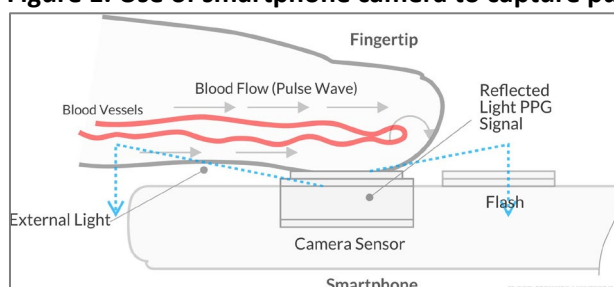
Current Project Brief

Objectives and Background

The development of a clinically validated, ISO compliant blood pressure measurement software that uses just a smartphone camera could have profound implications for providing health care, especially for pregnant women in low- and middle-income settings.

OptiBP™, a cuffless blood measurement algorithm application developed by Biospectal in partnership with the Swiss Centre for Electronics and Microtechnology (CSEM), uses the built-in smartphone camera to measure blood pressure at the fingertip easily and quickly, overcoming the inconvenience and lack of access to traditional blood pressure cuffs, as well as dependencies on external hardware. Whilst the software has been tested in high-income settings,¹ HRP is conducting a multi-country validation study on OptiBP™ in Bangladesh, South Africa and the United Republic of Tanzania. This will also ensure the OptiBP™ blood pressure measurement algorithm perform across diverse population subtypes (especially pregnant women).

Figure 1. Use of smartphone camera to capture pulse waves for estimating blood pressure¹



A linked research project that integrates the use of OptiBP™ with algorithms from WHO's recommendations on antenatal care and delivered through OpenSRP software will enable healthcare workers to capture a pregnant woman's blood pressure and then be guided to the next steps for her care. HRP is also planning a formative study on the perceptions of and operational considerations for self-monitoring of blood pressure using OptiBP.

Geographic location

Bangladesh, South Africa, United Republic of Tanzania, Indonesia (planned)

Main deliverables

Multisite validation study of OptiBP completed
Manuscript of findings published
Formative study on self-monitoring of blood pressure conducted

Sources of funding

Bill and Melinda Gates Foundation, HRP, Saving Lives at Birth Grand Challenges Canada

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¹ Degott J, Ghajarzadeh-Wurzner A, Hofmann G, Proença M, Bonnier G, Lemkaddem A, Lemay M, Christen U, Knebel JF, Durnat V, Burnier M. Smartphone based blood pressure measurement: accuracy of the OptiBP mobile application according to the AAMI/ESH/ISO universal validation protocol. *Blood Pressure Monitoring*. 2021 Jun 1;26(6):441-8.

Contact reproductivehealth@who.int <http://www.who.int/reproductivehealth/en/>