Improving Screening for Pre-Eclampsia and Eclampsia: A Low-Cost Solution for a Persistent Global Health Challenge

Global Health Need
Pre-eclampsia is a pregnancy complication characterized by raised blood pressure, proteinuria, and sometimes edema, which if undetected and unmanaged, can progress to eclampsia and present serious risks to the mother and baby. Early diagnosis of pre-eclampsia and eclampsia (PE/E) depends on the detection of proteinuria and elevated blood pressure during pregnancy. PE/E are among the top causes of maternal mortality and morbidity worldwide, contributing to 12% of all maternal deaths (> 60,000 deaths annually), and disproportionately affect women in low-resource countries. Despite the diagnostic importance of detecting protein in the urine, it continues to be an underutilized clinical test due to limitations related to cost, time, training, and laboratory infrastructure. All of these limitations amount to low coverage of critical detection and management of PE/E.

Low-Cost Technology Solution
Jhpiego and the Johns Hopkins Center for Bioengineering Innovation and Design have developed a protein device test that contains a reagent that detects protein in the urine and employs a novel platform to make proteinuria detection intuitive, extremely affordable, and a reliable point-of-care screening tool that can lead to earlier and more widespread detection of PE/E. The test uses a simple color change that is easy for individuals with little to no training to interpret. This feature enables community health workers and volunteers to distribute this test to pregnant women outside of facilities and has the potential to dramatically increase the coverage and quality of pre-eclampsia screening. A device platform for dispensing a simple, color-changing solution will facilitate increased proteinuria tests and can eventually be adapted for the detection of other maternal conditions easily detected through the use of urine tests.

Collaborators and Supporters:
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Contact:
For more information on this project, contact Brinnon Mandel at brinnon.mandel@jhpiego.org