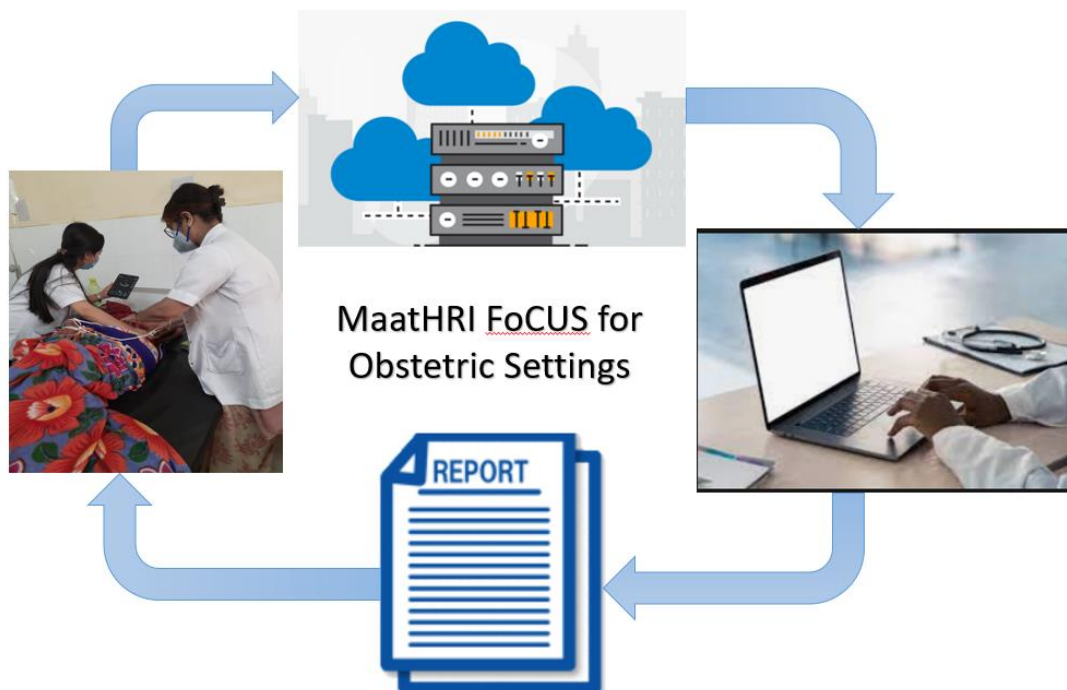




Focused Cardiac Ultrasound (FoCUS) method to guide the diagnosis of cardiac problems in pregnant women in low-resource obstetric settings

Cardiac complications are a leading cause of maternal death. Cardiac imaging with echocardiography is important for prompt diagnosis, but it is not available in many low-resource settings. Focused cardiac ultrasound (FoCUS) could be a low-cost solution. Obstetricians are familiar with ultrasound scanning, so they can easily acquire the skills required to scan the heart of pregnant and postpartum women who present with suspected cardiac problems including heart failure. MaatHRI (Maternal and perinatal Health Research collaboration, India), together with experts from the Cardiovascular Clinical Research Facility, University of Oxford, developed and validated a FoCUS method that can be used by obstetricians to conduct echocardiography of pregnant women using low-cost point-of-care ultrasound machines. The images are uploaded on a cloud-based server and interpreted remotely by experts to provide a diagnosis.



Advantages: The tested method could be lifesaving in situations in which immediate intervention is required, such as emergency pericardiocentesis in pregnant women with severe tamponade. In low-resource settings where there is a shortage of cardiologists or significant travel is required to reach a facility with a cardiologist, focused echocardiography could be used in obstetric settings to prioritise pregnant women who need such referrals. It can be used for screening cardiac problems during antenatal check-ups in pregnant women who present with breathlessness, fatigue, palpitation, and other symptoms or with known risk factors for cardiovascular diseases. Use in low resource settings is also made possible by the growing availability of low-cost portable machines approved for clinical use, which does not require an elaborate set-up. However, processes need to be developed for accreditation of obstetricians for proficiency in image acquisition.

Resources: The image acquisition and image interpretation protocols are available freely from the MaatHRI website (<https://www.npeu.ox.ac.uk/maatHRI/capacity-building>). Published article in the Journal of the American Society of Echocardiography is available on doi.org/10.1016/j.echo.2022.07.014.