



Maternal and perinatal Health Research collaboration, India (MaatHRI) is a UK-India collaboration for translating evidence from new scientific discoveries to improve clinical care for mothers and children. It now includes 16 hospitals across 6 states in India.

Research project updates

Workstream-1: (repeated monthly survey of severe maternal complications):

Till date we have information related to 347,521 hospital births collected since August 2018 from the MaatHRI collaborating hospitals across six States in India.

Workstream-2 (case-control study of heart failure in pregnant women):

Until August 2022, we recruited 359 cases of suspected heart failure and 850 controls.

Workstream-3 (prospective study of safety of induction and augmentation of labour in pregnant women with anaemia):

Until August 2022, 7991 participants have been recruited, which is 97% of the target.

Updates are published monthly on the MaatHRI website

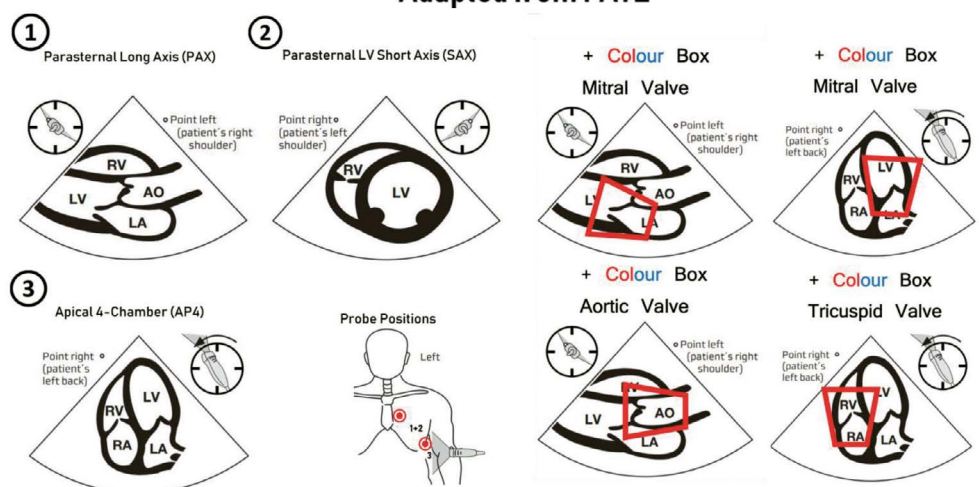
www.npeu.ox.ac.uk/maathri

MaatHRI FoCUS for Obstetric Settings

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

MaatHRI Echocardiography Protocol

Adapted from FATE



MaatHRI, together with experts from the Cardiovascular Clinical Research Facility, University of Oxford, developed and validated a Focused Cardiac Ultrasound (FoCUS) method that can be used by obstetricians to conduct echocardiography of pregnant women using point-of-care ultrasound machines, and the images can be interpreted remotely by experts. The imaging and image analysis protocols can be found in our open access paper in JASE doi.org/10.1016/j.echo.2022.07.014 and will also be available on the MaatHRI website.

MaatHRI Echocardiography image quality assessment

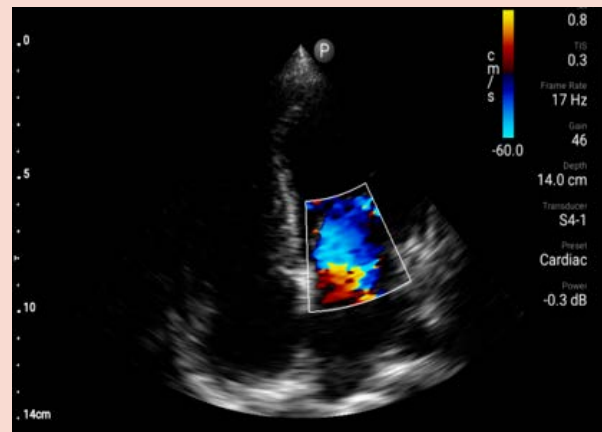
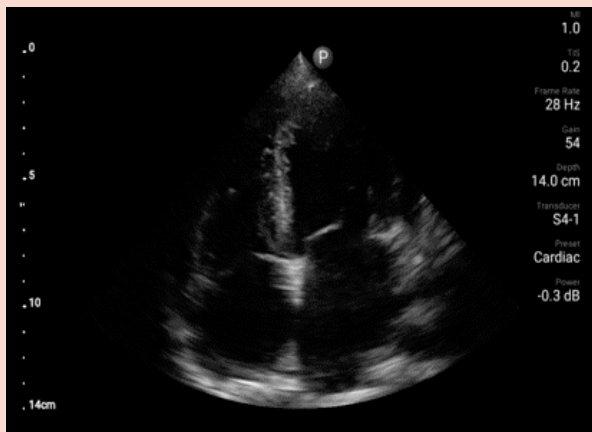


Our tested method could be lifesaving in situations in which immediate intervention is required. In low-resource settings where there is a shortage of cardiologists, focused echocardiography could be used in obstetric settings to prioritise pregnant women who need such referrals. It can be used for screening cardiac problems during antenatal check-ups. Use in low resource settings is also made possible by the growing availability of low-cost portable machines approved for clinical use.

As one cardiologist from India commented:

Hope this [MaatHRI FoCUS for Obstetric Settings] will help demystify, democratise echo and will improve care at affordable costs.

Image quality assessment	Illustrations
<p>Good</p> <p>Structures All structures seen as illustrated</p> <p>Image optimisation Optimal optimisation (all the criteria apply)</p> <p>Colour flow Doppler Colour box placed as illustrated show valvular flow</p>	<p>Structures</p> <p>2D image</p> <p>Parasternal long axis view</p> <p>Parasternal short axis view</p> <p>Apical 4 chamber view</p> <p>Structures</p> <ol style="list-style-type: none"> 1. Left ventricle 2. Mitral valve 3. Left atrium 4. Aortic valve 5. Right ventricle <ol style="list-style-type: none"> 1. Circular left ventricle 2. Papillary muscles 3. Right ventricle <ol style="list-style-type: none"> 1. Left ventricle 2. Mitral valve 3. Left atrium 4. Right atrium 5. Tricuspid valve 6. Right ventricle <p>Criteria for image optimisation</p> <ul style="list-style-type: none"> - Orientation – Correct positioning of index marker for each view - Gain – High enough for a few echoes to be demonstrated in the blood, and the blood-endocardial tissue borders are well-delineated - Depth – Set to maximise the size of the display for the structures or flow of interest <p>Colour Flow Doppler (CFD)</p> <p>Parasternal long axis view</p> <p>Apical 4 chamber view</p>
<p>Medium</p> <p>Structures One or two structures not shown</p> <p>Image optimisation Two of the criteria apply</p> <p>Colour flow Doppler Colour box size and placement does not fully demonstrate valvular flow</p>	
<p>Poor</p> <p>Structures Three or more structures not shown</p> <p>Image optimisation One or none of the criteria apply</p> <p>Colour flow Doppler Colour box size and placement does not show valvular flow</p>	



A patient with heart failure with rheumatic heart disease and significant mitral stenosis. Images acquired by an obstetrician using MaatHRI FoCUS.

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