



Problem Statement

Lack of access to quality clinical care close to the patient's homes is the major cause for medical problems being detected late and having bad clinical outcomes. This is true for maternal care as well.

In Primary Health Centres (PHCs) across India, clinical personnel are often ill equipped from a skill perspective to carry out timely interventions for expectant mothers. The doctors in a PHC follow an elementary checklist while treating pregnant women. Firstly, these checklists do not adhere to the standard recommendations of National Rural Health Mission(NRHM) or the World Health Organization(WHO) and hence medical conditions like risk of anaemia, Post-Partum Haemorrhage etc. are not detected early. Secondly, the doctors in PHCs only provide "minimal treatment" and refer most of the cases directly to the General Hospital. This causes even the most routine cases to be forwarded to the General/District hospitals instead of being handled in the PHC. Congestion in General/District hospitals due to this practice leads to their bandwidth not being available for critical cases.

This project aims to provide a standardized care protocol that can self-enhance and learn contextually as doctors in PHCs use it.

Example usage:

A pregnant woman comes to the PHC. During her first trimester ante-natal visit, when the doctor meets her, the doctor would start with a basic set of questions/assessments as per the standard protocol. If during this general history taking, it is known that the mother had IUGR (Intra Uterine Growth Retardation) in her past pregnancy, then the standard triage protocol model would create tasks for the doctor to mandate tasks actions like measuring the mother's belly at every visit and also recommend periodic ultrasounds. However, the doctor may choose to either ignore the recommendations or collaborate with a specialist to identify a different set of actions for the patient. The documentation system would help capture such deviations. The learning system should ingest these deviations in the population to identify patterns to present to the protocol model developer to enhance the care protocol manually. In cases, where a particular protocol model does not exist in the system, the learning system could identify the patterns and present the (best) practices as a model (decision tree or otherwise) to the protocol model developer for creating new content in the system.

In this way, a standard protocol gets contextually enhanced through machine learning.

Key Features

- The module should visualize and allow the doctors to follow the standard care protocols/decision tree published by external known sources like NRHM(National Rural Health Mission) / Directorate of Public Health etc
- The module should contextually alter the path in the decision tree based on mother's medical conditions as the pregnancy progresses
- If the system "learns" that there are deviations or enhancements to a protocol, then there should be a way to incorporate that into the protocol with an appropriate review mechanism
- The set of standard and enhanced pathways should be shareable across different PHCs to maximize learning.

.What will be provided for the project - Reference sources in the public domain that can be used to build the standard protocols/decision tree

For Contextual Care protocol, you can refer to:

- NRHM guidelines (OR)
- ACOG guidelines (The American College of Obstetricians and Gynecologists) (OR)
- Guidelines are given in this site National Institute for Health and Care excellence