

AI Health Assistant for Rural Nepal: Early Detection of Maternal and Infant Health Risks

Author: Jagriti Srivastava

Maternal and child health outcomes in Nepal have improved over recent decades; however, significant challenges persist in rural and remote areas. According to the World Health Organization, Nepal's maternal mortality ratio is approximately **142 deaths per 100,000 live births**. In comparison, neonatal mortality remains around **21–23 deaths per 1,000 live births**, with higher risks in underserved communities. These deaths are often preventable and frequently linked to **delays in recognizing early danger signs** and seeking timely medical care.

In many rural households, pregnant women and caregivers struggle to distinguish between normal pregnancy or infant-related discomforts and early symptoms of serious complications. Symptoms such as severe headaches, swelling of the legs, reduced fetal movement, fever after childbirth, poor infant feeding, or unusual lethargy are often misunderstood as normal conditions. Cultural beliefs, limited health literacy, language barriers, and long distances to health facilities further delay care-seeking decisions. While health posts and community health volunteers exist, early risk recognition at the household level remains an unaddressed gap.

To address this challenge, I propose an **AI-powered Health Assistant for Maternal and Child Health**, designed specifically for rural Nepal. The solution focuses on **early interpretation of symptoms**, enabling women and caregivers to make informed decisions before conditions become critical. The system will operate in the **Nepali language**, with both voice and text-based interaction, ensuring accessibility for users with low literacy or limited digital experience.

The AI assistant will guide users through a short set of simple questions related to maternal or infant symptoms. Using predefined clinical guidelines and machine-learning-based risk assessment, the system will generate a **risk score** categorized as low, medium, or high. Based on this assessment, the assistant will provide **clear and actionable recommendations**, such as monitoring symptoms at home, visiting the nearest health post within 24 hours, or seeking immediate medical attention. For infant health, the assistant will evaluate feeding behavior, weight progression (manual input), fever, breathing difficulty, and activity levels to flag early signs of malnutrition or infection.

This solution does not aim to replace healthcare professionals but rather to **support early decision-making at home**, where most delays currently occur. By empowering women with timely, understandable health guidance, the assistant can reduce hesitation, improve referral timing, and strengthen trust in formal healthcare systems.

The expected impact includes **earlier detection of maternal and newborn complications**, improved care-seeking behavior, and a reduction in preventable morbidity and mortality. The solution aligns strongly with **Sustainable Development Goal 3 (Good Health and Well-being)** and complements Nepal's existing maternal and child health programs. Due to its lightweight design and reliance on existing health knowledge frameworks, the solution can be piloted in selected rural districts and scaled nationally in collaboration with government and development partners.

With my background in **AI-driven backend systems and software development**, I am well-positioned to translate this concept into a feasible and scalable prototype that contributes to inclusive and sustainable development in Nepal.

AI HEALTH SOLUTION FOR RURAL NEPAL: EARLY RISK IDENTIFICATION

