



MAMASnet

Space Technologies for Mother Earth

Model Maternal-Infant Telemedicine Network for Sierra Leone, West Africa Proposed Cooperation with NASA's "Smart Medicine Systems" and Google Corporation

MAMASnet is proposed by [MAMAS International](#) (Mobile Assessment & Maternal Aid Solutions) in program collaboration with [World Health Organization "Making Pregnancy Safer" Department](#)

I. Project Goals

- To reduce maternal and infant mortality in developing countries in pursuit of the [UN Millennium Development Goals](#) (MDG) for 2015, in Sierra Leone as worst case scenario.
- To advance research for integrated and sustainable telemedicine and (with Google) health information systems, for both rural Africa and NASA objectives for space medicine.

II. Project Purpose

Prove the value of using recent advances in international connectivity, medical technology, telehealth systems, and data collection and analysis, in combination with community health education and organizing techniques to reduce maternal and newborn deaths in two testbed sites in Sierra Leone. These two rural areas are controlled by different, politically important tribes, present challenging remote and rural environments, have isolated and poor populations, and share the country's very high rates of maternal and newborn death.

The project will test using telemedicine and health informatics to increase local capacity to train local health workers in the provision and management of rural obstetrical care (both routine and emergency), and, at the same time, provide opportunities for applied research by university and industry partners to advance the uses and sustainability of health information and telemedicine, whether for isolated and lowest resource communities or for diagnosis and treatment needs in space and combat scenarios.

III. Outputs for Phase I

- Analysis of current need, technical requirements, local medical and technical capacity, and existing (cell, satellite, internet) infrastructure for remote obstetrics in testbed sites.
- Agreements with [NASA](#), [Google](#), US Telemedicine & Advanced Technology Research Center ([TATRC](#)) and key partners for design, funding, timelines, management, progress indicators and reporting mechanisms.
- Identification of [American Telemedicine Association](#) (ATA) members' interest and role.
- Establishment of African stakeholders' working groups and terms of cooperation.
- Design of strategic blueprint for project success incorporating the D2H2 paradigm and approval of related agreements, proposals and budgets for Phase II.

- Identification of and agreements for access to low-cost, easy to use medical devices, e.g., a portable ultrasound machine, a blood pressure monitor, and a fetal heart monitor.

IV. Program Inputs (Phases I – IV)

The Project will include four initial phases with reports to funders, and budgets for the next phase submitted at the end of each phase:

- **Phase I (months 1-3):** Establishment of MAMASnet’s administrative structure by MAMAS International in cooperation with PATH; plan and conduct an Assessment Mission in Sierra Leone with an appropriate team to survey testbed sites, local capabilities and obstacles, identify local partners, negotiate local agreements as possible, and explore possibilities for economic sustainability of the proposed technology and community program; draft and send a post-trip report to funders and key partners and produce a blueprint for project success for their comment; negotiate partnership agreements with selected U.S. based groups as needed,, and attend the ATA conference in Las Vegas to assess potential for industry and government agency cooperation and to publicize MAMASnet, 9-17/18, 2007.
- **Phase II (months 4-6):** Based on the trip analysis, MAMAS will finalize agreements both for regional and international partnerships and for bioengineering support in the U.S. including a NASA “Smart Medicine Systems” advisory group, an expert clinician group in Washington State, and formal cooperation with the American College of Nurse Midwives and the University of Alaska Community Health Aide Program.install . We will test the technical MAMASnet system for telehealth in a U.S. lab as a permanent counterpart to identical systems to be installed in Sierra Leone. This will allow complementary troubleshooting and remote system development once the systems are installed in the testbeds. We will also adopt participatory monitoring and evaluation procedures.
- **Phase III (months 7-16):** MAMASnet engineers will install and run two identical versions of the tested telehealth system in the two testbed districts. These will support D2H2 clinical applications with appropriate connectivity. We will troubleshoot as needed. We will also organize and begin workforce training based on systems and materials developed for Alaskan rural villages modified for the testbeds as deemed necessary on the Assessment Mission in Phase I. We will also incorporate on-site monitoring for evaluation purposes. .
- **Phase IV (months 17-18):** Following review of testbed results, we will develop a plan for scaled systems, trainings, and operations in the project’s final year and a half.

V. Evaluation and Scalability

Evaluation and planning for scalability will be in accordance with established UN indicators for related obstetrical interventions, and the World Bank InfoDev Framework for health information. The monitoring system will be built into the overall project plan and will be participatory, involving project participants directly in the continual collection and analyses of data.

VI. Leadership and Management

The MAMASnet project will be directed by the Executive Director of MAMAS International and her staff (brief bios attached) using the administrative structure designed in cooperation with PATH.

VII. Budget for Phase I: See Appendix A

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