# MAMASnet in Rural Africa
AMII as Method and System for Telemedicine.

AMII (Alaska Medical Informatics Initiative) is a method and system for telemedicine that provides triage and clinical decision support for real-time monitoring of remote patient physiologic data and provides trend analysis and database reporting. AMII was written and compiled in Visual Basic and hypertext markup language and uses open database compliant standards. It allows "first responders" and field-based clinicians to communicate with emergency room and hospital personnel using real-time text, images, voice, and video. Dr. Fred Pearce, UAA, has designed this system for USAMRMC, building on his experience as architect of the Alaska Telemedcine Testbed Project.
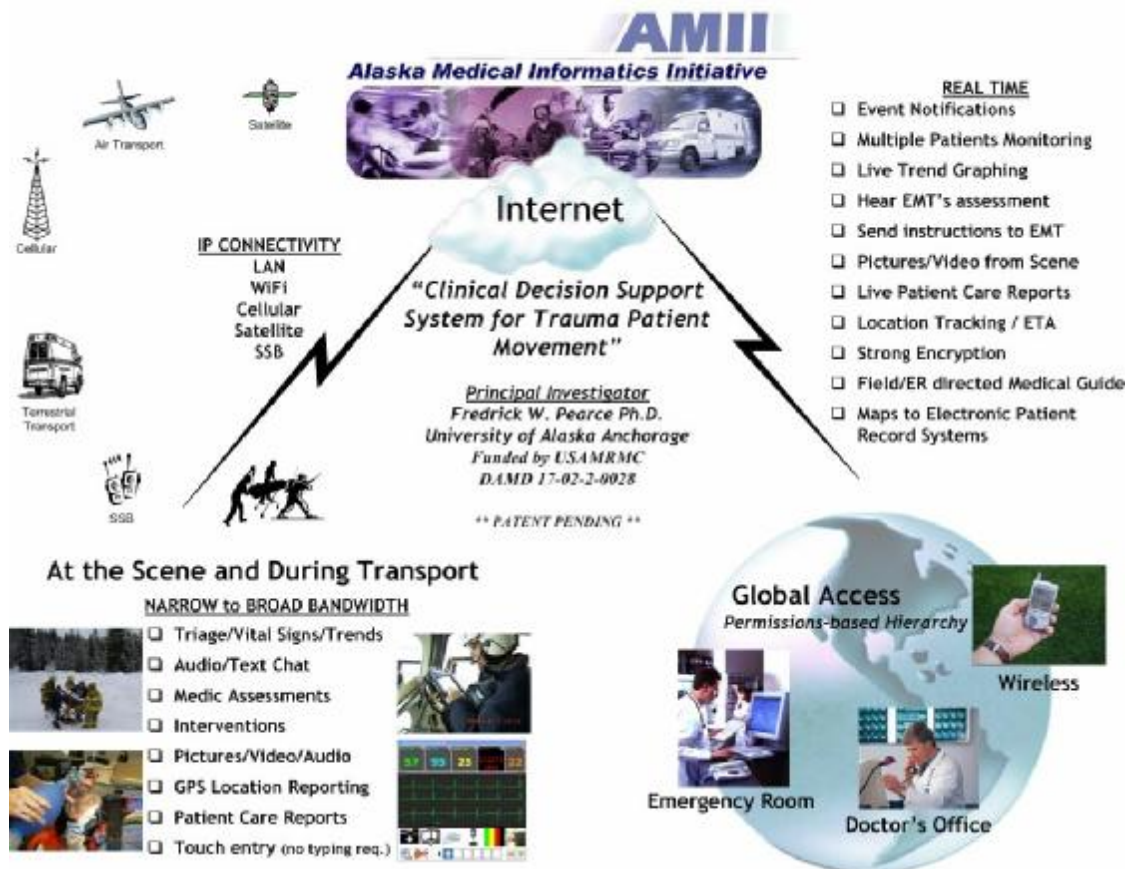
Description of Technology:

AMII supports real-time clinical collaboration. It provides real-time monitoring of blood pressure, SPO2, twelve-lead ECG, temperature, heart and lung sounds, and respiration rate (depending on sensors used). Its flexible architecture allows for additional digital clinical data (ultrasound) as they become available for field use.

It reports directly from the field unit via GPS and contains a mapping system for estimating time of arrival. The core AMII command structure allows both "push" and "pull" information. Using client-server architecture, AMII is sensor independent. It consists of a touch-screen field unit (tablet computer or PDA) and secure clinical client. The system management processes are permissions-based and password protected for both security and flexible decision support. It uses any available Internet Protocol (IP) connection.

The AMII field unit communicates using Bluetooth to sensor systems (including digital still and video cameras) and 802.xx to communications module. AMII has capacity to move any digital monitoring data, digital images, digital sounds, and digital video clips from the point of trauma or emergent care to any networked computer worldwide with permission to "see" the information. AMII is designed to work in narrow bandwidth environments (from 300 baud).

The AMII communications module will seek and find the "best" available IP connection from satellite modem (default communications protocol for air evacuation), cell phone modem, 802.xx wireless IP, and Ethernet. The database structure records every aspect of each event for trend analysis and utilization review. AMII is field-unit and event-centric and supports up to six simultaneous interventions per field-unit. Patient identification and data streaming integrity are managed through RFID tagging and unique patient ID generator.

The field unit data capture process engenders gathering as much personal and clinical data as can be recorded in the field. All patient information is recorded to the patient event database that reports to NEMSIS data fields. AMII contains programming "hooks" to electronic patient records databases like VistA. AMII is HIPAA compliant. It can be used with a variety of existing and off-the-shelf sensor and equipment packages. It is display neutral and can be used with a variety of display units including desktop computer screens, laptop and tablet computers, PDAs, and cell phone screens.

Alpha field test emergency responders have judged AMII to be useful and easy to use. A comprehensive AMII field sensor system is under development.

List of Advantages:

Narrow bandwidth communications. Client-server architecture. Auto seeking and auto adjusting communications module. Text, voice, image, and video communications. GPS and ETA tracking. "Gloved-finger" data entry. Records to event database. Patient trend analysis. Programming "hooks" to electronic patient records databases like VistA. RFID tagging and tracking. Sensor independent. Can be used with a variety of existing and off-the-shelf sensor and equipment packages. Bluetooth communications. 802.xx communications. IP communications. Strong encryption. HIPAA compliant.

Current Status:

AMII v.1 has been in alpha testing for 16 months. Further alpha tests are scheduled. Alpha field test emergency responders have judged AMII to be useful and easy to use. A comprehensive AMII field sensor system is under development. AMII v.2 is being developed and will include a new communications module that will support H.264 SIP point-to-point and point-multi-point audio and video conferencing.

List of Businesses:

Military medical evacuations, civilian ground and air ambulances, emergency response systems, homeland security systems, healthcare systems, hospitals, developing nations and world-wide where "broadband" communications is difficult to maintain, spotty, non-existent, or too expensive.

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