



IMPROVING READINESS FOR ARMY MEDICAL EQUIPMENT USING REMOTE DIAGNOSTIC ACCESS

A White Paper

The United States Army Medical Materiel Agency
USAMMA

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The Strategic Objective of Remote Diagnostic Access

One goal of the Army Medical Department (AMEDD) is to provide premier healthcare services for patients and Soldiers in deployed environments. The logisticians of the U.S. Army Medical Materiel Agency (USAMMA) deliver medical materiel to our warriors to support the mission of the AMEDD. In today's rapidly changing military environment, our most critical task is to provide a responsive, proactive medical force that is modular, mobile, and adaptive to sustain medical readiness in support of the Warfighter.

This paper illustrates the importance of Remote Diagnostic Access (RDA) and focuses on the use of technology for maintenance of medical equipment during the next several years. This paper also notes how adding RDA capability to our medical maintenance infrastructure will support the Army's transition to an expeditionary medical force. USAMMA will apply its policies, processes, and resources to ensure success of RDA.

RDA is an initiative with strategic objectives that integrate automation process efficiencies, while using better business practices to reduce risk and cost. RDA will bring critical areas of medical maintenance operations together. Initiatives that are currently in motion encompass technical enhancements that will help us improve field medical maintenance operations. The RDA initiative will serve as an enterprise solution to provide the support our Soldiers require and deserve.

Connecting the Field Maintainer to Needed Support

Medical equipment has specialized software operating systems (OS) that allow the equipment to be part of larger information systems. Biomedical Equipment Specialists (BES) must know the information systems, networks, and other technologies that make up medical device infrastructures to provide effective maintenance support. It is increasingly difficult for a BES to remain familiar with the magnitude of new medical devices that are deployed throughout Army Medical Treatment Facilities. Newer, more complex medical technologies and frequent software changes create challenges for the BES, often resulting in the use of the Original Equipment Manufacturer (OEM) and/or other Subject Matter Experts (SME) to assist with equipment maintenance support. This remains the case even in austere tactical environments.

Rapid and precise support from remote OEMs or SMEs is hard to obtain in theater because of the harsh environment, traveling difficulties, safety concerns, differences in geographical location, and changes in time zones. RDA allows real-time

medical maintenance support to occur through secure telecommunications networks. This capability provides increased support to the BES repairing medical equipment in real-time; increases the speed and accuracy of maintenance diagnoses; ensures orders for hardware, software, and/or repair parts are correct; and increases equipment uptime.

Previous attempts to apply telemaintenance initiatives for medical support on the battlefield failed because of slow analog modems, limitations of the medical devices, network bandwidth, and unreliable telecommunications infrastructure. Most of these issues have been resolved.

RDA: The Solution for Medical Telemaintenance

RDA is a revitalized ***telemaintenance*** solution to support medical equipment maintenance in real-time. Information Technology (IT) developments, enhanced security capabilities, and network communication improvements in theater have optimized telemaintenance to work more effectively, while improving support capabilities and assistance for the biomedical equipment repairers.

The RDA concept is being tested in theater. RDA allows the remote SME at the Army Depot to access and support a computed tomography (CT) scanner with the same the look and feel as if they were in front of the system. The remote user has complete control of the system, which allows them to view error log files, transfer files, and upgrade software. This capability significantly enhances the remote user's ability to assist in system diagnosis and support multiple technicians to rapidly complete complex repair tasks successfully.

Additional medical equipment such as computed radiography (CR) readers, laboratory equipment, anesthesia equipment, and pulmonary devices will be added to the RDA Program in later phases. In addition, RDA can assist the BES on the ground with maintenance techniques. The BES can watch remote SME support engineers as they troubleshoot and navigate within the systems, and provide interpretations of errors or new methods for troubleshooting or maintenance. This is significant for the BES who has numerous medical devices to repair and sustain. They may observe a wide array of maintenance support techniques and overtime become more proficient.

Proof of success of RDA was demonstrated recently. A vendor in Atlanta used RDA to connect to a remote site in Iraq and verify parts needed for repairing a medical device. An SME at Tobyhanna Depot used RDA to provide guidance to the field maintainer during installation of a couch for a CT system. Documentation was unavailable to the field maintainer on site. However, he was able to receive instruction remotely bringing the system back to full mission-capable status.