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DEPARTMENT OF THE ARMY
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REPLY TO
ATTENTION OF

DATE: 1 August 2005
FROM: Kraig S. Bower, MD
SUBJECT: Final Report, MIPR 3GD3DJM3078

1. Title: Outcome Analysis Tool for Army Refractive Surgery Program

1. Abstract

The primary objective of this project has been to develop a web-based outcome analysis application to work with an existing electronic medical record database in the Army's Warfighter Refractive Eye Surgery Program (WRESP). The application, web-based Refractive Surgery Information System (webRSIS), is based on a precursor client/server version previously developed and deployed. The availability of the outcomes information will ultimately improve the safety and efficacy of excimer laser keratorefractive surgery in U.S. Army personnel by conducting a statistical analysis from the data collected in an electronic format. The patient population initially will include U.S. Army service members treated under the WRESP.

2. Final Results

The pre- and post-operative data from each refractive surgery patient contact are captured electronically in the webRSIS system. Using this data Output Analysis reports are produced and available in both electronic and printed format.

To date we have deployed the webRSIS program to the following WRESP Centers:

- Walter Reed Army Medical Center, Washington, DC;
- Blanchfield Army Community Hospital, Fort Campbell, KY;
- Darnall Army Community Hospital, Fort Hood, TX.

Servers have been ordered for:

- Womack Army Medical Center, Ft. Bragg, NC.
- Landstuhl Regional Medical Center, Germany.

The webRSIS program will be deployed to these centers when the servers and local infrastructure is available and complete. The application will be installed at the remaining WRESP Centers at Madigan Army Medical Center, Ft. Lewis WA and Tripler Army Medical Center, Honolulu HI in FY06.

3. Deliverable

WebRSIS is a Data Base application running on a MEDCOM preferred Oracle 10g server with a dotNET based Internet Information Server web interface. Data is protected by Verisign Digital Server 128 bit encryption providing HIPAA compliance.

The output analysis function produces reports on the following information:

- Evaluation of the safety of PRK and LASIK for maintenance of optimal visual performance and ocular integrity.
- Evaluation of the efficacy of PRK and LASIK by assessing the improvement in uncorrected vision for target detection, discrimination and recognition.
- Evaluation of the efficacy of PRK and LASIK by evaluating the stability of the refractive error over time.
- Evaluation of possible effects of the magnitude and/or type of refractive error on the safety and efficacy of PRK and LASIK.
- Systematically compares the safety and efficacy of PRK to that of LASIK for military applications.
- Tracks adverse outcomes in Army soldiers who have undergone refractive surgery.
- Tracks workload data for the number of treatments, number of soldiers seen, and number of outpatient visits generated by the WRESP.
- Generate reports to the Ophthalmology Consultant to the Surgeon General and others as required by the WRESP.

4. Problems Encountered

The principal issues with webRSIS have occurred in the deployment phase of the project. These include:

- Server consolidation: MEDCOM has new regulations on having the servers at each treatment facility consolidated.
- DoD Information Technology Security Certification & Accreditation Process (DITSCAP) needs to be conducted separately at each MTF.

- The WAN application execution has been delayed pending resolution of the security concerns of the IM managers at each MTF.

5. AMEDD-Wide Adoption

The goal is to have the WRESP Center servers accessible to properly accredited MTF's who are responsible for the post operative care for refractive surgery patients who had surgery at US Army military treatment facilities. Subsequently the goal is to introduce this to the Navy and Air Force refractive surgery clinics as well.

6. Next Steps

- Complete server installation.
- Complete the individual DITSCAP accreditation at each MTF.
- Complete the security review and access policies for WAN deployment to authorized US Army MTF's.
- Consolidate Army-wide data at WRAMC.
- Interface the developed refractive surgery information system with the Composite Health Care System (CHCSII).

7. Conclusions

We have deployed the Web-based Refractive Surgery Information System to three WRESP Centers. We are currently deploying this clinical information system to four other centers.

When the deployment is complete the data will be synchronized from regional WRESP centers to the WRAMC WRESP Center's data repository on a daily basis. The consolidation at WRAMC will enable the mining and statistical analysis of this data base to be performed electronically, providing timely and relevant information on the outcomes of refractive surgery in the US Army.

8. If you have any questions, please feel free to contact me at 782-0202 or 782-0204, fax at 782-4653, or email at kraig.bower@na.amedd.army.mil. Thanks again.

Sincerely,



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