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## Remote Screening for Diabetic Retinopathy Using Stereo Non-Mydriatic Digital Retinal Photography

Diabetes Mellitus (DM) is a condition that affects over 12,000 patients in the Walter Reed Healthcare System (WRHCS). The Diabetes Quality Improvement Program (DQIP), an initiative of the Health Care Financing Administration, National Committee for Quality Assurance, and the American Diabetes Association, sets forth criteria by which health care plans are monitored for compliance with generally accepted standards of care for patients with Diabetes Mellitus. One of these criteria is a yearly dilated eye exam. Most health care plans, including the WRHCS, the DoD in general, and the Veterans Health Administration, comply with this DQIP criterion less than 50% of the time.

The Diabetic Retinopathy project is designed to examine the use of digital non-mydriatic fundus images for the diagnosis of diabetic retinopathy from a remote location, thereby providing a solution to the poor DQIP performance. Digital, non-mydriatic photographic images of the fundus will be taken at various outpatient clinics, transmitted via the Internet, and read by an ophthalmologist at the Walter Reed Army Medical Center (WRAMC). Phase one of this project focuses on validating the efficacy of the Joslin Vision Network (JVN) system within WRAMC. It will compare the digital images of non-mydriatic fundus photographs with standard ophthalmoscopy examinations. Phase two will expand operational testing within the National Capital Area by deploying retinal imaging cameras and software to Fort Belvoir and Fort Meade. This phase will provide confirmation that an ophthalmologist can effectively and promptly evaluate a patient who resides at a distant site for the presence of diabetic retinopathy obviating the need for an otherwise unnecessary screening appointment.

Subsequent phases will deploy the JVN system to every medical treatment facility in the North Atlantic Regional Medical Command (NARMC) with a sufficient number of patients with Diabetes Mellitus.

Such extended coverage would greatly aid the delivery of optimal, cost-effective medical care to soldiers and dependents assigned to a location remote from a military medical center. Ancillary benefits would include early and efficient screening for diabetic retinopathy, which will improve risk-stratification for early appointing with an eye care professional, central storage of the digital images within an electronic database, support for the NARMC in an effort to track outcomes management, and improved compliance with DQIP.

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