

Award Number: W81XWH-05-1-0577

TITLE: Criterion Based Training to Reduce Surgical Errors

PRINCIPAL INVESTIGATOR: Marvin P. Fried, M.D.

CONTRACTING ORGANIZATION: Montefiore Medical Center  
Bronx, NY 10467

REPORT DATE: September 2006

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command  
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;  
Distribution Unlimited

The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.

# REPORT DOCUMENTATION PAGE

*Form Approved*  
*OMB No. 0704-0188*

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

<b>1. REPORT DATE</b> 01-09-2006			<b>2. REPORT TYPE</b> Annual		<b>3. DATES COVERED</b> 25 Aug 2005 – 24 Aug 2006	
<b>4. TITLE AND SUBTITLE</b>  Criterion Based Training to Reduce Surgical Errors					<b>5a. CONTRACT NUMBER</b>	
					<b>5b. GRANT NUMBER</b> W81XWH-05-1-0577	
					<b>5c. PROGRAM ELEMENT NUMBER</b>	
<b>6. AUTHOR(S)</b>  Marvin P. Fried, M.D.					<b>5d. PROJECT NUMBER</b>	
					<b>5e. TASK NUMBER</b>	
					<b>5f. WORK UNIT NUMBER</b>	
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b>  Montefiore Medical Center Bronx, NY 10467					<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012						
<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b>					<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b>	
<b>13. SUPPLEMENTARY NOTES</b>						
<b>14. ABSTRACT</b> Technical skill is at the core of surgery. Surgical training typically lasts for a specified time period or number of procedures. This approach produces surgeons with considerably variable skill levels. Also, training on patients is becoming unacceptable for patient safety. In contrast, pilots and other non-medical personnel are trained to criteria on simulators to ensure skill proficiency in their MOS prior to reporting for duty. Proficiency levels are objectively established by experienced practitioners, and the trainee is required to consistently demonstrate that level of proficiency before progressing. We propose to use a surgical simulator (the ES3) to train surgical residents to criterion performance levels, and to investigate whether criterion-based training is superior to training for a fixed number of trials. Twenty-four otolaryngology residents will serve as subjects. Eight attending otolaryngologists will establish performance criteria and will serve as comparators for intra-operative assessment. Subjects will complete a battery of validated objective tests to assess visuospatial, perceptual and psychomotor abilities. An experimental group will be trained to criterion on the simulator, and then perform a procedure on a patient. A control group will train by repeatedly performing the same procedure on patients, with no simulator training. All procedures will be videotaped and objectively assessed for explicitly defined metrics. We hypothesize that prior training to established criteria will reduce surgical errors, and provide evidence for training on simulators before ever operating upon a patient.						
<b>15. SUBJECT TERMS</b> Surgical Simulation, Training to Proficiency, Virtual Reality Training, Patient Safety						
<b>16. SECURITY CLASSIFICATION OF:</b>				UU	18. NUMBER OF PAGES  4	<b>19a. NAME OF RESPONSIBLE PERSON</b> USAMRMC
<b>a. REPORT</b> U	<b>b. ABSTRACT</b> U	<b>c. THIS PAGE</b> U	<b>19b. TELEPHONE NUMBER</b> (include area code)			

## Table of Contents

<b>Cover.....</b>	<b>1</b>
<b>SF 298.....</b>	<b>2</b>
<b>Introduction.....</b>	<b>4</b>
<b>Body.....</b>	<b>4</b>
<b>Key Research Accomplishments.....</b>	<b>4</b>
<b>Reportable Outcomes.....</b>	<b>4</b>
<b>Conclusions.....</b>	<b>4</b>
<b>References.....</b>	<b>4</b>
<b>Appendices.....</b>	<b>4</b>

## **INTRODUCTION:**

Technical abilities are highly individualistic, as shown by the wide range of abilities in musicians, athletes, artists, and many others. Given that the issue of creating a competent and safe surgeon is of paramount importance, we hypothesize that the objective measurement of a resident's progress is critical to both the achievement and the assessment of proficiency.

## **BODY:**

Subject enrollment on this research project has not begun due to the lack of ORP approval. However, the research team has been actively involved in the preparation of the ORP application package. Continuing communication with ORP led to further modifications and amendments to the research protocol and consenting process in order to meet the ORP requirements for human subject recruitment. Pre-approved documents are currently being forwarded to local IRB for clearance.

## **KEY RESEARCH ACCOMPLISHMENTS:**

N/A

## **REPORTABLE OUTCOMES:**

N/A

## **CONCLUSIONS:**

N/A

## **REFERENCES:**

None.

## **APPENDICES:**

None.