



## Operations Research Seminar

# Modeling Post-traumatic Stress Disorder Among U.S. Troops in Operation Iraqi Freedom

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We develop a model to predict how many troops will develop post-traumatic stress disorder (PTSD) during Operation Iraqi Freedom (OIF).

First we estimate troop deployment schedules either from published data or by assuming cyclic deployment and rest schedules. In the second part of the model we assume servicemembers incur a random amount of combat stress during each month of deployment, develop PTSD if their cumulative stress exceeds a servicemember-specific threshold, and then manifest symptoms for PTSD after an additional time lag. We use Department of Defense data and Mental Health Advisory Team PTSD survey data to calibrate the model. Once we have finished formulating and calibrating the model we can analyze how many troops will develop PTSD, the impact of multiple deployments on PTSD rates, and the differences in PTSD development between active and reserve servicemembers.

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Mr. Michael Atkinson received his B.A. from Harvard University and M.S. from Stanford University, and is currently a Ph.D. candidate at Stanford University. His research interest lies in mathematical modeling of homeland security issues. His works have been accepted for publication in *Proceedings of National Academy of Science* and *Operations Research*, among others.

**Date: Monday, November 24, 2008**

**Time: 15:00-16:00**

**Location: GL-115**