Study of a National Cohort of Gulf War and Gulf Era Veterans

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Gulf War Research Advisory Committee Meeting
Washington, DC February 28, 2011

Health Assessment
Gulf War-Era Veterans

- Mortality
  - Gulf: 700,000
  - Controls: 750,000
- VA/DOD
  - USUHS
  - MVA
  - Study
- Health Registry
  - VA PGR: 70,000
  - DOD CCEP: 30,000
- Combined
  - VA/DOD NHRC
  - Registry Analysis
- Population-based
  - Health Survey
  - N = 30,000
- Phase I and II
  - Mail or CATI Survey
  - Medical Records Review
  - N = 30,000
- Phase III
  - Clinical Study
  - CSP #458
  - N = 5,000
- Longitudinal
  - Health Study
  - N = 30,000
- Follow-up Survey of
  - Gulf War
  - and Gulf Era Veterans
  - N=30,000

- ALS, Brain
  - CA, MS,
  - Parkinson's
- VA/DOD
  - Health Care
  - Utilization
  - Inpatient/Outpatient
- Cancer Study
  - State Tumor Registry
- VA/DOD
  - Health Care Utilization
  - Inpatient/Outpatient
- Other Clinical
  - Sub-studies

IOM/VA
- Nerve Gas
- Exposure Study

GWU/VA
- Gulf War
- Syndrome Study

Neuropsychological Assessment Study
National Health Survey
1995-1997

• Population based sample of 30,000 Veterans were studied.

• Population-based sample of 15,000 Gulf War-deployed Veterans (Desert Shield/Desert Storm participants) -vs- 15,000 non-deployed, Gulf War-era Veterans.

Distribution of Gulf War Veterans and Non-Gulf War Veterans in the survey by Gender and Unit Component

<table>
<thead>
<tr>
<th>Unit Component</th>
<th>Gender</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>4,800</td>
<td>1,200</td>
<td></td>
<td>6,000</td>
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<tr>
<td>Reserve</td>
<td>4,000</td>
<td>1,000</td>
<td></td>
<td>5,000</td>
</tr>
<tr>
<td>Guard</td>
<td>3,200</td>
<td>800</td>
<td></td>
<td>4,000</td>
</tr>
<tr>
<td>Total</td>
<td>12,000</td>
<td>3,000</td>
<td></td>
<td>15,000</td>
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</table>
National Health Survey Phase I and II Findings

I. Physical Health

Gulf War Veterans reported higher prevalence of:

• Functional impairment
• Health care utilization
• A wide variety of symptoms
• Serious chronic health conditions
• Lower perception of general health

II. Psychological Health

• Gulf War Veterans reported higher prevalence of symptoms associated with post-traumatic stress disorder (PTSD) (PCL-M) and chronic fatigue syndrome (CDC 1994)
• The prevalence of PTSD increased across 6 levels of deployment-related stress intensity (test for trend, p <0.01)
• Gulf War Veterans reported higher rate of sexual trauma (harassment/assault) in theater, which in turn was associated with the higher prevalence of PTSD even after adjusting for the combat trauma.
National Health Survey Phase I and II Findings

III. Reproductive Health

Gulf War Veterans reported higher rates of:

- Miscarriage
  
  Male Veterans*: OR=1.62; 95% CI=1.32-1.99
  
  Female Veterans: OR = 1.35; 95% CI =0.97-1.89

- Birth defects among live-born infants
  
  Male Veterans*: OR = 1.78; 95% CI=1.19-2.66
  
  Female Veterans: OR= 2.80; 95% CI=1.26-6.25

*Reporting the experience of female partners

Longitudinal Health Study of Persian Gulf War Era Veterans

2003-2005

- Panel of 30,000 Gulf War and Gulf Era Veterans were re-contacted as part of this follow-up survey.

- 14 years after deployment, Gulf War Veterans continued to report a higher prevalence of many adverse health outcomes compared with Gulf Era Veterans.

(SOURCE: Kang et al. JOEM 2009;51:401-10.)
What’s Next?

1) Longitudinal study of mortality from neurological diseases
2) Analyses of health care utilization in the NHS cohort
3) Follow-up Study of a National Cohort of Gulf War and Gulf Era Veterans

Gulf War Follow-Up Study 2011-2012

**Objectives:**


- To better understand the natural history of chronic fatigue syndrome (CFS), unexplained multi-symptom illnesses (MSI), and other health conditions 20 years post-deployment.
Gulf War Follow-Up Study 2011-2012

**Specific Aims:**

1. To determine if the current health status of Gulf War Veterans is better, worse, or the same as non-deployed Veterans.

2. To characterize the current health care utilization and VA disability compensation patterns of Gulf War Veterans.

3. To describe the natural histories of CFS-like illness, unexplained MSI, and other health conditions in these Veteran populations over time.

Gulf War Follow-Up Study 2011-2012

**Study Design/Methodology:**

- The study will involve 15,000 Gulf War Veterans and 15,000 non-deployed veterans.*

- This panel of Veterans was originally surveyed in 1995-1997 and again in 2003-2005.

- Comprised of a population-based sample of troops representing each branch of service, unit component (active duty, reserve, National Guard) and gender.

* The original study design included a 20 percent oversampling of women to ensure adequate representation.
Gulf War Follow-Up Study 2011-2012

**Study Design/Methodology:**

- A combination of mail and online surveys will be used to collect data.
- Selected self-reported health outcomes will be validated using existing medical records.
- A passive record-based follow-up will be conducted for mortality outcomes, assessment of health care utilization, and disability compensation using VA and other databases.

**Questionnaires (mail, online):**

- The questions on the surveys are drawn from a combination of standardized and validated instruments used to screen for the health conditions and risk factors of interest:
  - National Health and Nutrition Examination Survey
  - Behavioral Risk Factor Surveillance Study
  - Post-traumatic stress disorder 17-item checklist
  - PHQ-9 screening test for depression
Questionnaires (mail, online):

- Prior to the mailing of the questionnaire, a notification letter and a reminder letter will be sent.
- The questionnaire will be mailed with a cover letter and a one-page informed consent statement.

Topics covered in Questionnaires include:

- Deployment history
- Employment status
- General feelings of well-being and functional status
- Utilization of VA health care and satisfaction with VA care
- Chronic health symptoms/conditions including CFS-like illness and unexplained MSI
- Psychological well-being and symptoms
- Womens’ health
Gulf War Follow-Up Study 2011-2012

**Questionnaires (mail, online):**

Topics covered in Questionnaires include:

- Behavioral factors influencing illness and injury
  - tobacco use
  - alcohol consumption
  - alcohol-impaired driving
  - physical activity
  - risky sexual behavior

- Other symptoms and health conditions
- Womens’ health topics
- Height and weight
- Sexually transmitted diseases
- Demographic characteristics, including education
## Gulf War Follow-Up Study 2011-2012

### Research Objective

<table>
<thead>
<tr>
<th>Research Objective</th>
<th>BIRLS FRC NDI1</th>
<th>Natn'l Hlth Survey Q2</th>
<th>PHQ3</th>
<th>PTSD 17-item checklist</th>
<th>SF-12</th>
<th>Review of Civilian Medical Records</th>
<th>Review of VA Hosp / Outpt Computer &amp; Medical Data</th>
<th>VA C&amp;P File4</th>
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<tbody>
<tr>
<td>A.1. Mortality</td>
<td>✓</td>
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<td>A.2. Health Care Utilization</td>
<td>✓</td>
<td></td>
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<td>A.3. Chronic Medical Conditions</td>
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<td></td>
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<td>A.4. Current PTSD</td>
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<td></td>
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<td>A.6. VA Disability Compensation</td>
<td>✓</td>
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<td>✓</td>
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<td>✓</td>
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<td>✓</td>
</tr>
</tbody>
</table>

Data are also being collected for the following potential major confounding variables: socio-demographic characteristics, weight, height, body habitus, and cigarette and alcohol consumption.

1 BIRLS = Beneficiary Identification Records Locator Subsystem; FRS = Federal Records Center; NDI = National Death Index

2 National Health Survey Questionnaire

3 Patient Health Questionnaire: alcohol abuse/dependence, depression, somatization, and anxiety disorders

4 VA Compensation and Pension File

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## Gulf War Follow-Up Study 2011-2012

### Relevance:

The Gulf War Follow-Up Study will allow VA to:

- Improve the understanding of the long-term consequences of military deployment.
- Improve the understanding of the natural history of chronic conditions such as CFS-like illness and unexplained MSI.
- Plan and provide better health care for Veterans.