In the late 1990s, the US Department of Defense and Congress identified the need for coordinated epidemiological research to determine how military occupational exposures, including deployment-related exposures, affect long-term health. The Institute of Medicine more specifically defined the importance of a large, prospective study for evaluating exposures and a broad spectrum of important health outcomes. The Millennium Cohort Study was designed, in collaboration with all military services and the Department of Veterans Affairs, to meet these research challenges.

The primary study objective is to evaluate the impact of military service, including deployments and other occupational exposures, on long-term health. Important health outcomes include all objective diagnoses, as well as subjective measures of symptoms and functional health.

Launched in the summer of 2001, the Millennium Cohort Study began enrolling a representative sample of US military personnel, both active duty and Reserve/Guard members, who agreed to participate in follow-up well past their time in service, for up to 21 years. Currently, Panel 1 includes more than 77,000 participants and Panel 2 includes an additional 31,100. Panel 3, who will begin enrolling in 2007, is anticipated to include more than 39,000 participants. All participants provide important information on exposures and health through and beyond their time in service. Information is maintained confidentially and securely. The Millennium Cohort Study was designed to conclude follow-up in 2022.

Although the original designers of the Millennium Cohort Study could not foresee the post-2001 military conflicts, the project is perfectly positioned to address health outcomes related to these operations. More than 40% of Millennium Cohort participants have deployed in support of the Global War on Terrorism. Millennium Cohort investigators are able to evaluate, prospectively, detailed data from before, during, and long after these deployments.

Investigators include scientists from the Army, Navy, Air Force, Department of Veterans Affairs, and leading academic institutions. The Millennium Cohort Scientific Steering and Advisory Committee includes many distinguished external scientists and representatives from leading Veterans Service Organizations.

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The Principal Investigator of the Millennium Cohort Study is Dr. Tyler Smith, and the primary performing site is the DoD Center for Deployment Health Research in San Diego, CA. The study team can be contacted (toll-free) at 1-888-942-5222, DSN 553-7465 or email info@millenniumcohort.org More information is also available on the website, www.millenniumcohort.org
Millennium Cohort Study Products

The investigative team has shared more than fifty presentations at scientific conferences since 2001, and received nine research awards. Below represents a chronologic list of publications in the medical literature. Many additional products are under development and review.


Defining military deployments using multiple data sources is examined. Deployment timing and duration metrics, critical for epidemiological studies, are valid in the Millennium Cohort Study.

Smith B, Smith TC, Gray GC, Ryan MAK, for the Millennium Cohort Study Team. When epidemiology meets the Internet: Web-based surveys in the Millennium Cohort Study. American Journal of Epidemiology. 2007; In press.

Optimal use of the Internet - with minimal response bias, maximum cost-savings, and improved data - is highlighted.


Self-report of smallpox vaccination is very reliable. Results may be valuable in supporting global response to bioterrorism threats.


Data on women’s occupations are reliable, and occupational codes can be well correlated with exposures of concern. This was an award-winning presentation at a Navy conference in 2006.


Reliability metrics, by test-retest concordance and internal consistency, are extremely strong in Millennium Cohort Study data.


The largest ever evaluation of this topic, revealed strong validity of self-reported vaccination, as well as unique health features of the small subset who may misreport vaccination. This work won awards at two research conferences in 2006.


Those who respond first to study invitations, whether to participate or decline, have distinct characteristics within the study population. This information can help structure recruitment efforts.

A foundation report, this describes original enrollment methods and challenges of the Millennium Cohort Study. Characteristics of the first 77,047 participants are detailed and shown to strongly represent the population-based sample of the US military from which they were drawn.


The baseline prevalence of mental disorders in this 22-year longitudinal study compares favorably with other civilian and military populations.


Authors of a previously highlighted article respond to important suggestions on future analyses.


Accepted without revision and featured by journal editors, this early analysis leveraged Millennium Cohort data to conclude that military members displayed stronger mental health characteristics soon after the terrorist attacks of September 11, 2001. The authors suggest this may be attributed to resilience and/or an outpouring of support for the US military mission.


The origins and development of the Millennium Cohort Study are described. The largest prospective study in military history was established to answer the most difficult questions about long-term health after military service.
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