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### Abstract

**OBJECTIVES:** Celiac disease (CD) is an increasingly common disease that may affect as many as 1% of the North American population. Recent population-based data suggest a substantial increase in the prevalence of CD over the last several decades. Several factors are hypothesized as possible disease triggers including intercurrent illnesses, such as gastroenteritis, surgeries, and trauma. We used the active duty US military, a unique healthy worker population with essentially complete medical diagnostic coding, as an opportunity to describe trends in CD and deployment-related risk factors.

**METHODS:** Using electronic medical encounter data (1999–2008) on active duty US military (over 13.7 million person-years), a matched, nested case–control study describing the epidemiology and risk determinants of CD (based on  $\geq 2$  ICD-9 medical encounters) was conducted. Incidence and duration of CD-related medical care were estimated, and conditional logistic regression was utilized to evaluate CD risk following infectious gastroenteritis (IGE) occurring within 3 years before CD diagnosis while controlling for other risk factors.

**RESULTS:** A total of 455 incident cases of CD were identified and age, gender, and time matched to 1,820 controls. The incidence of CD increased five-fold from 1.3 per 100,000 in 1999 to 6.5 per 100,000 in 2008, with the highest rates of increase among those over 34 years of age (average annual increase of 0.8 cases per 100,000). A total of 172 IGE episodes, predominately of "viral etiology" (60.5%), were documented. In multivariate models, a significant association between IGE and CD was found (Odds ratio (OR): 2.06, 95% confidence interval (CI) 1.43, 2.97). Risk generally increased with temporal proximity to, and non-viral etiology of, exposure. Other notable risk factors for CD in multivariate models were Caucasian race (OR: 3.1, P