In the past, the U.S. Army Reserve (USAR) and Army National Guard (ARNG) have exhibited lower levels of medical and dental readiness than active duty (AD) Soldiers when activated for deployment. The objective was to compare dental disease and Non-Battle injury (D-DNBI) incidence rates and describe the most common D-DNBI diagnoses in Army AD, ARNG, and USAR Soldiers deployed to Iraq (Operation Iraqi Freedom/Operation New Dawn) and Afghanistan or Kuwait (Operation Enduring Freedom). Data from the Center for AMEDD Strategic Studies (CASS) were used to determine D-DNBI encounter rates and diagnoses for deployed Army Soldiers. “Dental Caries” was the leading diagnosis (10.00%) for Soldiers in both theaters. For Operation Iraqi Freedom, D-DNBI rates were highest in 2010 at 144.05 per 1,000 Soldiers per year (AD 135.77, ARNG 151.39 and USAR 183.76). In comparison, D-DNBI rates in Operation Enduring Freedom were highest in 2012 with an overall rate of 85.77 per 1,000 Soldiers per year (AD 72.48, ARNG 129.38 and USAR 129.52). In both campaigns, the data suggest that ARNG and USAR Soldiers had higher D-DNBI rates when compared to AD Soldiers. Further investigation is needed to decrease D-DNBI rates and to determine risk factors that may influence D-DNBI rates among Army components during deployments.