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RISK FACTORS OF HEAT STROKE IN ACTIVE DUTY US ARMY SOLDIERS, 2002–2007

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Background Heat stroke (HS) is a serious civilian and military medical condition and the incidence of this potentially fatal condition has increased dramatically over the past 30 years. Many of the risk factors that increase HS susceptibility are well-recognised, but ~35% of cases occur in low-risk personnel practicing sound heat mitigation procedures.

Purpose We hypothesised that pre-existing infection/inflammation is an independent HS risk factor (RF). We identified all clinically presenting HS cases in the US Active Duty Army (ADA) (2002–2007) to examine further.

Methods Utilising the Total Army Injury and Health Outcomes Database (TAIHOD), which contains ADA personnel and health data, we: (1) Captured absolute numbers and rates of HS and RF of interest (2) Developed models to determine the independent contribution of RF and assess significance. HS case was an ICD-9-CM code of 992.0. Soldier characteristics examined include: Gender, age, race, marital status, education, deployment history, and length of service.

Results The OR for developing HS were elevated in Soldier's diagnosed (w/in 60 days) with the following conditions: Gastroenteritis (OR 4.48, 95% CI 2.29 to 10.40) Skin disorders (OR 4.21, 95% CI 2.06 to 8.50); Pharyngitis (OR 3.74, 95% CI 2.23 to 6.20); Bronchitis (OR 3.86, 95% CI 1.19 to 12.50), and prior heat injury (w/in 2 years) (OR 37.20, 95% CI 19.50 to 71.20).

Significance Soldiers with a recent diagnosis of Gastroenteritis, Skin disorders, Pharyngitis, Bronchitis and prior heat injury (w/in 2 years) appear more susceptible to HS, likely due to augmented hyperthermia or deactivation of protective molecular pathways. HS prevention programmes should target these at-risk Soldier sub-populations.