

High Altitude Preparation: A New Comprehensive Clinical Practice Guideline

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Introduction:

No operationally relevant, consolidated clinical practice guideline (CPG) exists uniting the high altitude and hypoxia related pathologies of: high altitude pulmonary edema (HAPE), high altitude cerebral edema (HACE), acute mountain sickness (AMS), and hypothermia. Up to 20 percent of individuals ascending greater than 10,000 feet will develop one of these pathologies, and preexisting fitness level is not protective for warfighters. This review undertakes the creation of such a CPG by discussing current screening/prophylaxis capabilities, planning considerations, criteria for enroute interventions, diagnostic monitoring, treatment options, and references for evacuation of patients along a continuum of mission variables in both garrison and austere field environments.

Methods:

A mixed methods review was completed utilizing: Embase and PubMed to identify relevant journal articles, the Delphi method to identify additional medical texts, and the Department of Defense and Joint Trauma System to identify applicable specialty guidelines and existing CPGs.

Results:

The initial search resulted in 300 relevant studies, 140 of which were found to be relevant, as well as multiple seminary medical texts, two military cold weather CPGs, and one civilian altitude CPG.

Conclusions:

The resulting review is the first of its kind, investigating altered pathophysiology at altitude, risk factors, biologic markers, potential interventions, relevant pharmacology, and complications related to high altitude exposure. Increased military operations in these environments have catalyzed advances in patient screening, diagnostics, and monitoring, necessitating this updated and easily digestible guideline to increase both warfighter and provider understanding of emerging capabilities along with recommendations for recognizing, diagnosing, and managing these conditions in austere, operational, and hospital environments.