ines medical and traumatic emergencies throughout the National Parks over a 3-year period to better understand events rangers encounter, types of fatalities, and automated external defibrillator (AED) usage on a national scale.

Methods.—This is a retrospective study of the Annual Emergency Medical Services Reports published by all 7 NPS regions from 2007 to 2009. At a regional and national level, the following were examined: traumatic vs medical vs first aid events, advanced life support vs basic life support, traumatic vs medical fatalities, cardiac events and outcomes, cardiac fatalities, and use of AEDs and outcomes.

Results.—The national incidence of EMS events was 50 events per million visitors. Medical, traumatic, and first aid events composed 28%, 27%, and 46% of reports, respectively. Two percent of medical episodes were cardiac, of which 57% received AED treatment. Thirty-three percent of cardiac arrests survived to hospital release. Sixty-three percent of fatalities were traumatic in nature, while the remaining 37% were non-traumatic in nature. Regional differences were found for all variables.

Conclusions.—To our knowledge, this is the first study to examine medical emergencies in the NPS on a national scale. There are equal numbers of medical and traumatic events. Automated external defibrillator use may be limited by access to AEDs. The number of cardiac arrests surviving to hospital discharge is higher than the national average. Regional variations in events probably reflect differences in terrain, common activities, and access to definitive care between regions. This data can assist the NPS in targeting the regions with the greatest number of incidents and fatalities for visitor prevention and education.

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Ocular Myiasis During an Amphibious Military Exercise in Djibouti

In November 2010, a healthy 27-year-old active duty US marine presented to the Battalion Landing Team 3/8 Battalion Aid Station located, at the time, on a beach in the East African nation of Djibouti. His chief complaint was of a foreign body sensation in the right eye, reporting that a bug had flown into the eye 8 hours prior. He denied further symptoms. Physical exam revealed multiple 1 to 2 mm larvae moving vigorously on the conjunctiva of the affected eye, confirming the diagnosis of ocular myiasis. The patient's eye and its maggots were anesthetized with 0.5% tetracaine ophthalmic drops, and a total of 15 maggots were collected manually using cotton-tipped applicators. Antibacterial prophylaxis was given with topical moxifloxacin drops and erythromycin ointment. Slit lamp and fluorescein exams were normal after the procedure. Treatment was stopped after 3 days and the patient had no complications.

In March 2011, the entomology team at Camp Leatherneck, Afghanistan, examined the specimens and determined they

were most likely the lively, hook-mouthed maggots of the viviparous sheep nasal bot, a fly endemic to most of the Middle East and northern Africa. The presentation was similar to several others described in the literature, though no baseline incidence or other cases have been reported from Djibouti. The environment for the field exercise was a secluded beachfront inhabited sparsely by migrant goat herders with an estimated livestock-to-human ratio of 20:1. The rapid insertion of a 300-man reinforced US Marine Corps rifle company likely changed the behavior of the herds and tenders, but also drastically altered the balance of hosts available to the average gravid bot. The result was a counterintuitive but foreseeable urban microcosm formed in an otherwise desolate rural area. In such a situation, clinicians may reasonably expect the risk for human infestation by zoonotic parasites to well exceed the local baseline risk.

The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Department of the Navy, Department of Defense, or the US Government.

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Acute Anxiety Among Marines After Recent Arrival at High Altitude: High Altitude Anxiety as a Distinct Diagnostic Entity

Background.—As United States and allied armed forces maintain a presence in high altitude regions such as eastern Afghanistan, a better understanding of the prevention, diagnosis, and treatment of altitude illness has become increasingly important. This preventable form of disease/nonbattle injury presents a significant issue to readiness for warfighter performance in the field.

Objective and Results.—At the Marine Corps Mountain Warfare Training Center in Bridgeport, California (operational altitudes: 2061 to 3383 m), 1036 unacclimatized Marines participated in battalion-level mountain warfare exercises in July 2010. Several unexpected, clear-cut cases of severe anxiety were observed at the Battalion Aid Station (BAS), located at 2061 m, over the first 6 days after training proceeded above 2000 m. These cases occurred among otherwise healthy Marines, some having had no prior history of psychiatric illness, and others having had a history of well-controlled panic disorders or combat stress-related psychiatric illness. All patients presented with similar symptoms of mild to moderate tachycardia, tachypnea, and diaphoresis; some presented with extremity numbness and tingling. Acute cardiopulmonary events could not be decisively ruled out by electrocardiogram, chest radiograph, or lab studies (given the equipment limitation of the BAS); however, patients were monitored clinically with vital signs, pulse oximetry, and chest auscultation/palpation. All patients responded clinically to oxygen, rest, and benzodiaz-

epine management; all returned to baseline psychiatric function within the same day.

Conclusions.—The near-simultaneous and unexpected onset of 7 cases of acute anxiety, coincident with new arrival at moderate to high altitude, represents a highly unusual incidence, prevalence, and temporal distribution suggestive of hypobaric hypoxemia as the proximal cause. Based upon the authors' extensive combined clinical experience and review of emerging peer-reviewed literature, High Altitude Anxiety is proposed as a diagnostic entity for consideration in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Further research is indicated.

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Exercise-associated Hyponatremia is Common Among Dehydrated 161 Kilometer Ultramarathoners

Objective.—Previous work has demonstrated that exercise-associated hyponatremia (EAH) rarely occurs in association with dehydration and that there is a significant negative relationship between post-race serum sodium concentration (Na^+) and weight change. In other words, EAH has been found to occur more often when there is weight gain rather than weight loss during the event. This has been in contrast to our observations from 161 km ultramarathon races in northern California. The present work consolidates our findings from studies at three 161 km ultramarathons in northern California.

Methods.—Data were compiled from studies performed at the 2008 Rio Del Lago, and the 2009 and 2010 Western States Endurance Run, all 161 km trail footraces in northern California. Consenting runners underwent prerace and postrace measurement of body weight on the same calibrated scale. Sodium concentration was measured on-site immediately postrace using an iSTAT (Abbott, NJ) analyzer.

Results.—An EAH incidence of 30% to 51% was observed at the 3 events. Overall, EAH was present in 83 (33.3%) of 249 observations. In each case of EAH, the runner appeared neurologically intact. Of the 223 observations in which prerace and postrace body weights were also obtained, 41 (18.4%) were overhydrated (weight change $\geq 0\%$), 99 (44.4%) were euhydrated (weight change -3% to 0%), and 83 (37.2%) were dehydrated (weight change $< -3\%$). Biochemical EAH (Na^+ 129 to < 135 mmol/L) was present among 65 (29.1%) and “clinically significant” EAH ($\text{Na}^+ < 129$ mmol/L) was present among 13 (5.8%). Considering the 78 with EAH, 35 (44.9%) were dehydrated. Of the 13 with “clinically significant” EAH, 4 (30.8%) were dehydrated. Spearman correlation between postrace Na^+ and percentage change in body weight was significant ($r = 0.14$, $P = .037$).

Conclusions.—The $\geq 30\%$ incidence of EAH among participants in 161 km ultramarathons in northern California is among the highest rates reported from any event. Unlike the findings from previous work, EAH was commonly observed in association with dehydration. As such, in this group of ultramarathoners, significant weight loss cannot be used to exclude the presence of EAH.

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Wilderness Medicine Within Global Health: A Strategy for Less Risk and More Reward

A Case Study of Integrating the 2 Disciplines at Weill Cornell Medical College

Objective.—Over the last decade, there has been a growing interest in global health among medical students. According to the Association of American Medical Colleges, 45 US medical schools offer a Global Health component, with 29.9% of graduating students stating they have had “global health experience.” With an emphasis on self-reliance and the delivery of medical care in austere and unpredictable environments, we advocate that wilderness medicine (WM) skill sets are an integral component of global health, mitigating risk to students and empowering them to be safe as they participate in this rapidly evolving field. Our objective was to examine ways in which WM topics can be incorporated into global health coursework, and the benefits that come from this integration.

Methods.—In 2008, Weill Cornell Medical College (WCMC) students and faculty designed a 4-year Global Health Curriculum (GHC). The core competencies of GHC are intended to complement and expand upon required pre-existing global health lectures. In designing our “Clinical Skills for Resource-Poor Environments” elective offered to 4th-year medical students, the aim was to prepare students for going abroad by instilling skills that would reinforce self-sufficiency and well being. Approximately 15% of the WM curriculum was incorporated into the 2-week, 40-hour Clinical Skills course through lectures, hands-on labs, workshops, and skills-based assessments taught by over 25 faculty members throughout New York City.

Results.—The course has been offered twice since February 2010. Evaluations of individual lectures and labs provided helpful qualitative and quantitative feedback. All participants would recommend the course to others. Many claimed that the course offered hands-on skills training that was not otherwise addressed in their medical education.

Conclusions.—The Weill Cornell GHC elective, “Clinical Skills for Resource-Poor Environments,” demonstrates an in-