## 33. Cold-Related Non-Fatal Injuries in Alaska

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Background: As in northern Finland and Sweden, the Arctic and subarctic environments of Alaska provide a hazardous work setting, exacerbated by great distances, seasonal darkness, very cold waters, high winds, often brief hunting and fishing seasons, and high icing potential.

Methods: Comprehensive surveillance for non-fatal injuries requiring hospitalization was established in 1991 via the Alaska Trauma Registry. In our preliminary analysis, we considered the following ICD-9-CM classifications to be cold injuries: E-codes: 901.00 (excessive cold weather), 901.8 (excessive cold, other), and 901.9 (excessive cold, nonspecific); and/or N-codes: 991.6 (hypothermia), 991.00–991.3 (frostbite), 991.5 (chilblains), and 991.4 (immersion foot).

Results: During 1991–1995, 327 persons were hospitalized for cold-related injuries in Alaska. Male victims numbered 251, female 76. The mean age of victims was 34 years. Among those injured while working (N=40): 20 (50%) were active-duty military, and 14 were professional fishermen, hunters or trappers; 19 (48%) were white, 12 (30%) black (versus 4% of the Alaska population), and 8 (20%) Alaska Native, disproportionate in rate only for black workers. For those injuries not meeting a strict case definition for work-related events (N=287), 147 (51%) of the victims were Alaska Native, in contrast to the 16% of Alaska residents who are Alaska Native. The most common cause for hospitalization was hypothermia (150, 46%), followed by frostbite of the foot (138, 42%) or hand (62, 19%) or face (13, 4%). Immersion foot accounted for 10 (3%) of the hospitalizations. Alcohol consumption was implicated in 88 (27%) of these events.

Conclusions: Cold-related injury is a relatively common cause for hospitalization in Alaskan workers. The cold continues to be a tangible and potentially serious hazard, particularly for military and outdoor workers and Alaska Natives. The apparent higher risk for these injuries experienced by black workers also requires further investigation. Careful attention to wearing proper clothing, particularly gloves or mittens and boots or mukluks, as well as limiting sustained exposure times, should be encouraged. Specialized training in cold preparedness and injury prevention should be considered for all workers and persons conducting subsistence activities in cold environments. The systematic and comprehensive approach (well-documented in the literature) taken by the Oulu Regional Institute of the FIOH to studying, designing clothing and equipment, and organizing

worktasks for prevention of cold injury might be a fruitful area of collaboration for prevention of similar injuries in Alaska.

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