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Many recreation areas include both areas that are easily accessible by car and areas that are remote, without easy vehicular access. These sites attract visitors with a wide range of health statuses, ranging from those with high levels of fitness to those with multiple chronic health conditions. In addition, many of the recreational activities that park visitors engage in are associated with some degree of risk of injury. For example, hiking is an activity not typically associated with a high degree of risk; however, it is the wilderness activity most commonly associated with a need for a search and rescue (SAR) event.

When coupled with poor cellular service coverage, a lack of essential supplies, the increasing burden of chronic disease and no access to definitive care, hiking-related injuries can become serious threats to health and survival.”
Age Comparison to other Literature

Mean Age BSP SAR Incidents: 39 years
Age vs. Baxter Park Use Demographics
(SAR data 1992-2014, Park Use from Spring, 2006)
Demographics

SAR Victims by sex compared to other Literature

- National Parks
- New Hampshire
- Canada
- Baxter

Male
Female
“Many visitors to Baxter State Park, home of Maine’s highest peak, Mt. Katahdin, aspire to summit the mountain and often underestimate the physical conditioning and supplies necessary for navigating the rugged terrain.”
SAR Secondary Problem (if present)
“Fatigue emerged as an important precipitant to search and rescue events within Baxter State Park. Approximately 20% of all search and rescue responses, a full 66% of responses for medical issues, were due to visitor fatigue.”

“While we anticipated that visitors experiencing fatigue would be of older age than those who did not experience fatigue, we were surprised by how much older – approximately 9 years – fatigued visitors were.”

“This information may help to target educational interventions regarding the physical stamina, adequate nutrition and hydration, rest periods, and other preparation necessary for older hikers to successfully navigate Baxter’s mountainous terrain.”
Ascending Vs. Descending Mountain

Going up is voluntary, coming down is mandatory....
Fatigue compared to other Literature

Fatigue etiology of all SAR events *
(* imperfect comparison criteria)

Rough, rooty, rocky and steep...

[Bar chart data]

- 3 Canada: 0.00%
- 5 Alaska: 5.00%
- 6 SAR NP: 10.00%
- 7 Yosemite: 15.00%
- 8 SAR US NAT: 20.00%
- 10 Utah: 25.00%
- Avg: Rough, rooty, rocky and steep...
- Baxter: Rough, rooty, rocky and steep...
Activity when SAR became Needed
“FATALITIES
During the study period, 19 fatalities (19/754, 2.5% of all search and rescue responses) occurred in the park. Of those, 11 (57.8%) were due to medical emergencies 3 (15.8%) were suicides, 2 (10.5%) were the result of traumatic injuries sustained by visitors, 2 persons drowned (10.5%), and one visitor died following a lightning strike (5.2%).

Myocardial infarction was the most common cause of death (n=9, 47.3%). The mean age of those who died in the park was 45.3 years while the mean age for those who survived was 38.7 years.”
Evacuation Technique

- No effort-no assistance walking, got in car, or got ambulance: 300
- Walked out on own power, assisted: 250
- Stretcher, snowmobile, small boat, or other small-team carry: 50
- Helicopter evac: 50
- Litter evac: 20
- Both litter and helicopter evac: 0
SAR events and park use per year (1992 and 2014 are incomplete years)
Percentage of SAR needing helicopter
Percent SAR needing litter, heli, or both
<table>
<thead>
<tr>
<th>SAR Summary</th>
<th>% per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitor days requiring Litter, heli, or both</td>
<td>0.004%</td>
</tr>
<tr>
<td>Total People requiring litter, heli, or both</td>
<td>0.007%</td>
</tr>
<tr>
<td>Visitor days requiring stretcher, snowmobile, boat, or other small team carry</td>
<td>0.002%</td>
</tr>
<tr>
<td>Total people requiring stretcher, snowmobile, boat, or other small team carry</td>
<td>0.004%</td>
</tr>
<tr>
<td>Visitor days requiring little to no evac effort</td>
<td>0.021%</td>
</tr>
<tr>
<td>Total people requiring litter, heli, or both</td>
<td>0.040%</td>
</tr>
<tr>
<td>Visitor days requiring SAR in any form</td>
<td>0.027%</td>
</tr>
<tr>
<td>Total people requiring SAR in any form</td>
<td>0.051%</td>
</tr>
</tbody>
</table>
Take Home Points:

Train and Communicate for Prevention:
• Older demographic
• Fatigue “One of the most strenuous day hikes in New England”
• Suicide Potentials – recognition/response

Train for Treatment:
• Fatigue
• Lower extremity injuries
• Myocardial infarctions

Train for Consistent Reporting