INTRODUCTION

- Military and civilian trauma centers and systems evaluate injury fatalities to identify opportunities that will optimize performance and improve outcomes.
- Both systems must continue to:
  - translate efforts from one another.
  - institutionalize advancements.
  - create enduring solutions that alleviate fatality burden, both at home and abroad during peacetime and war.

Military casualty and fatality reviews have:1 5
- guided the evolution of military trauma system performance improvement.
- spurred development of new training and technology.
- set priorities for research.
- united prehospital and hospital efforts.
- promoted injury and disease prevention.
- improved the delivery of care.
- ultimately decreased morbidity and mortality.

The United States Special Operations Command (USSOCOM) has been continuously engaged in global activities since it was established in 1987. 5
- USSOCOM organizes, trains, equips, and provides fully capable special operations forces to support US national defense through the precise and timely execution of complex special operations missions.
- Training for and conducting such missions inherently involves risk of injury and death.

As the need to complete a mission may supersede a risk assessment, mitigating morbidity and mortality during these missions must remain the priority for supporting medical and trauma systems.

OBJECTIVES

- The purpose of this study was to:
  - evaluate and describe characteristics of USSOCOM fatalities.
  - introduce more concise standard for terminology.
  - refine foundation for future epidemiological efforts.

METHODS

- A retrospective review and descriptive analysis was conducted on:
  - USSOCOM fatalities who died while performing duties.
- Between September 11, 2001 to September 10, 2018 (n=614).
- Each fatality was reviewed individually with designations validated against medical documentation and organizational records.
- Characteristics analyzed included subordinate, military activity, operational posture, and manner of death.

RESULTS

- Of 614 USSOCOM fatalities:
  - Median age: 30 years (range: 18-57)
  - Most were male (n=605; 98.5%)
  - Most were mid-grade enlisted (E5-E6) (43.3%)
  - Leading cause of death was (97.7%): from:
    - Multiple/blunt force (34.5%)
    - Blast (30.7%)
    - Gunshot wound (GSW) (30.3%)
    - Other (4.5%)
  - Most died:
    - Due to homicide (66.0%)
    - Outside the US (87.1%)
    - During combat operations (85.3%)
    - In the prehospital environment (91.5%)
    - On the same day of injury (90.4%)
- Causes of death in homicides (n=405; 66.0%):
  - GSW (43.7%)
  - Blast (42.2%)
  - Multiple/blunt force (13.8%)
  - Other (0.2%)
  - Causes of death in accidents (n=187; 30.5%):
    - Multiple/blunt force (80.8%)
    - Mechanisms were mostly aircraft mishaps (62.9%), particularly rotational-wing aircrafts (66.4%)
    - Blast (6.4%)
    - GSW (0.5%)
    - Other (12.3%)
- More than half of all fatalities resulted from injuries while mounted (n=335; 54.6%), of which most were on ground vehicles (53.7%), followed by rotary wing (37.3%), and fixed wing (9.0%) aircraft.


<table>
<thead>
<tr>
<th>Subordinate</th>
<th>Total</th>
<th>n %</th>
<th>n</th>
<th>n %</th>
<th>n</th>
<th>n %</th>
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<tbody>
<tr>
<td>Officer (O-5-O-10)</td>
<td>605</td>
<td>98.5</td>
<td>55</td>
<td>96.5</td>
<td>44</td>
<td>100.0</td>
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<tr>
<td>Warrant officer (W1-W5)</td>
<td>24</td>
<td>3.9</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Junior enlisted (E3-E4)</td>
<td>74</td>
<td>12.1</td>
<td>7</td>
<td>12.3</td>
<td>3</td>
<td>6.8</td>
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<tr>
<td>Senior enlisted (E5-E6)</td>
<td>129</td>
<td>21.1</td>
<td>31</td>
<td>56.7</td>
<td>14</td>
<td>33.3</td>
</tr>
<tr>
<td>Non-combat operations***</td>
<td>119</td>
<td>19.3</td>
<td>6</td>
<td>10.1</td>
<td>54</td>
<td>45.1</td>
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<tr>
<td>Combat support</td>
<td>161</td>
<td>26.3</td>
<td>11</td>
<td>18.7</td>
<td>48</td>
<td>30.3</td>
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<tr>
<td>Combat</td>
<td>184</td>
<td>30.0</td>
<td>18</td>
<td>31.1</td>
<td>72</td>
<td>40.6</td>
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<tr>
<td>Non-Combat operations***</td>
<td>101</td>
<td>16.4</td>
<td>5</td>
<td>8.6</td>
<td>55</td>
<td>54.5</td>
</tr>
<tr>
<td>Total</td>
<td>614</td>
<td>100</td>
<td>65</td>
<td>106.4</td>
<td>161</td>
<td>100.0</td>
</tr>
</tbody>
</table>

RESULTS

- Most USSOCOM fatalities died from injury, outside the US, in the prehospital setting, the same day of injury or onset of acute symptoms, and during combat operations.
- Current and future efforts from the JTS and USSOCOM must focus on:
  - Optimization of prehospital capabilities
  - Innovative strategies that expeditiously link injured patients to advanced resuscitative and surgical capabilities
  - contingency planning that involves trauma system support for combat and non-combat activities worldwide.
- Partnerships between the DoD and civilian sector should be leveraged for unified prehospital-hospital team opportunities.
- As accidents were second only to homicides as the most common manner of death, novel strategies to further mitigate injury on aircraft and ground vehicles should also be investigated to reduce the proportion of mounted injuries and resultant fatalities.
- Safety centers from each military Service should continue to leverage US Special Operations Command, USSOCOM, and the JTS to develop strategies that reduce mortality from trauma incurred during combat and non-combat activities.
- Overarching injury prevention strategies should be reviewed by leadership for additional refinement, standardization, and mandate of doctrine and practices.

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REFERENCES