RAMP MASS CASUALTY TRIAGE

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Biographical Info

- Firefighter Paramedic for 14 years
- Tactical Paramedic for 5 years
- Tox-Medic Instructor
- Trained in Israel
- International disaster response team leader for 9 years
  - Haiti, Japan, Philippines, Nepal
- Master’s Degree in Public Health in Global Disaster Management and Humanitarian Relief

Why is Accurate Triage Important?

- Increases appropriate access to resources
- Leads to better patient outcomes
- Frequency and size of incidents increasing
  - Number of patients increasing
    - Columbine, 1999 (12 dead, 23 wounded)
    - Paris, 2015 (137 dead, at least 350 wounded)
- Increase in lethality of incidents

*SECONDS SAVE LIVES*
Variety and Scope of Incidents

- Nice Car Attack (2016)
  - 86 Dead
  - 456 Wounded

- China Knife Attack (2014)
  - 33 Dead
  - 130 Injured

- Paris Nightclub Shooting (2015)
  - 137 Dead
  - 415 Injured

- Syria Gas Attack (2017)
  - Numbers Estimated in Hundreds

- London Chemical Attack X 2
  - Polonium-210 (2006)
  - Novichok (2018)

Why is EMS Triage so Inaccurate?

- “Fear Effect” in Responders
  - Sympathetic response
  - Loss of critical thinking
  - Loss of fine motor skills
  - Reliance on basic muscle memory

- “Fear Effect” in Patients
  - Current triage makes false assumptions of human behavior

  - Enhanced by overly-complicated triage algorithms
    - START
    - SALT

START Flaws

- Too Complicated
- Uses Respirations
- Uses Numbers
- Uses Cap Refill

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7/10/2019
SALT Flaws

- Global Sorting
- EMS Critical Thinking of Patient Survival

Need For Change

- Currently utilized methods (SALT, START) have only a 55-65% overall accuracy rate for appropriate triage
- Even when trained and immediately tested the accuracy of SALT was only around 70%
- Frequent training and simulations on triage can only expect accuracy improvements of at most 10% for EMS providers
- Neither SALT or START is sensitive or specific in identifying hospital outcomes in MCI patients

Model Uniform Core Criteria (MUCC)

- CDC Project to Improve Triage

- Findings:
  - No Current System is Effective
  - Studies on Triage are Extremely Difficult to Perform

- Suggestions:
  - 24 Criteria including
    - Ease of use in austere environments
    - Easily remembered
    - Does not use numbers or vital signs
Building A New Triage System
- Pull from the best systems globally
  - Israel
  - CDC recommendations
- Use current, scientific-based approach
  - EMS must change when confronted with new evidence
- SIMPLIFY IT
  - *SECONDS SAVE LIVES*

Science Behind RAMP
- GCS directly correlates with hospital discharge in trauma
  - But we are terrible at scoring GCS
- Following basic commands as substitute
  - Study of 29,573 patients found this the best overall indicator of survival from trauma
- Lack of radial pulse and not following commands
  - 92% mortality rate
- Yellow category most inaccurate by EMS

Eastridge Combat Study
- Casualties that can follow basic commands and had a BP above 100 mmHg
  - Represented 87.5% of patients
  - Mortality Rate of 0.1%
- Casualties who could either follow basic commands or had a BP above 100 mmHg
  - Represented 10.8% of patients
  - Mortality Rate of 6.1%
- Casualties that could not follow basic commands and had a BP less than 100 mmHg
  - Represented 1.7% of patients
  - Mortality Rate of 41.4%
**RAMP Triage Model**
* (Rapid Assessment of Mentation and Pulse)

Casualty without signs of obvious death

Casualty follows commands?

Yes

No

Radial pulse present?

Yes

No

Radial pulse present?

Yes

No

Delayed Urgent Urgent Expectant/Deceased

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**START vs. RAMP**
* (19 Patient Scenario)

<table>
<thead>
<tr>
<th>START</th>
<th>RAMP</th>
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</thead>
<tbody>
<tr>
<td>- Time at Patient</td>
<td>- Time at Patient</td>
</tr>
<tr>
<td>- 59.53 Seconds</td>
<td>- 45.36 Seconds</td>
</tr>
<tr>
<td>- Triage Accuracy</td>
<td>- Triage Accuracy</td>
</tr>
<tr>
<td>- 58%</td>
<td>- 84%</td>
</tr>
<tr>
<td>- Time Until All Reds Off Scene</td>
<td>- Time Until All Reds Off Scene</td>
</tr>
<tr>
<td>- 29:31</td>
<td>- 20:17</td>
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</tbody>
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**Benefits of RAMP**

- Rapid Identification of Most Severely Wounded
- Ease of use
- Easily taught
- No reliance on numbers or critical thinking
- Uses Scientific Evidence
Contact Info

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References


