

# 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



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## 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\***

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## 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
  - 413 Injured
- **Syria Gas Attack (2017)**
  - Numbers Estimated in Hundreds
- **London Chemical Attack X 2**
  - Polonium-210 (2006)
  - Novichok (2018)




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## 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

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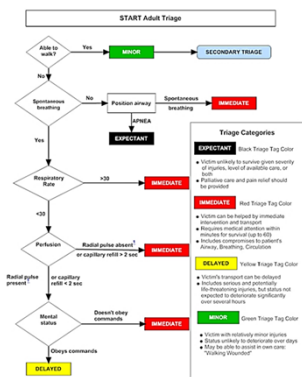
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## START Flaws

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




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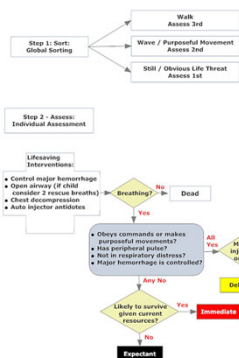
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## SALT Flaws

- Global Sorting
- EMS Critical Thinking of Patient Survival




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## Need For Change

- Currently utilized methods (SALT, START) have only a 55-65% overall accuracy rate for appropriate triage<sup>6</sup>
- 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

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## 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

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## 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\*



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## 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

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## 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%

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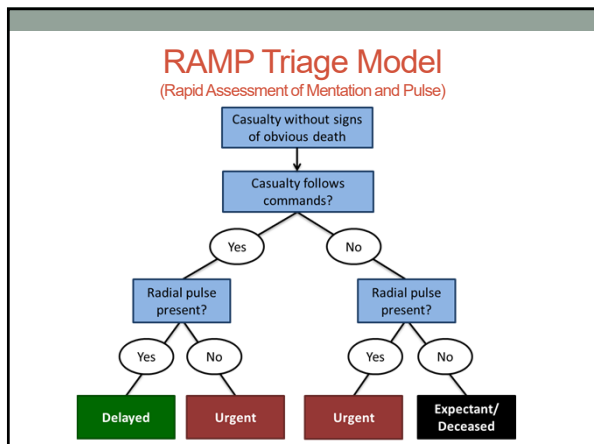
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### START vs. RAMP (19 Patient Scenario)

<u>START</u>	<u>RAMP</u>
<ul style="list-style-type: none"> <li>• Time at Patient               <ul style="list-style-type: none"> <li>• 59.53 Seconds</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Time at Patient               <ul style="list-style-type: none"> <li>• 45.36 Seconds</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Triage Accuracy               <ul style="list-style-type: none"> <li>• 58%</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Triage Accuracy               <ul style="list-style-type: none"> <li>• 84%</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Time Until All Reds Off Scene               <ul style="list-style-type: none"> <li>• 29:31</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Time Until All Reds Off Scene               <ul style="list-style-type: none"> <li>• 20:17</li> </ul> </li> </ul>

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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

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### Contact Info

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### References

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