Same Disaster, Different Response: A Comparison Between Government and Hospital Incident Management Teams during Hurricane Harvey

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Background

Increasing Threats of Natural Disasters

<table>
<thead>
<tr>
<th>Total Number</th>
<th>Global annual loss: $300 billion</th>
<th>U.S. annual loss: $100 billion</th>
</tr>
</thead>
<tbody>
<tr>
<td>455</td>
<td>345</td>
<td>370</td>
</tr>
<tr>
<td>369</td>
<td>280</td>
<td>250</td>
</tr>
<tr>
<td>397</td>
<td>290</td>
<td>260</td>
</tr>
<tr>
<td>249</td>
<td>210</td>
<td>190</td>
</tr>
</tbody>
</table>

Hurricane Harvey in 2017

- The costliest tropical cyclone in the U.S. history
- Inflicted $125 billion in damage
- Considered a 1,000-year flood
- 30,000 people sought shelter
- 10,000 rescue missions
- Major Disaster declared by State

Incident Management Team (IMT)

- Multidisciplinary: fire, law, medical, etc.
- Multijurisdictional: multiple cities, counties, and states.
- Impromptu formation: constituting members may (can) not be pre-determined.
- Under pressure: limited time, lack of resources, inaccurate and incomplete information.
- Needs for adaptation: coping with constantly changing conditions.

Research Aims

Aim 1
To identify similarities and differences between government and hospital IMTs operated during Hurricane Harvey

Aim 2
To offer recommendations for improved emergency responses against future disasters

Methods

- Semi-structured interview
- Data Processing
- Data Analysis

Results

1) Structural Aspect

<table>
<thead>
<tr>
<th>Government IMT</th>
<th>VS.</th>
<th>Hospital IMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consists of five major sections.</td>
<td></td>
<td>Consists of an ad-hoc manner.</td>
</tr>
<tr>
<td>Established in an ad-hoc manner.</td>
<td></td>
<td>Established in a pre-hoc manner.</td>
</tr>
<tr>
<td>Mid-large team size: up to 900 personnel</td>
<td></td>
<td>Small team size: less than 20 personnel</td>
</tr>
</tbody>
</table>

2) Functional Aspect

<table>
<thead>
<tr>
<th>Government IMT</th>
<th>VS.</th>
<th>Hospital IMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Abnormal emergency’</td>
<td></td>
<td>‘Normal emergency’</td>
</tr>
<tr>
<td>“I have never seen a hurricane (that) stalled five counties in the state ever in my life and nobody had.”</td>
<td></td>
<td>“We had people who were able to do the jobs they normally do.”</td>
</tr>
<tr>
<td>“So a lot of our emphasis in our role is placed on resuming the normal operations”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3) Interface Aspect

<table>
<thead>
<tr>
<th>Government IMT</th>
<th>VS.</th>
<th>Hospital IMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A wide range of inter-governmental interface with other government and non-government organizations.</td>
<td></td>
<td>Limited coordinating activities with adjacent hospitals.</td>
</tr>
<tr>
<td>Healthcare IT is not fully integrated with government systems.</td>
<td></td>
<td></td>
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</tbody>
</table>

Future Work

For theoretical aspect

- Resilience of IMTs during disasters
- How the two types of IMTs handle expected and unexpected events and remain functional during a disaster.
- Team cognition of IMTs during disasters
- How the IMTs establish and maintain team cognition (or common operating picture) during a disaster.

For methodological aspect

- An in-situ study of real-world incidents
- Real-time observation for better understanding of IMT operations
- Identification of adaptive and improvisational behaviors of members

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Implications

Practical implications for IMTs
- Flexibility of IMT structure
- Structure can be adjusted depending on type and scale of events
- Needs to tailor the IMT to predicted scenarios in the hospital context

Recommendations for Improved Incident Response
- Importance of training for duties during incident operations
- Training for unfamiliar duties for government IMTs (e.g., five functions)
- Training for unexpected scenarios for hospital IMTs (e.g., mass casualty)
- More interfacing efforts between IMTS