Emergency Operation Center Structures in Public Offices of Emergency Management

Poster Showcase
#iaem24

ACC
Academic Category

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Quick Response Research
#QR362

Introduction

This is a descriptive study of the staffing and structure of Emergency Operation Centers (EOCs) in public Offices of Emergency Management (OEM) in the state of Colorado. To date, knowledge is limited about practices in structuring and operating EOCs at public offices of emergency management and influencing factors.

Literature Review

The vital role of effective EOCs in emergency management is well-established[1-3]. Yet, there is debate in the literature as to whether EOC practices, structures, and operations can, or should, be modeled and prescribed[4-5]. Furthermore, guidance provided by the Federal Emergency Management Agency (FEMA) on EOC training and guidance has changed frequently and been inconsistent over time[6-8]. As a result, there is potential for confusion among emergency managers about concepts and best practices for this important element of an emergency management program.

Research Questions

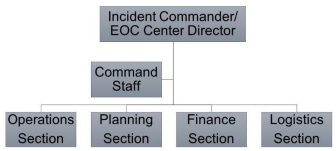
1. What models do county and local OEMs in Colorado use to structure their EOCs?
2. What factors contribute to OEMs choosing to operate their EOC according to a specific structure?
3. What factors are associated with OEC effectiveness?

Data and Methods

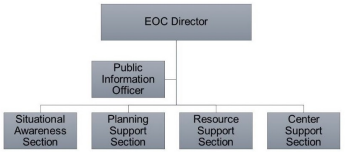
1. **OEM organizational documents**: We categorize EOC models from documents using content analysis.

2. **Surveys conducted with OEM personnel**: We analyze Likert-scale survey responses (*strongly disagree, disagree, neutral, agree, strongly agree*) using descriptive statistics. We analyze open-ended questions using inductive thematic analysis.

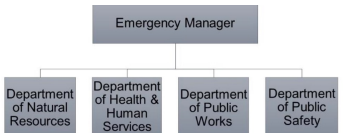
Incident Command System (ICS)



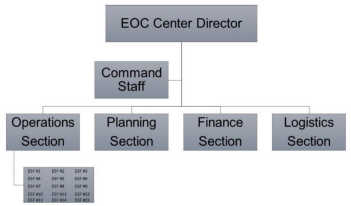
Incident Support Model (ISM)



Departmental Structure



Hybrid: Emergency Support Function-Incident Command System



Emergency Support Function

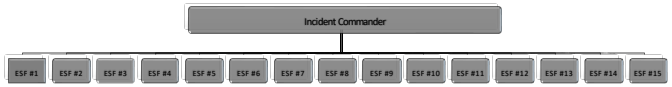


Table: Mean value of select survey questions, by EOC model

	ESF	ISM	Hybrid	Depart.	ICS
Frequency of EOC model, n (%)	7 (33%)	1 (5%)	5 (24%)	1 (5%)	6 (29%)
Select survey questions	**Mean value* of Likert-scale responses**				
Our organization has a sufficient number of personnel for managing emergency events in our jurisdiction.	2.8	4.0	2.7	4.0	5.0
Our organization is in line with best practices for managing emergency events.	4.8	3.0	4.3	4.0	5.0
Our organization is successful in managing emergency events in our jurisdiction.	3.8	4.0	4.0	5.0	5.0
Our organization draws upon material/instruction from FEMA/DHS to guide the structures and operations of our EOC	3.8	4.0	4.0	4.5	5.0

*(strongly disagree=1, disagree=2, neutral=3, agree=5, strongly agree=5)

Key Findings

1. Overall, OEMs expressed positive views of their EOCs' effectiveness. Responses to *Our organization is successful in managing emergency events in our jurisdiction* calculate to a model-level mean of 4.0 (a rating corresponding with "agree") for all models, except for the reduced rating of the emergency support function model (ESF) (3.8).

2. Organizations commonly described advantages of their chosen model vis-à-vis the most-prevalent ESF model. An OEM that utilized the hybrid ICS-ESF approach described the full ESFs to often be unnecessary and "difficult to maintain" due to lack of staffing. Similarly, an OEM using the Incident Support Model approach stated, "structuring the EOC to address specific incidents is more efficient [than ESF] for staffing".

3. Representatives of OEMs that used the ESF approach cited specific advantages of the model: it easily integrates a range of response partners and it complements response at the incident command post.

Conclusion

This study finds no evidence that any singular EOC model is superior. Rather, our findings align with research[1-3,5] that recommends that OEMs appropriately configure their EOCs to their specific context, partnerships and resource capabilities. We also recommend that FEMA instruction and training provide a wider-range of potential models than the three provided in most recent training materials[8] (ICS, ISM, Departmental).

References

1. Quarantelli EL: Ten criteria for evaluating the management of community disasters. Disasters. 1997;21(1): 39-56.
2. Perry RW: Emergency operations centres in an era of terrorism: Policy and management functions. J Contingencies and Crisis Manage. 2003; 11(4): 151-159.
3. Fagel MJ, Mathews RC, Murphy JH, eds. Principles of emergency management and emergency operations centers (EOC). CRC press; 2021.
4. Ryan M: Planning in the emergency operations center. Technological Forecasting and Social Change. 2013; 80(9): 1725-1731.
5. Cavaliere P, Cox Z, Kendra J, Mankins A, Michaud M, Nibbs F, Popovski V, Woody M: A research agenda to explore the emergency operations center. J Emerg Manage. 2020; 18(6):525-534.
6. Federal Emergency Management Agency: National Incident Management System. Washington DC: FEMA. 2004.
7. Federal Emergency Management Agency: Disaster Operations: A Handbook for Local Government. Washington DC: Federal Emergency Management Agency. 1981.
8. Federal Emergency Management Agency: Emergency Operations Center How-to Quick Reference Guide. Washington DC: Federal Emergency Management Agency 2022.