

## Significance of the Problem

- Over the last 20 years, 2.6 billion people have been affected by naturally occurring mass casualty incidents (MCI) and another 2 million affected by human induced MCI globally (World Health Organization [WHO], 2011).
- With the increased frequency and the lasting affects communities accrue post incident, nurses' preparedness and confidence when responding to these incidents is of critical importance.
- Nurses in the United States reported suboptimal competence and self-reported readiness for disasters which included MCI (Lambrague et al., 2017).
- Training is insufficient, unavailable, and not standardized.

## PICOT Question

Do nurses in a rural community emergency department located in the Midwest have improved self-perceived confidence and preparedness (increased modified EPIQ scores) in responding to human-induced and naturally occurring mass casualty events after completing an educational intervention including competencies specific to mass casualty incidents delivered via didactic method and hands on training over a two month period?

## Review of the Literature

**Search Terms:** Disaster prepare\* or "emergency prepare\*" or "disaster management" or "disaster response" or "emergency preparedness" or "disaster training" or "disaster readiness") AND (educ\* or competen\* or confiden\* ) AND ( "mass casualty" or "mass gathering" ) AND nurs\*.

**Inclusion Criteria:** Scholarly (Peer Reviewed) Journals; Published Date: 2006/01/01-present; and published in the English Language.

**Exclusion Criteria:** Educational interventions for pre-hospital personnel.

Database	Articles	Abstracts Read	Analyzed
CINAHL	38	38	6
MEDLINE	19	2	2
Pubmed	58	3 (Duplicate)	1 (Duplicate)
ERIC	4	4	0
Cochrane Library	2	1	1(Duplicate)

## Synthesis of the Evidence

### Appraisal of Evidence:

**Strength:** Appraised utilizing the JHNEBP evidence rating scale (JHNEBP, 2012, pp. 238-240). The hierarchy or strength of the evidence was leveled on scale from one, being the strongest, to five, being the weakest.

**Quality:** Established utilizing the JHEBP Research evidence appraisal tool and given a rating of high (A), good (B), or low quality or major flaws (C).

Strength of the Evidence	Number Included	Quality of the Evidence
Level I- Experimental Study/ RCT or Meta-Analysis	1	A
Level II- Quasi Experimental Study	4	A, A, B, A
Level III- Non-experimental, qualitative, or meta-synthesis	3	A, A, B
Level IV- Opinion of nationally recognized experts	0	
Level V- Expert Opinion	0	

### Outcomes:

- A combination of both didactic, and hands on training including core disaster competencies have been consistently shown to improve nurse's self-perceived preparedness and confidence when responding to MCI.
- The studies selected were all high or good quality and showed significant improvement in testable knowledge and preparedness.
- These are methods that can be easily implemented and adapted for inclusion to promote a change in policy to promote adequate preparedness and confidence when responding to naturally occurring and human induced MCI.

## Changing Practice

### Best Practice Literature Recommendations:

- Training should occur in a stable repeatable environment.
- Include a combination concise lecture and hands on training
- Education designed around core disaster competencies
- Provide content materials and educational handouts highlighting key points including institutional policies and procedures

## Implementation

**Setting:** 22-bed emergency department located in the Midwest receiving patients from several surrounding towns and cities. The complexity of the patients ranges from low acuity to critical in nature.

**Sample:** Emergency department nurses (N=12).

**Theoretical Framework:** Kurt Lewin's Change Theory

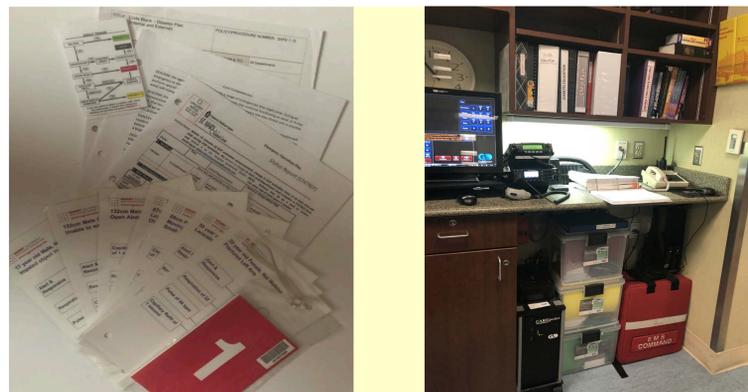
**Evidence Based Practice Model:** The John Hopkins Evidence Based Practice (JHNEBP) Model

**Time:** Two months

**Measurement of Outcomes:**

**Pre and Post Implementation**

- The 30 question modified Emergency Preparedness Information Questionnaire (EPIQ) was administered (Garbutt, Peltier, & Fitzpatrick, 2008).
- Five Point Likert Scale (1= Very familiar 5= Not familiar)



## Statistical Analysis

### Paired Sample Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pre-Test	3.75	12	1.138	.32856
Post-Test	2.50	12	.094	.26112

### Paired Sample Correlations

	N	Correlation	Sig.
Pair 30	12	.751	.005

### Paired Sample Test

	Mean	Std. Deviation	t	df	Sig. (2-tailed)
EPIQ 30	1.25	.75378	5.745	11	.000

## Strengths and Limitations

### Strengths:

- Nurses were enthusiastic to take part in an opportunity to not only benefit themselves but prepare the institution for the what has become a more prevalent occurrence globally.
- During the implementation phase, the institutions protocol was printed and made accessible for all participants. A badge reference card was developed which included the MCI triage algorithm and other key points as an available reference.
- All participants felt that the materials provided were easy to follow and assessable for future use.
- In-services were scheduled on multiple days during multiple shifts to accommodate the participants schedules.
- This project was successful, as evidence by the statistical analysis, in improving nurse's preparedness and confidence when responding to MCI.

### Limitations:

- Although in-services were scheduled on multiple days during multiple shifts, the timing of the in-service was during a very high census time in the emergency department.
- The small original sample size along with voluntary participation and high patient census resulted in fewer participants than anticipated.
- Different educational backgrounds, experiences, and prior training among the participants.

## Conclusion

- The results of this EBP project authenticates current research that MCI specific education implemented into disaster training improves overall familiarity with response activities/preparedness in the case of a large-scale emergency event.
- By reviewing available training methods, recommendations for developing and delivering effective MCI training can be made to prepare nurses for disruptive events that can overwhelm staff when responding to the demands of a MCI.
- This EBP projects successful evaluation on effective MCI training can improve the preparedness of all nurses involved.

## Sample Characteristics

