Health-Care Access in Puerto Rico Following Hurricane Maria, a Team-Based Disaster Relief Activity

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INTRODUCTION

Natural disasters often leave complex healthcare needs in their wake and healthcare systems can face major disruptions increasing morbidity and mortality for months or even years afterwards. (1,2)

Various stakeholders both within and outside of healthcare have competing priorities in the aftermath of a natural disaster and effective collaboration is key.

Despite the AMA's 2021 recommendation to incorporate disaster relief education into all medical school curricula, only about one-third of medical schools include disaster relief content. (3) Both overloaded curricula and limited available educational activities on this topic present barriers.

METHODS

This team-based learning (TBL) activity was provided to medical students within a longitudinal course covering health systems science. This TBL centers on Hurricane Maria and incorporates a series of group activities to guide students in critically analyzing the disaster response processes.

Students were asked to complete anonymous pre- and post-activity surveys through REDCap. These surveys evaluated both the effectiveness and value of the TBL through T/F questions, free response questions, and a series of Likert Scale questions.

TBL ACTIVITY

#1 Stay or Go

- Learners are divided into seven stakeholder groups: Government, Local Business Owners, Rural Puerto Ricans, City Puerto Ricans , Healthcare Workers, Hospital Administration and Aid Relief Workers
- Learners are provided with an identity, unique personal circumstances and a real-world quote
- Learners decide if their identity will remain on Puerto Rico or seek refuge on the mainland

Discussion: Impact of Hurricane Maria on individuals and communities

#2 FEMA Contract Selection

- Groups are provided with a limited budget
- Groups are asked to choose which companies should receive FEMA contracts for relief and restoration efforts
- Groups must consider timeframe, expense, and local connections

Discussion: Complexity and Challenges of relief and restoration decisions

#3 Generator Distribution

- Collaborative groups are formed with a representative from each stakeholder group
- Collaborative groups are asked to allocate a limited number of generators to hospitals, dialysis centers and community health centers across Puerto Rico
- There are not enough generators to power all facilities

Discussion: Challenges in maintaining healthcare system function and access in the aftermath of natural disasters and changes to collaboration with diversified groups.

CONCLUSION

- This innovative TBL provides education on disaster relief in an effective and engaging way while requiring minimal resources and less than two hours of time.
- Most students enjoyed the activity, had increased confidence in disaster relief procedures, and found it relevant to their medical education.
- The dynamics and competing interests of different stakeholders were explored and students commented that they gained a better understanding of the various organizations, governments and people involved.
- Activities required teamwork and students responded that they gained an appreciation for the importance of communication and collaboration in disaster relief.
- Health equity in disaster relief and the vulnerabilities that result from historical inequalities were highlighted.
- Limitations: The questions meant to assess learner comprehension were flawed and we were unable to draw meaningful conclusions from them. Future assessments should be planned carefully.

RESULTS

80 second-year medical students attended the TBL

- 55 responses to pre-survey.
- 30 responses to post-survey.

Learner Value Judgments

- Learners' confidence in knowledge of disaster relief procedures significantly increased ($p<0.0001$).
- 96.67% of respondents agreed or strongly agreed that the content was relevant to their medical education.
- 93.34% of respondents agreed or strongly agreed that the content was relevant beyond Hurricane Maria.

Learner Comprehension

- No meaningful conclusions could be drawn from the T/F questions.
- Students named more stakeholder groups involved in disaster relief after participating in the activity ($p = 0.0348$) but could not name more at-risk groups ($p = 0.1763$)

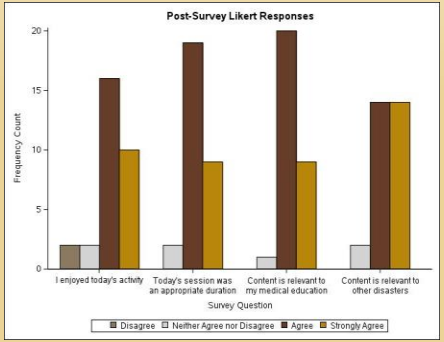

Figure 1: Student responses to four questions on the post-activity survey (n=30) on a Likert scale

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