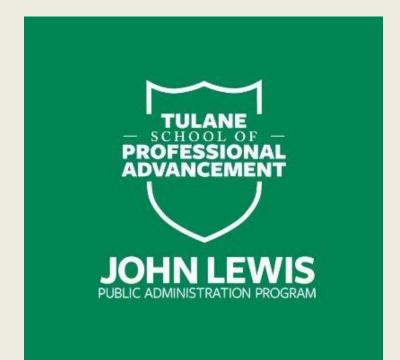# CMS Emergency Preparedness Rule: Examining the Relationship Between Nursing Home Facility Characteristics and Regulatory Deficiencies

Tihara Richardson Sommers, Tulane University - John Lewis Public Administration Program

INTRODUCTION

❖ The effects of Hurricane Katrina and other natural disasters have increased the focus on nursing homes, particularly nursing home emergency preparedness.

❖ Due to numerous emergency preparedness insufficiencies, requirements were implemented to protect the vulnerable population of older adults who reside in nursing homes.

❖ In 2016, the Centers for Medicare & Medicaid (CMS) added specific emergency preparedness requirements to the existing fire safety requirements for regulated nursing homes.

❖ These deficiency evaluations are the only routinely collected source of information detailing compliance with the Emergency Preparedness Rule for regulated facilities.

Figure 1. La Vita Bella Nursing Home Residents.

OBJECTIVE

The purpose of this study is to provide a baseline assessment of nursing home facility characteristics associated with having an Emergency Preparedness Rule deficiency citation.

METHODS

❖ A quantitative research design was utilized to investigate the relationship between nursing home facility characteristics and Emergency Preparedness Rule deficiencies.

❖ Publicly available data from November 2017 to November 2019 was obtained from www.Data.CMS.gov and comes from the Medicare and/or Medicaid certification process. The sample included 15,142 nursing homes in the U.S.

❖ This study was guided by an organization-based conceptual framework developed by Castle, Enberg, Lave and Fisher (2009). *

❖ Data analysis methods included descriptive statistics, correlation, variance inflation factor (VIF), and tolerance.

❖ Negative binomial regression modeling was used to examine factors associated with the number of CMS Emergency Preparedness deficiencies issued to each facility.

❖ A positive correlation is hypothesized between the variables of interest (high Medicaid occupancy, low occupancy rate, 2017 service, low quality rating, staffing levels and case-mix total) and CMS Emergency Preparedness deficiencies.

RESEARCH QUESTION

To assess the overall effectiveness of the CMS Emergency Preparedness Rule on the emergency preparedness process in U.S. nursing homes, the overarching research question that guided the study asks: Is there a relationship between nursing home facility characteristics and CMS Emergency Preparedness Rule deficiency citations?

DATA ANALYSIS AND RESULTS

Negative Binomial Regression Analysis Summary for Predicting CMS Emergency Preparedness Deficiencies

Variable (n=15,142)	SE	Wald 95% CI		p-value	Exp(B)	Wald 95% CI for Exp(B)	
		Lower	Upper			Lower	Upper
For Profit Own	.03	.14	.24	<.001***	1.21	1.15	1.27
High Medicaid Occupancy	.05	.11	.31	<.001***	1.23	1.12	1.36
Low Occupancy Rate	.02	-.32	-.22	.00**	.76	.73	.80
Provider Type	.06	-.00	.23	.05*	1.12	1.00	1.25
Hospital Based	.06	-.05	.21	.21	1.08	.96	1.23
2017 Service	.09	.43	.79	<.001***	1.85	1.56	2.20
Low Quality Rating	.03	-.08	.02	.24	.97	.92	1.02
NA Staffing	.02	.09	.17	<.001***	1.14	1.10	1.19
LPN Staffing	.03	.13	.25	<.001***	1.21	1.13	1.29
RN Staffing	.03	-.21	-.10	<.001***	.86	.81	.91
Case Mix Total	.02	-.26	-.17	.00**	.81	.77	.84

SE – Standard Error, CI – Confidence Interval

*= P ≤ 0.05, **= P ≤ 0.01, ***= P ≤ 0.001

DISCUSSION

❖ Most Cited Key Area for CMS Emergency Preparedness Deficiencies
  • Policies and Procedures (7258 Deficiencies)
  • Training and Testing (5875 Deficiencies)
❖ Supports a relationship between NA & LPN staffing levels and Medicaid occupancy with CMS Emergency Preparedness deficiencies.
❖ Partially supports a relationship between RN staffing levels, case-mix totals, and lower total occupancy rates with CMS Emergency Preparedness deficiencies.
❖ Does not support a relationship between low quality ratings and CMS Emergency Preparedness deficiencies.

REFERENCES

Figure 1. La Vita Bella Nursing Home Residents. From Report: Assisted Living Residents Left in Peril as Hurricane Harvey Hit, by J. Deam, 2018, (https://www.houstonchronicle.com/news/houston-texas/houston/article/Report-Assisted-Living-residents-left-in-peril-13129748.php).

Castle, N. G., Engberg, J., Lave, J., & Fisher, A. (2009). Factors associated with increasing nursing home closures. Health Services Research, 44(3), 1088-1109. DOI:10.1111/j.1475-6773.2009.00954.x

Contact Information:
Email – Trichardson@tulane.edu
Linkedin - www.linkedin.com/in/tihara-richardson

TULANE UNIVERSITY SCHOOL of PROFESSIONAL ADVANCEMENT

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