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IMPACT OF CMS LSC SURVEYS ON HCFC DEFICIENCIES IN ALABAMA

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Abstract: *To ensure minimum levels of quality of care in CMS (Centers for Medicare and Medicaid Services) long term care facilities (LTC), Life Safety Code (LSC) surveys and Health Care Facilities Code (HCFC) surveys are required to be conducted on a 9–15-month cycle. The purpose of this study was to evaluate if LSC and HCFC occurring simultaneously is associated with the number of deficiencies cited in Alabama skilled nursing homes. The theoretical framework was grounded Donabedian's quality theory for examining health services and evaluating quality of health care through structure, process, and outcomes (Donabedian, 1988). This study included two research questions evaluating if there was a correlation between LCS deficiencies and HCFC deficiencies occurring at the same time and if the number of HCFC deficiencies was lower due to LCS surveys occurring at the same time as HCFC surveys in Alabama long term care facilities. A quantitative correlation research design was used with non-probability sampling to include Alabama nursing homes that had LCS surveys at the same time as HCFC surveys using secondary data from CMS updated July 1, 2025, and released on July 30, 2025. A Pearson Correlation Coefficient Calculator determined a significant positive correlation between the independent variables LCS deficiencies and dependent variables HCFC deficiencies. The Mann-Whitney U test determined there was a statistically significant difference between the two groups LSC deficiencies and HCFC deficiencies. The potential impact of this study on positive social change is at the individual, organizational, and policy levels. Individual patients and nursing home facilities can benefit from the recognition of the association the timing of LSC surveys affects the number of HCFC deficiencies.*

Keywords: *Life Safety Code (LSC), Health Care Facilities Code (HCFC), Center for Medicare and Medicaid Services (CMS), Long Term Care (LTC), Survey Deficiencies.*

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FOUNDATIONS OF THE STUDY AND LITERATURE REVIEW

Research has identified the number of nursing home deficiencies in United States continues to increase and could be caused by increased oversight and lower staffing levels (Marselas, 2024). Between 2015 and 2024, the average count of deficiencies increased from 6.8 to 9.5, an increase of 40% (Burns & Chidambaram, 2024). To solve this problem, healthcare regulators, research and the public have determined required LSC and HCFC surveys in long term care facilities ensure minimum levels of care quality for residents (Skinner and Stevenson, 2024). The Nursing Home Reform Act of 1987 mandated regular oversight of United States nursing homes through annual unannounced visits on a 9-15 month cycle any time of the day or week including weekends by state survey agencies directly observing resident care and interviewing residents and staff to ensure that LTC's meet federal standards (Skinner & Stevenson, 2024). The purpose of this quantitative study was to determine if there is an association between the independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies used to ensure minimum levels of care quality for residents in skilled nursing facilities in Alabama.

Background

A literature review on nursing home survey deficiencies reflected that the number of nursing home deficiencies in United States continues to increase and could be caused by increased oversight and lower staffing levels (Marselas, 2024). Between 2015 and 2024, the average count of deficiencies increased from 6.8 to 9.5, an increase of 40% (Burns & Chidambaram, 2024). Current research has determined that LCS and HCFC surveys conducted every 9-15 months ensure minimum standards of care are being provided.

A gap in the knowledge is the timing of LCS and HCFC surveys and the effect on the number of cited deficiencies. This study was needed to assist surveyors and LTC facilities to understand the timing of LCS and HCFC occurring and the effect on the number of deficiencies.

Problem Statement

Conducting required LCS and HCFC surveys 9–15-month cycle improves the quality-of-care patients' resident in Alabama LTCs. The specific research problem addressed through this study was if LCS surveys occurring prior to HCFC surveys had an association with the number of deficiencies received. Studies have shown that LCS/HCFC surveys do not occur consistently every 9-15 months results in higher number of citations. Delays in surveys are due to a backlog and policy changes brought on by the pandemic (Skinner and Stevenson, 2024). A gap in literature failed to compare Alabama and LCS/HCFC survey deficiencies.

Purpose of the Study

The purpose of this quantitative study was to determine if there is an association between the independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies used to ensure minimum levels of care quality for residents in skilled nursing facilities in Alabama. The state of Alabama was chosen for this study based on leading the nation in delayed annual surveys.

Table 1

States with Delayed Inspections

States	Delayed Inspection Percentage
Alabama	75%
Virginia	49%
D.C.	47%
Tennessee	43%

Note: CMS last updated July 1, 2025, and released on July 30, 2025

Research Questions and Hypothesis

RQ1: Is there a correlation between independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies in Alabama?

> $H_0$1: There is no statistically significant correlation independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies in Alabama.
>
> Ha1: There is a statistically significant correlation independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies in Alabama.

RQ2: Are the number of deficiencies in Health surveys lower due to the LCS survey occurring first in Alabama.

> $H_0$2: There is no statistically significant association between number of deficiencies in Health surveys and the number of LCS deficiencies in Alabama LTCs.
>
> $H_0$2: There is a statistically significant association between number of deficiencies in Health surveys and the number of LCS deficiencies in Alabama LTCs.

Theoretical Foundation of Study

This study was grounded by Donabedian's quality theory that has become the framework for evaluating quality in healthcare. Structure, process and outcome are the three dimensions evaluated and influenced and affect each other (Donabedian, 1988). Figure 2 shows the Donabedian model.

Figure 1

The Donabedian Model

Note: (Donabedian, 1988).

The logical connections between the framework presented and the nature of my study are examining health services and evaluation quality of healthcare through LSC/HCFC surveys. The three components are structure, process, and outcomes to assess and improve the quality of their services systematically (Donabedian, 1988).

Definitions

CMS-Federal CMS is the federal agency that provides health coverage to more than 160 million through Medicare, Medicaid, the Children's Health Insurance Program, and the Health Insurance Marketplace. CMS works in partnership with the entire health care community to improve quality, equity and outcomes in the health care system (LaPelusa & Bohlen, 2023).

Fire Safety Deficiencies-A list of nursing home fire safety citations in the last three cycles, including the nursing home that received the citation, the associated inspection date, citation tag number and description, scope and severity, the current status of the citation and the correction date. Data is presented as one citation per row.

HCFC- set of requirements intended to provide minimum requirements for the installation, inspection, testing, maintenance, performance and safe practices for facilities, material, equipment and appliances (Castle, et. al, 2011).

Health Deficiencies- A list of nursing home health citations in the last three cycles (Castle, et. al, 2011).

Long term care (LTC)-ongoing inpatient services to meet health or personal care needs of a patient typically age 65 or older (Friedemann, et. al, 2004).

LSC-set of fire protection requirements designed to provide a reasonable degree of safety from fire. It covers construction, protection, and operational features designed to provide safety from fire, smoke, and panic (Castle, et. al, 2011).

State US Averages-A list of a variety of averages for each state or territory as well as the national average, including each quality measure, staffing, fine amount, and number of deficiencies. Each row displays a specific state or territory, the associated measure and average (CMS, 2025).

Assumptions

Assumptions consist of testing theories, building protections against bias, controlling alternative or counterfactual explanations, and generalizing and replicating findings (Creswell, 2018). Assumptions in this study

included nursing homes not licensed by their prospective states were not included in this study. All nursing homes included in the study are Medicare and Medicaid facilities located in Alabama.

Scope and Delimitations

The scope of this study determined if there is an association between the independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies used to ensure minimum levels of care quality for residents in LTC facilities in Alabama CMS last updated July 1, 2025, and released on July 30, 2025. This study can be generalized and used to evaluate the care received at long-term care facilities in Alabama.

Limitations

Addressing the research questions in this quantitative study was done first with the Pearson Correlation Coefficient that measures linear correlation between two sets of data. It is the ratio between the covariance of two variables and the product of their standard deviations and is a normalized measurement of the covariance. Limitations include that the measure can only reflect a linear correlation of variables and ignores many other types of relationships or correlations. The Mann-Whitney U test is a rank-based nonparametric test that can be used to determine if there are differences between two groups on a continuous or ordinal dependent variable. Limitations include that the Mann-Whitney U test does not explain why there is a difference.

Information bias that could affect the study outcomes could be offered during the collection, handling, or analysis of data in a research study, survey, or experiment. To prevent this from happening the information was downloaded directly from the website without any manipulation by the researcher.

Significance

Potential contributions of this study that advance knowledge in the discipline is addressing the concern of ensuring minimum levels of quality of care are achieved in LTC settings. Potential contributions of this study advances knowledge in the discipline by addressing the concern that minimum levels of quality of care in LTC's is obtained by providers. State surveyors will be able to use the study for decision making purposes of identifying in what order LCS and HCFC surveys occur. The implications for positive social change from the scope of this study are significant, adding to the growing body of knowledge the importance of LCS and HCFC surveys to ensure minimal levels of quality of care in LTC settings are consistent.

Summary and Conclusion

Ensuring minimum levels of quality of care received by nursing home patients has been a concern of patients, families, and regulators since the inception of LTC facilities. LCS and HCFC surveys occurring on a 9–15-month cycle ensures quality of care in LTC facilities. Although researchers have investigated this issue, there is very little or no literature comparing Alabama nursing homes LCS and HCFC surveys timing and outcomes. This study supports previous research that LCS and HCFC surveys can be used to measure and ensure minimum levels of care quality for residents in LTC facilities. There was not a statistically significant correlation between the number of deficiencies LSC surveys and the number of deficiencies HCFC surveys in Alabama. Further research, including additional state and surveys dates, can increase the data to establish guidance on whether LSC surveys should occur before, during or after HCFC surveys in LTC's on a national level. By understanding the importance and impact of the timing of LCS surveys patients and families will have a better understanding of the impact on results, thus creating positive social change.

Research Design and Data Collection

The purpose of this quantitative research study was to determine if there was an association between the independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies used to ensure minimum levels of care quality for residents in LTC facilities in Alabama CMS last updated July 1, 2025, and released on July 30, 2025. The research design and data collection sections include the introduction, research design and rationale, methodology, threats to validity and summary.

Research and Design Rationale

In this study the independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies used for determining minimum standards of care are provided in Alabama LTC facilities. A quantitative correlations research design was used to determine if that is a statistical relationship and prevalence exists between the two variables. There are no identified time or resource constraints with the design choice. Utilizing a quantitative correlations research design was consistent with designs needed to advance knowledge in the healthcare administration discipline because of the Donabedian model. The three components are structure, process, and outcomes (Donabedian, 1988).

Methodology

The target population for this study was licensed nursing homes in Alabama totally 224. There are 52 nursing homes with a 5-star rating, 67 nursing homes with a 4-star rating, and 33 homes with only a 1-star rating. The sampling strategy utilized was non-probability sampling because the samples are selected by nonrandom methods. This method was chosen to allow all nursing homes in Alabama that had an LSC and HCFC survey in the data CMS last updated July 1, 2025, and released on July 30, 2025. The research used secondary data collection will be presented in a quantitative method that allows for expression in number and graphs that is analyzed through statistical methods. The inclusion criteria for this study will be that the entity is a liscensed LTC facility in Alabama last updated July 1, 2025, and released on July 30, 2025. Exclusion criteria include if the entity is not licensed in the state of Alabama. The procedure for collecting data was secondary. It was collected by CMS and analyzed by this researcher. Access to the dataset was through the CMS Nursing Home Compare website. There are no needed permissions to gain access to the data as it is available to the public. The purpose of the CMS Nursing Home Compare website is to provide current data to the public on the quality indicator performance of licensed nursing homes. CMS is the regulatory body for this industry (U.S. Centers for Medicare and Medicaid Services, 2025).

Summary

To determine if a statistical relationship and prevalence exist between the two variables a quantitative correlations research design was used. Section three includes data collection of secondary data sets, results, and a summary.

Presentation of the Results and Findings Section

The purpose of this quantitative study was to compare the independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies used to ensure minimum levels of care quality for residents in LTC facilities in Alabama CMS last updated July 1, 2025, and released on July 30, 2025.

Research question one asked if there was a correlation between LSC survey deficiencies and the HCFC survey deficiencies in Alabama. The second research question asks if the number of HCFC survey deficiencies are

lower due to LSC surveys occurring first in Alabama LTC facilities. Section three will include data collection of secondary data set, results, and summary.

Data Collection of Secondary Data Set

The data set from CMS contains general information on currently active nursing homes, including number of deficiencies for LSC and HCFC surveys. The timeframe for the data set was updated July 1, 2025, and released on July 30, 2025, by CMS. Baseline descriptive and demographic characteristics as seen in Table 2 include the total number of LSC and HCFC surveys and number of deficiencies.

Table 2

Baseline Characteristics

Total Surveys	672
Health Survey Average	3.38
Life Survey Average	3.32
# of Same Time Surveys	122
Health Survey Average	2.83
Life Survey Average	.8

The Results

The results section includes descriptive statistics, evaluating statistical assumptions as appropriate to the study and reporting statistical analysis findings. Descriptive statistics that appropriately characterize the sample are measurements of the center including minimum, maximum, and mean.

Table 3

Descriptive Statistics

Descriptive Stat.	**Health Survey Data**	**Life Safety Survey Data**
Mean (Average)	2.827868852	0.803278689
Median	2	0
Range	15	14

Geometric Mean	0	0
Largest	15	14
Smallest	0	0
Sum	345	98
Count	122	122
Standard Deviation	2.88	2.12

Research question evaluated one if there was a correlation between LSC deficiencies and HCFC deficiencies in Alabama. Pearson Correlation Coefficient found the value of R is .2401, a positive correlation therefore rejecting the null hypothesis there is no statistically significant association between independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies in Alabama. The alternative hypothesis there is a statistically significant correlation between LSC deficiencies and HCFC deficiencies in Alabama would be accepted.

Table 4

Pearson Correlation Coefficient

U Value	3021.5.
Z Score	8.01807
p-value	< .00001
Significant	$p < .05$

Research question two was conducted using the Mann-Whitney U test to see if there is a statistically significant difference between the two groups of LCS surveys and HCFC survey deficiencies in the state of Alabama. The value of u is 3193.5, z-score is -7.95614. The p-value is <.00001 concluded the result is significant at p<.05 rejecting the null hypothesis there is no significant association between number of deficiencies in Health surveys and the number of LCS deficiencies in Alabama LTCs. The alternative hypothesis there is a statistically significant association between number of deficiencies in Health surveys and the number of LCS deficiencies in Alabama LTCs would be accepted.

Threats to Validity

Research has identified the number of nursing home deficiencies in United States continues to increase and could be caused by increased oversight and lower staffing levels (Marselas, 2024). Between 2015 and 2024, the average count of deficiencies increased from 6.8 to 9.5, an increase of 40% (Burns & Chidambaram, 2024). To solve this problem, healthcare regulators, research and the public have determined required LSC and HCFC surveys in

ltc's ensure minimum levels of care quality for residents (Skinner and Stevenson, 2024). The Nursing Home Reform Act of 1987 mandated regular oversight of United States nursing homes through annual unannounced visits on a 9-15 month cycle any time of the day or week including weekends by state survey agencies directly observing resident care and interviewing residents and staff to ensure that LTC's meet federal standards (Skinner & Stevenson, 2024). According to CMS, most LSC and HCFC surveys are conducted at the same time (2025). However, the regulation allows the timing of the LSC/HCFC surveys to be determined by state agencies. The LSC can be scheduled before, after, or simultaneously with the HCFC survey. Facilities that meet the LSC and HCFC requirements or provide an acceptable Plan of Correction are considered in compliance (CMS, 2025).

Application to Professional Practice and Implications for Social Change

The purpose of this quantitative study was to determine if there is an association between the independent variable number of LSC deficiencies and the dependent variable number of HCFC in Alabama. This study was conducted due to the increased number of deficiencies and number of surveys behind required timeframes in LTC facilities.

Key findings included a Pearson Correlation Coefficient to analyze the data of the relationship between the number of LSC deficiencies and the number of HCFC in Alabama indicating the result was significant. Therefore, the null hypothesis there is no statistically significant association between independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies in Alabama will be rejected. The alternative hypothesis that there is a statistically significant association between independent variable number of LSC deficiencies and the dependent variable number of HCFC deficiencies in Alabama will be accepted.

The second research question was conducted using the Mann-Whitney U test to see if there is a statistically significant association between number of deficiencies in Health surveys and the number of LCS deficiencies in Alabama LTCs. There is a significant difference between the two groups in the number of deficiencies in Health surveys and deficiencies in LCS surveys. Table 6 indicates the Mann-Whitney U test p- , which means that the result is statistically significant therefore rejecting the null hypothesis as there is not statistically significant association between the dependent and independent variables in Alabama. The alternative hypothesis that there is a statistically significant association between the variables will be accepted.

Limitations of the Study

Limitations of this study are concerns with the overall survey process including timing of surveys, accuracy of self-reported data, recertification's and compliant investigations, staffing shortages and comparability with CMS's ten regions.

Conclusion

This study supports previous research that LCS and HCFC surveys can be used to measure and ensure minimum levels of care quality for residents in LTC facilities. Further research, including additional state and surveys dates, can increase the data to establish guidance on if LSC surveys should occur before, during or after HCFC surveys in long-term care facilities on a national level. By understanding the importance and impact of the timing of LCS surveys patients and families will have a better understanding of the impact on results, thus creating positive social change.

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