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30-Day Hospital Readmission Rates in Illinois Hospitals for Patients with Heart Failure and Pneumonia

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This is to certify that the doctoral study by

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Abstract

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by

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Healthcare Administration

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Abstract

Despite efforts from hospitals across the United States, 30-day hospital readmission rates for patients with chronic conditions are on the rise. The purpose of this quantitative study was to examine the relationships in Illinois hospitals between patients with heart failure (HF) and pneumonia (PN) and 30-day hospital readmission rates by using the Pearson's product-moment correlation test, focusing on how often these patients were readmitted and whether the hospital-wide rate of readmission after discharge changed. Andersen-Newman's behavioral model with health services utilization was the theoretical framework, and a pre-collected Centers for Medicaid Services dataset was used for analysis. Results found a significant association between hospital return days and HF and PN patients. There was also a significant interaction between the mean difference of rate of readmission after discharge from hospital (hospital-wide) and PN and HF 30-day readmission rate. Based on the findings, it appears that a hospital's health care strategy can be used to improve quality measures and health outcomes for patients with chronic conditions of HF and PN. Including social services in a hospital's health care strategy before hospital discharge for patients with HF and PN may lead to positive social change by improving 30-day hospital readmission rates and health outcomes and quality of life for these patient populations when social stigma is addressed.

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Dedication

First and foremost, I dedicate this doctoral study to God, The Father, and the Head of our Household. Second, to my husband and friend, Dwayne Morrow. Thank you for your unwavering support. Third, to my children, Haracio and Kailah Rucker-Spencer. Thank you for your patience and understanding throughout this entire process. Fourth, to my beloved grandmother, Lillian Rucker. Thank you for setting the stage by calling me "doc." You embedded in me that I can achieve anything that I put my mind to. Your unconditional love and support as my biggest cheerleader were appreciated. Fifth, to my mother, Gwendolyn Rucker. Thank you for the trait of resilience. Your constant sacrifice set the foundation for my aspirations. Sixth, to my sister, Nicole Rucker. Thank you for your lively sense of humor; it helped me to get through some tough times in my teenage years. Seventh, to my nephew, John Grady. Thank you for our unbreakable bond. Finally, thank you to a host of family and friends. Please know that your continued support, positive energy, constant motivation, and kind words were the key to my success. I appreciate every one of you! Because of you, I created a legacy as the first in my family to achieve a doctoral degree.

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Section 1: Foundation of the Study and Literature Review

Hospital readmission rates are on the rise more than any other type of hospitalization (Centers for Medicare & Medicaid Services [CMS], 2020). Readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, heart failure (HF), or pneumonia (PN); Illinois Department of Public Health [IDPH], 2020). Hospital readmission rates can impact a hospital's ability to provide quality care for patients with chronic conditions (CMS, 2020).

The Hospital Readmission Reduction Program (HRRP), a value-based Medicare purchasing program, linked quality of hospital care to care coordination and patient engagement to improve hospital performance of 30-day hospital readmission rates (CMS, 2020). Other governing agencies aligned, placing increased efforts on a hospital's ability to reduce 30-day hospital readmission rates while delivering quality care to patients with chronic conditions. The Health Care Authority (HCA) enactment of new hospital readmissions payment policy also linked penalties to hospital compliance by linking achievement of quality measures to comply with policy guidelines (Upadhyay et al., 2019). Furthermore, the Affordable Care Act (ACA) assesses penalties to hospitals having greater than average readmissions rates for chronic conditions (Zuckerman et al., 2016). There is also increased focus as a national priority for hospitals to reduce hospital readmissions for patients with chronic conditions from the Agency for Healthcare Research and Quality (AHRQ, 2020).

This study aimed to examine relationships in Illinois hospitals between patients with HF and PN and 30-day hospital readmission rates using a Pearson's product-

moment correlation test, measuring how often HF and PN patients in Illinois hospitals return within 30 days of hospital readmission. The CMS hospital compare dataset on unplanned hospital visits was analyzed to measure the change in HF and PN patients in Illinois hospitals and 30-day hospital readmissions rates. It was also used to show the need for inclusion of assessment of factors (hospital return days and the rate of readmission after discharge from hospital (hospital-wide) into the health care strategy.

This study may provide findings that help improve hospital performance through addressing hospitals' health care strategies (Clement et al., 2015). There can also be an impact to social change when chronic condition patients with greater than average readmissions are assessed for social stigma before hospital discharge. A hospital's ability to understand social stigma for patients with chronic conditions can serve as a self-deterrent for hospitals to reduce hospital readmissions rates, especially in cases when a follow-up appointment for these patients is scheduled before hospital discharge (Clement et al., 2015).

Background

Studies show greater than average 30-day hospital readmission rates among hospitals across states in addition to an increased risk to quality care for patients with chronic conditions. Readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, HF, or PN (IDPH, 2020). However, there is limited literature regarding an Illinois hospital's ability to reduce 30-day hospital readmission rates for chronic condition patients with HF and PN. There is also limited research regarding policy provision and impact to hospitals with high rates of

chronic condition patients of HF and PN. Even more so there is limited research on how improving hospital efficiency and hospital performance of quality measures can impact social change for chronic condition patient populations.

Addressing gaps in health care strategy can create better ways for hospitals with greater than average 30-day hospital readmission rates to reduce recidivism for high-risk patients with chronic conditions (Sfectu et al., 2017). Focus on the provision of policy and health care strategies for hospitals and patients with chronic conditions can help to reduce hospital readmission rates and rehospitalization among high-risk patients (Adnanes et al., 2020). By addressing gaps in hospital performance, hospitals with high rates of 30-day hospital readmissions rates for patients with HF and PN can improve the overall quality of care when certain key factors like those addressed in this study are included in a hospital's health care strategy.

Problem Statement

Despite continued efforts from hospitals, there continues to be greater than average 30-day hospital readmission rates for patients with HF and PN, which is exacerbated when policy guidelines are not met (Centers for Disease Control and Prevention, 2020). When Medicaid factors are not addressed (Benjenk & Chen, 2018), especially Medicaid patients with chronic conditions (Sommers et al., 2015), a hospital's bottom line can be impacted (Kalseth et al., 2016). Additional policies to impact hospitals with greater than average 30-day hospital readmission rates also include the HCA's new hospital readmissions payment policy (Upadhyay et al., 2019), which shows the negative

impact to hospitals with high levels of recidivism and heavy utilization of hospital readmission rates (Sfetcu et al., 2017).

A hospital's ability to create health care strategies that address chronic condition patients can improve quality of life and standards of care (Kilbourne et al., 2018). There can be more obstacles when there is no health care strategy in place. Implementation of useful health care strategies is also strengthened when policy provisions are in place. Improvement in operational efficiency in hospitals with higher hospital readmissions rates can be more impactful in the treatment care plan for hospitals where patients with chronic conditions are more prevalent (Adnanes et al., 2020).

In this study, I examined relationships in Illinois hospitals between patients with HF and PN and 30-day hospital readmission rates. I also determined whether there is a relationship between hospital return days in Illinois hospitals for HF and PN patients and 30-day hospital readmission rates. There is also a meaningful gap regarding policy provision for HF and PN patients; however, there was not enough data to use a systematic review for hospital policy implementation to address hospital readmission rates for patients with chronic conditions (Office of Disease Prevention and Health Promotion, 2020). Thus, I used a Pearson's product-moment correlation test used to examine the relationship between hospital return days for HF and PN patients and 30-day hospital readmission rates based on a pre-collected dataset from the CMS. A hospital's ability to improve quality and metric performance can improve when 30-day hospital readmission rates are addressed (Henke et al., 2017). Addressing gaps in the health care strategy

creates better ways for hospitals with heavy utilization of high readmission rates to lower recidivism for patients with chronic conditions (Sfectu et al., 2017).

Purpose of the Study

The purpose of this quantitative research study was to examine the relationship in Illinois hospitals between patients with HF and PN and 30-day hospital readmission rates, looking at hospital return days for HF and PN patients and the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients. The independent variables were hospital return days and the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients in Illinois hospitals, and the dependent variable was 30-day hospital readmission rates. The Pearson's product-moment correlation test was used to assess the impact on quality-of-care measures for patients with PN and HF because the test can be used to determine associations between variables (Laerd Statistics, 2020). Key factors are contained in the CMS dataset for unplanned hospital visits, which can be used to influence a hospitals ability to better understand how adopting quality of care into health care strategies can improve quality of life for patients with HF and PN, impacting social change. For instance, there can be a positive impact on social change when patients with chronic conditions are scheduled for a follow-up appointment before leaving the hospital (Clement et al., 2015).

Research Questions and Hypotheses

This study was guided by four research questions and their corresponding hypotheses:

Research Question 1: What is the association between hospital return days in Illinois hospitals for patients with HF and 30-day hospital readmission rates?

H_a1: There is a significant association between hospital return days in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

H_01: There is no significant association between hospital return days in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

Research Question 2: What is the association between hospital return days in Illinois hospitals for patients with PN and 30-day hospital readmission rates?

H_a2: There is a significant association between hospital return days in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

H_02: There is no significant association between hospital return days in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

Research Question 3: What is the association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and 30-day hospital readmission rates?

H_a3: There is a significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

H_03: There is no significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

Research Question 4: What is the association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with PN and 30-day hospital readmission rates?

H_a4: There is a significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

H_04: There is no significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

Theoretical and Conceptual Framework

The theoretical and conceptual framework of this research study is Andersen-Newman's framework of health services utilization. The model was selected because it can be used to develop a hospital's health care strategy and improve the quality of care for chronic patients with HF and PN when key factors impacting 30-day hospital readmissions rates are addressed (Peterson et al., 2019). The model can be used to examine key variables that increase hospital readmissions rates. The model also addresses predisposing factors that can be used to examine a hospital's ability to deliver quality-of-care metrics. Therefore, I used the model to assess a hospital's ability to deliver quality-of-care metrics for Illinois hospital patients with chronic conditions of PN and HF by examining independent variables hospital return days and the rate of readmission after discharge from hospital (hospital-wide) and the dependent variable 30-day hospital readmission rates). Finally, the model can be used to address meaningful gaps. Thus, I

used the Andersen-Newman framework of health services utilization to address 30-day hospital readmission rates for patients with HF and PN to improve their quality of care.

Nature of the Study

This quantitative research study involved a Pearson's product-moment correlation test to examine relationships between patients with HF and PN of Illinois hospitals and 30-day hospital readmission rates, hospital return days for HF and PN patients and 30-day hospital readmission rates, and the rate of readmission after discharge from hospital (hospital-wide) for HF 30-day readmission rates and PN 30-day readmission rates. Pearson's product-moment correlation test is appropriate to determine the linear component of association between two continuous variables, helping to measure the strength and direction of the association (Laerd Statistics, 2020). I examined variables gathered from the CMS dataset on unplanned hospital visits. The CMS dataset was filtered to 191 hospitals in Illinois with inclusion variables: hospital return days for HF patients, hospital return days for PN patients and HF 30-day readmission rates, and PN 30-day readmission rates. The CMS dataset also includes rates of readmission after discharge from hospital (hospital-wide) for HF and PN patients. The data were used to assess the impact of social change by measuring the effect on a hospital's ability to achieve quality care outcomes for patients with socioeconomic and chronic conditions.

Literature Search Strategy

The literature search strategy includes a collection of peer-reviewed articles from 2012 to 2020 on 30-day hospital readmission rates for patients with HF and PN, hospital return days, and rates of readmission after discharge from hospitals (hospital-wide). The

literature search strategy also includes CMS dataset Unplanned Hospital Visits – Hospital from the CMS Hospital Compare website, which contains these selected variables for analysis in this research study with compiled data on 30-day hospital readmission rates for patients with chronic conditions patients of HF and PN, hospital return days, and rates of readmission after discharge from hospitals (hospital-wide). Finally, a collection of other research databases including EBSCO (High-Risk Patient Abstracts), PubMed (Medline), SAGE, Social Sciences Databases, ProQuest (High-Risk Patient Abstracts and Sociological Abstracts), and the Walden University Library Catalog were consulted. For a more impactful and informative result, the following research keywords were used: hospital compare, 30-day hospital readmission rates, hospital readmissions, high-risk patient populations, heart failure, pneumonia, hospital return days, unplanned hospital visits, hospitals, hospital facility, hospital discharge, hospital readmissions, rates of readmission, intervention, and treatment, HCA policy, ACA, AHRQ, HRRP, social stigma, and multiple linear regression analysis.

Literature Review Related to Key Variables and Concepts

The purpose of this literature review is to highlight historical and recent research for Illinois hospitals with high-risk chronic condition patients of HF and PN, and greater than average 30-day hospital readmission rates. This literature review will also address gaps in the literature by assessing hospital factors impacting high-risk patients with these chronic conditions. Finally, this literature review will highlight literature impacting the quality of hospital care for variables in the research questions; hospital return days; hospital rates of readmission after discharge from hospital (hospital-wide); and impact to

social change for hospitals with greater than average 30-day hospital readmission rates. Sfetcu et al. (2017) note addressing gaps in the healthcare strategy creates better ways for hospitals with heavy utilization of high readmission rates to lower high levels of hospital readmission rates and recidivism among high-risk patients.

Definitions

Affordable Care Act (ACA): ACA directs financial penalties to hospitals with higher hospital readmission rates for high-risk patients with chronic conditions (Zukerman et al., 2016).

Health care authority (HCA): HCA is a new hospital readmissions payment policy impacting penalties for the achievement of quality measures and compliance with policy guidelines (Upadhyay et al., 2019). HCA policy can be used to enforce adherence to government and policy regulations for the evaluation and reduction of hospital readmissions rates among hospitals with high-risk patients with chronic conditions; hospitals and providers should be linked to value-based care models and provider payment models to help reduce the negative impact on the hospital bottom line; hospitals can implement strategies that adhere to HCA policy regulation that increase a hospital's ability to meet and exceed quality standards for high-risk patients before hospital discharge (Kalseth et al., 2016).

Heart failure (HF): According to the CMS (2020), heart failure happens when the heart cannot pump enough blood and oxygen to support other organs in the body; heart failure is a serious condition, but it does not mean the heart has stopped pumping. HF is a high-risk chronic condition focus of this study because heart patients were listed on the

Hospital Compare CMS website impacting quality measures among Illinois hospitals. In this study, high-risk patients with HF were examined to determine the effect on 30-day hospital readmission rates in Illinois hospitals.

Hospital readmission rates: The dependent variable in this quantitative research study is 30-day hospital readmission rates. In this quantitative research study, Pearson's product-moment correlation test was used to examine 30-day hospital readmission rates in Illinois hospitals for patients with HF and PN. 30-day hospital readmission rates are listed in the selected CMS dataset, Unplanned Hospital Visits – Hospital. Hospitals with higher readmission rates experience more financial penalties and challenges to deliver quality patient care and hospital readmissions within 30-days after discharge has drawn national policy attention because they are very costly, accounting for more than $17 billion in avoidable Medicare expenditures (Zuckerman et al., 2016). With years of national discourse to reduce hospital readmissions, hospitals and providers are still trying to determine how to sustainably reduce 30-day hospital readmissions (Howard-Anderson et al., 2016).

Hospital readmissions reduction program (HRRP): According to the CMS (2020), HRRP is a Medicare value-based purchasing program that encourages hospitals to improve communication and care coordination to better engage patients and caregivers in discharge plans and, in turn, reduce avoidable readmissions. The program supports the national goal of improving health care for Americans by linking payment to the quality of hospital care (CMS, 2020).

Hospital return days: There are two independent variables in this quantitative research study. Hospital return days were selected as one of the independent variables to analyze how often HF and PN patients are returning to Illinois hospitals. This independent variable is also listed in the selected CMS dataset, Unplanned Hospital Visits – Hospital. According to the CMS (2020), hospital return days are the average of unplanned days patients who are hospitalized for certain conditions spend back in the hospital soon after discharge; hospital return days include time spent in the emergency department, under observation, or in an inpatient hospital unit. CMS (2020) also notes hospital return days for patients who visit the hospital with HF and PN are quality measures that can be found on the Hospital Compare website; these quality measures can also be found in the HRRP data set.

Pneumonia (PN): According to the CMS (2020), PN is an infection of the lungs that can cause mild to severe illness in people of all ages. PN is a high-risk chronic condition focus of this study because patients with PN were listed on the Hospital Compare website impacting quality measures among Illinois hospitals. In this study, high-risk patients with PN were examined to determine the effect on 30-day hospital readmission rates in Illinois hospitals.

Rate of readmission after discharge from hospital (hospital-wide): There are two independent variables in this quantitative research study. The rate of readmission after discharge from (hospital-wide) was selected as one of the independent variables to analyze the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients in Illinois hospitals. This independent variable is also listed in the selected

CMS dataset, Unplanned Hospital Visits – Hospital. Hospital readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, heart failure, or pneumonia and hospital readmission rates are reported for Medicare patients only (IDPH, 2020). The IDPH obtains this data from the U.S. Department of Health and Human Services and the CMS (IDPH, 2020). Hospital readmission rates can also impact a hospital's ability to provide quality care for patients with chronic conditions (CMS, 2020). Hospitals with higher readmission rates experience more financial penalties and challenges to deliver quality patient care (Zuckerman et al., 2016). There are also higher financial penalties given to hospitals with higher rates of hospital readmission (National Institutes of Health, 2019). Therefore, reducing rates of hospital readmission before hospital discharge can improve the quality of hospital care for patients with chronic conditions of HF and PN. Reducing rates of hospital readmission before hospital discharge can also increase understanding of how helping patients with chronic conditions can address social stigma which has a positive impact on social change when key factors for patients with chronic conditions are addressed. Discharge from the hospital is the point at which a patient leaves the care of a hospital provider with medical instructions; returning home and/or is transferred to another facility such as rehab or nursing home (CMS, 2020). Even more so, when these factors are addressed in the discharge planning process before hospital discharge for patients returning to hospitals for readmission before the allotted time for follow-up appointments (Clement et al., 2015).

Assumptions

In this quantitative research study, assumptions for a high-risk patient population with chronic conditions of HF and PN were based on the selected CMS dataset, Unplanned Hospital Visits – Hospital. This is critical to the research to ensure the appropriate quantitative sampling method was selected; it is also important to derive accurate results (Business Research Methodology, 2020). There are several assumptions in this quantitative research study that must be clarified. First, it is assumed that high-risk patients with chronic conditions of HF and PN are impacting the hospital's ability to deliver a quality of care for high-risk patients with greater than average 30-day hospital readmission rates. It is also assumed that the Pearson's correlation test can be used in this quantitative research study because it is often used to determine the degree to which a relationship is linear and that there is a linear component of association between two continuous variables (Laerd Statistics, 2020). This is critical to the research because linearity is not an assumption of Pearson's correlation (Laerd Statistics, 2020). Additionally, the researcher would not usually use Pearson correlation to determine the strength and direction of a linear relationship if the relationship between two variables were not linear; instead, the researcher might determine that the relationship between the two variables might be better described by another statistical measure (Laerd Statistics, 2020). It is also assumed that hospitals facing higher financial penalties have more impact on the bottom line for noncompliance to hospital policy guidelines for having greater than average 30-day hospital readmission rates. This is critical to the research because there was not enough research data to run statistical analysis on higher 30-day hospital

readmission rates and hospital policy guidelines. Finally, it is assumed that the researcher lacks knowledge of key factors and variables identified in this quantitative research study. Whereby, using pre-collected data from the CMS Hospital Compare website and CMS dataset, Unplanned Hospital Visits – Hospital; the researcher will be able to objectively answer research questions for the data that aligns with the research purpose and continuous variables investigated.

Scope and Delimitations

Research can be limited in the scope of specific aspects of the research problem including patient demographic, sample size, and geographical location. The unit of analysis for this research study is Illinois hospitals. This research study is delimited to the CMS dataset, Unplanned Hospital Visits – Hospital. Data will be gathered from 191 Illinois hospitals and high-risk patients with chronic conditions of HF and PN using the CMS dataset, Unplanned Hospital Visits – Hospital. Data for review from the CMS dataset Unplanned Hospital Visits – Hospital includes hospital return days and rates of readmission after discharge from hospital (hospital-wide) for high-risk patients with HF and PN. This quantitative research study is also delimited to a review of selected independent and dependent variables from the CMS dataset impacting 30-day hospital readmission rates. Hospital readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, heart failure, or pneumonia; and readmission rates are reported for Medicare patients only (IDPH, 2020). However, hospital readmission rates for heart attack patients were excluded from this quantitative research study. Delimitations of this study also contain a selection of the

following policy provisions impacting 30-day hospital readmission rates for review; HCA Policy, ACA, AHRQ, and HRRP but there can be other policies not listed in the research study impacting hospital readmissions; there was also not enough data to perform statistical analysis on 30-day hospital readmissions rates with impact to policy provision.

Limitations

The first limitation in this quantitative research study includes the lack of comparison to other high-risk patients identified from the CMS dataset Unplanned Hospital Visits – Hospital outside of high-risk patients with chronic conditions of HF and PN. Hospital readmission rates are on the rise more than any other type of hospitalization (CMS, 2020). The second limitation in this quantitative research study includes the exclusion of statistical analysis for heart attack patients which are key factors included in the CMS dataset but not analyzed. The IDPH notes hospital readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, heart failure, or pneumonia (IDPH, 2020). The third limitations in this quantitative research study include the exclusion of other factors impacting a hospitals ability to reduce 30-day hospital readmission rates aside from hospital return days and rates of readmission after discharge from hospital (hospital-wide) which were included in the CMS dataset Unplanned Hospital Visits – Hospital but not referenced. Centers for Disease and Control (2020) notes high-risk patients with chronic conditions are also being readmitted back to hospitals at a much higher rate than any other type of hospitalization. Fourth, there are limitations in this quantitative research study from the omission of statistical analysis on policy provisions impacting a hospital's bottom line.

Hospital readmission rates can also impact a hospital's ability to provide quality care for patients with chronic conditions; there can also be an impact on hospitals when policy guidelines are not met (CMS, 2020). Whereas this study references a few research articles on the impact to hospitals regarding implementation of policy provisions HCA Policy, ACA, AHRQ, and HRRP. Fifth, there might be other limitations excluded from this quantitative research study regarding high-risk patient populations with greater than average readmissions rates facing Medicare and Medicaid challenges. IDPH notes readmission rates are reported for Medicare patients only (IDPH, 2020). Mental Health (2019) also notes other impacts to higher hospital readmission can be found in Medicare and Medicaid high-risk patient populations. Finally, there can also be the inability for hospitals to overcome barriers when limitations are not addressed that impact a hospital's ability to address social stigma. Clement, Schauman, et.al (2015) note hospitals with higher hospital readmission rates and patients with chronic conditions can impact social change by improving hospital performance in quality measures and adoption of key factors in the healthcare strategy. Clement, Schauman, et.al (2015) also note a hospital's ability to understand social stigma for patients with chronic conditions can also serve as a self-deterrent for hospitals to reduce hospital readmissions rates; especially in cases when a follow-up appointment for these patients is scheduled before hospital discharge. Whereby addressing other limitations not mentioned in this study can be useful for the reduction of 30-day hospital readmission rates.

Significance

Hospital readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, heart failure, or pneumonia; and readmission rates are reported for Medicare patients only (IDPH, 2020). In this quantitative research study, there are potential contributions to improve a hospital's patient care model including quality of care for high-risk patients with chronic conditions of HF and PN. There can also be significant contributions to a hospital's ability to perform by developing better ways to reduce 30-day hospital readmission rates. Finally, there can be contributions to this quantitative research study with a positive impact on social change whereas increased social awareness around these key factors might make a positive contribution to society. Kalseth, Lassemo, et al. (2016) note key factors can be implemented into a hospital's healthcare strategy and patient care model to help a hospital's ability to impact social change. Whereas hospitals facing challenges regarding lack of social awareness for underserved high-risk patient populations can also use these strategies to overcome barriers for their patients with chronic conditions.

Summary and Conclusion

The CMS (2020) noted that hospital readmission rates are on the rise more than any other type of hospitalization; there can also be an impact on a hospital's ability to improve quality of care when hospital metrics and key factors are not met. Hospital readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, heart failure, or pneumonia; and readmission rates are reported for Medicare patients only (IDPH, 2020). Figueroa, Harrison, and Meyer

(2019) note complexities and continuous change for hospitals need to strategically align hospital priorities to current and emerging issues not well understood can result in better outcomes for a hospital's bottom line and improved health for high-risk patients. Standards of care and hospital metrics (hospital return days and rates of readmission after discharge from hospital (hospital-wide) can also be key factors impacting a hospitals ability to take care of patients; especially in cases where aligning complex needs of high-risk patients to a hospital's bottom line and strategic priorities are needed. Finally, there can be a positive impact on social change by providing better health outcomes when high-risk patients with chronic conditions of HF and PN are included in the healthcare strategy. CMS (2020) notes hospitals unable to impact the quality of care for high-risk patients' needs have an impact on the bottom line. This study will add significance to the healthcare industry by improving healthcare strategies that impact these high-risk patients; this study also adds significance to the healthcare industry by providing information on hospitals' further need to reduce greater than average 30-day hospital readmission rates for HF and PN patients. Therefore, hospital administrators searching to better understand how improving health outcomes for patients with chronic conditions HF and PN can positively impact its bottom line when 30-day hospital readmission rates are reduced. Adnanes, Cresswell-Smith, et al. (2020) note useful healthcare strategies can improve operational efficiency for hospitals with high-risk patients and chronic conditions. Patients with chronic conditions such as HF and PN can also benefit from this study by being better informed on how hospitals focused on providing better standards of

care can have a positive impact on the hospital continuum of care model and healthcare delivery process.

Section 2: Research Design and Data Collection

There has been heightened awareness for U.S. hospitals to reduce 30-day hospital readmission rates because they are on the rise more than any other type of hospitalization, which is affecting high-risk patients (CMS, 2020). Hospital readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay for heart attack, HF, or PN (IDPH, 2020). The purpose of this quantitative research study was to examine the relationship in Illinois hospitals between patients with HF and PN and 30-day hospital readmission rates, focusing on return days and hospital-wide rate of discharge for these patients. Section 2 will include research design and data collection, methodology, and threats to validity and ethical procedures.

Research Design and Rationale

The research design in this quantitative research study involved a Pearson's product-moment correlation test to examine the relationships between the independent and dependent variables. The independent variables for this quantitative research study are hospital return days and the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients in Illinois hospitals, and the dependent variable is 30-day hospital readmission rates. The Pearson's product-moment correlation test was selected because it can be used to determine where a linear component of association exists between two continuous variables as well as measuring the strength and direction of association that exists between two variables on at least an interval scale (Laerd Statistics, 2020).

The design choice and aim of this research study are consistent with health care organizations focused on improving the quality of care on the continuum of care models for patients with chronic conditions. The research design helped to advance health care knowledge with the potential to reduce 30-day hospital readmission rates for HF and PN patients by providing better ways for hospitals to impact patients' HF and PN patients facing socioeconomic factors. Hospitals with higher hospital readmission rates for patients with chronic conditions should improve hospital performance in quality measures and adoption of key factors in their health care strategy (Clement et al., 2015).

Another aspect of the study that should be mentioned is resource and time constraints regarding my ability to find enough data and articles on hospital compliance to policy guidelines to perform statistical analysis. The intent was to discuss HCA, ACA, AHRQ, and HRRP, but there was insufficient data to perform analysis. Additionally, other policy provisions excluded from this quantitative research study that could impact an Illinois hospital's ability to comply when policy guidelines.

Methodology

Population

The target population for this research study was patients with HF and PN from Illinois hospitals with greater than average 30-day hospital readmission rates. About 13 million patients in the United States are identified as geographically isolated, economically, or medically vulnerable (Health Resources & Services Administration, 2019). Of those 13 million patients, approximately 6.2 million adults have HF per year with an average cost estimate of $30.7 billion being spent per year on health care

services, medicine and missed days of work (Centers for Disease Control and Prevention, 2020). There are also estimates of 150,000 hospitalizations each year of pneumococcal PN patient populations (Centers for Disease Control and Prevention, 2020). Thus, HF and PN patient populations make up a large portion of high-risk patients with chronic conditions and 30-day hospital readmission rates.

Sampling and Sampling Procedures Used to Collect Data

For accurate research and analysis of secondary data, I used an appropriate CMS dataset from the CMS Hospital Compare website. I used pre-collected data from the CMS Hospital Compare dataset, Unplanned Hospital Visits. There were no live participants so I did not require consent forms. To obtain the dataset, I visited the CMS Hospital Compare website and found relevant data, which did not require permission because it is a public website. The CMS Hospital Compare website represents the best source of data for this quantitative research study because it contains pertinent measures in its dataset of unplanned hospital visits to examine 30-day hospital readmission rates in Illinois hospitals for patients with HF and PN. The CMS website is also a reputable online website that compiles Medicare data on 30-day hospital readmission rates.

To determine the appropriate sample size is sufficient for this research study, I completed the power of analysis using G*Power. G*Power is a software program used to calculate a research study's statistical power. I determined whether the sample size from the CMS dataset was appropriate. The data included a list of 68,293 hospitals located across the United States. However, I only ed 191 Illinois hospitals from the dataset. Data collected and analyzed consisted of hospital return days for patients with HF and PN and

rates of readmission after discharge from hospital (hospital-wide) among patients with HF and PN.

The sampling strategy considered for this quantitative research study is the simple random sampling strategy, which allowed me to select representable units from a large population where statistical analysis is used for studying measurable or quantifiable datasets (Jain and Chetty, 2020). Simple random sampling is also considered because each member of the population is equally likely to be chosen as part of the sample thus removing bias from the selection process resulting in a good group of representative samples (Business Research Methodology, 2020). I completed a random sampling of selected measures using the random function of Microsoft Excel with the first random number from Illinois hospitals listed selected containing the measure hospital return days for HF patients. I repeated this process for the next randomly selected measure of hospital return days for HF patients and continued doing so until the randomly selected measures for hospital return days for HF patients were exhausted within the dataset. I also used this strategy to identify and record information for hospital return days for PN patients, HF 30-day readmission rates, PN 30-day readmission rates, and rates of readmission after discharge from the hospital (hospital-wide).

To ensure the appropriateness of inclusion criteria extracted from the CMS Hospital Compare dataset—Unplanned Hospital Visits, I checked that each measure that is randomly selected for sampling inclusion met the following requirements identified for inclusion criteria.

1. Each hospital within the CMS hospital dataset is in Illinois.

2. Each hospital measure listed in the CMS hospital dataset matches those listed on the CMS hospital website.

3. Each hospital's inputs include the number of hospital return days and the number of HF and PN patients.

4. Each hospital's outputs include 30-day hospital readmissions and rates of readmission after discharge from the hospital (hospital-wide).

5. Each research article contains information on key hospital factors from 2012 through 2020.

Based on these criteria, the pre-collected data aligned with the research purpose, methodology, and hypotheses. Hospitals not meeting these criteria were excluded from the study.

Instrumentation and Operationalization of Constructs

I did not use any published instruments to collect this data. The following section will discuss the operationalization of constructs to understand how they were measured when examining and using pre-collected data. The outputs are 30-day hospital readmissions, which were measured by the number of HF and PN patients returning to Illinois hospitals within 30 days. The inputs are the number of hospital return days and rates of readmission after discharge from hospital (hospital-wide) for HF and PN patients. The number of hospital return days were measured by the total number of hospital return days in a hospital that is captured per hospital readmission for high-risk patients with HF and PN, respectively. The number of hospital return days for high-risk patients with HF and PN also correlated to that hospital size. The number of high-risk patients was

measured by the total of HF and PN patients readmitted to hospitals with a patient diagnosis of HF and PN. Finally, I examined rates of readmission after discharge from the hospital (hospital-wide).

Data Analysis Plan

I used a Pearson's product-moment correlation test to examine relationships between hospital return days for HF and PN patients and 30-day hospital readmission rates as well as relationships between rates of readmission after discharge from hospital (hospital-wide) for HF and PN patients and 30-day hospital readmission rates. This test is used to determine linear associations and their strength and direction (Laerd Statistics, 2020). These analyses helped answer the research questions:

Research Question 1: What is the association between hospital return days in Illinois hospitals for patients with HF and 30-day hospital readmission rates?

H_a1: There is a significant association between hospital return days in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

H_01: There is no significant association between hospital return days in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

Research Question 2: What is the association between hospital return days in Illinois hospitals for patients with PN and 30-day hospital readmission rates?

H_a2: There is a significant association between hospital return days in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

H_02: There is no significant association between hospital return days in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

Research Question 3: What is the association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and 30-day hospital readmission rates?

H_a3: There is a significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

H_03: There is no significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and 30-day hospital readmission rates.

Research Question 4: What is the association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with PN and 30-day hospital readmission rates?

H_a4: There is a significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

H_04: There is no significant association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with PN and 30-day hospital readmission rates.

I examined selected variables in the CMS dataset, Unplanned Hospital Visits using the research questions and hypotheses. I examined hospital return days for HF patients and 30-day hospital readmission rates to measure how often HF and PN patients are returning to the hospital within 30-days of hospital discharge. I also examined the

relationships between the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients and 30-day readmission rates. Further, I determined the statistical test to be used to test the hypothesis, procedures to account for use for multiple statistical tests (as appropriate), the rationale for the inclusion of potential covariates and/or confounding variables, and interpretation of all results related to the study to include key parameter estimates, confidence intervals and/or probability values, odds ratios.

Threats to Validity

Threats to external validity are defined as factors in a study that limit the generalizability of results (CDC, 2020. In this research study, there were two main threats to external validity: selection bias and constructs of the study. I selected the CMS dataset on unplanned hospital visits for 68,293 hospitals across the United States. To reduce the effect of selection bias, this study was limited to 30-day hospital readmission rates for 191 Illinois hospitals using a simple random sampling strategy. This study was also limited to examining 30-day hospital readmission rates for HF and PN patients. In terms of the constructs of the study, I identified four different variables: hospital return days for HF patients, hospital return days for PN patients, 30-day hospital readmission rates, and hospital rates of readmission after discharge from hospital (hospital-wide).

Additionally, threats to internal validity must be considered, which are the degree of control that is exerted over potential extraneous variables (Flannelly et al., 2018). For example, history can be the main threat to internal validity; it can also occur in any of the samples and those differences not accounted for in this study can impact the outcome of

this research study. Therefore, to limit the threat of internal validity, I ensured that the outputs of the study are the same.

Ethical Procedures

Because this study used pre-collected secondary data, there was no treatment of human participants as defined by secondary data for institutional review board application. Moreover, to ensure that the study remains ethical, I checked whether the public data collected from the CMS Hospital Dataset website required permission to download the data. I also did not change the data in any form, completing the data as is to ensure that Data Management Units are appropriately represented in the dataset. Finally, to comply with the recommended university's institutional review board, following the study, the data will be stored for 7 years. The data will be stored on a flash drive in a locked filing cabinet in my home.

Summary

The purpose of this study was to examine the relationship in 191 Illinois hospitals between patients with HF and PN and 30-day hospital readmission rates to determine how often patients are returning to hospitals. Data were gathered from the CMS Hospital Compare dataset—Unplanned Hospital Visits on the CMS Hospital Compare website. Using a simple random sampling strategy, randomly selected pre-collected data were analyzed to include measures: hospital return days for HF and PN patients, rates of readmission after discharge from hospital (hospital-wide) for HF and PN, and 30-day readmission rates. This section discussed the study's population and sampling strategy; it also proposed how the data will be collected, the data analysis plan, threats to validity,

and ethical procedures. The following section, Section 3, will provide a presentation of the results and a discussion of the findings.

Section 3: Presentation of the Results and Findings

There is a sense of urgency for hospitals to address hospital readmission rates for patients with chronic conditions of HF and PN because hospital readmission rates are on the rise more than any other type of hospitalization (CMS, 2020). The purpose of this quantitative research study was to examine 30-day hospital readmission rates for patients with HF and PN in Illinois hospitals related to the number of return days and readmission after discharge. I examined data from 191 Illinois-based hospitals with patients with HF and PN. The independent variables were hospital return days and the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients in Illinois hospitals, and the dependent variable was 30-day hospital readmission rates. Data were gathered from a CMS hospital compare dataset, which provided data on HF 30-day readmission rates, PN 30-day readmission rates, hospital return days for HF patients, hospital return days for PN patients, and rates of readmission after discharge from hospital (hospital-wide). This section will include a description of data collection of the secondary data set and the study's results.

Data Collection of Secondary Data Set

I selected CMS data for 68,293 hospitals across the United States. The study reduced the effect of selection of bias in the research by limiting the study area to 30-day hospital readmissions rates for 191 Illinois hospitals to be analyzed using a simple random sampling strategy. This study was also limited to examining 30-day hospital readmission rates for HF and PN patients. The independent variables were hospital return days and the rate of readmission after discharge from hospital (hospital-wide) for HF and

PN patients in Illinois hospitals, and the dependent variable was 30-day hospital readmission rates. The data were cleaned and analyzed using SPSS v25.

Results

Research Question 1

To answer this research question, I examined the correlation between hospital return days for HF patients and 30-day readmission rates. The correlation coefficient and probability values ($r = 0.612$, $p < .000$) suggests a significant relationship. This also leads to rejection of the null hypothesis and the conclusion that there is a significant association between hospital return days for HF patients and 30-day hospital readmission rates.

Research Question 2

This section discusses the correlation between hospital return days for PN patients and 30-day hospital readmission rates. The correlation coefficient and probability values ($r = 0.619$, $p < .000$) suggests a significant relationship. This also leads to the rejection of the null hypothesis and the conclusion that there is a significant association between hospital return days for PN patients and 30-day hospital readmission rates.

Research Questions 3 and 4

To determine the association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and PN and 30-day hospital readmission rates, a paired samples correlation test was used to analyze research questions Research Question 3 and 4. The paired samples correlation for the rate of readmission after discharge from hospital (hospital-wide) and PN 30-day readmission rates are positively correlated at ($r = 0.591$, $p < .000$), and the paired samples correlation

for the rate of readmission after discharge from hospital (hospital-wide) and HF 30-day readmission rates suggests a positive correlation ($r = 0.609$, $p < .000$).

Moreover, to determine the association between the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and PN and 30-day hospital readmission rates, a paired samples *t* test was performed for each research question. Table 1 shows that the paired samples *t* test results were significant.

Table 1

Paired Samples T Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	SD	Std. Error Mean	Lower	Upper	t	Df	Sig. (2-tailed)
Pair 1	Rate of readmission after discharge from hospital (hospital-wide) - PN 30-Day Readmission Rate	-1.0022066	.9302912	.0673135	-1.1349844	-.8694288	-14.889	190	.000
Pair 2	Rate of readmission after discharge from hospital (hospital-wide) - HF 30-Day Readmission Rate	-6.3888304	1.1106900	.0803667	-6.5473560	-6.2303048	-79.496	190	.000

Descriptive Statistics

Table 2 provides a greater understanding of the variables and constructs used in this quantitative research study. For example, the mean for the rate of readmission after

discharge from hospital (hospital-wide) was 15.86 (0.93). Next, the standard deviation for hospital return days for PN and HF patients, given as 23.35 and 21.43, suggests that the data values are spread far apart from the mean value, whereas the standard deviation of 0.93,1.10, and 1.95 suggests that the values of rate of readmission after discharge from hospital (hospital-wide), PN 30-day readmission rate and HF 30-day readmission rate were not far from the mean value.

Finally, the skewness of 1.10, 0.87, 0.32, 0.70, and 0.16 for the rate of readmission after discharge from hospital (hospital-wide), hospital return days for PN and HF patients, PN 30-day readmission rate and HF 30-day readmission rate suggests that there are no indications of substantially right-skewed distribution. The kurtosis of 3.87 and 2.47 suggests that readmission after discharge from hospital (hospital-wide) and hospital return days for PN patients are positively peaked when compared to the normal distribution; hospital return days for HF patients, PN 30-day readmission rate, and HF 30-day readmission rate with kurtosis 0.73, 0.74, and 0.27 suggests a flat distribution.

Table 2

Descriptive Statistics

	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Rate of readmission after discharge from hospital (hospital-wide)	191	15.858553	.9344609	.873	1.101	.176	3.865	.350
Hospital return days for pneumonia patients	191	6.843040	23.3537453	545.397	.870	.176	2.478	.350
Hospital return days for heart failure patients	191	5.995815	21.4293820	459.218	.324	.176	.726	.350
PN 30-Day Readmission Rate	191	16.860760	1.0969709	1.203	.699	.176	.737	.350
HF 30-Day Readmission Rate	191	22.247384	1.3962431	1.949	.163	.176	.266	.350
Valid N (listwise)	191							

Summary

Hospital readmission rates are on the rise more than any other type of hospitalization (CMS, 2020). Therefore, I examined hospital readmission rates for patients with HF and PN in 191 Illinois hospitals based on a CMS dataset. To determine the correlation between hospital return days for HF and PN patients and 30-day hospital readmission rates, statistical analysis for Research Question 1 and 2 were performed. Results showed a significant association between hospital return days for HF and PN patients and 30-day readmission rates. Therefore, the null hypotheses were rejected. Additionally, to determine the correlation for the rate of readmission after discharge from hospital (hospital-wide) for PN and HF 30-day readmission rates, a paired samples

correlation and paired samples *t*test was performed for Research Question 3 and Research Question 4. The results showed a positive correlation and significant interaction between the mean difference of rate of readmission after discharge from hospital (hospital-wide) for both PN and HF 30-day readmission rates.

The following section, Section 4, concludes the study with a strong discussion for each of the following components: introduction, interpretation of the findings, limitations experienced within the study, future recommendations for research, and implications for professional practice and social change.

Section 4: Application to Professional Practice and Implications for Social Change

The purpose of this quantitative research study was to examine the relationship in Illinois hospitals between patients with HF and PN and 30-day hospital readmission rates using a Pearson's product-moment correlation test. This was critical to measure whether the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals changed in HF and PN patients within 30 days of hospital readmission. Section 4 includes a summary and interpretation of key findings. These key findings provide a better understanding of how hospital patients with chronic conditions of HF and PN and 30-day hospital readmission rates might improve health outcomes for these patient populations when certain key factors and variables are embedded in a hospital's health care strategy. Section 4 also includes a summary of limitations, recommendations, and implications for professional practice and social change.

Interpretation of the Findings

I used a Pearson's product-moment correlation test to examine the association between hospital return days and the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for patients with HF and PN and 30-day hospital readmission rates. Data were gathered from the CMS Hospital Compare Dataset, Unplanned Hospital Visits. The data were cleaned and analyzed using SPSS v25. The unit of analysis was 191 Illinois hospitals. The independent variables were hospital return days and the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients in Illinois hospitals, and the dependent variable was 30-day hospital readmission rates. Based on evidence collected, there was a significant association

between hospital return days in Illinois hospitals for patients with HF and PN and 30-day hospital readmission rates. Findings also showed a significant interaction between the mean difference of the rate of readmission after discharge from hospital (hospital-wide) for patients with HF and PN 30-day hospital readmission rates.

By making these research findings available to the public, researchers will be able to view results showing a significant association between hospital return days in Illinois hospitals for patients with HF and PN and 30-day hospital readmission rates. Researchers will also be able to view results showing significant interaction between the mean difference of the rate of readmission after discharge from hospital (hospital-wide) for patients with HF and PN 30-day hospital readmission rates. The findings can also be used by hospitals, health care administrators, and anyone seeking knowledge to build a health care strategy that improves patient care and quality of life for high-risk patients with chronic conditions. The results can also be used to build a health care strategy that improves the health care delivery process.

Relation of Findings to the Theoretical Framework

The theory used in this research study was Andersen and Newman's framework of health services utilization. The model was used to analyze factors impacting health services for patients in Illinois hospitals with HF and PN and 30-day hospital readmission rates. Research findings related to the model by providing a way for researchers to analyze pre-disposing needs for patients in Illinois hospitals with HF and PN and 30-day hospital readmission rates associated with hospital return days and the rate of readmission after discharge (hospital-wide). Research findings also related to the model by providing

a way for researchers to assess the needs of patients with these chronic conditions; it also provides a mechanism for researchers to incorporate social services into a hospital's health care strategy (Peterson et al., 2019).

Limitations of the Research Study

In this section, I describe the generalizability and trustworthiness of the research information and results. For example, there are several internal threats to the validity of this research study that must be considered. Internal threats to validity are the degree of control that is exerted over potential extraneous variables (Flannelly et al., 2018). In this research study, history can be the main internal threat to validity because the CMS dataset contained in this research study includes a specific set of pre-collected data outputs, and other CMS datasets might include additional data impacting 30-day hospital readmission rates and high-risk patients with chronic conditions that were not accounted for in this research study. To overcome this limitation, I limited the internal threat to validity by noting the specific outputs including independent and dependent variables, and I select key factors impacting Illinois hospitals with 30-day hospital readmission rates and high-risk patients with chronic conditions of HF and PN throughout the study.

Additionally, there are external threats to validity that must be considered. External threats to validity are defined as factors in a study that limit the generalizability of results (CDC, 2020). In this research study, the researcher conveys several main external threats to validity that might limit the generalizability and trustworthiness of this research topic and results. For example, there was a limitation selecting CMS dataset because it contains pre-collected data of 68,293 hospitals and patient demographics

impacting hospitals across 50 states. To overcome this limitation, I reduced the effect and selection of bias by limiting its sample size and geographic location to 191 Illinois hospitals within the dataset and 30-day hospital readmission rates for patients with chronic conditions of HF and PN. Additionally, for this limitation, the researcher selected use of a simple random sampling strategy, Pearson's product-moment correlation test, to analyze specific pre-collected data and key variables within the CMS dataset because this methodology can be used to analyze a group of selection criteria impacting a hospitals healthcare strategy. It can also be used to develop a strategy that improves health outcomes and quality patient care for high-risk patients with chronic conditions. Centers for Disease and Control (2020) notes high-risk patients with chronic conditions are readmitted back to hospitals at a much higher rate than any other type of hospitalization. IDPH (2020) notes hospital readmission rates include heart attack, heart failure, and pneumonia patients but this research study focuses only on heart failure and pneumonia patients.

Second, this research study is delimited by the use of an external threat to validity from the selection of independent and dependent variables. For example, the independent variables for this quantitative research study are hospital return days and the rate of readmission after discharge from hospital (hospital-wide) for HF and PN patients in Illinois hospitals, and the dependent variable is 30-day hospital readmission rates. However, there might be other variables impacting 30-day hospital readmission rates in Illinois hospitals not referenced. Wherein, to overcome this limitation this research study designates that it includes factors impacting 30-day hospital readmission rates such as the

rate of readmission after discharge from hospital (hospital-wide), hospital return days for PN and HF patients, PN 30-day readmission rates, and HF 30-day readmission rates.

Third, this research study was limited to an external threat to validity by policy impact because there was not enough data in this research study to perform statistical analysis on the impact on policy provision when guidelines are not met. For example, this research study references findings on policies HCA Policy, ACA, AHRQ, and HRRP. However, there might be other policies impacting an Illinois hospital's ability to deliver quality patient care not referenced in this research study because of the researcher's ability to find more information on what happens when a hospital is unable to comply with strict adherence to policy guidelines for high-risk patients with chronic conditions. Adnanes, Cresswell-Smith, Melby, et al. (2020) note the increased focus on the provision of policy and healthcare strategies for hospitals and patients with chronic conditions can help to reduce hospital readmission rates and rehospitalization among high-risk patients; it can also improve hospital efficiency and hospital performance of quality measures for patient populations with chronic conditions.

Finally, this research study is limited to an external threat to validity by impact to social change. For example, there might be other factors and variables impacting the quality of life for these patient populations that were inadvertently omitted from the research study because the researcher was not aware. Clement, Schauman, et.al (2015) note hospitals with higher hospital readmission rates and patients with chronic conditions of HF and PN can impact social change. Wherein, addressing gaps in hospital performance, hospitals with high rates of 30-day hospital readmissions rates for patients

with HF and PN can improve the overall quality of care when certain key factors impacting social change are addressed in a hospitals healthcare strategy.

Recommendations

The researcher recommends this research study on "Examining 30-Day Hospital Readmission Rates in Illinois Hospitals for Patients with Heart Failure (HF) and Pneumonia (PN)" be available for public use at conferences and lectures. The researcher also recommends sharing useful healthcare knowledge and content from this research study with hospitals, healthcare administrators, healthcare providers, and any others seeking information on how adding predictor variables like hospital return days and the rate of readmission after discharge (hospital-wide) to its healthcare strategy can have a positive impact to its bottom-line. Finally, the researcher recommends adding a simple sampling strategy like Pearson's product-moment correlation test and theoretical framework like Andersen-Newman's behavioral model to the healthcare strategy for patients with HF and PN and 30-day hospital readmission rates because Pearson's methodology and the behavioral model have a positive impact to improving its hospital operations, quality of care and social change.

Implications for Professional Practice and Social Change

Implications for Professional Practice

Hospital readmission rates include patients readmitted to hospitals within 30 days of discharge from a previous stay of heart failure or pneumonia (IDPH, 2020) and there is heightened awareness for hospitals across the nation to reduce 30-day hospital readmission rates because hospital readmission rates are on the rise more than any other

type of hospitalization (CMS, 2020). There is also a sense of urgency for hospitals to address hospital readmission rates for patients with chronic conditions of HF and PN because the quality of care and impact on a hospital's bottom line can be impacted when 30-day hospital readmissions are not addressed (CMS, 2020). By examining 30-day hospital readmission rates in Illinois hospitals for patients with HF and PN; the healthcare industry can better understand how the use of a simple random sampling strategy and theoretical frameworks can help to improve quality of life and quality of care measures for high-risk patient populations when certain key factors are addressed in the healthcare strategy.

Implications for Social Change

An Illinois hospital healthcare strategy can positively impact social change when key factors that improve health outcomes are incorporated in a hospital's healthcare strategy (Clement, Schauman, et.al, 2015). Wherein linking HF and PN patients to social services before hospital discharge can also reduce its 30-day hospital readmission rates. Clement, Schauman, et.al (2015) note inclusion of social services in a hospital's healthcare strategy for chronic condition patients with 30-day hospital readmission rates can strengthen a hospital's ability to improve health outcomes for these patient populations (Clement, Schauman, et.al, 2015). Linking these patients for follow-up appointments to a primary care physician can also improve their quality of life (Clement, Schauman, et.al, 2015). Whereas positive impact to hospital performance, quality-of-care measures, and quality of life for patients with chronic conditions with social stigma can be addressed (Clement, Schauman, et.al, 2015).

Conclusion

This study found a significant association between hospital return days and HF patients and PN patients' 30-day hospital readmission rates. The study also found a significant interaction between the mean difference of rate of readmission after discharge from hospital (hospital-wide) and PN and HF 30-day readmission rates. Based on research findings from this quantitative research study there was a strong connection between independent variables hospital return days and the rate of readmission after discharge from hospital (hospital-wide) in Illinois hospitals for HF and PN patients, and the dependent variable 30-day hospital readmission rates wherein the inclusion of independent and dependent variables into an Illinois hospitals healthcare strategy can be used along with the Anderson-Newman's theoretical framework and Pearson's product-moment correlation test to improve quality of care measures and health outcomes for hospital patients with chronic conditions. Finally, the researcher recommends sharing information from this quantitative research study with larger populations at conferences and lectures on how linking social services to a patient's discharge plan can positively impact social change when they are embedded into a hospital's healthcare strategy (Clement, Schauman, et.al, 2015). Inclusion of social services in an Illinois hospital's healthcare strategy for high-risk patients with chronic conditions of HF and PN and 30-day hospital readmission rates can also strengthen an Illinois hospital's ability to improve health outcomes, performance measures, and quality of life when social stigma and other key factors impacting a hospitals healthcare strategy are addressed before hospital discharge (Clement, Schauman, et.al, 2015).

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