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Nursing Staff Shortages in Veterans Health Administration Hospitals

by

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Abstract

Appropriate nurse staffing levels are necessary to maintain the safety of the nurses, the patients, and the organization. The Veterans Health Administration continues to have severe occupational shortages year after year and needs to identify better recruitment and retention strategies to improve the deficits. This integrative review aims to provide strategies to address nursing staff shortages in the Veterans Health Administration hospitals. For this integrative review, empirical and non-empirical sources were utilized to identify best practices for improved recruitment and retention strategies and to better understand this healthcare issue. Maslow's hierarchy of needs was the framework for this review. The results of the integrative review could provide healthcare administrators and managers with more information to facilitate better recruiting and retention strategies for qualified nurses, which could contribute to decreasing the staffing deficit. The five main themes of the study, as related to Maslow's hierarchy of needs, were physiological, safety, belonging, esteem, and self-actualization. The 11 subthemes were scheduling flexibilities, work environment, organizational culture, nurse engagement, organizational support, strong communication, organizational commitment, collaborative workspace, training and education, mentorship for new nurses, and professional growth and development. There is a need to reevaluate the current measures utilized for nurse staffing efforts and contributing factors to better identify any areas that can be adjusted to improve the retention of current qualified and experienced nurses while attracting new nurses to improve staffing deficits leading to positive social change.

Part 1: Practice-Based Problem

Problem of Interest

The problem of interest facing the Veterans Healthcare Administration is nursing staff shortages. Healthcare administrators and managers face challenges addressing these nursing staff shortages, including increased stress, job burnout, decreased patient care, and increased financial burdens for the organization (Wei et al., 2019). There is a global shortage of healthcare workers, with nurses representing approximately 50% of the deficit. Nurses play an instrumental role in the prevention of diseases, promotion of health, and delivery of care in a variety of healthcare settings. According to the World Health Organization (2022), there will be a need for an additional nine million nurses by the year 2030.

Healthcare Administration Problem

Background

The Veterans Health Administration (VHA) is the most extensive integrated healthcare system in the United States, divided into 23 Veterans Integrated Service Networks (VISNs), consisting of 172 medical facilities and 1,138 Community-Based Outpatient Clinics (CBOCS; VHA, 2021). Annually, the VHA provides care at any of its facilities across the United States for the approximately nine million Veterans enrolled in the VHA (VHA, 2021). The aging Veteran population typically has more inferior health situations, and the growing female Veteran population requires a wide range of nursing services throughout the VHA. According to Oh et al. (2021), study results from 118 VA facilities identified nursing staff issues significantly influenced by patient mortality,

salary level, preventable hospitalizations, and job satisfaction. Steps must be taken to improve nurse workload, reduce stress levels, and improve overall job satisfaction.

Operational Problem

The problem involves insufficient staffing of nurses in the VHA hospitals and the involvement of healthcare administrators who must ensure patient safety with adequate staffing. The nurse turnover rate nationally in 2019 was 18.7%, impacting both direct and indirect organizational costs, leading to an estimated total of between 3.7 and 6.1 million dollars directly associated with nurse turnover, as well as problems related to mental health issues, decreased job satisfaction, and increased errors and adverse events (Nursing Solutions, Inc., 2020). In 2022, the Inspector General identified 2,622 positions with severe occupational shortages, which increased by 22% from the previous year (Katz, 2022). In 2023, there were 3,118 positions with severe shortages, a 19% increase from 2022, with nursing shortages representing 92% of vacancies (Katz, 2023).

The delivery of healthcare is essential to the population, and the impact of the shortages is felt worldwide, leaving many of the most susceptible patient populations at risk (NIH, 2021). The inadequate supply of nurses is a contributing factor in patient outcomes and the prevention of diseases. According to Tamata et al. (2022), many factors in the healthcare industry impact nursing turnover, including lack of engagement, poor work environment, burnout due to heavy workloads, job dissatisfaction, and poor communication.

These factors are crucial in addressing the exodus of the current nursing workforce and can hinder new recruitment efforts. The nursing workforce in healthcare is

one of the essential resources for an organization, and this profession's ongoing instability is being felt worldwide (Al Zamel et al., 2020).

The work environment can be critical in the nurse's intention to stay in their role or leave. The environment can include physical aspects of the working area or can describe the department's climate, such as lack of effective leadership, salary, benefits, and security in the position (Al Zamel et al., 2020). Commitment to and satisfaction with one's job can be influenced by how connected the individual feels to the organization and profession. Poor working conditions, lack of resources, inadequate staffing, unsupportive management, and poor communication contribute to job satisfaction, burnout, and the possibility of leaving a role.

Factors that lead to higher instances of turnover include burnout and poor employee engagement. A study conducted using Maslach's Burnout Inventory (MBI) found that 53% of respondents reported burnout and a turnover of 30% of staff not remaining more than 2-3 years (Willard-Grace et al., 2019). In 2021, the estimated cost for a nurse leaving their position was between $37,700 and $58,400, at a 17% turnover rate, which could end up costing an organization five to eight million dollars annually (Jun et al., 2021).

Additionally, passing the Sergeant First Class Heath Robinson Honoring Our Promise to Address Comprehensive Toxics (Honoring Our PACT) Act in 2022 requires expanding services and benefits for veterans exposed to toxic substances during their service (Heckman, 2022). Expanding services to these Veterans will increase access to 3.5 million Veterans. The fiscal year 2023 budget request includes $42.2 billion to cover the needed 22,789 full-time equivalent positions, an increase of 14,000 from the prior

year (Heckman, 2022). The need for additional staffing will be challenging for an already hindered system.

Ideal State of Operations

The Department of Veterans Affairs is directed to apply the mandated nurse-patient ratio based on the state in which each facility is located. In addition to following mandated state laws, the Department of Veterans Affairs has defined the principles and processes for staffing methodologies to standardize nursing staff levels across all Veterans Healthcare Facilities through VHA Directive 1351 (VHA, 2023). Definitive staffing ratios are not explicitly documented in the Directive; however, it lays out guidelines that require specific data collection to be calculated according to each facility's needs. The data is systematically collected every other year and comprises core data, including average daily census, operating capacity, and percentage of bed capacity (VHA, 2023).

The lack of specific guidance requires more staff and flexibility to adjust according to daily patient levels and requirements. Staying to the mandated state-patient ratio provides guidance that is more aligned with the geographic requirements and population needs. There are currently only 14 states with established state staffing legislation (Bartmess et al., 2021). The ratio varies depending on location. For example, New York's ratios average 1 to 6, California's average 1 to 3.6, and some states have no mandated ratios (Trusted Nurse Staffing, 2022). In March of 2023, H.R.2530 and S.1113 were introduced, which identified nurse-to-patient ratios mirrored closely after California mandates that have proven to reduce costs and improve nurse safety and job satisfaction (Svetvilas et al., 2023; Kasprak, 2019).

Table 1

California RN to Patient Staffing Ratios

Type of Care	RN to Patients
Intensive/Critical Care	1:2
Neo-natal Intensive Care	1:2
Operating Room	1:1
Post-anesthesia Recovery	1:2
Labor and Delivery	1:2
Antepartum	1:4
Postpartum couplets	1:4
Postpartum women only	1:6
Pediatrics	1:4
Emergency Room	1:4
ICU Patients in the ER	1:2
Trauma Patients in the ER	1:1
Step Down, Initial	1:4
Step Down, 2008	1:3
Telemetry, Initial	1:5
Telemetry, 2008	1:4
Medical/Surgical, Initial	1:6
Medical/Surgical, 2008	1:5
Other Specialty Care, Initial	1:5
Other Specialty Care, 2008	1:4
Psychiatric	1:6

Currently, there are no federal mandates that regulate the number of patients that a registered nurse can care for in a hospital at any given time. It is the responsibility of each organization to determine the most effective nurse-to-patient ratio contingent upon the specific needs of the departments and facility capabilities. California and Massachusetts have laws defining nurse-to-patient ratios. In Massachusetts, the law explains that the limits of current Intensive Care Units (ICUs) allow for one patient to nurse. California has a set number of patients that can be assigned to each nurse for each unit. Both states rely on an acuity tool to be used based on the severity of the patient's illness (Davidson, 2022).

Continuing to improve efforts to recruit and retain VA nurses is an ongoing effort imperative to maintain the delivery of care to our Veterans. The creation and implementation of the PACT Act and the Retention and Income Security Enhancement (RAISE) Act provide some opportunities for the VHA to improve recruitment and retention. The PACT Act has expanded services to deserving Veterans, which has led to an increase in the current patient workload. PACT Act legislation is designed to provide flexibility for more competitive recruitment and retention opportunities. These can be offered through bonuses for those with critical skills, the use of direct-hire authority for college graduates, and more funding to buy out contracts of private-sector nurses (VHA, 2022).

The RAISE Act was signed into law in March of 2022 to improve salary caps and provide some scheduling flexibilities for Veteran Affairs nurses and Physician Assistants. This legislation changes the salary cap for Nurse Practitioners in the Executive Schedule from level V to level I, and the increase for nurses is set at level II (VHA, 2022). In addition to the increased salary caps, opportunities for more telehealth capabilities provide greater flexibility for nurses and more access to care for the Veterans.

Professional Practice Gap Statement

Evidence shows an increased need for hospital services associated with patient acuity and insufficient nursing staff. The Code of Federal Regulation (CFR) identifies specific conditions that hospitals must maintain to be eligible to participate in Medicare. According to 42 CFR 482.23 (CFR, 2023), hospitals must have enough licensed registered nurses, licensed practical nurses, and other staff necessary to provide nursing care for all patients as needed. The regulation also explains the requirements for

supervisory staff and key personnel for departments to ensure the immediate availability of a registered nurse at a patient's bedside. Research designating optimum nurse-to-patient ratios is limited. Across the United States, three central nurse staffing policies are identified: mandated nurse-to-patient ratios, public reporting of nurse staffing plans, and nurse staffing committees. There are 14 states with staffing legislation in place: two states have mandated nurse-to-patient ratios, five states have policies requiring some form of public reporting of staffing plans, and seven states have staffing committees mandated by state law and maintained at the hospital level (Bartmess et al., 2021).

Appropriate staffing across various hospital settings is a complex and evolving process. Increased nurse-to-patient ratios lead to an increased risk of poor patient outcomes. According to Bartmess et al. (2021), research showed that adding one patient to a nurse assignment increases a patient's risk for mortality in the inpatient setting by 19% (odds ratio [OR]: 1.19; confidence interval [CI]: 1.10–1.29). Limited research defines the ideal nurse-to-patient ratios; however, in hospital settings, it is suggested that lower nurse-to-patient ratios (i.e., one nurse: 5 patients vs. one nurse: 8 patients) correlate with better patient outcomes (Blegen et al., 1998).

There is a need to identify the contributing factors hindering the organization's ability to provide the most effective and efficient coverage to meet the growing service needs. Proper identification of the areas in most need can allow for the most accurate recruitment of additional nursing staff and filling current vacancies. The VHA must establish defined nurse-patient ratios to guide the organization. Until all states have mandated legislation defining the appropriate nurse-patient ratios, the VHA must provide staffing ratios to protect the organization and the patient. This study will use relevant data

to identify factors impacting the ability to adequately staff and improve nurse-patient ratios, as well to help improve staffing and retention of the nursing workforce throughout the VHA.

Summary of Evidence

The role of nurses, combined with the longstanding shortages, is a continued area of concern for the healthcare industry. A study of contributing factors leading to nurse staffing in the VHA identified that turnover of nurses was influenced significantly by job satisfaction, salary, preventable hospitalizations, and patient mortality, suggesting that maintaining proper workloads and practices to improve job satisfaction and reduce stress is necessary (Oh et al., 2021). Recruitment and retention of qualified healthcare professionals is not a new issue for the industry. A poll conducted by the Kaiser Family Foundation found that three in 10 healthcare workers considered leaving their profession, and about six in 10 expressed that the stress from the Pandemic has significantly impacted their mental health (AHA, 2021). Some primary challenges and causes for continued staffing issues can be attributed to emotional health, well-being, and burnout.

Purpose of the Integrative Review

This integrative review aims to provide strategies to address nursing staff shortages in the VHA. Identifying factors that impact nurse staffing, such as appropriate nurse-staffing ratios, can help improve conditions leading to nursing staff shortages. The US Government Accountability Office (GAO; 2017) found that the attrition rate of professional health roles was approximately 50 percent on average. One area that caused significant challenges in hiring, selecting, and onboarding employees stemmed from insufficient support for medical facilities from Human Resources, the inability to

compete with the other agencies, decreased numbers of qualified applicants, and decreased employee satisfaction. The data reference outside factors that have the potential to play a role in the negative impact on the quality of care for Veterans. According to Crowley et al. (2021), certain VHAs report higher cases of burnout than others, negatively impacting Veteran care and satisfaction and increasing employee turnover numbers. Improving the working conditions by providing up-to-date tools and programs to ease additional stress on healthcare professionals could lessen the turnover rate.

Various factors impact an employee's decision to stay or leave their current position, including safety, stress, workplace climate, and a sense of belonging (Abramson, 2022). Studies have identified that these factors can lead to burnout, decreased productivity, job dissatisfaction, and increased impact on patient outcomes (Edú-Valsania et al., 2022). The development of standardized staffing practices requires routine adjustments to account for unanticipated issues such as those from the COVID-19 pandemic. Through more effective employee engagement, communication, and support, the organization's climate can be adjusted to improve the factors negatively contributing to nurse staffing issues, which can be beneficial for the leadership in correctly identifying staffing issues to develop more accurate recruiting strategies to fill vacancies (VHA, 2023).

Integrative Review Question

The review question is, "What are the most effective strategies to improve the recruitment and retention of qualified nursing staff?" This question aligns with the Human Resources research domain. From a human resource approach, identifying

contributing factors in the nursing staff shortages can help identify potential actions and strategies to improve recruitment and retention of the nurse staff.

Theoretical Framework

Maslow's hierarchy of needs identifies universal needs that motivate human behavior. The process is laid out in a pyramid format, requiring the foundational level to be satisfied before advancing to the next level. The foundation of the process is physiological needs such as water, sleep, food, and other biological functions. The following three levels are not essential but are necessary to one's psychological well-being: safety, belonging or love, and esteem. According to Maslow, self-actualization is the top portion of the hierarchy, which entails fulfilling perceived potential (ACT, 2017).

Maslow's theory can be beneficial in guiding managers and hospital leadership to develop and implement motivational strategies that improve performance by evaluating the workplace culture and reassessing current organizational priorities and motivators. To improve working conditions, standards, and how we provide care, leadership needs to ensure the organization's current nursing staff are mentally and physically healthy, happy, and working while continuing to attract the best and brightest to grow future talent (Arruda, 2005). The belief that certain philosophical beliefs and expectations regarding environment, health, people, and nursing can be depicted in Maslow's hierarchy of needs theory. Leadership can use Maslow's hierarchy as a road map to assist recruitment and retention by identifying key drivers impacting human behavior.

The initial level is considered basic survival needs such as adequate wages, which impact shelter, food, utilities, and personal belongings. Once physiological needs are met, factors contributing to safety, such as nurse-to-patient ratios, training, benefits, and stress

in the workplace, can be addressed. The third level of the hierarchy is a sense of social

belonging, including pleasant working conditions and relationships, collaboration, and

respect. Self-esteem, or the feeling of accomplishment, includes the desire to achieve

goals, be competent in their role, and be recognized for good work, including timely

feedback, performance evaluations, and meaningful communication. Once all the prior

levels have been met, we attain self-actualization. Employees find fulfillment in their

roles and feel comfortable recognizing their potential through self-development, allowing

for the advancement of careers (Arruda, 2005). Completing all levels of the hierarchy is

key in maintaining the current workforce and allowing a clear path to continue effectively

recruiting talented new nursing staff for growth.

Figure 1

Maslow's Hierarchy of Needs and Relationships to Nurse Staffing Shortages (ACT, 2017)
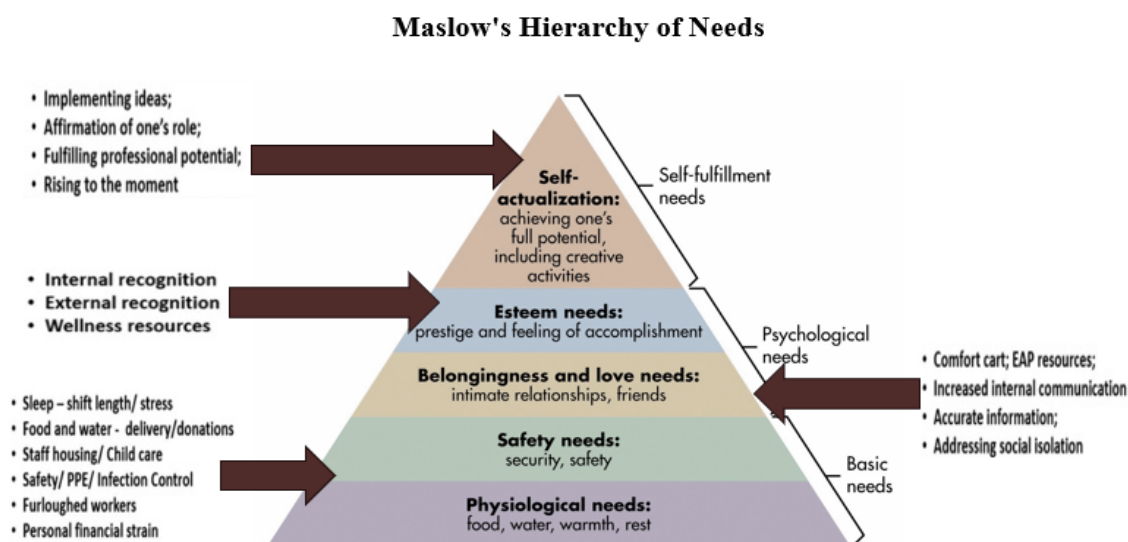
Part 2: Literature Review, Quality Appraisal, and Analysis

Literature Search Strategy

An integrative review of literature published in English between 2019 and 2023 was conducted. The database utilized included the Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline, Cochrane Database, and ProQuest. Hand-searching a reference list with forward and backward search yielded positive results in Google Scholar. The following keywords were used to find relevant literature: *nurse* OR *nursing staff shortages; best practices* OR *strategies nurse staffing* OR *leadership* AND *best practices for nurse staffing shortage* AND/OR *best practices recruitment;* OR *retention;* OR *human resources in healthcare;* OR *veterans affairs;* OR *Veterans Administration;* OR *Veterans Hospitals, nursing shortages,* OR *best practices;* OR/AND *nurse staffing rations, peer review,* OR *professional organization*. Keywords were linked by OR and utilized across all databases.

The inclusion and exclusion criteria used are outlined in Table 2. Limited literature discussing nursing staffing in the VHA was available, so the inclusion criteria were expanded to include relevant literature within hospitals. The target population was hospital-based Veteran Affairs nurses, yet including any nurses in hospital settings was necessary. Articles were accepted if they described either/or nurse staffing, recruitment, and retention in a hospital setting.

Table 2

Inclusion and Exclusion Search Criteria

Inclusion search criteria	Exclusion search criteria
• English language	• Long-term care facilities
• 2019-2023	• Maternity
• Hospital Nurses	• Pediatric care
• Human Resources	• Student nurses
• Nurse / Patient safety	• Focus on individual factors
• Best Practices	
• Staffing Methodologies	
• Department of Veterans Affairs	

Quality Appraisal

The search for quality articles or studies on effective recruitment and retention strategies of Veterans Affairs Nurses yielded many articles for review. The search parameters were adjusted for more defined criteria, which significantly reduced the literature for review. Initially, 91 articles were added to the search matrix for further review. Twenty-two were selected for further analysis using the Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP) and Research Evidence Appraisal form (Dang & Dearholt, 2022). The Johns Hopkins appraisal form provides a clear overview of each article or study; results of the findings are in Appendix C, the Appraisals Result Log, and helped guide the literature review process.

Articles for this review identified factors using set search parameters that affected an organization's ability to retain its current nurse staff and recruit new nurses. The literature included in this review were published between 2019 and 2023, and the intervention must have included nursing staff. The articles had to be written in English; all research was done in a hospital or acute care setting. The articles included were

assessed using the Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP) and Research Evidence Appraisal form (Dang & Dearholt, 2022). Twenty-two articles were included in the analysis. The appraisals resulted in 17 research articles and four non-research articles.

The evidence appraisal form was beneficial in identifying criteria for the project, including the type of HSO, research domain, findings that help answer the review question, metrics used, and any possible limitations of the literature. Addressing these key elements of the utilized literature continues to narrow down the most pertinent information needed from each article or study. The literature review found data and interventions that can be utilized to address the topic of the most effective recruitment and retention strategies for the ongoing nurse workforce shortages.

Thematic Analysis of Literature

The literature review addressed methods and processes to improve work conditions, adapt leadership styles, promote professional growth and development, and increase communication and engagement. Maslow's hierarchy of needs (ACT, 2017) provides the framework comprising central themes for the sub-themes and codes. Maslow's theory identifies universal needs that motivate human behavior. The process is laid out in a pyramid format, requiring the foundational level to be satisfied before advancing to the next level. The foundation of the process is physiological needs such as water, sleep, food, and other biological functions. The following three levels are not essential but are considered essential to one's psychological well-being: safety, belonging or love, and esteem. According to Maslow, self-actualization is the top portion of the hierarchy, which entails fulfilling perceived potential (ACT, 2017).

The initial codes identify workplace climate, culture, leadership, poor communication, lack of support, and growth opportunities as significant causes of nurse job dissatisfaction and intention to stay or leave their position. The nurses' skill level, education, and experience can impact the workload, stress, safety, and quality of care. The sub-themes identified from the literature review include organizational commitment, leadership, work environment and retention, engagement, and professional growth and development. Identifying initial codes and sub-themes in the literature helped to align them with the themes. Some sub-themes can be aligned under more than one theme and can help provide an overview of the areas to begin identifying areas of most concern that can assist with the ongoing retention and recruitment issues facing the healthcare industry. Below is a table of themes and frequencies found throughout the literature reviewed.

Table 3

Summary of Themes and Theme Frequencies

Themes	Frequency		
	High	Medium	Low
Physiological			
Organizational Culture		X	
Work environment and retention	X		
Scheduling Flexibilities			X
Safety Needs			
Organizational support	X		
Nurse engagement	X		
Belongingness/Needs			
Organizational commitment	X		
Strong communication	X		
Esteem Needs			
Collaborative workspace	X		
Training and education	X		
Self-Actualization			
Professional growth and development	X		
Mentorship for new nurses	X		

The literature analysis allowed for the elimination of irrelevant data that did not support answering the review question. Using Maslow's hierarchy of needs provided themes for the initial codes and sub-themes that assisted with identifying and grouping contributing factors from the literature impacting recruitment and retention. Through the data solicited from the literature, recurring patterns can be seen in the impact of a nurse's decision to remain at her current position and organization or leave the organization either for a different position or leave the profession.

Conclusion

There is a significant need for qualified healthcare professionals to fill industry-wide staffing vacancies. The US Government Accountability Office (GAO; 2017) found that the attrition rate of professional health roles was approximately 50 percent on average. The codes, sub-themes, and themes identified various factors that impact an employee's decision to stay or leave their current position, including safety, stress,

workplace climate, and a sense of belonging. Through more effective employee

engagement, communication, and support, the organization's climate can be adjusted to

improve the factors negatively contributing to staffing issues. These factors can help the

leadership identify staffing issues correctly and develop more accurate recruiting

strategies to fill vacancies.

Part 3: Presentation of Results

The purpose of this integrative review was to identify potential strategies for more effective recruitment and retention of nurses. Proper identification of factors contributing to nurses leaving their current role is instrumental to retaining the current workforce and establishing a foundation to promote future recruitment of nurses. Hospital administration, leaders, and managers can prevent further turnover by addressing the contributing factors to improve job satisfaction and the work environment and improve growth and professional development opportunities. Additionally, correctly identifying the current factors throughout the organization influencing the retention of the current nurse workforce and the recruitment of new nurses can allow healthcare administrators, managers, and leadership to create better processes for recruitment and retention through more realistic and competitive opportunities.

The framework used for this review, Maslow's hierarchy of needs, guided how each article's themes and sub-themes were gathered and organized. The five levels of Maslow's hierarchy were used to identify the main themes: physiological, safety, belonging, esteem, and self-actualization. The first two themes can overlap in sub-themes as they represent areas impacting the most basic needs. Sub-themes were developed from initial codes in the literature analyzed and are listed below.

Thematic Map

The thematic map in Appendix E corresponds to the themes and subthemes presented in this section. The thematic map was integral to the successful completion of this project and was developed through a series of activities beginning with a thorough literature search of articles related to the review question, in which 92 articles were

selected for further analysis. Of the initial 92 articles, 22 were selected for a Johns

Hopkins analysis and in-depth appraisal (Appendix C). These articles were then further

analyzed for themes and subthemes by conducting a thematic analysis (Appendix D),

with the final results used to create the thematic map (Appendix E) as an illustrative and

educational way to communicate the problem connections to the solving themes.

Physiological

    a. *Scheduling flexibilities*: Any opportunity to accommodate varying shifts, or is there any room for flexibility that could ease workload burden and help with work-life balance.

    b. *Environment*: Inadequate staff can lead to longer hours and increased stress due to the number of patients per shift and the varied levels of care that are possibly needed.

    c. *Organizational culture*: The methods by which leadership operates, communicates, and what is perceived as most important to the organization.

Safety

    a. *Organizational support*: Without necessary support and equipment, there can be more instances of stress, injury, and inability to perform the job effectively.

    b. *Nurse engagement*: Can impact safety, quality, and patient outcomes.

Belonging

    a. *Strong communication*: Helps with understanding one's role and expectations, promoting an inclusive environment where everyone feels involved.

b. *Organizational commitment*: Staff's connection with the organization can help with job satisfaction and predict their intention to stay with the organization or the profession.

Esteem:

a. *Collaborative Workspace:* This will allow nurses of different capabilities to work together and continue to improve the knowledge and skill sets necessary for different patient needs.

b. *Training and education:* Providing opportunities for additional training can allow nurses to build upon the foundation of knowledge they have established.

Self-Actualization:

a. *Mentorship for new nurses:* Mentorship requires skilled nurses to guide new nurses, which is crucial to bringing them into the field and helping them find their passion.

b. *Professional growth and development:* It is necessary to provide options to more seasoned nurses at the top of their role, such as establishing as a manager or in some leadership role, to continue to share experience and knowledge with the newer, less experienced workforce.

Interpretation of the Findings

The literature analyzed for this review identified multiple factors that fit into the foundation of Maslow's hierarchy. The key findings contributing to the retention of current nurses and the recruitment of new nurses include good working conditions, effective nurse engagement, and reduced burnout due to better organizational support, effective and open communication, and better work-life balance, leading to better job

satisfaction. The literature suggest that better inter-professional working relationships, collaboration, flexible schedules and hours, and opportunities that engaged the nurse in opportunities for professional growth and development led to a better reputation for the organization, happier and more satisfied staff, and improved retention of staff as there was more of a sense of belonging and commitment to the organization. These findings show the connection between the contributing factors impacting retention and recruitment and Maslow's hierarchy of needs from the physiological, safety, and esteem standpoint. Healthcare administrators, managers, and leadership can use these findings to develop the current organization to sustain and grow the nurse workforce.

Physiological

The physiological theme represents the factors contributing to nurses leaving their department, organization, or profession. Maslow's hierarchy explains physiological needs as those supporting basic human needs such as sleep, health, family needs, and work-life balance. These areas are crucial in addressing the exodus of the current nursing workforce and can hinder new recruitment efforts. The sub-themes identified under the physiological theme are organizational culture, work environment, and scheduling flexibilities.

Organizational Culture

Organizational culture reflects the values and actions, either actual or perceived, and is a factor in the decision to depart an organization. The organization's culture can guide working relationships, engagement, and overall, what is essential for the success and quality of the organization and is driven by leadership. Improving leadership within a department or organization can assist in guiding, motivating, and promoting a more

positive and collaborative atmosphere where nurses feel valued. Leaders who are person-centered, resonant, and transformational can significantly improve the retention of nurses by developing more meaningful workplace experiences within the organization (Cardiff et al., 2023). Continued improvements throughout the organization and the retention of current nursing staff build a strong foundation that can support the recruitment of new nurses and allow for better mentoring and training opportunities to continue to build the nursing workforce.

Work Environment

Organizational leadership is instrumental in establishing a healthy workplace environment for nurses by identifying and addressing factors contributing to longer hours, increased work-related stress, decreased quality and safety, and increased mortality rates (Skarbek et al., 2022). The methods by which leadership operates communicate what is perceived as most important to the organization. Understanding what is important to the nurses currently employed, as well as the needs of nurses at varying stages of their professional careers, can be instrumental in making necessary adjustments to correct the organization's culture (Pressley et al., 2023). Trying to develop strategies to recruit and retain more successfully requires the understanding that not all nurses are seeking the same thing; decisions and parameters are unique to each person, their situation, and their needs, so the ability to adapt and provide flexibility for each potential candidate is necessary.

Using clinical nurses in committees and workgroups to address the contributing factors that impact the work environment is instrumental in correctly identifying necessary resources needed to improve conditions and deliver high-quality, safe services.

By including nurses in the process improvement efforts, leadership shows the staff that their issues and concerns are heard and can improve the current work environment. The intention to leave the organization may improve. According to Nikpour et al. (2023), improved work environments in any setting significantly improve job satisfaction and lead to lower instances of burnout.

Scheduling Flexibilities

Any opportunity to accommodate varying shifts, such as providing room for flexibility, could ease the workload burden. Having the ability to rotate patient care among nurses to allow the added stress of more complex patient care to be divided more evenly can help reduce stress, burnout, and emotional exhaustion. More veteran nurses have the training and experience to adequately manage heavier workloads. Between 2020 and 2022, the average age of nurses decreased from 52 to 46, indicating reduced tenured and experienced nurses able to assist with heavier work schedules and training of new nurses (Sanborn, 2023). Offering opportunities for more tenured nurses to be involved in quality improvement efforts, recruitment actions, and other organizational or manager roles can entice these nurses to remain with the organization in a different capacity. Providing more flexibility to accommodate the needs of the current nurse workforce could provide better options to encourage more retention of experienced nurses.

Safety

Safety is needed to ensure physical and emotional protection for employees. Maslow's hierarchy explains that physiological and safety needs are the foundation required for one to feel secure. The sub-themes identified under the physiological theme are organizational culture, work environment, organizational support, nurse engagement,

and scheduling flexibilities. Like physiological needs, safety is a critical area that can be a crucial determinant of the organization's ability to keep and maintain its current nurse workforce and successfully recruit new talent. The sub-themes for safety are organizational support and nurse engagement.

Organizational Support

Without necessary support and equipment, instances of stress, injury, and inability to effectively perform the job will increase. To identify areas needing to be addressed, hospital leadership must actively seek employee feedback. Organizations need to work towards developing policies and legislation supporting adequate nurse staffing. The solution will be multitiered and require leadership to reimagine and innovate current workflow processes, human resources involvement, and workplace wellness programs to help reduce and eliminate burnout and improve nurse retention and future recruitment efforts (Shah et al., 2021).

Nurse Engagement

Nurse engagement can impact safety, quality, and patient outcomes. Developing an environment that promotes effective communication, teamwork between nurses and physicians, and support from leadership creates more engagement and a sense of belonging within the organization. Fostering an environment that supports and encourages professional development and autonomy can positively impact nurses' commitment to their organization and improve their intent to stay (Cardiff et al., 2023). When the organization promotes an inclusive work environment, employees feel more valued and part of the team, allowing for improved confidence and overall well-being. Collaboration allows for a shared workload and more opportunities for feedback and

guidance among team members. The team's strengths vary depending on the experience, training, and education; facilitating collaboration promotes growth and cultivates nurse resiliency, improved working relationships, and a better work environment (Wei et al., 2019).

Belonging

Feeling connected to the organization can mean different things to different nurses. Change-related self-efficacy (CSE) represents the belief one has in one's ability to adapt to and with change effectively and can be connected to improvement in one's well-being, outcome, and satisfaction with one's job, which can create a sense of belonging and reduce the intention to leave (Vardaman et al., 2020). When nurses feel connected to their co-workers, department, and organization, they feel more committed and have less desire to leave. The sub-themes under belonging are strong communication and organizational commitment.

Strong Communication

Understanding one's role and expectations helps promote an inclusive environment where everyone feels involved. Encouraging social support networks and group or team meetings can help identify areas that are working and those that are not so interventions can be developed or implemented (Swamy et al., 2020). Communication is necessary for effective collaboration and teamwork and helps maintain a healthy work environment.

Organizational Commitment

The connection staff have with the organization can help improve job satisfaction and indicate the intention to stay with the organization or the profession. Generational

factors can impact the commitment one has to their organization; the intention to stay with an organization is higher with more seasoned nurses who typically have more experience, training, and education compared to newer nurses seeking quicker gratification and satisfaction with their job (Al Yahyaei et al., 2022). When nurses feel connected to their co-workers, department, and organization, they feel more committed and have less desire to leave.

Esteem

Building through Maslow's hierarchy, esteem can be established through the continued development of skills and confidence in one's ability to perform within one's current role, as the previous themes and subthemes identified areas that can be addressed to retain the current workforce. Continued improvements throughout the organization and the retention of current nursing staff build a strong foundation that can support the recruitment of new nurses and allow for better mentoring and training opportunities to continue to build the nursing workforce. The sub-themes identified under the esteem are collaborative workspace and training and education.

Collaborative Workspace

The skills and capabilities of the nursing workforce vary significantly depending on the level of education, experience, and specialized training. The diversity of nurses can be beneficial if the organization promotes a collaborative workspace, encouraging a mix of nurses with varying skill sets to work together to provide quality patient care. Skill level can also determine the level of effective delivery of patient care. Length of stay can be impacted depending upon the level of care delivered to the patient. Care delivered in an environment with fewer registered nurses and more licensed practical nurses (LPNs)

or unlicensed or contract personnel, the length of stay can be longer for the patient and place more strain on the already stressed workforce (Winter et al., 2021).

When the organization promotes an inclusive work environment, employees feel more valued and part of the team, allowing for improved confidence and overall well-being. Collaboration allows for a shared workload and more opportunities for feedback and guidance among team members. The team's strengths vary depending on the experience, training, and education; facilitating collaboration promotes growth and cultivates nurse resiliency, improved working relationships, and a better work environment (Wei et al., 2019).

Working as a team is necessary to improve the environment and factors contributing to stress and burnout. When each team member understands their role and the importance of collaboration with their team members, there will be better continuity of care for patients, improved safety, and improved staff morale. When a variety of skill sets are present due to experience, training, education, and time on the job, teamwork can significantly improve the retention of new nurses through more hands-on training and knowledge from more tenured nurses. Using internship or residency-type programs that last longer can significantly improve retention and reduce early turnover of new nurses through collaboration with other skilled nurses (Brook et al., 2019).

Training and Education

Providing access to training and education opportunities for professional development is instrumental in retaining current nursing staff. Nurturing growth is critical in promoting professional and personal growth for new and veteran nurses (Wei et al., 2019). Furthering training and education is beneficial for nursing staff to adapt to better accommodate increased patient acuities and ongoing shortages.

Self-Actualization

Self-actualization comes through confidence in one's abilities, feeling that they are a valued member of the organization, and a sense of professional growth and leadership traits. The retention of skilled nurses can be accomplished by addressing identified factors leading to the intention to leave the workplace or profession by developing a healthy work environment. In recruitment efforts, internship or residency programs have proven to be instrumental in preparing new nurses for their new profession through hands-on training in various specialties. Having confident, skilled nurses who can work autonomously provides a great example to new nurses about what they can expect in their profession. The sub-themes identified for new nurses and professional growth and development under self-actualization mentorship.

Mentorship for New Nurses

Newly Licensed Registered Nurses (NLRNs) typically begin their career in a hospital setting. Offering options for newly registered nurses to explore the career field more closely and with more skilled and tenured nurses will allow for confidence to be developed and guidance to be provided that cannot be gained from textbooks. Providing an opportunity for more practice assessments, developing clinical judgments, and patient

care with constructive feedback in a safe setting can help new nurses gain confidence in their abilities and build invaluable skills. Internships or mentorship of NLRNs offer formal training in a clinical setting, which provides realistic expectations, ensuring better clinical and social acclimation for success (Torres et al., 2022). Providing opportunities to train and retain registered nurses is imperative to improving the nurse staffing issues the industry is facing.

Understanding the mental and physical impacts of the profession and how to address issues that can lead to burnout early on, with the help of those who have experienced these emotions firsthand, can benefit nurses who have not developed the coping mechanisms required for the job. Nurses exposed to more patient deaths and complex health conditions are more likely to leave their role due to increased emotional distress. Most patients receiving care through a Veterans Hospital are over the age of 65 and typically have more physical wounds, instances of traumatic brain injuries (TBI), and post-traumatic stress disorder (PTSD) compared to non-veteran patients who require more complex care (Oh et al., 2022). These patients are also at higher risk for adverse outcomes, which, over time, can lead to burnout and stress for nurses. Creating and implementing policies that provide resources to nurses to aid in overcoming grief and added stress due to patient death, while continuing to provide patient care to veterans could benefit the staff and improve the retention of current nurses (Oh et al., 2022).

Professional Growth and Development

Self-actualization comes through confidence in one's abilities, feeling that they are a valued member of the organization, and promoting a sense of professional growth and leadership traits. The retention of skilled nurses can be accomplished by addressing

identified factors leading to the intention to leave the workplace or profession by developing a healthy work environment. In the recruitment efforts, internship or residency programs have proven to be instrumental in preparing new nurses for their new profession through hands-on training in various specialties. Having confident, skilled nurses who can work autonomously provides a great example to new nurses about what they can expect in their profession.

Nursing is an ever-changing and challenging profession that, if not adequately supported, can and has led to higher turnover and worldwide shortages. Promoting professional growth can include manager or leadership opportunities, increased autonomy, participation in committees and projects, and allowing for more skilled and tenured nurses to be involved in the development process for newer nurses while improving the intent to stay (Cardiff et al., 2023). Providing access to training and education opportunities for professional development is instrumental in retaining current nursing staff. Nurturing growth is critical in promoting professional and personal growth for new and veteran nurses (Wei et al., 2019). Furthering training and education is beneficial to allow nursing staff to adapt to better accommodate increased patient acuities and ongoing shortages.

Part 4: Recommendation for Professional Practice and Implications for Social Change

Recommendations for Professional Practice

Maslow's hierarchy of needs is the framework used to identify themes as contributing factors in a nurse's intention to stay or leave an organization. This framework explains specific universal needs that motivate human behavior. Correctly identifying and addressing these contributing factors within an organization can help leadership and managers develop and implement processes that can improve current conditions and standards of practice. Leadership's ability to expand engagement, provide more effective communication, and support the organization's nursing staff can influence the workplace climate, improve retention capabilities, and address issues hindering the effective recruitment of new nurses to fill vacancies (VHA, 2023).

Leadership is instrumental in nurses' perception of their importance to the organization. Individuals who feel the organization views them as unique, valuable, and essential will feel more committed to and included in the organization. Maslow's theory explains the significance of meeting needs and how, if not met, there will be a sense of discontent, disappointment, and disengagement. Providing for the most basic physiological needs of the nursing staff fosters an increased feeling of inclusion, which will lead to better engagement, improved outcomes, lower burnout and turnover, and improved job satisfaction (Giuffrida et al., 2024). Once the drivers impacting human behavior are identified, leadership can use Maslow's theory as a road map to assist recruitment and retention. Completing all levels is vital in maintaining the current workforce and establishing a clear path to effectively recruiting talented new nursing staff for growth.

Figure 2

Maslow's Hierarchy of Needs and Connections to Themes and Solutions (ACT, 2017)

Framework - Maslows Hierarchy of Needs
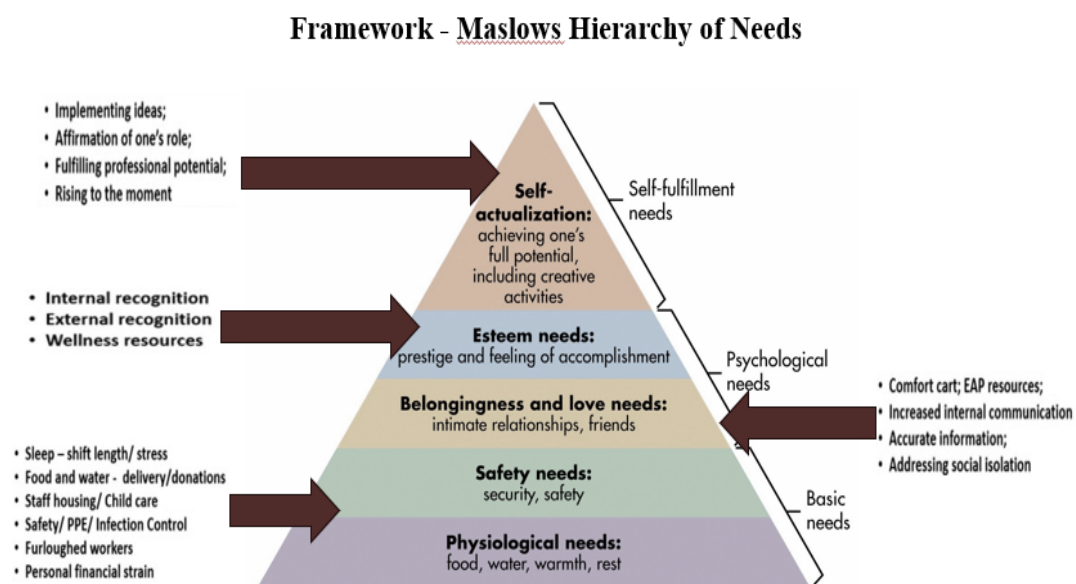
Physiological and Safety Needs

Culture and Environment

The physiological theme comprises factors that impact basic needs necessary for a solid foundation, such as health, sleep, family needs, and work-life balance. Improving working conditions can include involving nurses in the decision-making process, developing better relationships between nurses, providers, and leadership, and access to adequate resources, all of which can lead to reduced mortality rates, lower readmission rates, and higher quality of care (Nikpour et al., 2023). How the nursing workforce perceives the current organizational culture drives collaboration, engagement, and the quality and success of the organization. The foundation of Maslow's hierarchy includes the sub-themes of the environment, engagement of nurses, scheduling flexibilities, and collaborative workspace. The organization's leadership needs to understand the needs of

the current workforce by addressing salary, benefits, and job security, as well as ensuring

they are practicing better effective leadership traits and qualities for their current and

future nurses (Al Zamel et al., 2020).

Nurse Engagement

Connections with an organization influence the intention to stay or leave one's

current position, department, or profession. When nurses face insufficient resources, a

lack of adequate qualified nurses, and management is unsupportive or disengaged, the

connection nurses could or do have with their employer can be broken. The lack of

connection leads to dissatisfaction with the job, added stress, and burnout. The

deterioration of the nurse's engagement with the organization leads to increased mortality

rates, higher readmission rates, and decreased quality of patient care (Nikpour et al.,

2023).

Scheduling Flexibilities

Flexibility in healthcare is necessary as there is no room for complacency and

rigidity. Without sufficient nursing staff, the ability to provide flexibility for nurses and

help accommodate a better work-life balance can be challenging and unfeasible. Rotating

shifts and patients of varying complexities and acuity can help disperse nurses' workload

more evenly. Most patients in a Veterans' hospital are over 65, with injuries and

illnesses requiring more complex care from more skilled and experienced nurses than

non-veteran patients (Oh et al., 2021).

The continued nurse shortages due to more experienced nurses leaving their jobs

and decreased numbers of graduating nurses are driving the increased workloads,

burnout, and stress of the nurses remaining. Some occupations throughout the VHA are

identified as having severe shortages. In 2023, 3,118 position shortages identified as severe increased from 2022 by 19%, and nurses comprised 92% of those vacancies (Katz, 2023). The continued instances of nurse staffing shortages and increased vacancy rates hinder the ability to address effective nurse-patient ratios for current staff to alleviate continued and increasing workload stress.

Belonging

The connection developed with the organization is crucial to nurses' commitment and loyalty to their department and employer. The sub-themes of belonging are communication, engagement, team building, commitment, and transformational leadership. The nursing profession experiences frequent changes and uncertainty, causing routines and work habits to be disrupted. These sub-themes are intertwined, and inadequacies in any area can decrease the sense of commitment and belonging that can retain nurses and diminish the chances of recruiting new nurses.

At every level, promoting social support networks, encouraging teamwork, practicing effective communication, and varying leadership styles to improve the culture and working environment are necessary to cultivate a more inclusive and diverse workforce. Working with various services, clinicians, and nurses requires teamwork, collaboration, and communication to ensure everyone knows and understands their role will provide a healthy work environment. Communication and collaboration can help build confidence in one's ability to perform and adapt to the constant practice changes in healthcare. The connection and fit developed within the organization can decrease the intention to leave an organization, department, or profession and provide more

confidence in adapting and handling the ubiquity of nursing change (Vardaman et al., 2020).

Esteem and Self-Actualization

The peak of the hierarchy is esteem needs and self-actualization. Bringing the nurse to this level allows for a greater sense of being enough, having confidence in one's abilities, and even striving for more. Collaboration is instrumental and beneficial at these levels, as the nurse's skill mix and competency level can differ significantly. Allowing experienced nurses to take a more managerial or lead role with their fellow nurses assists in mentorship that can promote internal growth for current nurses and help new nurses develop critical skills. Autonomy, competency, and leader or manager relationships are essential for nurses to feel secure in a role and promote growth.

Organizational leadership can benefit from including nurses in more governance roles due to the insight that can be provided from the clinical care delivery side. Creating opportunities for professional growth and development for more experienced nurses allows for more diverse input and discussion from different perspectives, promotes collaboration, improves job satisfaction, and secures better organizational commitment, improving retention of experienced nurses (Cardiff et al., 2023). Mentorship of new nurses requires experienced nursing staff to afford the opportunity to develop skills, demonstrate competency in basic and specialized areas of care, assimilate into the role, develop healthy working relationships, and receive necessary feedback and proper accolades, building confidence in their capabilities (Torres et al., 2022). By providing roles in a leadership or managerial position, the organization establishes a route for better

retention of tenured nurses and a process for training and mentoring less experienced nurses.

Maslow's hierarchy can provide a solid foundation for organizational change that will lead to better opportunities to retain experienced nurses and address factors that impact the ability to recruit more nurses. Maintaining a variety of skilled nurses improves the ability to disperse patient care to alleviate undue stress, provides the ability to pass knowledge and critical skills to the younger generation of new nurses, and maintains a process for professional growth and development of more tenured nursing staff. Involving nurses in the decision-making process improves diversity in outcomes, builds positive working relationships with leadership, and improves the working environment for all nursing staff (Nikpour et al., 2023).

Implications for Social Change

The shortage of nurses is a critical worldwide crisis that needs to be addressed. The continued shortages of experienced and qualified nurses are causing undue stress and burden on an already strained healthcare system. In the VHA, the most significant number of patients are over the age of 65 and typically have multiple chronic health conditions requiring more care specialties and the use of resources. The use of nurse-to-patient ratios might be difficult to define; however, the use of federal legislation H.R.2530 and S.1113 sets parameters for the number of patients assigned to a nurse at any given time. This legislation provides guidance for safer and more sustainable working conditions while providing proper, optimal, and safe patient care (Svetvilas et al., 2023).

Nurses are instrumental in collecting data and information on patients' backgrounds and histories, including any social and health inequities, to help promote more equitable care and services. The continued lack of adequate nursing staff can negatively impact the patient's safety, health outcome, and understanding of disease prevention. Veterans in rural communities lose access to the invaluable resources and education their nurses provide due to a lack of staffing in the local communities.

The themes and sub-themes identified through Maslow's hierarchy and the literature review for the study explore the contributing factors causing nurses to be overworked, experience higher instances of stress and burnout, and continue to leave the profession. Addressing the contributing factors that are driving nurses away from their positions and even the profession and influencing the decisions of new nurses to join the profession is critical to improving the current staffing crisis. Improving the conditions and growing the nurse staffing capabilities is instrumental in improving access to care and resources that impact the population's current and future health conditions. The introduction of the PACT Act allows facilities to prioritize critical areas needing additional staff and offer appropriate and equitable salary benefits to nurses. The ability to become more competitive and offer greater flexibility can allow vacancies in areas most need nurses a better opportunity to be recruited. This benefits the patient population through access to more services while adequately compensating the nurses for their jobs.

Through the RAISE Act, expanded telehealth services and salary caps for nurses can be offered. Patients in more rural communities and those with decreased mobility could benefit from this legislation by having more opportunities for telehealth appointments and increased access to services. Having the opportunity to compensate

nurses adequately can lead to increased nursing staff, which can improve patient access to care. Adequate staffing of nurses can provide access to education and information regarding health conditions that can assist in improving patient outcomes, guide appropriate treatment plans, decrease hospitalizations, reduce costs, and help prevent further illnesses for our Veteran populations.

Limitations

The review sought to identify the most effective recruitment strategies to address nurse staffing shortages. Successful and practical strategies to improve the recruitment of nurses have not been consistently proven and tested. Nurse staffing ratios are used in some states but have not been proven wholly adequate, and identifying optimal staffing requirements has proven difficult. The use of longer, more extensive mentors and internships has yielded some positive results. However, extensive data is unavailable, and more studies must be completed to support the process's effectiveness. Maslow's hierarchy provided the theory for this review and identified more universal needs that could benefit managers and organizations in process improvements. Applying Maslow's theory specifically to recruiting nurses could be beneficial to developing more successful strategies for future recruitment.

Conclusion

Nursing shortages are a worldwide issue due to the continued decrease in graduates entering the workforce and increasing numbers of nurses leaving. Various factors impact the effective recruitment and retention of qualified nurses, and these should be addressed according to the needs of the nurses. Maslow's hierarchy of needs identifies the essential universal needs that motivate human behaviors. Hospital

leadership and managers can review current practices to include salary, benefits, growth opportunities, work environment, leadership styles, effectiveness, and how the current workforce perceives the organization's culture.

Recruitment strategies can be more successful if the current workforce feels a sense of belonging to the organization, has connections with their coworkers, and views themselves as essential and valued by their managers and the organization. Once retention capabilities improve, the intention to leave an organization decreases, and satisfaction with the organization improves, and the opportunity for new nurses will be more appealing. The success or failure of recruitment and retention strategies for the nurse workforce hinges upon the ability of the leadership and managers to address all areas of concern contributing to the continued staffing insufficiencies. Maslow's hierarchy identifies the universal needs that must be met and has them classified as a progressive process where one part needs to be satisfied to move to the next set of needs. Leadership and managers can use Maslow's theory to develop and implement program and process improvements that address the current organizational and departmental deficiencies harming the nurse workforce. The contributing factors that lead to additional stress, increased burnout, job dissatisfaction, lack of empathy, increased mortality rates, and poorer quality of care for nurses are physically, mentally, and emotionally harmful.

Continually addressing the factors harming the current workforce and preventing the growth of the nursing profession are instrumental in improving the current state of the worldwide nurse staffing shortages. The needs identified in Maslow's theory are basic. They can be addressed to improve the standards throughout the healthcare industry and provide a better outcome for all current and future nurses. Managers and leaders have

identified factors contributing to the ongoing nurse staffing shortages. They must take the

necessary steps to correct these issues for the organization's future success. Nurses need

to feel a sense of commitment and belonging to their organization, which can be

accomplished through promoting a culture of transparency, collaboration, trust, fairness,

inclusion, and diversity.

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Author/ date	Theoretical/ conceptual framework	Research question(s)/ hypotheses	Methodology	Analysis & results	Conclusions	Implications for future research	Implications for practice	Empirical research? (Yes or No)
Adjognon, Omonyêlé Cohen-Bearak, Adena Kaitz, Jenesse; Bokhour, Barbara Chatelain, Leslie ; Charns, Martin P. Mohr, David C. (2023)	N/A	What factors affect the implementation of employee whole health in the VA?	A cross-sectional qualitative evaluation based on the action research model reflects on the organizational implementation of EWH. Semi-structured 60-minute phone interviews were conducted from February to April 2021 with 27 key informants (e.g., EWH coordinator, wellness/occupational health staff) knowledgeable about EWH implementation across 10 VA medical centers.	Eight common factors in the conceptual model that facilitated and hindered EWH implementation efforts: EWH initiatives, multilevel leadership support, alignment, integration, employee engagement, communication, staffing, and culture. The impact of the COVID-19 pandemic on EWH implementation was an emergent factor.	The evaluation findings can help existing programs address known implementation barriers, inform new sites to benefit from known facilitators, anticipate and address barriers, and leverage evaluation recommendations through intensive implementation at the organization, process, and employee levels to jump-start their EWH program implementation.	The connection between critical factors identifies the need to address implementation at three levels: organizational, through EWH activities and performance, and by encouraging staff participation.	Implementing employee wellness programs like EWH may be critical to supporting an ever-stressed healthcare workforce. Multilevel changes need to be implemented in individual organizations.	No
Al Yahyaei, A., Hewison, A., Efstathiou, N., & Carrick-	N/A	What factors may influence the intention to stay and the role of the work environment in enhancing nurses' intent	A comprehensive search was performed for relevant articles published between 1990 and December 2017 using the following electronic	A total of 4968 studies were screened by title, abstract, and full-text review, and 29 studies were included in this review. Intention to stay was	Evidence indicates that attention to different variables such as organizational characteristics and work environment is	The study identified intention to stay predictors such as job characteristics, organization climate, working	The healthcare administrator can use identified intent to stay or leave factors to address throughout the organization to	Yes

Sen, D. (2022).		to remain in the work environment?	databases: Allied and Complementary Medicine Database (AMED), Excerpta Medica dataBASE (EMBASE), ProQuest Nursing & Allied Health Source, ProQuest theses and dissertations, Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus, MEDLINE (Ovid) and PsycINFO.	grouped into four categories: individual indicators (personal and professional), organization/profile, work environment, and patient related. Several working environment variables were also identified in this review and were significantly associated with the nurses' intention to stay.	vital to improving, and nurses' intention to stay is to increase.	conditions, and perceived role value.	address staffing concerns.	
Crabtree, Sandra Kundrik Leh, Sandra (2022).	N/A	What is the correlation between nurse staffing and clinical outcomes?	The evidence-based project was set in a 147-bed community hospital, including six inpatient and emergency departments. The project was designed to guarantee appropriate RN staffing on all shifts, seven days a week, to reduce over- and under-staffing issues and premium pay.	In the six weeks of data collection (January 31, 2021, through March 13, 2021), the outcome of the quality improvement predictive staffing model demonstrated an increase in premium pay after implementing the new staffing and scheduling model. The total dollars spent on premium pay were $98,524 in	The nursing profession will continue to face staffing shortages while healthcare needs grow. To deliver quality patient care, there need to be adequate nurse staffing requirements while creating a flexible nursing workforce. To provide the quality care patients deserve, adequate nurse staffing requirements	Standardizing nurse staffing and scheduling practices with fair and consistent staffing guidelines is an effective method to move forward and serve patients and staff.	A longer implementation duration is needed to continue developing the redesign of the staffing practices and work.	No

				2019, $78,999 in 2020, and $272,799 in 2021. A 275% increase in premium pay	must be completed while building a flexible nursing workforce.			
Fasoli, DiJon R. Fincke, Benjamin G. Haddock, Kathlyn Sue (2011).	N/A	Can patient classification systems be used to develop better staffing models?	A systematic literature review was conducted on patient acuity systems used for nurse staffing. After reviewing the literature, a panel of interdisciplinary experts further evaluated variables for measurability and validity.	Of the 58 articles, none were scientifically rigorous reviews. There were vital studies that provided evidence that was relevant to this study.	Based on the findings of this review, the VA ONS introduced a national policy that directed all facilities to implement this staffing methodology. Other healthcare systems could adopt this evidence-based approach.	A more standardized staffing methodology can be instrumental in managing staffing levels throughout all VA healthcare facilities.	Using standardized staffing models can ensure all facilities maintain adequate nurse staffing levels to accommodate the patient's needs and can help better mitigate burnout and further shortages.	Yes
Hatef, E., Searle, K. M., Predmore, Z., Lasser, E. C., Kharrazi, H., Nelson, K., Sylling, P., Curtis, I., Fihn, S. D., & Weiner, J. P. (2019)	N/A	How do individual and geographical social determinants of health affect the risk of patient hospitalizations?	Data was extracted from healthcare records and census data related to social determinants of health factors across the US.	In 2015, 6.63% of the Veterans Health Administration population was hospitalized. Most hospitalized patients were male (93.40%) and white (68.80%); the mean age was 64.5 years. The spatial-based analysis presented variations in the hospitalization	According to Hatef et al. (2019), population health interventions can be developed based on the connection between the population, patient data, and social determinants of health assessments.	Identifying the areas at most risk or in need can assist in developing the organization's processes and address staffing models and departmental needs that best suit the needs of the patient population.	Increasing the data by including more data about different social factors, such as hospitalization and readmission risk, would improve the prediction of health outcomes,	Yes

					rate across the country.			
Hughes, Ashley Keys, Yolanda Peck, Jessica Garcia, Theresa (2021)	N/A	What is the connection between staffing shortages and the Veterans' access to quality care?	A quality improvement (QI) project was conducted through program evaluation methods of the Anticipated Turnover Scale (ATS) and the Misener NP Job Satisfaction Scale (MNPJSS).	A seven-point Likert scale explored several demographic areas and the employees' perception or opinion of the possibility of voluntarily terminating their present job.	Seven participants completed the study. None answered all the questions. Of the forty-three questions asked, 55.8% answered as dissatisfied, and 44.2% responded as satisfied.	This study identified seven factors that can be used for further investigation and research: Recognition, Shared governance, Orientation, Full practice authority Collaboration, Organizational workflow maps, and Mentoring.	Further research must address the reasons for costly nurse practitioner turnover.	No
Janine J Wong 1, Richard P SoRelle, Christine Yang, Melissa K Knox, Sylvia J Hysong, Lynette E Dorsey, Patrick N O'Mahen, Laura A Petersen (2023)	N/A	Understanding the perception and use of data in the Veterans Health Administration by Nurse Leaders.	A qualitative descriptive design was used to gather nurse leaders' perceptions of data related to inpatient staffing management decisions and what is needed to improve evidence-based nursing care.	Applications of data can benefit patients and providers in many areas. With the appropriate tools to utilize data for its intended purpose, nurse managers can make accurate, timely, evidence-based decisions supporting a thriving learning healthcare system.	The results highlight the importance of data for collaborative, evidence-based nursing management at the VA, from nurse managers who make direct care delivery decisions on the unit floor to senior leadership with broader nursing oversight across the VA system.	Further research is imperative for more in-depth identification of data that accounts for nursing culture, priorities, and challenges to optimize data systems.	Identified results highlight the importance of data's role in the VA's collaborative, evidence-based nursing management, from nurse managers who make direct care delivery decisions on the unit floor to senior leadership with a broader nursing oversight across the VA system.	No

Jarosinski, J. M., Seldomridge, L., Reid, T. P., & Willey, J. (2022).	N/A	What are the perspectives of Nursing program administrators regarding the nurse faculty shortages?	Researchers used a 7-stage Heideggerian hermeneutic analysis. Recruitment efforts included emails, telephone calls, and word of mouth. Twenty-four nursing program administrators from 8 community colleges and eight universities with varied populations and programs participated.	Four themes were identified: onboarding and integration, "elephant in the room," making do: getting by, and changing expectations. Across the board, the constitutive pattern was climate change within the education environment.	The authors explained areas such as increased workloads, practice and academic disparities, and workplace climate deterioration as contributing factors to the inability to meet workforce demands.	Identifying contributing factors impacting the ability to recruit and onboard nursing staff can be vital in improving the process and filling vacancies.	Further research is needed with a more extensive and diverse group of nursing program administrators to learn more about their experiences with the nursing faculty shortage post-pandemic.	Yes
Jin Juna, Melissa M. Ojemeni, Richard Kalamani, Jonathan Tong, Matthew L. Crecelius (2020).	N/A	What are the associations between nurse burnout and patient and hospital organizational outcomes?	A systematic review following Preferred Reporting Items for Systematic Reviews and Meta-Analyses were conducted. PubMed, CINAHL, and PsycINFO, the search engines used were Scopus and Embase. Inclusion criteria were any primary studies examining burnout among nurses.	Twenty studies were included in the review. Identified organizational-related outcomes associated. with nurse burnout were (1) patient safety, (2) quality of care, (3) nurses' organizational commitment, (4) nurse productivity, and (5) patient satisfaction. For these themes, nurse burnout was consistently	Nurse burnout is an occupational hazard affecting nurses, patients, organizations, and society . Burnout is associated with worsening safety, quality of care, decreased patient satisfaction, organizational commitment, and productivity.	We need to address and identify burnout as more of an organizational and collective incident, providing a broader perspective necessary to address nurse burnout.	As healthcare administrators, it is imperative that efforts to reduce burnout in clinical settings must be multi-prong approaches at the individual, group, and organizational levels.	Yes

				inversely associated with outcome measures.				
Lakshmana Swamy, MD, MBA; David Mohr, Ph.D.; Amanda Blok, Ph.D., MSN, PHCNS-BC; Ekaterina Anderson, Ph.D.; Martin Charns, DBA; Renda Soylemez Wiener, MD, MPH; Seppo Rinne, MD, Ph.D. (2020)	N/A	What is the frequency of burnout and individual and organizational characteristics associated with burnout among critical care nurses across a national integrated health care system?	An observational study was conducted using self-reported survey data combined with site characteristics. The 2017 survey consisted of 2352 critical care nurses from 94 sites. Site-level workplace climate was assessed using 2016 survey data from 2191 critical care nurses.	The results for the identified workplace climate components were like the global climate factor score; nurses in certain groups had a significantly higher risk of burnout.	The study's results identified that approximately one-third of the nurses reported burnout and workplace climate was the most significant predictor of burnout, which can impact the organization's climate and the ability to recruit adequate staffing to improve workplace conditions.	These results can help evaluate organizational characteristics and staff burnout, which can contribute to the ability to deliver quality care and services and further impact staffing shortages.	Use the study to determine if certain work areas result in higher burnout among nurses.	Yes
Oh, D., & Lee, K.-H. (2022).	Job demands-resources (JD-R) Theory	What are the determinants of nurse turnover rates in the Veterans Health Administration?	Data was collected from three sources: the VA Strategic Analytics for Improvement and Learning (SAIL) database, the 30-day standardized mortality ratio (SMR30), and the ambulatory care	Findings showed that nurses experiencing more patient deaths had a higher turnover rate due to higher levels of distress; nurse workload and salary were identified as	Of the one hundred and eighteen VA facilities analyzed, the authors identified that patient mortality, nurse workload, salary, and ACSC rates were contributing	Healthcare Administrators must conduct further research on nurse turnover issues in the Veterans Health Administration.	Further research can improve the factors contributing to the turnover rates of nurses within the VA.	Yes

			sensitive condition (ACSC) hospitalizations rate.	contributing factors in turnover rates,	factors to the nurse turnover rates for the VA.			
Robinson, Claire Annis, Ann Forman, Jane ; Krein, Sarah Yankey, Nicholas Duffy, Sonia Taylor, Beth Sales, Anne (2016)	N/A	What are the factors that affect the implementation of a nurse staffing directive?	Semi-structured telephone interviews were conducted from March to June 2014 with nurse executives and their teams at 21 facilities. Discussions addressed more of the budgeting process, implementation experiences, use of data, leadership support, and training. An implementation score was created for each facility using a 4-point rating scale. The scores were used to select three facilities for more detailed case studies.	The evaluation team developed a four-domain scoring structure: integration of staffing methods into budget development, implementation of the Directive elements, engagement of leadership and staff, and use of data to support the staffing method process. High-implementation facilities had better leadership understanding and confidence than lower ones.	Implementation varies significantly between organizations. Implementing a staffing methodology in facilities with constantly changing staffing needs requires significant commitment at all organizational levels.	More research is needed, and there needs to be less variation among facilities utilized for data capture. The staff and organization need to ensure a better understanding of staffing methodology to better adjust to the complex and varying needs of the organization.	For better results, there needs to be increased levels of leadership engagement and more understanding of data sources and interpretation.	Yes
Ryann L. Engle, Emily R. Lopez, Katelyn E. Gormley, Jeffrey A. Chan, Mart	Theory of Middle Managers' Role and Organizational Transformatio	What is Middle Management's influence on corporate activities? Middle managers are	Qualitative data from 17 VA Medical Centers with both high and low potential for organizational change across varying levels of	Middle managers are situated between senior leaders and frontline staff in the organization and can bridge or create	There were some limitations due to the need for further evaluation of data, which varied based on influencing factors such as	Identified themes and practices showed promising practices that can be used for implementing	There were commonalities between VA and private healthcare settings regarding the middle	Yes

in P. Charns, & Carol VanDeusen Lukas (2017).	n Model (OTM)	defined here as staff with a supervisory capacity other than senior leaders (e.g., department managers, program managers, nurse managers, administrative directors, frontline supervisors).	staff. The OTM identifies five critical elements for moving organizations from short-term to more sustained improvements. These five elements include (a) impetus to transform, (b) leadership commitment to quality, (c) improvement initiatives that actively engage staff, (d) alignment to achieve consistency of organization-wide goals, and (e) integration to bridge organizational boundaries.	information gaps that may influence innovation implementation in positive or negative ways. There was substantial variation, with scores categorized into high, middle, and low terciles for change potential. Comparing middle manager behaviors in high and low-change potential sites, the study found that although most emergent themes were present in both groups, how they were used or expressed differed.	the strength of the leadership, support for process and program improvements, priorities, and structure of the medical center.	innovations. Studying middle managers is important because they can facilitate or enhance innovation implementation processes, implement change, and improve organizational performance.	manager's role within the organization. Several vital factors showed promising practices that middle managers could use to improve effectiveness in implementing new practices throughout the organization.	
Spotswood, S. (2022, April 14).	QUERI framework	What is the relationship between productivity and turnover for mental health	A study was conducted by investigators with the VA's Quality Enhancement Research Initiative (QUERI) Partnered	Regression analysis showed that increasing productivity standards could lead to higher turnover,	The average tenure was ten years for mental health providers and 12 years for PCP.	Further studies are needed to understand better what productivity improvements can be made	The use of incentives is instrumental in the recruitment and retention of providers, in addition to the	No

		specialists and primary care providers caring for Veterans across the VA healthcare system?	Evidence-Based Policy Resource Center (PEPReC)	decreasing the intended productivity.		without increasing provider turnover.	impact training programs have on productivity, turnover, and satisfaction.	
Tamata, A. T., & Mohammadnezhad, M. (2023).	N/A	What factors can influence nurse shortages and their impact on them?	A systematic review was conducted by searching five electronic databases (Research 4life—PubMed/Medline, Scopus, Embase, CINAHL) between 2010–2021	Most of the studies were quantitative and published during 2010–2022. Factors were identified from these 48 studies that aligned four primary themes related to nursing shortages. The themes identified were policy and planning training and enrollment, factors causing staff turnover, and issues affecting nurses and patient outcomes.	The nursing shortages are critical barriers to providing quality healthcare services that have created various negative impacts on patient outcomes,	Healthcare administrators must continue identifying contributing factors impacting the nursing staff issues.	Healthcare administrators can lead to the development of better practices and applications that can lead to reducing the contributing factors of nursing shortages.	Yes
US Government Accountability Office (GAO) (2019)	N/A	How can the long-standing workforce problems with the Department of Veterans Affairs be corrected?	N/A	In March 2019, it was reported that the VHA's 172 medical centers, including physicians, registered nurses, physician assistants, psychologists, physical	The Inspector General noted the root cause for many of the issues. Identified at the VA was due to poor and unstable leadership and staffing shortages. In	The GAO identified 40 recommendations for the VA. Twelve of these priority recommendations are aimed at strengthening human capital management	The VHA needs a systematic process to continue implementing the identified recommendations specific to the recruitment and retention of employees.	No

				therapists, and HR specialists and assistants, are experiencing significant staffing shortages.	May 2019, the GAO reported that leadership turnover. Impedes the VA's ability to address a significant number of managements. Challenges include managing acquisitions, risk, and improving. Veterans' health care.	efforts, helping address challenges in recruiting, and retaining nurses, performance management, and employee misconduct.		

Appendix B: DHA Review Question(s) Search Log

Database or location name	Search terms	Results	Notes
CINAHL Plus with Full Text	nurse or nursing staffing shortages AND/OR best practices OR strategies nurse staffing OR leadership and best practices for nurse staffing shortage AND/OR best practices recruitment OR retention OR human resources in healthcare OR veterans affairs OR Veterans Administration OR Veterans Hospitals, nursing shortages OR best practices, OR/AND nurse-staffing ratios, peer review OR professional organization, limited to English language, 2019 to present.	25	These search terms yielded 1568 articles. Narrowing to these databases left 92 articles for review.
MEDLINE with Full Text	nurse or nursing staffing shortages AND/OR best practices OR strategies nurse staffing OR leadership and best practices for nurse staffing shortage AND/OR best practices recruitment OR retention OR human resources in healthcare OR veterans affairs OR Veterans Administration OR Veterans Hospitals, nursing shortages OR best practices, OR/AND nurse-staffing ratios, peer review OR professional organization, limited to English language, 2019 to present.	13	These search terms yielded 1568 articles. Narrowing to these databases left 92 articles for review.
Journals@OVID	nurse or nursing staffing shortages AND/OR best practices OR strategies nurse staffing OR leadership and best practices for nurse staffing shortage AND/OR best practices recruitment OR retention OR human resources in healthcare OR veterans affairs OR Veterans Administration OR Veterans Hospitals, nursing shortages OR best practices, OR/AND nurse-staffing ratios, peer review OR professional organization, limited to English language, 2019 to present.	8	These search terms yielded 1568 articles. Narrowing to these databases left 92 articles for review.
Supplemental Index	nurse or nursing staffing shortages AND/OR best practices OR strategies nurse staffing OR leadership and best practices for nurse staffing shortage AND/OR best practices recruitment OR retention OR human resources in healthcare OR veterans affairs OR Veterans Administration OR Veterans Hospitals, nursing	7	These search terms yielded 1568 articles. Narrowing to these databases left 92 articles for review.

Database or location name	Search terms	Results	Notes
	shortages OR best practices, OR/AND nurse-staffing ratios, peer review OR professional organization, limited to English language, 2019 to present.		
Science Direct	nurse or nursing staffing shortages AND/OR best practices OR strategies nurse staffing OR leadership and best practices for nurse staffing shortage AND/OR best practices recruitment OR retention OR human resources in healthcare OR veterans affairs OR Veterans Administration OR Veterans Hospitals, nursing shortages OR best practices, OR/AND nurse-staffing ratios, peer review OR professional organization, limited to English language, 2019 to present.	6	These search terms yielded 1568 articles. Narrowing to these databases left 92 articles for review.
Backward/Forward Hand searching reference list (Google Scholar)	nurse or nursing staffing shortages AND/OR best practices OR strategies nurse staffing OR leadership and best practices for nurse staffing shortage AND/OR best practices recruitment OR retention OR human resources in healthcare OR veterans affairs OR Veterans Administration OR Veterans Hospitals, nursing shortages OR best practices, OR/AND nurse-staffing ratios, peer review OR professional organization, limited to English language, 2019 to present.	19	
Internet	N/A	14	Department of Veterans Affairs data, Reports for data, etc..

Appendix C: DHA Appraisal Results Log

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
Al Yahyaei, A., Hewison, A., Efstathiou, N., & Carrick-Sen, D. 2022 **Nurses' intention to stay in the work environment in acute healthcare: a systematic review**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting – Acute Care Nurses **Research Domain**: Organizational dynamics and governance The problem being addressed is identifying factors that impact nurses' intention to stay and the role the work environment has in improving the nurse's intention to stay.	Different leadership styles were identified as influencing factors on the ITS. The study highlights the need to focus on the leadership practices that most affect ITS—a combination of supportive managers and supervisors and effective administrative processes. Generational issues – Higher ITS was observed among more seasoned nurses with more experience, training, and education; newer nurses had less organizational commitment and were less likely to remain in an organization for long.	Determinants for the study were grouped into four categories: individual indicators, both professional and personal; organization/profile, work environment, and patient related.	There was a reliance on self-reported data, lack of random sampling, low response rates, lack of evidence related to measurement assessment validity, and lack of management detail missing data and outliers.
Al Zamel LG, Lim Abdullah K, Chan CM, Piaw CY. **(2020). Factors Influencing Nurses' Intention to Leave and Intention to Stay: An Integrative Review**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance The problem being addressed is the determinants of nurses' intention to stay or leave the organization.	Nurse leaders need to identify determinants and monitor the nurses in their organization for signs of intent to leave to understand influencing factors better.	Of the 37 studies. 60% to 100% were reported as high-quality according to the mixed method appraisal tool (MMAT) criteria. 2 did not meet the requirements. All studies recruited registered nurses; most were female, and 35 of the studies were conducted in a hospital setting with specialties,	The authors identified the need for additional qualitative studies to understand better the depth of the nurse staffing problem, factors, and reasons influencing the intention to stay or leave an organization. Additionally, most studies might have

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
			and two were in primary health facilities.		biased responses due to a lack of rigor in sample recruitment.
Annis, A. M., Robinson, C. H., Yankey, N., Krein, S. L., Duffy, S. A., Taylor, B., & Sales, A. 2017 **Factors Associated with the Implementation of a Nurse Staffing Directive**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain:** Organizational dynamics and governance The problem being addressed is implementing a staffing methodology within the Veterans Health Administration	When enacting the staffing methodology, identify the need to understand better-influencing factors of implementation. There was a need for additional staff, but that was denied due to budget constraints. Structural support in policy change is essential; facility factors such as lack of resources, budget constraints, leadership, and staff engagement were identified barriers. The need for additional training was identified.	N/A	There are 172 VA Medical Centers, and only 104 participated. Implementation took much work in some facilities. There might be a need to review the continuity of processes across all facilities.
Bartmess, M., Myers, C. R., & Thomas, S. P. (2021). **Nurse staffing legislation: Empirical evidence and policy analysis**	Level V High Quality Non-Research Evidence	**HSO**: Hospital Setting **Research Domain**: Quality improvement The problem being addressed is that nurse staffing in a hospital setting can impact nurse retention and	Determine the method for adequately staffing nurses. Mandated nurse staffing ratios can improve outcomes and adverse outcomes. More data is needed for post-implementation effects. Nurse staffing committees are a feasible option; these provide	N/A	Currently, there are only 14 states with some form of nurse staff legislation. Nurse staffing is a complex process with multiple factors to consider for an organization. The author only addressed the nurse staffing issue as it relates to four

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
		increase the incidence of adverse events.	informed evidence of nurse autonomy, which can support the assessment of nurse-to-patient ratios, nurse preparation, and patient acuity.		criteria, so further policy analysis should be conducted using additional criteria and involve nurses in a more comprehensive evaluation of staffing policies.
Brook, J., Aitken, L., Webb, R., MacLaren, J., & Salmon, D. (2019). **Characteristics of successful interventions to reduce turnover and increase retention of early career nurses: A systematic review**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance The problem being addressed is the identification of characteristics leading to successful interventions that promote retention and help reduce turnover of early career nurses.	The use of internship/residency programs or practice programs that last between 27 -52 weeks and have a teaching/mentor component shows the most promise for retaining new nurses.	Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines	Future research needs to develop a more standardized method of reporting identified interventions and connected outcomes to identify the most promising methodology.
Cardiff, S., Gershuni, O., & Giesbergen-Brekelmans, A. (2023) **How local, first-line nurse leaders can positively influence nurse intent to stay and retention: A realist review**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance The problem being addressed is how nurse leaders influence the retention of nurses.	The author identified that nurse leaders who are person-centered and transformational and develop meaningful experiences could positively influence the intent to stay in the workplace or organization. Reassess the current organizational climate and address leadership issues that	The theory of reasoned Action was used to help explain the intent to stay or leave. Four determinant categories were identified for this article: individual variables, job-related variables, interpersonal variables, and organizational variables. Were used to define the intended results	The review is limited to empirical studies, including Europe, North America, and Australia/ New Zealand. The author states some variables might have been missed, such as skill mix, which can influence turnover but not staffing levels.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
			are not conducive to a healthy work environment.		Additionally, the differences in the age of nurses might affect results.
Crabtree, S., & Kundrik Leh, S. (2022). **A Community Medical Center Data-Driven Staffing Model: A Quality Improvement Project**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Quality improvement The problem being addressed is that nurse staffing in a hospital setting can impact nurse retention and increase the incidence of adverse events.	A transformational approach to improving outcomes through monitoring fluctuating patient census and staffing. Predictive hiring model where a nurse was hired before another leaving position through strategies to recruit graduate nurses and hiring to operational vacancies.	The predictive hiring model used for the QI project intervention was a three-pronged approach of strategies to recruit grad students and hire for operational purposes.	
Jun, J., Ojemeni, M. M., Kalamani, R., Tong, J., & Crecelius, M. L. (2021). **Relationship between nurse burnout, patient, and organizational outcomes: Systematic review**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance The author aims to appraise the current literature to examine the associations between nurse burnout and patient and hospital organizational outcomes.	The use of the Quality Health Outcome (QHO) model as this model looks at the connections between administrative systems, interventions, clients, and outcomes – all factors that contribute to workplace stress and workload.	All but 1 used the Maslach Burnout Inventory Scale, which has three subscales of burnout (emotional exhaustion, depersonalization, and personal accomplishments) 1 study used the Copenhagen Burnout Inventory, which has no subscales.	The focus was burnout. There are other associated terms that could yield more results. Cross-sectional design accounted for only association but did not address causation between burnout and outcomes.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
Nikpour, J., & Carthon, J. M. B. (2023). **Characteristics, work environments, and rates of burnout and job dissatisfaction among registered nurses in primary care**	Level III A/B High/Good quality Research Evidence	**HSO**: Ambulatory Care Setting **Research Domain**: Organizational dynamics and governance What are the characteristics of the primary care nursing workforce and the association between work environment and job outcomes?	Suggestions made from the data include the following: The work environment is better for nurses when nurses are involved in the decision-making process, as well as having a better relationship with managers and clinicians, Reassess organizational climate, increase nurse involvement, and establish clear communications between all groups/departments and managers – this could involve a change in leadership style.	Descriptive cross-sectional secondary analysis N=463 nurses from 4 states Data came from the 2016 RN4CAST-US survey. The primary explanatory variable nurse work environment measured by 31 item Practice Environment Scale of the Nursing Work Index (PES-NWI)	Manual data collection and entry leaves room for human error and misclassification Respondents needed to specify the type of care setting they worked on, leading to potential bias. Unable to include geographic indicators such as rural or urban settings – could be misrepresenting medically underserved
Oh, D., & Lee, K.-H. (2022). **Why Nurses Are Leaving Veterans Affairs Hospitals?**	Level III A High Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance H1: High patient mortality increases nurse turnover rate in VA hospitals. H2: High workload increases nurse turnover rate in VA hospitals. H3: Low nurse salary level increases nurse	Jobs Demand Resources Theory addresses physical, psychological, social, or organizational job aspects: a) functional in achieving work goals, b) reduce job demands and associated physiological and psychological costs, or c) stimulate personal growth, learning, and development.	Job Demand Theory Cross-sectional times series regression analysis. Data was collected from VA Strategic Analytics for Improvement and Learning (SAIL), the Annual American Hospital Association (AHA) Survey, and salary data from a VA Freedom of Information Act (FOIA) request. The regression model is statistically significant based on the F=Test.	Limitations of secondary data include comparisons between VA and private hospitals. Federal employee tenure and job satisfaction are strong predictors of turnover. Further comparisons of VA nurses and turnover compared to private facilities.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
		turnover rate in VA hospitals			
Pressley, Charlene & Garside, Joanne. (2023). **Safeguarding the retention of nurses: A systematic review on determinants of nurse's intentions to stay**	Level III Evidence and High / Good Quality Research Evidence	**HSO: Hospital Setting** **Research Domain: Organizational dynamics and governance**	Develop a nurse retention framework that informs retention. Expectancy Theory – knowing what matters to nurses and at what age and career stage is vital for those hiring. Behavioral Theory – Explains how people decide on specific parameters of personal and situational requirements necessary for a solution.	Theoretical Framework of Protective Factors	Only the English language was included. Significant variations in the context, design, and differences in data outcomes made it difficult to arrive at an overall conclusion.
Sanborn, H. (2023). **Numbers Don't Lie: Interpreting Recent Nursing Workforce Data**	Level V Evidence and Good Quality Non-Research	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance Continued increase in numbers related to Nursing Staff Shortages	Recommendations – prioritize work to build a healthy work environment, promote diversity, support more flexible staffing/scheduling, and examine total compensation compared to market conditions. Look into funding opportunities that offset work costs and the use of new grant programs that expand public health programs in rural communities.	The author identified that a survey conducted by the American Nurses Foundation in 2023 of 12,000 nurses found the primary reasons nurses left or plan to leave their jobs included job-. Related stress, insufficient staffing, inadequate pay, lack of trust, and inability to provide quality care. The loss of nurses continues to outpace demand. 2022 had a turnover rate of 22.7%,	The author expresses the need to improve support and advocacy for the nursing industry, including using new strategies to draw more people to the industry.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
			Reassess programs to grow nursing student capacity, increase career growth opportunities, advanced pathways, and more options for student loan forgiveness.	and the average cost of each resignation to the facility is about $50,000. The author explains that there is a need to develop new strategies to attract and recruit younger nurses.	
Shah MK, Gandrakota N, Cimiotti JP, Ghose N, Moore M, Ali MK. (2021) **Prevalence of and Factors Associated with Nurse Burnout in the US**	Level III B Good quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance Identify burnout rates for nurses and factors connected to leaving or considering leaving due to burnout.	Did not identify strategies for implementation. It just explains that the study findings confirm that burnout is significant and that data could be used to focus on and develop strategies to alleviate burnout.	Cross-sectional surveys used self-reported data such as age, sex, race, ethnicity, household income, and geographic region. Anonymous sample of RNs from the 2018 US Department of Health and Human Services Health Resources and Service Administration National Sample Survey of Registered Nurses The study followed Strengthening the Reporting Observational Studies in Epidemiology (STROBE) reporting guidelines.	These findings are from cross-sectional data and limit causal inference – represent the only national survey with/ data on nurse burnout. Burnout measures are crude; more extensive measures are required. Four states needed more respondents. Non-response reveals underestimation of certain races and or ethnicities.
Skarbek, A., Mastro, K., Kowalski, M., Caruso, J., Cole, D., de Cordova, P., Johansen, M., Vitale, T. & Weaver, S. (2022).	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance	An alternative to nurse staffing ratios, the Nursing Workplace Environment and Staffing Council (NWESC) initiative was established to improve the work environment for nurses	Systems theory is used to frame the study. 9 New Jersey hospitals checked at 3 points in time:	The nature of the study and trying to continue surveying the Pandemic might impact responses.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
Nursing Work Environment Staffing Councils.		examine the self-reported perceptions of the healthy work environment (HWE), an alternative to nurse staffing ratio laws, and to provide clinical nurses a voice in determining resources needed for patient care and support an HWE	by providing a voice to the nurses. The Healthy Work Environment Assessment Tool (HWEAT) is an open-ended survey question used to solicit descriptive information about best practices, challenges, communication, and collaboration with NWESC. Survey responses provided supportive evidence regarding critical characteristics of the Healthy Work Environment (HWE); data was used for interventions by nurse leaders.	(1) fall of 2017, before implementation of the NWESCs. (2) fall of 2018, 1 year after implementation. (3) fall of 2020, 3 years after implementation.	Data is identified, and merging data at the individual level makes it impossible to compare scores/responses over time. Open-ended questions provided insight but could not clarify questions for more profound responses.
Swamy, L., Mohr, D., Blok, A., Anderson, E., Charns, M., Wiener, R. S., & Rinne, S. (2020). **Impact of Workplace Climate on Burnout Among Critical Care Nurses in the Veterans Health Administration**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance The problem being addressed is the frequency of burnout and the individual and organizational characteristics associated.	Organization discussion and evaluation of adverse effects of burnout – Reassess organizational climate to improve workplace conditions. Develop team or unit-based interventions to help as there is more focus on social support networks, debriefings, and group stress management.	All Employee Survey (AES) – 52-question survey with Likert-scale responses Data used was 2016 quartile scores and individual responses at the same site for 2017. CC Nurses completed an average of 98.9% of all questions in 2016 and 2017. 2017-2352 respondents 2016-2191 respondents	Burnout is a dichotomous syndrome – 2 single-item questions from the MBI that might not represent the full spectrum of experiences. Results for workplace climate used medical center level, but different combinations of clinical structures could impact climate.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
				797 of the 2352 (33.9%) in 2017 met the criteria for burnout	
Tamata, A. T., & Mohammadnezhad, M. (2023). **A systematic Review Study on the Factors affecting hospital Nursing Workforce Shortage**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance The problem being addressed was factors influencing the nurse workforce shortage and its impact on nurses; four themes were identified as influencing factors to the workforce shortage policy and planning barriers, barriers to training and enrollment, contributing factors, stress, and burnout.	The four identified factors – barriers in policy and planning, training and enrollment, staff turnover due to workload, and job dissatisfaction can provide a starting point for leadership and healthcare professionals in decision-making roles and policymakers' strategies to work on the nursing staffing shortages.	A systematic review of all study types between 2010-2021. Nurses in a hospital setting and other healthcare facilities. Policy and planning barriers: Ten articles (20.83%) identified ineffective policy regulation strategies, poor policy, poor planning, and inadequate workforce planning and recruitment. Barriers to training and enrollment: Five articles (10.4%) found decreased enrollment numbers and a lack of training for new nurses.	The data was solicited worldwide. Further study review would be needed if criteria specific to the US are required. Additional research is needed to examine the effects of shortages on patients more in-depth and identify effective interventions.
Tellson, A., Murray, C., Boysen, C., Dodd, J., Maldonado, L., Mohl, C., & Walker, J. (2023).	Level V Evidence and High quality Non-Research	**HSO**: Hospital Setting **Research Domain**: General Management	The restructuring and streamlining of the recruitment and hiring process to a candidate-centric model	The collaborative recruitment team utilized a process of Plan, Do, Check, Act (PDCA)	COVID could have impacted the shortage and turnover data.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
Closing the Workforce Staffing Chasm by Breaking Boundaries: Innovative Partnerships and Strategies Between Recruitment and Nursing		An extensive healthcare system's recruitment and retention process was reevaluated with continued nurse staffing shortages to identify potential process improvements.	showed decreased vacancy rates.	From July 2021 to September 2022, the vacancy rate was approximately 20.9% The data was reevaluated in September of 2022 to reveal that the vacancy rate was at 8%. The number of qualified candidates increased by 25%, turnover decreased from 24.1% to 21.6%, and labor costs decreased by 48%	There was no breakdown of each area of focus and what specific new processes or programs were the most successful for further use.
Torres, D. A., Jeske, L., Marzinski, S. J., Oleson, R., & Hook, M. L. (2022). **Best Fit Orientation: An Innovative Strategy to Onboard Newly Licensed Nurses**	Level V Evidence and High quality Non-Research	**HSO**: Hospital Setting **Research Domain**: General Management Reevaluating and redesigning the onboarding of newly licensed nurses to help reduce turnover rates.	The Best Fit Orientation program was designed and implemented to improve newly licensed registered nurses' onboarding process and retention. The program is designed to enhance the orientation through realistic job preview (RJP), allowing for a more personal job fit and retention of NHRNs within the first two years.	Nineteen non-critical inpatient units participated. 41% are med/surg, and 38% are medical. Blended acuity units hosted less; 16 cohorts totaling 37 NLRNs completed the 3-month orientation and were hired. 77% of nurses stayed beyond the end of the 2-year program, and 97% remained in the preferred unit for over a year. Facility BFO rates were 1.1% higher than turnover rates of 2.9%, well below	Theory-based approaches are recommended; however, Empirical evidence to confirm benefits is limited. The best duration of the program is unknown; an extended period might provide more beneficial data.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
				the national 21.2% average of those leaving in the first year.	
Vardaman, J. M., Rogers, B. L., & Marler, L. E. (2020). **Retaining nurses in a changing health care environment: The role of job embeddedness and self-efficacy**	Level III A High Quality Non-Research	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance What role do CSE, and job-embeddedness have in reducing the turnover intentions of nurses? H1: Job embeddedness is negatively associated with turnover intentions. H2: Job embeddedness is positively associated with change-related self-efficacy. H3: Change related to self-efficacy is negatively associated with turnover intentions. H4: Change-related self-efficacy intervenes	Change related to self-efficacy (CSE) is directly related to turnover intention. Identifying and understanding factors that promote CSE give a sense of belonging; being bound to people, organization, and environment can reduce the desire to leave. H1: Supported. Results show that when controlling variables such as age, tenure, and job satisfaction, job embeddedness is negatively and significantly associated with turnover intention. H2: Supported. Results show that the relationship is positive and significant when controlling age, tenure, and job satisfaction. H3: Supported. Results show that the connection is negative and significant when controlling age, tenure, and job satisfaction.	The theory of Self-efficacy – suggests one is more likely to achieve goals during challenges if they have confidence in the ability to perform required activities for success. Job embeddedness Theory – Suggests employees develop an attachment to the organization through perceptions of fit with one's personal values, links to coworkers, and sacrifices associated with leaving a job.	It is not possible to rule out all other explanations for developing intent to leave the job. The study did not account for organizational commitment's role in the intent to leave. Future research should consider other professional changes on individual outcomes, not only for retention.

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
		in the relationship between job embeddedness and turnover.	H4: Supported. The presence of significant indirect effects and absence of direct effects results in the impact of job embeddedness on turnover intention, which is expressed entirely through CSE.		
Wei, H., Roberts, P., Strickler, J., & Corbett, R. W. (2019). **Nurse leaders' strategies to foster nurse resilience**	Level III A/B High/Good Quality Research	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance Use of nurse leader strategies to address resilience and turnover	Seven strategies were identified to cultivate nurse resilience – facilitating social connections, promoting positivity, capitalizing on strengths, nurturing growth, encouraging self-care, fostering mindfulness practice, and conveying altruism. The seven strategies identified can improve the nursing staff but can have a positive impact on patient outcomes as well.	Qualitative descriptive study November 2017-June 2018 Purposive sampling method Information saturation was applied to control the sample size, leading to 20 nurse leaders in the study.	Some stressors in the nursing role cannot be avoided and might now be receptive to the seven identified strategies. Increased staffing shortages, including the loss of career nurses, can reduce the number of nurse leaders within an organization to foster the appropriate environment.
Willard-Grace, R., Knox, M., Huang, B., Hammer, H., Kivlahan, C., & Grumbach, K. (2019). **Burnout and Health Care Workforce Turnover**	Level III A/B High/Good Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance Does burnout and lack of employee engagement contribute to higher turnover rates?	There was mention of the American Medical Association establishing a program called STEPS Forward that is designed to promote joy in practice for clinicians and staff of professional organizations, healthcare systems, and other key stakeholders to reduce burnout to promote Triple Aim better.	A longitudinal cohort study used survey data on burnout and employee engagement. They were collected from 2013-2014 from 740 primary care clinicians. Clinicians were considered physicians, nurse practitioners, and physician assistants.	They are conducted in an urban area with a high cost of living. The majority of clinicians were part-time. Lack of data to validate separation reasons of previous employees and staff

Author, date, and title	Evidence level and quality rating	Focus: HSO type, research domain, and specific problem being addressed	Findings that help answer the review question(s)	Metrics and measures if used	Source limitations
			There were no other programs or methods implemented mentioned in this article.		for the organization for reference.
Winter, S. G., Battel, A. P., Cordova, P. B. de, Needleman, J., Schmitt, S. K., Stone, P. W., & Phibbs, C. S. (2021). **The effect of data aggregation on estimations of nurse staffing and patient outcomes**	Level III A High Quality Research Evidence	**HSO**: Hospital Setting **Research Domain**: Organizational dynamics and governance Examine the data regarding the relationship between nurse staffing and patient outcomes and the cost/benefit trade-off of low or high staffing levels.	The study did not identify specific methods implemented. The data was primarily to review past data regarding the connection between nurse staffing and patient outcomes. The data supported an identifiable relationship between nurse staffing levels and patient outcomes.	A retrospective observational study utilizing VA administrative data from 215v Intensive care units and 438 General acute care units across 143 VHA facilities. The association was measured over a month- and year-long period with and without fixed effects.	Nursing hours were measured by time worked, not necessarily hours with patients. The use of fixed areas of the model can provide more control for heterogeneity but give a partial account of differences.

Appendix D: DHA Thematic Analysis Results

Author(s) and date	Data extracted	Initial codes	Preliminary themes
Al Yahyaei, A., Hewison, A., Efstathiou, N., & Carrick-Sen, D. (2022)	Determinants of intention to stay are grouped into four categories: individual indicators (personal and professional), organization/profile, work environment, and patient-related. Different leadership styles were identified as influencing factors on the ITS. The study highlights the need to focus on the leadership practices that most affect ITS—a combination of supportive managers and supervisors and effective administrative processes. Generational issues – Higher ITS was observed among more seasoned nurses with more experience, training, and education; newer nurses had less organizational commitment and were less likely to remain in an organization for long.	Nursing Shortage Intent to stay Intention to leave Leadership Burnout Job Dissatisfaction	Work environment and retention Organization commitment Scheduling Flexibilities
Al Zamel LG, Lim Abdullah K, Chan CM, Piaw CY. **(2020)**	High turnover hurts the organization's ability to meet necessary standards of patient care and quality of care. Several factors were negatively associated with leave – job satisfaction, quality of work, organizational commitment, leadership style, working environment, bullying, family reasons, and job security. The above factors were positively associated with staying with an organization. Nurse leaders need to identify determinants and monitor the nurses in their organization for signs of intent to leave to understand influencing factors better.	Intention to leave. Turnover intention Intention to quit. Anticipated turnover Intention to stay. Nursing retention Burnout	Work environment and retention Organizational Commitment Scheduling Flexibilities
Annis, A. M., Robinson, C. H., Yankey, N., Krein, S. L., Duffy, S. A., Taylor, B., & Sales, A. (2017)	Common barriers to implementing staffing methodology include time, staff training, educational needs, and engagement. Low nurse staffing levels are linked to adverse patient outcomes, increased LOS, hospital-related complications, and increased mortality rates.	Staffing directives Nursing hours per patient day (NHPPD) Facility budget Staffing levels	Work environment and retention Organizational Commitment Scheduling Flexibilities

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	When enacting the staffing methodology, identify the need to understand better-influencing factors of implementation. There was a need for additional staff, but that was denied due to budget constraints. Structural support in policy change is essential; facility factors such as lack of resources, budget constraints, leadership, and staff engagement were identified barriers. The need for additional training was identified.		
Bartmess, M., Myers, C. R., & Thomas, S. P. (2021)	The risk for adverse events, including mortality, increases with inadequate staffing of nurses in patient care settings. Identifying defined nurse-to-patient ratios and understanding the optimal ratio has been a critical area of concern. Variations of nurses in a facility, such as higher numbers of registered nurses than LPNs and unlicensed support staff, can reduce patient mortality, and those facilities with higher BSN-prepared nurses have fewer patient falls and mortality rates. Determine the method for adequately staffing nurses. Mandated nurse staffing ratios can improve outcomes and adverse outcomes. More data is needed for post-implementation effects.	Nurse staffing Patient Safety Policy Education/experience level Poor outcome	Work environment and retention Organizational Commitment Nurse Engagement Skill mix and competencies
Brook, J., Aitken, L., Webb, R., MacLaren, J., & Salmon, D. (2019)	Characteristics of successful interventions can be used as a foundation for programs that promote retention and reduce early turnover of new nurses. Utilization of internship/residency programs or orientation/transition to practice programs that last 27-52 weeks show promise in better retention of new nurses.	Nurse retention Attrition Nurse turnover Nurse workforce Internship Mentorship	Work environment and retention Organizational climate Nurse Engagement Skill mix and competencies Mentorship for new nurses

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	The review of studies showed that these types of programs all showed some improvement in retention rates and a reduction in turnover rates. The use of internship/residency programs or practice programs that last between 27 -52 weeks and have a teaching/mentor component shows the most promise for retaining new nurses.		
Cardiff, S., Gershuni, O., & Giesbergen-Brekelmans, A. (2023)	The intent to stay can be positively influenced by nurse leaders who are person-centered, transformational, and resonant. Organizational leaders influence nurses' intent to stay by developing relational connectedness, enabling professional autonomy, building a healthy workplace culture, and providing support through professional growth and development. Four guiding lights were identified – Fostering relational connectedness, enabling professional practice autonomy, cultivating a healthful workplace, and facilitating professional growth and development. The author identified that nurse leaders who are person-centered and transformational and develop meaningful experiences could positively influence the intent to stay in the workplace or organization. Reassess the current organizational climate and address leadership issues that are not conducive to a healthy work environment.	Intention to stay = retention Intention to leave = turnover Nurse leadership Retention	Organizational Commitment Nurse Engagement Nurse collaboration Transformational Leadership Work environment and retention Professional growth and development
Crabtree, S., & Kundrik Leh, S. (2022)	The quality improvement project aimed to devise a predictive computerized staffing model to develop a patient-centric solution to appropriate RN staffing and reduce premium pay. The intended results for premium pay yielded a different outcome. However, the various nurse leader/staff collaboration showed favorable results.	Work Practices Staffing Practices Staffing Volumes Work-life balance Staffing model/methodology	Work environment and retention Scheduling Flexibilities Nurse Engagement Collaborative Workspace Skill mix and competencies

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	COVID happened in the middle of the study and provided unavoidable costs, and the short timeframe of the study is a limitation of the study findings. A transformational approach to improving outcomes through monitoring fluctuating patient census and staffing. Predictive hiring model where a nurse was hired before another leaving position through strategies to recruit graduate nurses and hiring to operational vacancies.		Nurse collaboration Transformational Leadership
Jun, J., Ojemeni, M. M., Kalamani, R., Tong, J., & Crecelius, M. L. (2021)	The review identified that burnout, primarily emotional exhaustion, is negatively associated with quality and safety, patient satisfaction, organizational commitment, and productivity. All burnout scales are consistently and negatively associated with organizational commitment, nurse productivity, and patient experience. 40% of nurses who left their role cited burnout as the main reason. The estimated cost of a nurse leaving their position is $37,700 - $58,400 – potentially $5 - $8 million annually for a hospital with the latest turnover rate of 17.6%. The use of the Quality Health Outcome (QHO) model as this model looks at the connections between administrative systems, interventions, clients, and outcomes – all factors that contribute to workplace stress and workload.	Burnout Patient outcomes Turnover Quality of care Safety Occupational stress Emotional exhaustion	Organizational Commitment Nurse Engagement Work environment and retention Scheduling Flexibilities
Nikpour, J., & Carthon, J. M. B. (2023)	Across all care settings, better work environments were significantly associated with decreased burnout and job dissatisfaction.	Nurse burnout Health Quality Work environments Work culture	Nurse Engagement Work environment and retention Organizational Culture

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	40% reported poor work environments, including insufficient staffing, inadequate resources, unsupportive management, and lack of growth opportunities. Poor work environment is strongly associated with burnout and job dissatisfaction. Better work environments involve nurses in the decision-making process, have positive relationships with providers and leadership, and access to adequate resources and support is positively associated with patient mortality rates, decreased readmissions, higher quality of care ratings, and improved safety. Suggestions made from the data include the following: The work environment is better for nurses when nurses are involved in the decision-making process, as well as having a better relationship with managers and clinicians, Reassess organizational climate, increase nurse involvement, and establish clear communications between all groups/departments and managers – this could involve a change in leadership style.	Lack of Support Lack of growth opportunities Job dissatisfaction	Professional growth and development Nurse collaboration Team building
Oh, D., & Lee, K.-H. (2022)	Between FY 2010-2014, the average turnover rate for VA nurses was 7.6%, with an estimated 17,000 vacancies for nurse positions, of which 12,100 were RN vacancies. Compared to non-veterans, VHA patients are more apt to have physical wounds, PTSD, TBIs, and substance abuse disorders. Additionally, most patients in the VHA are over 65, requiring more complex levels of care. Factors contributing to high VHA nurse turnover include high patient mortality rates, workloads, low salary levels, and high preventable hospitalizations. (H1) – High patient mortality increases nurse turnover – Supported.	High Turnover Veterans Work stress Low salary Nurse workload Job satisfaction Burnout	Nurse Engagement Collaborative Workspace Work environment and retention Organizational Commitment Scheduling Flexibilities Organizational support

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	(H2) – High workload increases nurse turnover rate. Partially supported. (H3) – Low nurse salary increases nurse turnover rate. Supported. Jobs Demand Resources Theory addresses physical, psychological, social, or organizational job aspects: a) functional in achieving work goals, b) reduce job demands and associated physiological and psychological costs, or c) stimulate personal growth, learning, and development.		
Pressley, Charlene & Garside, Joanne. (2023)	In 2020, there were an estimated 5.9 million nurse vacancies worldwide, with nurses accounting for more than 50% of the healthcare workforce. Staff shortages impact patient ratios, staff dissatisfaction, burnout, and stress and retention, ultimately proving to be detrimental to patient safety and the quality of care delivered. Later career nurses showed more organizational commitment and were not always positively linked to job satisfaction – lacked motivation to leave if unable to find comparable or better benefits and pay. New nurses tend to job hop, looking for more meaning from work and wanting job empowerment – more self-serving rather than job satisfaction and loyalty. Develop a nurse retention framework that informs retention. Expectancy Theory – knowing what matters to nurses and at what age and career stage is vital for those hiring. Behavioral Theory – Explains how people decide on specific parameters of personal and situational requirements necessary for a solution.	Work culture Dissatisfaction Lack of support Job satisfaction Burnout Work Stress Inadequate staffing	Work environment and retention Organizational Commitment Scheduling Flexibilities Nurse Engagement Training and Education Skill mix and competencies Mentorship for new nurses Professional growth and development

Author(s) and date	Data extracted	Initial codes	Preliminary themes
Sanborn, H. (2023).	Staffing ratios can be seen as controversial – the potential for increased costs without increased outcomes, possible negative impact on access to care, and regulatory burden could undermine the economic value of nurses. The average age of nurses has decreased from 52 to 46 from 2020 – 2022, indicating a decrease in tenure and experience needed to mentor and guide newer nurses. The younger generation of nurses wants different things from employers and more engagement and opportunities for career advancement, leading to more job hopping. Recommendations – prioritize work to build a healthy work environment, promote diversity, support more flexible staffing/scheduling, and examine total compensation compared to market conditions. Look into funding opportunities that offset work costs and the use of new grant programs that expand public health programs in rural communities. Reassess programs to grow nursing student capacity, increase career growth opportunities, advanced pathways, and more options for student loan forgiveness.	Workplace stress Insufficient staffing Inadequate pay Lack of trust Quality care delivery	Skill mix and competencies Training and Education Organizational Support Professional growth and development Organizational commitment Scheduling Flexibilities
Shah MK, Gandrakota N, Cimiotti JP, Ghose N, Moore M, Ali MK. (2021)	Inadequate nurse staffing and excessive hours are vital contributors to burnout. Nurses in a hospital setting showed greater odds of leaving their role due to burnout from stressful working conditions— approximately 45% - 54% experienced burnout symptoms. Lower instances of burnout were reported in California and Massachusetts – both states have legislation to regulate nurse staffing ratios better.	Nurse staffing shortages Poor communication Lack of organizational leadership Intention to leave. Nurse staffing ratios	Work environment and retention Organizational Commitment Scheduling Flexibilities Organizational Support

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	The study findings confirm that burnout is significant and could use data to focus on and develop strategies to alleviate burnout.		
Skarbek, A., Mastro, K., Kowalski, M., Caruso, J., Cole, D., de Cordova, P., Johansen, M., Vitale, T. & Weaver, S. (2022)	A Nursing Workplace Environment and Staffing Council (NWESC) initiative was established across New Jersey to provide an alternative to nurse staffing ratio laws to improve the perceptions of a healthy workplace environment (HWE). Work-related stress and burnout are significant concerns for healthcare facilities; the demands of the workplace impact the nurses' health and well-being, which will hurt the quality and safety of care delivered. Various factors can impact the working environment, such as staffing levels, the skill mix, and the training/education of the nurses providing care. Patients cared for by nurses with bachelor's degrees and higher and national certifications, patient mortality, and adverse outcomes decrease. An alternative to nurse staffing ratios, the Nursing Workplace Environment and Staffing Council (NWESC) initiative was established to improve the work environment for nurses by providing a voice to the nurses. Healthy Work Environment Assessment Tool (HWEAT), open-ended survey questions used to solicit descriptive information about best practices, challenges, communication, and collaboration with NWESC over the course of 3 separate periods.	Healthy Work Environment Work-related stress Experience level Level of education Burnout	Work environment and retention Organizational commitment Scheduling Flexibilities Skill mix and competencies Training and Education Organizational Support
Swamy, L., Mohr, D., Blok, A., Anderson, E., Charns, M., Wiener, R. S., & Rinne, S. (2020)	Many factors contribute to burnout; interventions are typically focused on the individual, and more emphasis needs to be placed on addressing organizational/workplace climate. According to the All-Employee Survey (AES) conducted annually by the VHA, workplace climate is the most prevalent contributing factor to burnout.	Workplace climate Teamwork Shortages Culture of teamwork	Work environment and retention Organizational commitment Scheduling Flexibilities Organizational Support Team building

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	Burnout rates were seen higher in facilities with lower ratings for general quality.		Nurse collaboration
	Organization discussion and evaluation of adverse effects of burnout – Reassess organizational climate to improve workplace conditions.		
	Develop team or unit-based interventions to help as there is more focus on social support networks, debriefings, and group stress management.		
Tamata, A. T., & Mohammadnezhad, M. (2023)	Nursing staff shortages are a global issue that negatively impacts patient health-related outcomes. Increased workload and stress result in decreased care quality and increased mortality rates. Enrollment rates for nursing programs have decreased due to insufficient funding or lack of planning. Continued staffing issues lead to increased burnout and stress and increased medical errors. The four identified factors – barriers in policy and planning, training and enrollment, staff turnover due to workload, and job dissatisfaction can provide a starting point for leadership and healthcare professionals in decision-making roles and policymakers' strategies to work on the nursing staffing shortages.	nurse burnout nurse retention nursing shortage nursing workforce absenteeism intention to leave.	Work environment and retention Skill mix and competencies Training and Education Organizational Support Professional growth and development Organizational commitment
Tellson, A., Murray, C., Boysen, C., Dodd, J., Maldonado, L., Mohl, C., & Walker, J.	Developed a candidate-centric model that places the candidate in the center of the process and improves efficiency, making the process from application to offer timelier.	Nursing Shortages Nursing workforce Turnover rate Recruitment	Skill mix and competencies Training and Education Organizational Support

Author(s) and date	Data extracted	Initial codes	Preliminary themes
(2023)	Several other programs were developed that focused on re-engaging former employees for possible employment, more flexible/non-traditional schedules, and a task force that focused on better retention strategies – meeting with current employees who might be considering leaving their position and starting an open dialogue to try and stop the intent to leave. The candidate-centric model showed promising results and has since been implemented in all clinical job opportunities. The vacancy rate decreased by 36%, with an actual vacancy rate of 20.9% in July 2021-September 2022. Following the implementation of this program in September 2022, the vacancy rate was 8%. The restructuring and streamlining of the recruitment and hiring process to a candidate-centric model showed decreased vacancy rates.	Retention	Professional growth and development Organizational commitment Strong communication Work environment and retention
Torres, D. A., Jeske, L., Marzinski, S. J., Oleson, R., & Hook, M. L. (2022)	The onboarding of Newly Licensed Registered Nurses (NLRN) has mostly stayed the same; the approach to onboarding needs to be adjusted to reflect the current job expectations and demands better. A Best Fit Orientation (BFO) is like the realistic job preview (RJP) strategy. Managers /leaders work with NLRNs over the course of 3 months to show the realities of the working environment and to work on self-awareness and relational, clinical, and change management skills. This allows time before the nurse selects a position so they can find the best fit for them. The BFO program continues to give support over the following two years. Those who completed the program showed retention rates 1.1% above traditional data; the turnover rate was 2.9%, well below the national 21.2% data of nurses leaving in their first year.	Premature turnover Centralized Hiring Onboarding Retention Workplace culture	Skill mix and competencies Training and Education Organizational Support Professional growth and development Organizational commitment Scheduling Flexibilities Mentorship of new nurses Nurse collaboration

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	Those who completed the program were more satisfied with clinical knowledge and skills and had better confidence to help deal with the work environment. Program designed and implemented to improve the onboarding process and retention of newly licensed registered nurses. The program is designed to improve the orientation through realistic job preview (RJP), allowing for a more personal job fit and retention of NHRNs within the first two years.		
Vardaman, J. M., Rogers, B. L., & Marler, L. E. (2020)	The ability to adapt to various changes in the work environment is an essential and stressful aspect of a nurse's job. Change-related self-efficacy (CSE) describes one's belief in one's ability to perform efficiently during change and is linked to improved well-being, employee outcomes, and job satisfaction. This study identifies a few contributions to nurse retention; CSE is important in reducing turnover intention and is both a direct predictor and intervening mechanism in turnover intention. Job embeddedness allows access to more information, mentors, and support – those embedded in their organization have higher self-efficacy and are less likely to leave the organization. Identify and understand factors that promote CSE give a sense of belonging, being bound to people, organization, environment can reduce the desire to leave.	Nurse retention Job embeddedness Intention to stay. Job satisfaction	Skill mix and competencies Training and Education Organizational Support Organizational commitment Mentorship of new nurses Nurse collaboration Work environment and retention

Author(s) and date	Data extracted	Initial codes	Preliminary themes
Wei, H., Roberts, P., Strickler, J., & Corbett, R. W. (2019)	Strategies identified to cultivate nurse resiliency were facilitating social connections, promoting positivity, capitalizing on nurses' strengths, nurturing growth, encouraging self-care, fostering mindfulness and practice, and conveying altruism – working with and developing these strategies can cultivate a better workplace environment and work relationships, and social connections. Developing these skills is integral in building resiliency, fighting burnout, and helping shift one's focus, which can improve physical health. Identified to cultivate nurse resilience – facilitating social connections, promoting positivity, capitalizing on strengths, nurturing growth, encouraging self-care, fostering mindfulness practice, and conveying altruism. The seven strategies identified can improve the nursing staff but can have a positive impact on patient outcomes as well.	Nurse resiliency Nurse turnover Burse burnout	Work environment and retention Organizational Support Professional growth and development Organizational commitment Nurse collaboration Team building
Willard-Grace, R., Knox, M., Huang, B., Hammer, H., Kivlahan, C., & Grumbach, K. (2019)	The study utilized Maslach's Burnout Inventory (MBI) and identified that more than half (53%) of respondents reported burnout; turnover was high, with 30% of clinicians and 41% of staff not remaining 2-3 years. Those employed for more than five years showed lower turnover. Burnout and poor employee engagement were contributing factors to the turnover of clinicians. The continued high numbers of turnover in primary care clinics are troubling, and more research is needed to identify the specific factors causing clinicians and staff to leave their positions. There was mention of the American Medical Association establishing a program called STEPS Forward that is designed to promote joy in practice for clinicians and staff of	Burnout Employee engagement Turnover	Work environment and retention Skill mix and competencies Organizational Support Organizational commitment

Author(s) and date	Data extracted	Initial codes	Preliminary themes
	professional organizations, healthcare systems, and other key stakeholders to reduce burnout to promote Triple Aim better.		
Winter, S. G., Battel, A. P., Cordova, P. B. de, Needleman, J., Schmitt, S. K., Stone, P. W., & Phibbs, C. S. (2021)	The methods that nursing staff are measured use skewed data availability, which limits the best understanding of the relationship between nurse staffing and patient outcomes. Significant evidence shows the connection between higher nurse staffing levels and better patient outcomes – not specific by unit. LOS is longer for patients when fewer RNs, more LPNs, unlicensed personnel, and contract staff provide patient care.	Nurse staffing Workforce Length of Stay (LOS)	Work environment and retention Organizational commitment Scheduling Flexibilities Skill mix and competencies Organizational Support Nurse collaboration

Appendix E: Final Concept/Thematic Map