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Embedding Licensed Independent Providers In A Va Regional Clinical Contact Center

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EMBEDDING LICENSED INDEPENDENT PROVIDERS IN A VA REGIONAL CLINICAL
CONTACT CENTER

Submitted to the Faculty
Yale School of Nursing

In Partial Fulfillment
Of the Requirements for the Degree
Doctor of Nursing Practice

Bonnie Sommers-Olson

May 23, 2022

REDUCING EMERGENCY ROOM DISPOSITION RATES

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This DNP Project is on partial fulfillment of the requirement for the degree Doctor of Nursing Practice.

Bonnie Sommers-Olsen

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Laura Andrews, L.K, PhD, APRN, ACNP-BC

Signed

March 31, 2022

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Acknowledgement

I would like to thank my husband, daughters, sons, daughter-in-law, sons-in-law, siblings, siblings-in-law, parents, friends and class cohort for the valuable parts they play in my life. I would like to thank my Advisor, Doctor Laura Andrews for her unflagging enthusiasm, encouragement and wisdom.

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Abstract

Inappropriate attendance in US emergency departments (ED) account for up to 40% of all ED visits. Overcrowding can lead to poorer outcomes for patients in the ED, including a higher rate of triage to non-monitored area and longer timeframes to physician initial assessment. Additionally, the cost for unnecessary ED care is two to three times greater than care is in an Urgent Care or Clinic and cost billions of dollars in the U.S. yearly.

Licensed Independent Providers (LIP); Medical Doctors and Nurse Practitioners were embedded into a VHA VISN registered nurse telephone triage system. Protocols were developed for additional opportunities for assessment and patient health concern resolution of calls by the LIP. These calls included those already determined to require ED disposition by the RN protocols. Calls were tracked for 3 months. There were 1608 calls sent from RN to LIP staff. Of these, 104 were initially designated as ED dispositions. After the LIP intervention, 55 calls, 53%, were resolved and the patient no longer given an ED disposition.

Patient satisfaction was also reviewed via Press Ganey and there overall was no difference in patient satisfaction for the 2 quarters before the intervention and the quarter that included the intervention.

The percentage of calls sent from RN to the LIP that involved initial ED dispositions was only 7% of the total calls, RN staff outnumbered LIP 7 to 1 and RNs covered 24 hours a day, while LIP staff 12 hours a day. These represent opportunities for future exploration and expansion. Scalability is available through the VHA, the largest healthcare organization in the US and its nationwide telephone triage network and national level program managers.

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Table of Contents

Abstract.....	vi
Glossary.....	viii
List of Figures and Tables.....	ix
Chapter 1	
Introduction.....	1
Problem Statement.....	2
Significance of the Problem.....	2
Chapter 2	
Review of the Literature.....	4
Literature Summary.....	9
Theoretical Framework.....	10
Chapter 3	
Methods.....	12
Chapter 4	
Results.....	22
Chapter 5	
Discussion.....	26
Conclusion.....	28
References.....	29
Appendix A.....	33
Appendix B.....	34

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Glossary

Term Definition

CCC	Clinical Contact Center. The VHA term for an interdisciplinary telephone triage system
CMS	Center for Medicare and Medicaid Services
CPRS	Computerized Patient Record System, the VHA electronic medical record system
DRG	Diagnosis-Related Group. Medicare's system in determining payments based on severity
ED	Emergency Department
EMR	Electronic medical record
FTE	Full time equivalent. 1.0 FTE = 40 hours a week
IRB	Institutional Review Board
LIP	Licensed Independent Provider; Nurse Practitioners, Medical Doctors
LOS	Length of Stay in a care facility
MD	Medical Doctor
MSA	Medical Support Assistant; performs phone answering duties and also referred to as clerk
NP	Nurse Practitioner
ONS	Office of Nursing Service through the VHA's central office
PACT	Patient Aligned Care Team. The VHA Primary Care Teams are termed PACT
PCC	Primary Care Clinic
RN	Registered Nurse
SOP	Standard Operating Procedure
TCS	Telephone Care Service. The VHA traditional nurse triage system
UC	Urgent Care
VACO	Veterans Health Administration central office; national administration
VHA	Veterans Health Administration. Includes all the U.S. veteran clinics and hospitals
VISN	Regional VHA groupings. The United States is grouped into 18 regions.

REDUCING EMERGENCY ROOM DISPOSITION RATES

Figures

Figure 1	Symptom Complaint Percentages	32
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Tables

Table 1	RN to LIP Referral Guidelines	23
Table 2	EMR Note Components	25
Table 3	Project Timeline	30
Table 4	System Dispositions	31
Table 5	ROI Projected vs Actual	33
Table 6	Press Ganey Results	34

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Chapter 1

Introduction

There are 9 million veterans enrolled in the Veterans Health Administration (VHA), making it the largest health care system in the country (United States, Department of Veterans Affairs, 2019). Veterans are covered for care in all areas of the 50 States, Puerto Rico, US Virgin Islands, Guam, American Samoa and the Philippines (United States, Department of Veterans Affairs, Locations, 2019). The enrolled Veterans receive care in a comprehensive medical system that includes primary care clinics (PACT), VHA Hospitals, specialty departments, mental health services and emergency departments (ED). This largest health care system in the United States has an annual budget of approximately \$68 billion, overseeing the delivery of care to enrolled Veterans. To provide that care, the VHA employs more than 322,030 full time health care professionals and support staff at 1,255 health care facilities, including 170 VA medical centers and 1,074 outpatient sites of care of varying complexity (VHA National Center for Veterans Analysis and Statistics, 2020).

VHA medical facilities include an ED or urgent care (UC) areas, and similar to outside medical facilities, the VHA works to alleviate inappropriate visits to the ED that can lead to unnecessary overcrowding. ED overcrowding results in poorer outcomes for patients in the ED (O'Connor et al., 2014), and conversely, keeping patients within their medical home for care is associated with improved patient outcomes (Nelson et al., 2014). One of the strategies employed in health systems to reduce unnecessary visits to the ED is the use of telephone triage nurses. Telephone triage registered nurses (RNs) have been shown to assist patients in receiving their care in their medical home and reduce ED dispositions (McAlister et al, 2018). In addition to RNs, licensed independent practitioners (LIPs), including medical doctors and nurse

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practitioners, have been shown to be effective in keeping patients in their medical home and reduce unnecessary visits to the ED (Sax et al., 2014).

Problem Statement

With an enrollment of 9 million (United States, Department of Veterans Affairs, 2019), research that improves the healthcare of veteran patients enrolled within VHA has the capacity to affect millions of Americans. Additionally, as the largest health care system in the US, the VHA has the capacity to trial systems that may be examined for adaptation in the private sector. Within the VHA and in the private sector, addressing unnecessary emergency department attendance is a common concern and VHA research aimed at decreasing this use could have a significant nationwide impact. To address this need, this DNP project embedded LIPs in a Midwest VHA VISN telephone triage service, now transitioning to the title of Clinical Contact Centers (CCC), to work with patients to enable them to reduce unnecessary ED dispositions within the VA.

Significance

Inappropriate attendance in United States EDs account for up to 40% of all ED patient presentations (Ismael et al., 2013). The overcrowding that results from inappropriate attendance to the ED has repercussions for those in the ED, including a higher rate of triage to non-monitored areas (25 vs 16%) of the ED and longer timeframes to provider initial assessments (132 minutes vs 99 minutes) (O'Connor et al., 2014). Even before arriving at the ED, patients are diverted away from the nearest ED to hospitals at further distances due to overcrowding at the geographically closest facility (Sun et al., 2012). Patients have better outcomes and reduced length of stay (LOS) when hospitalized when those patients have a relationship with a primary care clinic (PCC) (O'Connor et al., 2014). Patients were also less likely to seek care in the ED

REDUCING EMERGENCY ROOM DISPOSITION RATES

when they actively were associated with a PCC (1.4 vs 1.7%) (McAlister et al., 2018). In addition to increased ED patient risk in times of overcrowding, the cost for care in an ED is two to three times greater than care given in UC or PCC (Baker & Baker, 1994). ED wasted dollars for unnecessary care was estimated to cost to as much as \$8.3 billion a year (Maddox, 2019). Maximizing the array of health care professionals and the modalities available to them in telephone triage systems within the VHA telephone care centers can provide opportunities for the VHA to achieve the goals of decreased ED dispositions.

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Chapter 2

Review of the Literature

Search strategy

OVID, PubMed, and Cinahl databases were searched. The search terms included were: “telephone triage”, “nurse practitioner”, “emergency room”, “emergency department”, “registered nurse”, “overcrowding”, “pre hospital systems”, “doctors”, “licensed independent providers (LIP)”, “patient medical homes”, “patient centered care teams (PACT)”, “patient outcomes”, “rural health challenges”, “distance to care”, “Press Ganey”, “video connect”, “video visits”, and “telehealth.” Systematic reviews, quantitative and qualitative research were included. Articles before 1996 and non-English language studies were excluded. Articles and additional sources equaled 132 after duplicates were removed. Seventy-one full text articles were assessed for relevance after abstract review completed. Forty-one articles and sources were included in the literature review.

Review of the Literature

The search yielded literature that addresses the perimeters of the project; emergency department overcrowding and resultant risk to patients, improvement in outcomes when patients are cared for and aligned with a primary care clinic, the advent of additional modalities for telephone care, and use of licensed independent providers and patient satisfaction measures.

Emergency Department use and patient outcomes for those who receive care in Emergency Departments

Patient care outcomes when patients are registered in EDs experiencing overcrowding and ways to reduce the overcrowding have been the subject of several systematic reviews. In one

REDUCING EMERGENCY ROOM DISPOSITION RATES

of those systematic reviews (Ismail et al., 2013), the authors reviewed the literature internationally for primary care interventions that reduced ED use over a 25-year period. The authors found that telephone triage was the single most studied intervention and the studies using telephone triage showed acceptable patient safety. In a second systematic review, (Leibowitz et al., 2003) the authors reported that ED disposition in the afterhours time period (after Monday-Friday traditional clinic hours) was decreased when telephone triage was utilized. A 2013 systematic review by Morgan et al. (2019) reported pre-hospital diversion systems, such as telephone triage, reduced emergency department use as well.

In addition to systematic reviews, other researchers studied ED overcrowding outcomes in patient care. In a one-year retrospective chart review in two large urban area tertiary hospitals in Canada published in 2014, 52% of the patients presented during times of ED overcrowding (O'Connor et al., 2014), and more patients were sent to non-monitored areas of the ED, 25% vs 16% when overcrowding was present. Designation to a non-monitored area was considered to increase patient risk. The study also found the ED physician initial exam time was delayed, 132 minutes vs 99 minutes, in times of overcrowding. Owang et al. (2019) looked at the decrease in patient monitoring in an overcrowded ED in their retrospective cohort study of pulmonary patients, showing patients on ventilators remained on suboptimal tidal volume settings with infrequent ventilator adjustments during their ED stay when the ED had long wait times and high ED boarding rates.

Patient mortality was studied and showed increases in a large retrospective study of 995,358 hospital deaths when patients were registered in the ED during periods of ED crowding. In this multi-site study of non-federal acute care hospitals in a large urban area of California, ED overcrowding was correlated with moderate increases in LOS and resultant costs

REDUCING EMERGENCY ROOM DISPOSITION RATES

in addition to increased mortality. ED diversion was a measure used to indicate ED overcrowding in this study (Sun et al., 2013).

Emergency department costs for unnecessary visits

The costs of urgent or primary care visits versus care in the ED has been studied for decades. Baker and Baker (1994) studied the data from the 1987 National Medical Expenditure Survey (NMES) household survey file, the ambulatory visit file, and the health status questionnaire across 35,000 persons in the US. ED visits were approximately two to three times the cost of care for the same condition cared for in alternate settings. It was estimated that 4.4 billion dollars could be saved annually (Weinick et al., 2010) if urgent needs were cared for in primary care clinics, retail clinics, or urgent care centers instead of the ED in this retrospective chart review of 1.2 million visits to clinics in 2008. The ED visit data came from the National Hospital Ambulatory Survey (NHAMCS). The Centers for Medicare and Medicaid (CMS) estimated a higher amount than the 4.4 billion dollars estimated by Weinick in 2020, estimating \$38 billion by taking into consideration all unnecessary ED visits annually, not just the cost of ED vs alternative site visits (CMS National Health Expenditure Data, 2019).

Patients receiving care in their home, community or within their primary care clinics

Patients in a large study with more than 1 million charts reviewed (McAlister et al., 2018), showed that in the Physician Claims Database for all the patients in Alberta, Canada for years 2008 and 2009, that those connected with a health network, e.g., primary care clinic, were less likely to use the ED for care, despite their older age and higher comorbidity burdens. Additionally, the patients with PCP connections had more hospitalizations but shorter lengths of stays than those without PCP connections. This was also seen in a population-based study of

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pediatric patients (Piehl et al., 2000) where there was a decrease in ED visits per 1000 children from 33.5 ± 5.3 to 25.6 ± 2.3 visits ($p < .001$). The study did not find a similar decrease in ED use in the patients who did not have a primary care medical home connection.

Telephone Care outcomes for patients who are cared for by Licensed Independent

Providers

In disaster situations in the US, affected VHA patients were able to have their medical care continued, even when they lost medications, clinic access, and homes in natural disasters due to the nationwide telephone care service (TCS) structure as demonstrated in Morgan et al., (2019). The largest margin of benefit with LIP connection from telephone triage was seen in a study by Sax et al. (2014) where it was demonstrated that LIPs were able to avoid unnecessary ED visits. Of the 29,673 calls reviewed in a retrospective population-based cohort study in a large health care system, 87% of patients with chief complaints of chest pain were determined to not need the ED for care after telephone triage calls had their calls routed to a physician. Seven-day mortality rates were cited as “low” for both RN and physician led calls, at 1% in this study based on calls from 1997 through 2004. The term “low” was not defined in the article.

Outcomes for patients who receive care via video connections

Telemedicine was considered sound as well as feasible within a multistate southwestern US system that served rural Native Americans (Yilmaz et al., 2018). Telemedicine access points were made available at Indian Health Center locations. The care offered in this one-year retrospective chart review study was for mental health care. The study was primarily concerned with economic savings related to telehealth and found that the economic savings was \$45 per encounter and the health outcomes were equivalent. This was seen again with another Native

REDUCING EMERGENCY ROOM DISPOSITION RATES

American population, there was an increase in health care connections and use of services, this time with mental health as well as physical health, when video visits were implemented in this geographically rural area (Shore et al., 2012).

Reaching patients in rural areas is a concern of the VHA. National Public Radio reported on the VHA's establishment of clinic rooms within Veterans of Foreign War, American Legions and Walmart stores to give Veterans the option to receive video visits with LIPs even if the Veteran patient does not have the broadband capacity to connect via their own devices in their own homes. The initiative was cited as a way for rural veterans, living a distance from PCC and hospitals to receive care where they live (Kelly, 2019).

Satisfaction with telephone triage systems and triage via video connection

Telephone triaging received positive patient reviews in a systematic review (Ismail, et al., 2013) that studied pre-hospital systems that reduced ED crowding. In a different approach, twelve general practitioners in a qualitative study were also satisfied with the telephone triage role, as cited in the phenomenographic approach published in 2016 (McKenzie & Williamson). The subjects were 15% of the workforce of this Australian health care system. Subjects reported the addition of the general practitioner added value to nurse-based triage, including the ability to work past protocol driven nurse phone visits and added credence for patients in the advice given. The satisfaction with the role of the LIP in the telephone care system led the LIPs in the study to believe this could lead to a new designated specialty for practitioners. A tool was developed to measure this type of satisfaction (Graversen et al., 2019). It was designed to measure quality and satisfaction in telephone triage systems.

Satisfaction can also be measured by Press Ganey surveys (Hall & Press, 1996). In a study across 187 hospital EDs across multiple states, Press Ganey satisfaction scores were

REDUCING EMERGENCY ROOM DISPOSITION RATES

analyzed. While it was determined that characteristics of the nursing care, physician characteristics and wait times affected the scores. The study also cited the Press Ganey reliability, demonstrated in studies that have been completed on the entire instrument and each individual section. Using Cronbach alphas, the reliability of the sections was .88 and when analyzing all sections was .92. Press Ganey, as a patient satisfaction instrument, has been studied in 2016, where the authors took a different approach, instead reviewing Press Ganey response rates (Tyser et al., 2016). The number of patients that met inclusion criteria was 16779 for this study, and they found 14017 patients did not respond (“non-responders”), for a response rate of 16.5 %, showing a low response rate to Press Ganey surveys.

Summary of literature

The literature established findings between ED overcrowding and poorer patient outcomes, as well as the effectiveness of telephone triage to decrease ED dispositions. These studies included three systematic reviews and the correlation between ED overcrowding and poorer patient outcomes was established. The correlation between telephone triage and reduced ED dispositions was also demonstrated, both with the use of RN and LIP staff. Additionally, improved patient care in a medical home or PCC was able to be demonstrated in large studies of both general practice patients and in a pediatric population.

Provider satisfaction, as well as patient satisfaction with telephone triage, has been shown in qualitative and well as quantitative studies. Surveys to determine satisfaction have been developed, including Press Ganey, an established survey company with proven reliability. Unfortunately, only one study reported Press Ganey response rates and the response rate stated was 16.5% (Tyser et al., 2016). Those researchers listed their purpose as reviewing Press Ganey response rates as they were unable to find literature that reviewed response rates. The concern

REDUCING EMERGENCY ROOM DISPOSITION RATES

was that low response rates in a survey of patient satisfaction could affect conclusions of patient satisfaction.

Supporting theoretical frameworks: Henderson's Theory

Henderson's Theory (Biottin et al., 2002) informs this work. It had been selected for this project based on its emphasis on "scientific knowledge as well as the development of skills as advocate, facilitator, and collaborator resulting in support of patient wellness, independence, and dignity" (Jerzierski et al., 1997, p. 387). Henderson's Theory is based off fourteen components required for effective nursing care: "breathing, intake, body waste; movement, rest; suitable clothes, dress; body temperatures, cleanliness, protect the integument; avoid dangers in the environment; communicate; worship according to one's faith; sense of accomplishment; recreation; satisfy the curiosity and use the available health facilities" (Nicely & DeLario 2011, p. 73-76). The synthesis with this DNP project is in the theory's attention to the components of the veteran patient's assessment criteria. The ability for self-care at home, versus other levels of disposition (ED, urgent care, PCC), depend on the individual's ability to safely be in the setting designated. For the physiologic components, such as the ability to void, eat, drink, breathe normally, these help determine the timing and place of care needs. For the facilitator components, such as communication and expression, these are necessary in working in conjunction with a patient as an effective team. Also, if a patient is unable to effectively participate, the triage RN or LIP should consider that a negative response on any physiologic component. Lastly, for advocacy, the telephone triage RN and LIP staff often are the advocate for the patient; giving information and follow up recommendations to the primary care clinics and participate in calling ahead or sending electronic medical record information to urgent care and ED staff, if pertinent, to give a hand off.

REDUCING EMERGENCY ROOM DISPOSITION RATES

Goals and Aims

1. Develop and implement a protocol to reduce the ED disposition rate in a VHA VISN by the addition of LIP in the telephone triage system, the CCC.
2. Evaluate the success of the protocol to reduce the ED disposition rate in a VHA VISN by the addition of LIP in the CCC.
3. Ensure the sustainability and scalability of the protocol developed to reduce the ED disposition rate in a VHA VISN by the addition of LIP in the CCC.

REDUCING EMERGENCY ROOM DISPOSITION RATES

Chapter 3

Methods

The goal of this quality improvement project was to reduce the ED disposition rates for patients calling a VHA VISN CCC.

The first aim of this quality improvement project was to develop and implement a protocol to reduce the ED disposition rate in a VHA VISN by the addition of LIPs in the CCC. For aim one, the steps included hiring, orientation and the developing the steps for implementation of the protocol.

- Nurse Practitioners, hired with a total of 1.5 FTE and 1.5 FTEs MD staff, were added to the RN staff at the CCC. Human Resources had hiring responsibility for the positions. An Associate Chief of Staff for the hospital had the hiring authority for interviewing and selecting the candidates. The Ambulatory Care Section Chief for Specialty Advanced Practice Providers had dotted line responsibility for the positions and was responsible for the NP LIP reviews, ongoing professional practice evaluation and checking in with the NPs hired into these LIP positions within the first month and at the 6-month mark and as needed.
- The orientation materials consisted of goals that include electronic medical record (EMR) education and use of the LIP CCC EMR note, review of department standard operating procedures (SOP), and medication prescribing policies. The equipment to accomplish phone and video visits consisted of a computer with double monitors, a headset and a webcam and were obtained for the Nurse Practitioners and MDs hired into the positions.
- Steps in the Protocol

REDUCING EMERGENCY ROOM DISPOSITION RATES

- Calls coming into the VHA VISN CCC were first answered by a Medical Support Assistant (MSA). These calls were assessed for emergency conditions that could require 911 and emergent transfer to emergency care.
 - Emergency mental health calls went directly from the MSA to an RN and any veterans who called with suicidal ideation were directly transferred to the national Veterans Crisis Line with a hand-off from the nurse to the crisis line staff person.
 - Non-emergency calls were either sent directly to a registered nurse (RN) or the caller was given instructions that an RN would call them back.
 - When the RN connected with the veteran patient caller, the RN used an algorithm system and was prompted to ask and record answers on the patient chief complaint.
 - Guidelines were developed, that guided the RNs toward which chief complaints were eligible for transfer to an LIP. If the veteran accepted, the calls were either sent directly to the LIP or queued for a return call, depending on LIP immediate availability (Table 1).

REDUCING EMERGENCY ROOM DISPOSITION RATES

Table 1

RN to LIP Referral Guidelines

- a. Abrasion (uncontrolled bleeding)
- b. Allergies/Allergic Reaction (no airway compromise)
- c. Athlete's foot
- d. Asthma (no respiratory distress)
- e. Back pain (acute/chronic exacerbation of condition/low back pain; No loss of bowel/bladder control, saddle paresthesia, and/or new weakness)
- f. Bites/bee stings (NOT dog bites, NOT with anaphylaxis reaction)
- g. Conjunctivitis
- h. Constipation (less than 72 hours since reported onset)
- i. COVID19-like symptoms
- j. Diabetes (asymptomatic with glucose less than 300 and greater than 80)
- k. Difficulty breathing, mild (mild wheezing; no chest pain, no respiratory distress)
- l. Eye issues (eye lid issues i.e. stye; eye redness or drainage; redness around the eye; NO acute injury, No vision changes)
- m. Flu-like symptoms
- n. Gout (previous history)
- o. Headache, chronic/recurrent (NOT new or worsening)
- p. Hemorrhoid (painful, non-bleeding)
- q. Hypertension (asymptomatic) No vision changes, headaches, lightheadedness, SOB
- r. Injury/Trauma – distal extremity only (NOT head, neck, chest)
- s. Lice
- t. Medication Refill (30-day bridge chronic disease management – NO CONTROLLED SUBSTANCES)
- u. Mouth sores
- v. Musculoskeletal complaints – sprains/strains Nasal congestion
- w. Neuropathy (chronic – no vascular compromise)
- x. Nose bleeds, history of (i.e. no active bleeding)
- y. Plantar fasciitis Rash (possibly eczema, poison ivy/oak, psoriasis, shingles, etc)
- z. Sinusitis, sinus congestion
- aa. Skin lesion (new, no fever or chills; no changes of chronic lesions)
- bb. Sore throat
- cc. STI / partner treatment
- dd. Sunburn
- ee. Upper respiratory infection (cough, mild sore throat, congestion, fever)
- ff. UTI, dysuria – no abdominal pain or flank pain
- gg. Wounds – abrasions, blisters, burns, mild lacerations

Complaints to avoid: - Abdominal pain - Testicular pain or lump - Genital or Groin area skin manifestations - Symptoms with high likelihood of requiring non-emergent diagnostics, such as labs and x-rays (i.e. traumatic injuries) - Specific requests for narcotics/scheduled medication refills (i.e. Tramadol) - Suicidal or homicidal ideation, depression, anxiety, mental health issues.

REDUCING EMERGENCY ROOM DISPOSITION RATES

- The queued calls were sent to an app entitled Message Manager (MM). The number of calls in the queue were able to be viewed in real time by the RN and LIP staff. The goals were that the calls in the queue are resolved by an LIP by the end of the LIP shift.
- The RNs were recommended to stop transferring calls into the queue one hour before the end of the LIPs shift. LIPs were estimated to be able to answer 3 calls an hour, on average, and the RN Charge Nurse as well the LIPs were able to send the RNs an Outlook Teams Message if the call list was estimated to becoming too long for the LIPs to answer. Since Outlook Teams messages are in real time, if the LIP was felt they would be able to resolve all the calls in the cue before their shift end, they were able to send out a message inviting more transferred calls.
- The LIPs were also able to transfer back calls to RNs if the call volume is too great and assistance was needed for call disposition to be conducted at the RN level of triage.

The documentation of the LIP calls is an integral part of the process. The electronic medical record system in the VHA is termed Computerized Patient Record System (CPRS). A CPRS note for CCC LIP documentation was identified and used for each call (Table 2).

REDUCING EMERGENCY ROOM DISPOSITION RATES

Table 2

EMR Note Components

Subjective

1. Objective
 2. Assessment
 3. Plan
 4. Disposition
 - A. Issue resolved with Tele Urgent Care Appointment
 - B. Veteran referred to Primary Care Team to be seen in 24-48 hours
 - C. Veteran referred to VA or nearest Urgent Care Center
 - D. Veteran referred to VA or nearest Emergency Department
- The Nurse Executive for the Facility VA and the Chief Nurse, with oversight of the CCC, approved the FTE for positions for NPs and the Associate Chief of Staff and the Chief of staff approved the MD positions. This author is part of an administrative team for a CCC as well being the co-author of documents at the national VHA level used for training and protocols.

Aim 2 involved the evaluation of the results of the implementation steps of the protocol in reducing the ED disposition rate in a VHA VISN by the addition of LIPs in the CCC.

- The success of the protocol was evaluated by reviewing the data collected by the VHA VISN CCC.
 - Collection of Data
 - The disposition information was gathered in this QI project by the LIPs who logged every call by system disposition and change in disposition for ED indicated initial dispositions.

REDUCING EMERGENCY ROOM DISPOSITION RATES

Disposition time frame recommendations available were 911/Now and 2-8 hours, 12-24 hours, clinic care, home care, dental care and urgent care. After the RN triaged the call, the categories were changed to ED disposition and non-ED dispositions. The ED dispositions sent to the LIP staff continued to be tracked for one of two further pathways; continued ED disposition or patient concern resolved. No patient identifiers were gathered, only the numbers of calls and disposition information previously stated. Chief complaints were tracked by DRG categories for the calls that were resolved by the LIP and the patient no longer recommended to proceed to the ED.

- Patient satisfaction data evaluation involved analysis of 2 quarters before implementation of the protocol and the quarter including the implementation of the protocol. The patient satisfaction tool used was Press Ganey. The VHA CCC hired Press Ganey to report information and has continued to work with this company. Press Ganey reports patient satisfaction as well as comments submitted by patients regarding their experience.
 - National VA benchmark for Press Ganey results has not been set for CCC.
 - Press Ganey tracked questions will be “*Satisfaction with the Service*” and “*Likelihood of using this Service again*”, “*Listening overall*”, “*staff efforts to include patients in decision of care*”, and “*CCC needs met*”.
- The Chief Nurse Scientist at a VHA Facility accepted a role as internal preceptor for the project and reviewed the project for integrity.

REDUCING EMERGENCY ROOM DISPOSITION RATES

- The spreadsheet LIP change in disposition data was analyzed by number of calls taken and number that had a change in disposition vs. number that retained original disposition.

Aim 3 was designed to ensure the sustainability and scalability of the protocol developed to reduce the ED disposition rate in a VHA VISN by the addition of LIPs in the CCC.

- Sustainability involves the continuation of the project. For this project, the LIPs hired as permanent employees have continued funding for their positions in place. Further funding requests are not necessary to continue these positions. To continue to demonstrate the success of the protocol, statistics may be gathered. The patient satisfaction information will continue to be available and will be evaluated to determine if the patients rate the new system as equal or an improvement to the program before the implementation of the protocol.
- Sustainability is ensured on a national scale in consort with the VHA National Office of Nursing Service (ONS) executives and the CCC national managers by providing the protocol materials for use by other VISN CCC sites. This will help the other VISN CCC review the advantages and strategies of embedding LIP into a VHA VISN CCC.
- Scaling is the opportunity to amplify the protocol outside the implementation site. For this project, the protocol's forwarding to the VHA Central Office (VACO) allowed scaling by providing the information to other VISN sites. The information then becomes available for presentation at VHA telephone care meetings. The

REDUCING EMERGENCY ROOM DISPOSITION RATES

Ambulatory Care Section Chief for Specialty APP kept updated, Storm Morgan, the National VHA Central Office Program Manager and VHA Central Office Director of the Office for Veterans Access to Care (OVAC), Maria Bouchard. These program managers have responsibilities for the VHA Telephone Care Services, now transitioning to the title of CCC, from over all the United States VISN. They have been involved in updating and upgrading the program at a national level. With the write up of the protocol and the results, the national program managers are able to disseminate on a national level.

- Since ED overcrowding leads to poorer outcomes for patients outside, as well as inside the VHA system, disseminating the information on the protocol outside the VHA is an important step in scaling. The protocol information and results submitted in article form ensure this.

Implications

Implications for the project will be in reducing the ED disposition rates for veterans in the VHA systems who call in with health concerns to the CCC for a VHA VISN. Reducing overcrowding in ED improves patient outcomes for patients in the ED. Crowded ED at the time of patient presentation results in poorer outcomes for the patients, including delays in care (O'Connor, et al., 2014). Further implications could be in a roadmap for other VISN or hospital systems outside the VHA to follow. For those VISN or systems outside the VHA who are already embarking on similar initiatives, it will be confirmation.

Human Subjects

The Yale University IRB guidelines have deemed this a Quality Improvement project. There is minimal risk to participants. A human subject evaluation has been completed by

REDUCING EMERGENCY ROOM DISPOSITION RATES

utilizing the Quality Improvement Checklist. The purpose was to improve the process of care while decreasing inefficiencies. The project was internally funded. The project was conducted by clinicians and staff who provided care for the institution where the project took place. The project was flexible and could incorporate rapid or incremental changes. The project involved a population ordinarily seen in the institution where the project took place. The planned activity only required consent that was normally sought in clinical practice and was considered part of usual care. The patients at the institution where the activity took place could potentially have benefit from the project. The risk to the participants was no greater than what is involved in the care they already receive. This is a quality improvement project (See Appendix A).

Return on Investment

This quality improvement project sought to reduce costs, even with projected program costs of \$495,000 in the first year. The projected savings from unnecessary ED visits, which the VHA pays outside EDs at Medicare rates, was conservatively estimated at \$696,000. The projections were based on the costs in equipment and providers and the savings from reduced ED disposition rates. The cost savings were calculated on the major component of the program, only based on the costs of reduced ED visits. The ROI also used the conservative estimate of 4000 less ED dispositions per year. This figure translated to 21 visits per day in a service that runs 365 days a year. However, as the program is new and evolving, the conservative estimate of 4000 decreased ED dispositions was used (See Appendix B).

Project Timeline

The project timeline involved activities pertinent from Spring 2021 through May of 2022. The project timeline centered around the project defense at the Yale School of Nursing. The LIP

REDUCING EMERGENCY ROOM DISPOSITION RATES

orientation begun in 2021. After the LIP staff were fully staffed, data was gathered in 2021 for a 3-month period. Press Ganey patient satisfaction data was gathered for the period before the 3-month project period and during the study period in 2021. In the 2022, the project write up conveyance to the National VHA Central Office Program Manager for Ambulatory and Virtual Care allowed for scalability as well as article completion and submission (Table 3).

Table 3

Project Timeline

January – July 2021 Preparation and Defense

February 2021 LIP orientation for the NPs

April-August 2021 Press Ganey Review before project

September-November 2021 LIP calls logged and ED calls tracked

December 2021 Press Ganey third quarter reviews available

Spring 2022 Dissemination through VHA and article

Immersion Goals

This project related to the leadership immersion goals for Yale’s DNP program. This author was responsible for the documents, on the national level, needed to orient new CCC NPs, either as sole author or group authored and an active participant. NPs in a VHA VISN CCC had a dotted line to the author for their job evaluative functions, yearly review and orientation checklist. Periodic check ins were completed to ensure project fidelity. The author is involved as a member of a VHA VISN CCC LIP committee and the CCC scheduling development team. Evaluation of the before and after measures were the responsibility of this author, were and are scaling and sustainability aims.

REDUCING EMERGENCY ROOM DISPOSITION RATES

Chapter 4

Results

Emergency Department Disposition Changes

The addition of LIP staff reduced emergency department disposition rates by 53% for veterans who called in with health concerns to a VHA VISN nurse telephone triage system CCC.

Data was gathered from September 2021 through November 2021. There were 1608 calls logged from patients triaged by RN staff in this time period that were then connected with an LIP based on the CCC RN to LIP Referral of Chief Complaint/Symptom Guidelines. Of the 1608 calls sent from RN staff to LIP staff, 104 were initially designated by the protocol driven nurse triage system as emergency department dispositions. Of these, 55 calls (53%), were resolved by the visit with the LIP and no longer were recommended to proceed to the ED. The system disposition options were clinic VA, dentist office, ED, home, telephone visit, urgent care, virtual visit, and NA (Table 4).

Table 4

System Dispositions

System Dispositions in the CCC	Number of calls per category Sept - Nov 2022
Clinic	1053
Dentist	25
Home	115
ED	104
Urgent Care	19
NA/Undefined	292

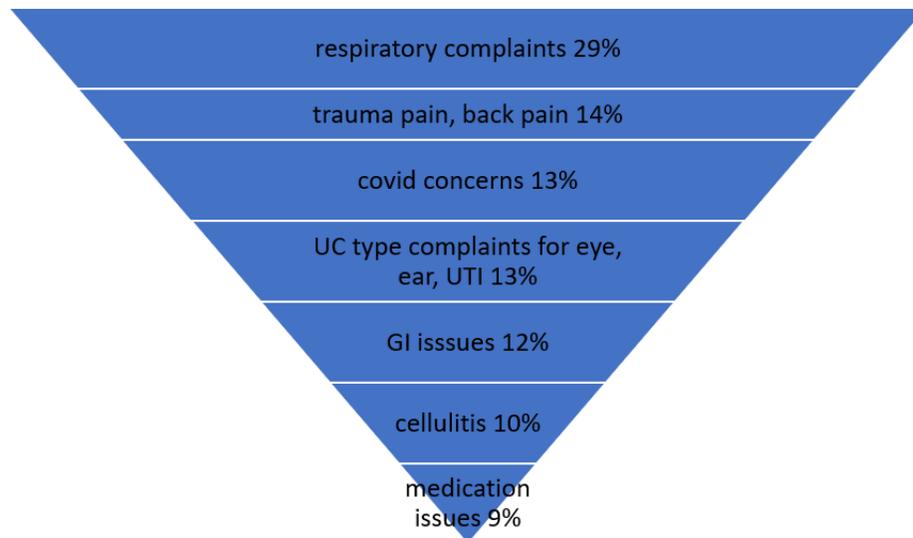
REDUCING EMERGENCY ROOM DISPOSITION RATES

Time frames available included Emergency Room, 2-8 hours, 12-24, 24-72 hours, NA. Time frame dispositions of 911, now and 2-8 hours were evaluated by the RN staff for a need for ED care. It was these calls, if the system disposition determined a need for ED care that were evaluated, using the RN to LIP referral guide, for the patient to be offered an appt with an LIP instead of a recommendation to proceed to the ED. For the purposes of this project, only Emergency Room Dispositions were tracked.

Chief complaints were tracked by DRG codes. The preponderance of calls first recommended to proceed to the ED, before LIP intervention, were respiratory complaints, followed by trauma pain or back pain and covid complaints, with smaller categories for UC type complaints of UTI symptoms, ear issues, eye issues, skin/cellulitis issues (Figure 1).

Figure 1

Symptom Complaint Percentages



REDUCING EMERGENCY ROOM DISPOSITION RATES

ROI estimates were projected to be 4000 visits in a calendar year at an estimate of \$174 savings per visit. That would translate to 1000 visits per quarter. In this one quarter, 55 callers were determined, subsequent to an LIP visit, to not be recommended to proceed to the ED. That is a shortfall of 945 projected visits in the quarter the project took place; only 5.5 % of the projected amount. The reduced cost savings is estimated to be \$38,000 vs \$696,000 (Table 5).

Table 5

ROI Projected vs Actual

ROI Projected in the quarter reviewed	ROI Actual in the quarter reviewed
1000 ED visits resolved after LIP visit	55
Estimated cost savings \$74,000	\$9570

Press Ganey has continued to be the patient satisfaction system utilized by the Facility. The veteran related questions to the project were rating their “*satisfaction with the Telephone Triage System*”, “*rating the staff efforts to include the patient in the decisions of care*”, “*listening overall*”, “*likelihood to use the system again*” and “*rating if TCS/CCC met the needs of the Caller*”.

The trend across the 2 quarters pre-project, and the quarter that included the project were mostly similar. The baseline for patient satisfaction was 83-93.5 percent. The project period showed satisfaction of 86.8-89.09 percent. The only area that was lower was the question of “*Staff listening overall*”. The satisfaction rates were 92.4 and 93.5 before the project started and 86.8 for the period including the project. The one area that improved was rating the satisfaction

REDUCING EMERGENCY ROOM DISPOSITION RATES

with the “*staff efforts to include the patient in the decision for care*”. This rose from 83.1 and 86.4 percent to 89.15 percent (Table 6).

Table 6

Press Ganey Results

Press Ganey Patient Satisfaction Survey results and rating questions	Press Ganey results Quarter 1	Press Ganey ratings Quarter 2	Press Ganey ratings Quarter 3* QI project period
Percent of Satisfaction: Rate TCS	90.9	87.5	89.09
Percent of Satisfaction: Staff efforts include (patients) in decision in care	86.4	83.1	89.15
Percent of Satisfaction: Listening overall	93.5	92.4	86.8
Percent of Satisfaction: Likelihood to use TCS again	91.4	86.8	86.8
Percent of Satisfaction: TCS/CCC met needs	89.7	83.1	88.64

REDUCING EMERGENCY ROOM DISPOSITION RATES

Chapter 5

Discussion

This quality improvement project was able to determine the addition of LIPs in a VA VISN telephone triage system reduced the ED disposition rate. Using the protocol developed for RN to LIP call transfer, in three months' time, 55 patients recommended by the protocol driven RN triage system to go to ED had their health concerns addressed, resolved and the disposition changed to home care or follow up with the PCC. Since inappropriate attendance in United States EDs account for up to 40% of all ED patient presentations (Ismael et al., 2013), this reduction in unnecessary visits was able to contribute to the decrease in overcrowding in EDs. Reducing the overcrowding contributes to reducing the results of overcrowding, including the higher rate of triage to non-monitored areas (25 vs 16%) of the ED and longer timeframes to provider initial assessments (132 minutes vs 99 minutes) (O'Connor et al., 2014). In addition to increased ED patient risk in times of overcrowding, the cost for care in an ED is two to three times greater than care given in UC or PCC (Baker & Baker, 1994). This decrease in ED unnecessary visits saved health care dollars.

The evaluation of the protocol involved all 1608 calls sent to the LIP by the RN staff and further tracked the calls that the RN had designated ED disposition. The ability to track every call that came in allowed for a full evaluation of final dispositions of calls. Press Ganey surveys were able to determine that the other aim of the project, sustaining patient satisfaction, was achieved. Press Ganey, as an instrument, has been regarded as reliable over the entire instrument and individual sections (Hall & Press, 1996).

Sustaining the gains is ensured by the permanency of the LIP FTE. The LIP in the positions were given permanent status and the FTE remains with the department for any

REDUCING EMERGENCY ROOM DISPOSITION RATES

resignations or retirements without any funding requests needed. There is a network of VHA VISN CCC and national program managers, allowing for dissemination across the US of the results through the national program managers.

Limitations and Future Research Implications

Unknown is if more LIP staff or extended LIP hours would further decrease the ED disposition rates. RN staff outnumber LIP staff 7 to 1. RN staff covered 24/7 and the limited LIP staff were prioritized to cover daytime into evening hours. If there were more LIP staff for RN staff to send calls to and if LIP staff covered more extended evening and night hours, there may have been more opportunity to resolve veteran patient concerns before patients were recommended to proceed to an emergency department. It may be due to the limited LIP presence that the ROI projected figures were not realized.

Another area for exploration could be to determine if an increase in the type of call that RN staff could send to LIP would result in an increase in patients with resolved health concerns and no longer needing an ED disposition. The RN to LIP referral guidelines could be examined and modified as a pilot. During the quarter reviewed, the percentage of calls sent to the LIP staff that involved patients with ED dispositions was only 7% of the total calls sent from the triage RN staff to the LIP staff.

The financial implication of reducing ED disposition rates within the VA healthcare system could be an area for future exploration. Determining the actual vs estimated Medicare average cost savings is an important area for further analysis.

REDUCING EMERGENCY ROOM DISPOSITION RATES

Conclusion

In this quality improvement project, the addition of LIPs in a VA VISN telephone triage system, a CCC, reduced the ED disposition rate by 53% without reducing overall patient satisfaction with the CCC.

REDUCING EMERGENCY ROOM DISPOSITION RATES

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Appendix A

IRB Checklist

Yale University Institutional Review Boards Checklist

100 CH.9 Clinical Quality Improvement

Bonnie Sommers-Olson: Embedding Licensed Independent Providers in a VHA VISN Telephone Care Service

Investigators are encouraged to use the “QI Checklist” to help determine whether the proposed activity is considered a Quality Improvement project or whether IRB review is required.

- | | | | | |
|----|--|--------------------------|---|----|
| 1. | <u>Purpose</u> | <input type="checkbox"/> | YES <input checked="" type="checkbox"/> | NO |
| • | Is the project intended to improve the process/delivery of care while decreasing inefficiencies? | | | |
| 2. | <u>Funding</u> | <input type="checkbox"/> | YES <input checked="" type="checkbox"/> | NO |
| • | Is the project internally funded or externally supported by agencies for direct benefit to existing patients? | | | |
| 3. | <u>Project Staff</u> | <input type="checkbox"/> | YES <input checked="" type="checkbox"/> | NO |
| • | Is the proposed project conducted by the clinicians and staff who provide care or are responsible for the performance quality in the institutions where the project will take place? | | | |
| 4. | <u>Project Design</u> | <input type="checkbox"/> | YES <input checked="" type="checkbox"/> | NO |
| • | Is the project flexible, including rapid and incremental changes such as in a plan-do-study-act (PDSA) cycle? | | | |
| 5. | <u>Recruitment</u> | <input type="checkbox"/> | YES <input checked="" type="checkbox"/> | NO |
| • | Will the project involve a sample of the population (staff or patients) ordinarily seen in the institution where the project will take place? | | | |
| 6. | <u>Consent</u> | <input type="checkbox"/> | YES <input checked="" type="checkbox"/> | NO |
| • | Will the planned activity only require consent that is normally sought in clinical practice and could the activity be considered part of the usual care? | | | |
| 7. | <u>Benefits</u> | <input type="checkbox"/> | YES <input checked="" type="checkbox"/> | NO |
| • | Is it true that most of the current patients at the institution where the planned activity will take place could potentially benefit from the project? | | | |

REDUCING EMERGENCY ROOM DISPOSITION RATES

8. Risk YES NO

- A) Is the risk to the participants no greater than what is involved in the care they are already receiving? **OR**
- B) Can the burden of participating in the activity be considered acceptable or ordinarily expected when reforms are being introduced to the way care is provided?

If the answer to **ALL** of these questions is **YES** then the activity is a QI project and does not involve human subject research. **IRB review is not required.**

If the answer to any of these questions is **NO**, please consult with the IRB at 785-4688. IRB review may be required.

REDUCING EMERGENCY ROOM DISPOSITION RATES

Appendix B

Financial Implications



Project Cost Components	Initial	Year 1	Year 2	Year 3	Year 4	Assumptions and Notes:
New employee salary benefits	\$ 489,000	\$ 498,780	\$ 513,025	\$ 1,046,570	\$ 1,097,391	1.5 NP and 1.5 MD FTE
Liability insurance for Federal employees	-	-	-	-	-	NP 115+1/3 benefits
Training	4,000	1,000	1,000	2,000	2,000	MD 211+ 1/3 benefits
Materials	100	100	100	200	200	2% cost of living/year
	-	-	-	-	-	Step raises, 2.8% every 2y
	-	-	-	-	-	assume double the staff
	-	-	-	-	-	YEAR 3 due/program success
	-	-	-	-	-	
Total Non IT Project Costs	\$ 493,100	\$ 499,880	\$ 514,125	\$ 1,048,770	\$ 1,099,591	
IT Cost Components						
Software core	\$ -	\$ -	\$ -	\$ -	\$ -	Ntl license, per VACO, unable to calc indiv\$
Equipment	2,434	300	300	2,700	600	Madison VA IT provided cost of computers/monitors/keyboard/mouse
Analytical Applications						
Modules	-	-	-	-	-	
Annual Maintenance and Support	200	200	200	400	400	
Total IT	\$ 2,634	\$ 500	\$ 500	\$ 3,100	\$ 1,000	
Total Costs	\$ 495,734	\$ 500,380	\$ 514,625	\$ 1,051,870	\$ 1,100,591	

Clinical Improvement/Waste Reduction					
Reduced outside ED costs medicare rate	\$ 696,000	\$ 730,800	\$ 1,534,680	\$ 1,611,414	Medicare rate of \$174/\$1118 ave cost
	-	-	-	-	TCS Med Director est 8000 less ED visits
	-	-	-	-	conservative est of half/4000
	-	-	-	-	4000 x \$174 = \$700,000, 5% incr/year
	-	-	-	-	Estimate \$1,400,000 Year 3
	-	-	-	-	when program doubles

Total Direct Benefits		\$ 696,000	\$ 730,800	\$ 1,534,680	\$ 1,611,414
Total Benefits	\$ -	\$ 1,006,450	\$ 1,050,940	\$ 1,873,221	\$ 1,959,945
Total Direct Benefits	\$ -	\$ 696,000	\$ 730,800	\$ 1,534,680	\$ 1,611,414
(Less) Total Project Costs	(495,734)	(500,380)	(514,625)	(1,051,870)	(1,100,591)
Improvement due to Direct Benefits	\$ (495,734)	\$ 195,620	\$ 216,175	\$ 482,810	\$ 510,823
Total Benefits	\$ -	\$ 1,006,450	\$ 1,050,940	\$ 1,873,221	\$ 1,959,945
(Less) Total Project Costs	(495,734)	(500,380)	(514,625)	(1,051,870)	(1,100,591)
Improvement due to Total Benefits	\$ (495,734)	\$ 506,070	\$ 536,315	\$ 821,351	\$ 859,354

Financial Return Calculations

	Direct Benefits	All Benefits
ROI	16%	53%
IRR	30%	99%
NPV	\$2,172,475	\$2,900,799
Benefit to Cost	1.1	1.5
Payback Timing	2 years, 8.9 months	11.9 months