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**LIMITING POTENTIALLY INAPPROPRIATE MEDICATIONS
IN LONG-TERM CARE**

BY

CLARE M. IRONSIDE

A Scholarly Project Submitted to the College of Nursing in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Nursing Practice

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College of Nursing

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**“Limiting Potentially Inappropriate Medications in
Long-Term Care”**

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ABSTRACT

Aim: This project aimed to assess the effectiveness of the STOPP/START tool in identifying and reducing potentially inappropriate medications among multi-morbid, older, long-term care residents in a metropolitan area of a Southwestern state.

Design: In this quality improvement project, seven prescribers working within four long-term care facilities were trained to assess for potentially inappropriate medications using the STOPP/START tool. The medication lists for long-term care residents ($n = 45$) over age 65 were collected at baseline and again at three months post-intervention and assessed for overall medication use, psychotropics, and proton pump inhibitors. The project also assessed prescribers' comfort and confidence in using the STOPP/START tool post-intervention through the use of a questionnaire.

Results: The data revealed an increase in means from baseline ($M = 15.56$) to three months ($M = 16.33$) for overall prescribed medications, which was statistically significant. Within both classes, psychotropic medications and Proton pump inhibitors, there lacked a statistically significant impact on the number of prescribed medications during the intervention period. Finally, one prescriber (14%) completed the questionnaire and did not report a change in comfort with identifying potentially inappropriate medications or confidence in reducing, tapering, or discontinuing potentially inappropriate medications.

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LIST OF ACRONYMS

ADE	Adverse Drug Event
eMAR	Electronic Medication Administration Record
HIPAA	Health Insurance Portability and Accountability Act
IRB	Institutional Review Board
LTC	Long-Term Care
PIM	Potentially Inappropriate Medication
PHI	Protected Health Information
REDCap	Research Electronic Data Capture
START	Screening Tool to Alert doctors to Right Treatments
STOPP	Screening Tool for Older People's potentially inappropriate Prescriptions
PPI	Proton Pump Inhibitor
UNM	University of New Mexico

CHAPTER 1

Polypharmacy, the daily use of five or more prescription medications, is common and harmful in the Long-Term Care (LTC) setting. Institutionalized adults over age 65 are at particular risk for polypharmacy and adverse effects from medications secondary to age-related physiologic changes and multimorbidity (Andrew et al., 2018). Residents of long-term care facilities tend to have significant medical burdens with co-existing functional limitations, making them susceptible to higher rates of medication use and medication-related harm.

Background

A direct correlation exists between the amount of medication prescribed and harm through Adverse Drug Events (ADEs). An ADE can range from benign effects such as constipation or nausea to significant harm such as altered mental status or hemorrhage (gastrointestinal or intracranial). The three most commonly observed causes of harm from polypharmacy among LTC residents are geriatric syndromes, falls, and hospitalizations.

Geriatric syndromes are conditions of frailty and are the result of age and multimorbidity. These conditions are often vague and can be thought of as normal aging. Although definitions vary, geriatric syndromes are commonly associated with any one of the following six symptoms: delirium, urinary incontinence, cognitive impairment, unintentional weight loss/anorexia, depression, and falls (Saraf et al., 2016). Polypharmacy increases the risk of developing one or more geriatric syndromes. A study by Saraf et al. (2016) reviewed the medications of 154 hospitalized older adults ($M = 76.5$ years old) discharged to a short-term rehabilitation in a nursing facility. The results revealed, on average, older adults discharged with 14 (± 4.7) medications, with approximately 6 (± 2.2) identified as medications associated with geriatric

syndromes. Further, half of the sample population had at least three geriatric syndromes identified before discharge, which suggests that polypharmacy contributes to and further complicates geriatric syndromes in patients discharged to short-stay rehabilitation.

Falls, a geriatric syndrome, accounts for most cases of unintentional injuries and death among in older adults. Cameron et al. (2018) found that 57% of LTC residents had fallen at least once in the last six months. Falls were associated with cognitive and visual impairment, male gender, and the use of certain medications, mainly Potentially Inappropriate Medications (PIMs) assessed by the Beers criteria. Fatal falls are more significant in men (46%) than women (27%), with higher male fatality rates (Bor et al., 2017).

Lastly, ADEs harm older adults and have an enormous impact on the health care system through increased hospitalizations. In a systematic review by Wang et al. (2018), the authors assessed 22 cohort studies concluding that prescribed medications are a potentially modifiable risk factor for hospitalizations in residents of long-term care facilities. Three studies identified reduced hospitalization through preventative influenza vaccination. Four studies demonstrated polypharmacy and PIMs increased all-cause hospitalization, mainly through injury by falls. Additionally, common medications such as Coumadin, non-steroidal anti-inflammatory drugs, and pantoprazole were associated with hospitalizations in specific populations or single studies.

Tools

Tools addressing polypharmacy broadly fall into two categories, deprescribing and identifying medications. (Reeves, 2020): the three most common tools used are: 1) generic deprescribing frameworks, which offer general information in a stepwise process allowing the prescriber to critically evaluate medication, 2) drug-specific deprescribing guidelines, which

contain a detailed process for deprescribing a specific class of medication, and 3) tools to identify potentially inappropriate medications. These tools provide explicit classes of medication to avoid.

The two most widely used tools to identify PIMs are the Beers criteria and STOPP (Screening Tool for Older People's potentially inappropriate Prescriptions)/START (Screening Tool to Alert doctors to Right Treatments) criteria (Brown et al., 2016). The Beers criteria were initially developed in 1991 by Geriatrician Mark Beers through an expert panel using the Delphi method (Davies and O'Mahony, 2015). The American Geriatric Society currently maintains the Beers criteria and provides updates on a three-year cycle, most recently modified in 2019.

The STOPP/START criteria were developed in 2008 by a European Consensus group to address prescribing differences between the United States and Europe (Bjerre et al., 2015). Organized by organ system, the STOPP/START criteria were updated in 2014 and modified in 2017, specifically for use in U.S. Nursing Homes (Khodyakov et al., 2017). These two tools provide a good starting point for identifying PIMs but have limitations. They generally do not mention appropriate dosing, and most criteria lack consideration for renal impairment, which is a significant consideration in medication dosing for older adults (Reeves, 2020). Additionally, the Beers and STOPP/START criteria only identify PIMs, offering no guidance on deprescribing. Canteau et al. (2020) acknowledges that the lack of scientific rigor in these tools speaks to the insufficiency of evidence and infancy in this field.

Problem Statement

The rate of polypharmacy in the U.S. is on the rise and disproportionately affects older residents in LTC facilities (Storms et al., 2017). This statistic is unsurprising, given that

Americans are living longer with multiple chronic conditions. Formal education for prescribers (Physicians, Nurse Practitioners, and Physician Assistants) provides little or no training on maintaining appropriate medication regimens or deprescribing thus, contributing to polypharmacy's complex nature (Farrell & Mangin, 2019). In an informal, regional needs assessment involving a pharmacist specializing in LTC and several prescribers of a LTC organization, two classes of medication were identified as particularly problematic: psychotropic medications (including hypnotics/sedatives, antidepressants, anxiolytics, and antipsychotics) and Proton Pump Inhibitors (PPI).

Project Purpose

This scholarly project's primary purpose is to educate prescribers of LTC facilities to identify PIMs, through the use of the *STOPP/START Criteria for US NH Population Aged 65 or Older*. Evaluation on the use of PIMs took place with an initial baseline assessment and a post intervention evaluation of the overall number of prescribed medications per LTC residents. The second purpose specifically assessed two classes of medications, psychotropic medications, and PPIs, for reduced use. Lastly, this project gathered feedback through a questionnaire on the prescribers' comfort level and confidence in identifying PIMs in older LTC residents three months post-implementation.

PICO Question

Does introducing the STOPP/START criteria to prescribers working with Long-Term Care residents help them identify potentially inappropriate medications and, therefore, help reduce the overall number of medications?

Project Objectives

The objectives for this project include:

1. Educate prescribers on the use of STOPP/START criteria to identify PIMs.
2. Identify areas of possible barriers to implementation through biweekly check-in sessions.
3. Analyze the STOPP/START criteria's impact on the overall amount of medication per resident through electronic Medication Administration Records (eMAR).
4. Examine the impact of the STOPP/START criteria on prescribers' use of psychotropics and PPIs in LTC residents.
5. Assess prescribers' confidence level in identifying and managing PIMs using the STOPP/START criteria.

Research Questions

This project addresses the following research questions:

1. Did implementation of the STOPP/START criteria impact the number of prescribed medications in LTC residents over 65 years old?
2. Did the STOPP/START criteria specifically impact the prescribers' use of psychotropic medications and PPIs?
3. After implementing and utilizing the STOPP/START criteria, did prescribers' comfort and confidence in identifying PIMs improve?

Scope of Project

This project's scope was limited to adults aged 65 years and older residing in LTC facilities in north central New Mexico. The population includes adults older than 65 years, who

are anticipated to reside in LTC for at least six months and who take more than five medications daily. It excludes residents hospitalized or placed on hospice during this project's time frame.

Significance of the Project

This scholarly project adds to the body of literature on polypharmacy in the LTC setting by implementing a tool to identify PIMs. It was hoped that implementing and supporting prescribers through the use of the STOPP/START criteria provided meaningful changes to prescribing habits. This project's findings will help inform and support using similar tools to assist prescribers with identifying and deprescribing PIMs, thus reducing harm for residents of LTC facilities.

CHAPTER 2

LITERATURE REVIEW

A literature review was conducted to understand polypharmacy's effects on LTC residents older than 65 years. This chapter reviewed the current literature to determine 1) how polypharmacy is defined, 2) the prevalence of polypharmacy in LTC facilities, 3) factors influencing polypharmacy, and 4) the use of psychotropic medications and PPIs in LTC facilities. The findings in this review provided a basis for this scholarly project through current evidence. Results revealed a large body of knowledge from a diverse range of countries and ongoing efforts to address issues of polypharmacy in older, frail adults.

Review Methods

A review of the literature was performed using the University of New Mexico (UNM) Health Science Center Library databases. Databases searched included PubMed, CINAHL, and EBSCOHost, using English and full text as limitations. Published articles from 2015 to 2020 were reviewed. The following search terms were used to extract articles: *Polypharmacy, potentially inappropriate medications, reducing medications, adverse drug reactions, Beer's criteria, STOPP/START criteria, Proton Pump Inhibitors, psychotropic medications, older adults, Long-Term Care, and Nursing Home*. The results produced hundreds of articles, which were critically reviewed by examining the titles and abstracts for relevance to this project. Additional articles were found by reviewing references of relevant articles.

Definition of Polypharmacy

The first step in understanding a problem is to define it. Throughout the scientific literature, polypharmacy has been an ambiguous term. Variability in defining polypharmacy may

be due to the term's evolution over time (Sirois et al., 2019). To date, the scientific literature has not come to a consensus on a standard definition of polypharmacy, but in an attempt to understand the definitions used, Masnoon et al. (2017) identified three overarching categories. The first category comprised numerical definitions, which were further delineated into the number of medications (ranging from ≥ 2 to ≥ 11) and the number of drug classes (ranging from ≥ 2 to ≥ 21). Descriptors such as “minor polypharmacy” and “severe polypharmacy” characterized these definitions. The second category used only descriptive definitions, such as “Co-prescribing multiple medications” and “Simultaneous and long-term use of different drugs by the same individual” (p. 4). Finally, the terms “appropriate” vs. “inappropriate” defined the last category.

PIMs are increasingly associated with polypharmacy and are thought to carry a more nuanced approach to the definition. Instead of assessing the mere number of medications as harmful, an increasing number of researchers are looking at appropriately prescribed medications. Tools such as the Beers criteria and STOPP/START criteria are ways to assess PIMs (Taghy et al., 2020). These tools provide a reference to identify PIMs and alert prescribers to assess the continued need for medication in a standardized way.

One hypothesis for the changing definition is accommodating an increasingly older and sicker population. However, Sirois et al. (2019) caution that a changing definition could also be out of convenience instead of scientific rigor, leading to a lack of heterogeneous data collection, making the magnitude of the problem almost impossible to understand (Masnoon et al., 2017). Taghy et al. (2020) verify this claim by noting that studies attempting to compare data through meta-analyses report contrasting methodological approaches as a significant limiting factor. In

addition to capturing unclear data, polypharmacy's vagueness hinders the ability to evaluate interventions' outcomes and find practical, evidence-based solutions (Taghy et al., 2020).

With the glaring lack of uniformity in this field, a growing call for a definition with a theoretical underpinning and specific, well-identified qualifiers (prescribed vs. over-the-counter medications, chronic vs. acute duration, and the number of prescriptions) is needed (Sirois et al., 2019). Additionally, finding an exact point at which more health care utilization or measurable adverse reactions occurs, such as increased hospitalization, falls, or resulting geriatric syndromes is a starting point for a rigorous definition (Sirois et al., 2019). Some researchers go even further to recommend classifying polypharmacy as a medical condition worthy of an International Classification of Diseases (ICD) code. Such a classification, Sirois et al. notes, would render a standardized definition that would shed light on the overall prevalence of polypharmacy, assist in developing evidence-based interventions, and provide measurable outcomes.

Prevalence of Polypharmacy in LTC Facilities

The wide-ranging definitions of polypharmacy has led to variability in measuring its prevalence. The following two articles outline the large degree of inconsistencies seen throughout current research.

The first systematic literature review conducted by Storms et al. (2017) examined PIM rates in LTC residents. This research analyzed 21 studies across multiple countries. The authors of this study used two different tools that showed similar results. Overall, the prevalence of inappropriate medication used in LTC facilities ranged from 19% to 83% (median 47%). Utilizing the Beers criteria (versions including 1991, 1997, 2003, and 2012), the prevalence ranged from 21% to 63% (median 35.1%). Studies based on STOPP/START criteria showed a

prevalence of 24% to 80% (median 61%). Storms et al. concluded that the variation in prevalence could result from different medication markets and suggested some medication forms were not available in every country resulting in skewed data. Additionally, the authors reported heterogeneous data that limited their ability to perform a meta-analysis.

In a second systematic review, Morin (2016) set out to assess the overall prevalence of PIM among LTC residents (> 60 years old). A total of 48 articles from 18 countries were reviewed. Morin's research reported PIM exposure as high as 43% of adults \geq 60 years old living in LTC facilities. After analyzing the data by geographic location, Morin reported a greater prevalence of PIMs in European countries (49%, 95% CI 42.5-55.5) than in North American countries (27%, 95% CI 16.5-37.1). In addition to location, PIM exposure increased over time. The authors analyzed studies from 1990-1999 and reported a 30% prevalence of PIMs in LTC residents, whereas studies conducted after 2005 had an overall rate of 50%. This study concluded that the single most predictive factor for patients receiving PIMs was based on the total number of prescribed medications (Morin 2016).

Factors Influencing Polypharmacy

Polypharmacy in LTC facilities is multifactorial, with a complicated interplay between individual/patient characteristics, prescriber attributes, and societal-level variables. In a cross-sectional analysis Ellenbogen et al. (2020) evaluated over 25 million Medicare claims in 2016 to describe patient characteristics associated with polypharmacy. In this study, patients with HIV/AIDS (Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome), organ transplant (solid), diabetes mellitus, and heart failure with reduced ejection fraction (systolic heart failure) had a strong association with polypharmacy. Additionally, factors such as older

age, multimorbidity, high body mass index, and the annual number of clinic visits were associated with polypharmacy (Charlesworth et al., 2015). Contrary to Charlesworth et al.'s research, a mixed-methods study in Germany did not associate age or multimorbidity with increased medication use but instead identified female gender, depression, and the sheer number of medications as predictive factors (Voigt et al., 2016). Based on these three studies, there do not appear to be specific characteristics alerting prescribers that polypharmacy may become a problem.

Rieckert et al. (2018) suggest that prescribers are prone to polypharmacy based on the current disease-oriented medical model. This study proposes that a single disease-oriented treatment approach does not consider individuals with multimorbidity. Multimorbidity requires consideration for the complex nature and interaction of several conditions and medications used for treatment. Use of multiple medications may result in adverse reactions that lead to prescribing more medication to counteract side effects, resulting in a prescribing cascade.

Specific attributes of prescribers associated with higher prescribing rates were recent graduation from school and practicing in a large, busy organization (Ellenbogen et al., 2020). Furthermore, German Primary Care Providers identified high workload demand, lack of knowledge/experience with specialty guidelines, and multiple prescribers from various specialties as the most significant factors influencing polypharmacy in older adults (Voigt et al., 2016). Lastly, societal factors such as the creation of Medicare Part D, pharmaceutical advertising/promotion, and the increased awareness of evidence-based medicine has contributed to the exponential growth of polypharmacy (Charlesworth et al., 2015).

The Use of Psychotropic Medications and PPIs in LTC Facilities

This project looked at two specific medications classes based on a local needs assessment, psychotropic medications, and Proton Pump Inhibitors. The literature suggests psychotropic medications and PPIs tend to be overprescribed in LTC facilities and are particularly problematic among older adults. Inappropriate use of these medications carries specific concerns of ADE and medication-related morbidity (Rane et al., 2017). In the LTC setting, psychotropics and PPIs are commonly prescribed for off-label use or without an appropriate indication. This project's secondary purpose assessed for a reduction in use of these two classes of medications.

Psychotropic medications are particularly harmful to LTC residents and are often initiated without appropriate indication, such as to control the behavioral or psychological symptoms of dementia (Ozaki et al., 2019). Antipsychotics explicitly carry a black box warning from the Food and Drug Administration (FDA) for increased mortality risk when used in behavioral or psychological symptoms of dementia. Despite this severe warning, approximately 20% of LTC residents receive antipsychotics (Zhang et al., 2018). In a cross-sectional study looking at LTC facilities in Iowa, Zhang et al. (2018) aimed to understand where initiation of antipsychotic medication occurred to target drug use patterns and reduce antipsychotics in LTC. Using the Long-Term Care Minimum Data Set (MDS) 3.0, this study determined that LTC residents had antipsychotic medication initiated in a hospital setting 19% of the time, in an outpatient setting 18% of the time, and in the LTC facilities 64% of the time (Zhang et al., 2018). LTC residents' characteristics that were associated with antipsychotic use were white (97%), females (68%), between 85-94 years old (47%), and with a diagnosis of dementia before an

antipsychotic medication was initiated (94%). This study provides evidence that targeting antipsychotic use in the LTC setting could provide a meaningful reduction in use.

PPIs carry specific indications for gastric conditions with a time-limited course; unfortunately, prescriptions often fall outside these parameters. As more research on long-term use of PPIs emerges, growing evidence suggests that excessive use of PPIs can lead to adverse drug events such as *Clostridium difficile* infections due to altered gastric microflora, greater risk of fractures due to decreased calcium absorption, and pneumonia caused by bacterial overgrowth (Masclée et al., 2014). A cross-sectional study of 1.31 million LTC residents over 65 years old aimed to assess the prevalence of inappropriate use of PPIs (Rane et al., 2017). The authors found that 27% of LTC residents receive a PPI, and of those, 49% of PPI use was non-evidence based (Rane et al., 2017). LTC residents most likely to receive a PPI were non-Hispanic females, over 85 years old, and living in a metropolitan area. The most common non-evidence-based indication for receiving a PPI was chronic cough. Possible reasons for continued inappropriate PPI use outside of a time-limited course include perceived benign safety profile, concern for rebound symptoms, or lack of deprescribing education (Rane et al., 2017).

Literature Summary

This literature review explored polypharmacy through its definition, the prevalence in LTC facilities, factors influencing prescribing habits, and specifically, the use of psychotropic medications and PPIs in the LTC setting. The current literature has shown that the most fundamental aspect of polypharmacy, the definition, has not been established. Without a standard definition, all other polypharmacy aspects become more challenging to quantify, including understanding its prevalence in LTC facilities. The data identifies significant variances in

polypharmacy prevalence ranging from 21% to 83% in LTC facilities. Although the literature lacked consistency in polypharmacy prevalence, the considerable variation suggests its impact in LTC facilities is worth continued research. Additionally, this literature review found no consistency in factors that contribute to polypharmacy and little evidence supporting specific patient characteristics that lead to multiple prescribed medications. These studies suggest that multiple variables at the prescriber level contribute to prescribing patterns and practices, including recently graduating from school, working in a busy practice, and the absence of multimorbidity disease management models.

This review looked at the use of psychotropic medications and PPIs within LTC facilities. As a growing body of research suggests, psychotropics and PPIs have known risks to this population yet continue to be prescribed without an appropriate indication. Finally the literature lacks evidence to support prescriber perceptions in their ability to identify or deprescribe PIM.

CHAPTER 3

THEORETICAL MODEL AND METHODOLOGY

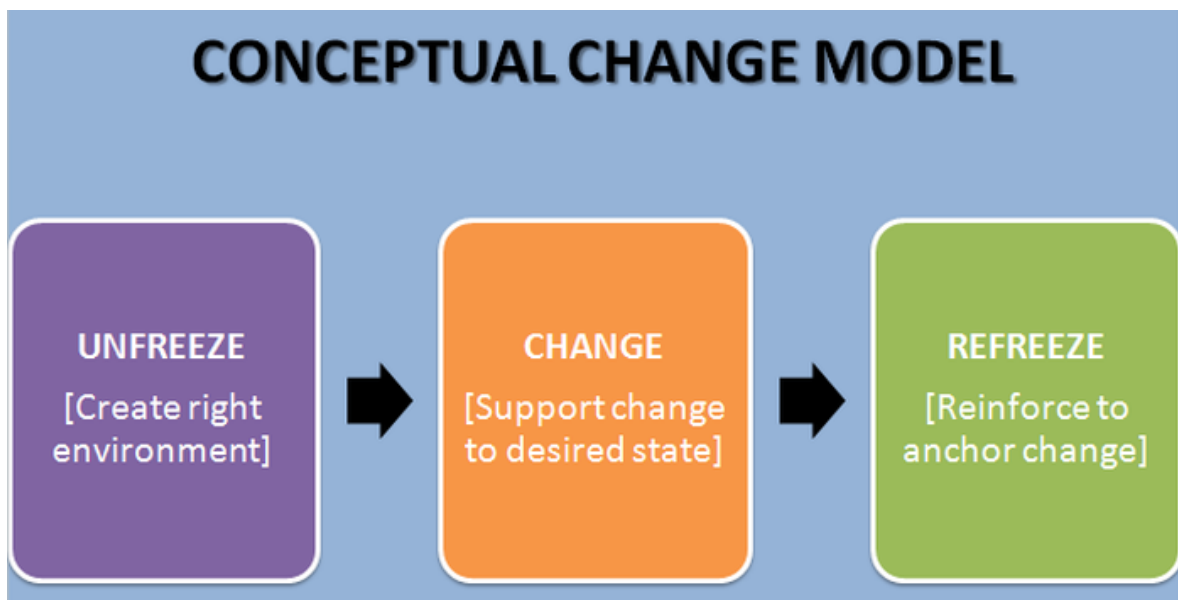
Kurt Lewin's Change Theory is the theoretical model for this project. The Change Theory was initially designed to solidify change in human systems by conceptualizing how behavior is a function of the environment (Burnes, 2020).

Tenets of Change Theory

The primary tenets of Lewin's Change Theory include driving forces, restraining forces, and equilibrium. Driving forces influence movement in a different direction. These forces can be either internal motivators or external influences. A change in driving forces moves the equilibrium from its balanced state into a state of change. On the other hand, restraining forces hinder movement by opposing the driving forces and shifting away from change. In a state of equilibrium, driving forces and restraining forces are equivalent, and no change occurs (Kurt Lewin, 2020).

Lewin theorized that without these underlying tenets, it is difficult to understand how to change group behaviors. Lewin built his three-stage model on these tenets, fueled by the notions of unfreezing, change, and refreezing. Unfreezing involves a disruption in the driving and restraining forces that maintain the equilibrium of an individual or group. Interrupting the current equilibrium creates an opportunity to re-educate and start the first stage of the change pattern (Burnes, 2020). The second stage of the Change Theory involves fostering an environment where the new behavior's driving forces are more significant than the restraining forces. This stage depends on the individual or group understanding and embracing change, which pushes the driving forces forward, moving from unfreezing into change. Time and communication are the

keys to success during this stage (Burnes, 2020). Finally, refreezing reestablishes equilibrium in a new process and stabilizes the new behavior. Lewin suggests refreezing is the most crucial aspect of change, solidifying individual or group routines and norms leads to sustained change in behavior. (Cummings et al., 2015).



(The Conceptual Change Model, n.d.)

Figure 1. Conceptual Change Model

Applying Lewin's Change Theory

The Change Theory offers a simplistic format applicable to highly complex situations, making it ideal for health care's dynamic environment. This project delves into the complicated world of health care providers prescribing habits for residents within LTC facilities by utilizing the Unfreezing and Change stages of Lewin's theory. Refreezing will take place beyond the timeline of this project. The project goal sought to initiate a sustainable change by implementing a process that eliminated unnecessary medications that may harm residents of LTC facilities.

The project's first stage of unfreezing started with the critical step of recognizing the problem of PIMs in nursing homes and educating prescribers to identify PIMs in their patient population. The educational component provided for prescribers the current evidence-based research for a practice change. The educational session set the stage to interrupt the current equilibrium in prescribing patterns and offered an opportunity to move prescribers into the second stage of change.

The second stage involved practice change, where implementation of the STOPP/START criteria began. Throughout the process, prescribers had the opportunity to check-in, discuss, or receive feedback on using the STOPP/START criteria from the project author. Prescribers decided if medication risks outweighed the benefits for their residents by continuing, tapering, or discontinuing medications. This project sought to initiate a sustainable change by implementing a process that eliminated unnecessary medications that may harm residents of LTC facilities.

Methodology

To establish if a change occurred in prescriber medication management for LTC residents, a baseline assessment took place utilizing de-identified eMARs of LTC residents. The baseline assessment occurred before implementing the *STOPP/START Criteria for US NH Population Aged 65 or Older* (Appendix B). The post intervention chart review, on the same set of eMARs, occurred three months after prescriber education and implementation. The data collected from eMARs determined if there is a measurable change in the overall prescribed medication pre-and post-implementation.

Prescribers who chose to participate in this project provided verbal consent and had their prescribing information protected through de-identification (Appendix A). Once consent was obtained, an in-depth educational intervention took place introducing the STOPP/START criteria by this project's author. The presentation occurred at a regularly scheduled meeting virtually. As part of the ongoing educational intervention, prescribers had the option of attending a regular biweekly check-in session to discuss barriers to implementation or clarify any questions about using STOPP/START by the project's author. The prescribers were provided a laminated one page STOPP/START sheet for reference.

De-identified eMARs from four LTC facilities in a metropolitan area of north central New Mexico were obtained at two points in time based on inclusion and exclusion criteria (Appendix C). eMARs were compared for changes in the overall number of medications and assessed for a difference in the use of two specific medication classes, psychotropic medications, and proton-pump inhibitors.

Finally, upon completing the project, prescribers were asked to complete a short questionnaire (Appendix D) to assess their overall comfort and confidence in identifying PIM and reducing, tapering, or discontinuing medications evaluated as inappropriate. All participation in this project was voluntary.

Ethical Issues/Risk to Participants

Before collecting data, the project's author obtained Institutional Review Board (IRB) permission from the UNM Health Science Center. This project attempted to mitigate any concerns of confidentiality.

1. Data came from two sources, eMAR of LTC residents, whose prescribers consented to participate, and a short questionnaire completed by prescribers.
 - a) eMARs meeting inclusion criteria (Appendix C) were de-identified of prescriber and resident Protected Health Information (PHI). Each resident's eMAR was given a unique identifier before being housed on a secure, password-protected, HIPAA (Health Insurance Portability and Accountability Act) compliant database server at UNM, REDCap (Research Electronic Data Capture).
 - b) Prescribers' privacy was protected through verbal consent and anonymous completion of the post intervention questionnaire, which was directly uploaded to REDCap.

2. There was a risk that prescribers may have felt conflicted when a PIM is identified, wanting to act on new knowledge but unsure if the approach is suitable for the resident.
 - a) Regularly scheduled check-ins were provided as a time to consult with this project's author.
 - b) Prescribers could have been referred to the designated facility pharmacist. Pharmacist support is available to the facility or prescriber 24 hours a day, 7 days a week.
 - c) Additionally, the STOPP/START criteria served as a tool to identify PIMs. It was up to the prescriber's professional judgment to change medication based on clinical presentation and patient benefit.

Data Collection Procedures and Site Information

Project Setting

This project took place in four LTC facilities in a metropolitan area of north central New Mexico. These facilities provide multiple services to include long-term care, short-stay skilled nursing/rehabilitation after acute hospitalization, hospice services, short-stay respite care, and one facility has a memory support unit. Although these facilities offer a range of services, this project only focused on the eMARs of long-term care residents who are anticipated to live in the facility for at least six months.

Project Population

This project evaluated one population. The population of interest includes prescribers working in the four LTC facilities. As of this writing, there are 20 full-time, and part-time prescribers, including Physicians, Nurse Practitioners, and Physician Assistants, 8 of whom work in the four facilities of interest. A subset of this population includes the eMARs of LTC residents that meet inclusion criteria.

Project Timeline

The timeline of this project is as follows:

1. Planning and approval process (October 2020-July 2021)
 - a) Informed Consent Cover Letter (Appendix A)
 - b) STOPP/START Criteria for US NH Population Aged 65 and Older (Appendix B)
 - c) Inclusion/Exclusion Criteria (Appendix C)
 - d) Prescriber Questionnaire (Appendix D)
 - e) Create educational materials (Appendix E)
 - f) Obtain approval from prescribers' organization (Appendix F)

- g) Obtain approval from LTC facility administration (Appendix G)
 - h) Obtain UNM Health Science Center IRB approval (Appendix H)
2. Data Collection (September 2021-January 2022)
 - a) Obtain an initial set of prospective eMAR data
 - b) Prescriber education on STOPP/START criteria
 - c) Provide regular check-ins with prescribers
 - d) Obtain the second set of prospective eMAR data
 - e) Enter prescriber Questionnaires into the REDCap repository database.
 3. Data Analysis (January 2022-February 2022)
 - a) Run statistical analysis
 - b) Interpret results

Tools

The *STOPP/START Criteria for US NH Population Aged 65 or Older* was validated for use in adults aged 65 years or older, in the U.S., and among the nursing home population. It was modified from its previous 2014 version and incorporated 24 criteria, including 22 measures of potentially inappropriate medications (STOPP) and two potential prescribing omissions (START) (Khodyakov et al., 2017). Organized by body system, this tool is concise and easy to use. The STOPP/START tool provides recommendations to stop medication under specified circumstances and focuses on a minimal scope of medications. This tool was selected because it is the only PIM tool validated for nursing home use.

The final portion of this project used a short, author-created Questionnaire (Appendix D) to determine basic prescribing information (two questions), barriers encountered with using STOPP/START tool, and comfort and confidence before and after implementing the STOPP/START criteria (five questions).

Data Collection Process

This project collected two forms of data. First, eMARs that met inclusion criteria (Appendix C) were collected and de-identified of PHI through the LTC facility's internal process. eMARs were given a unique identifier before being transferred to a secure, password-protected, HIPAA compliant database. This process took place at two points in time, initially (baseline assessment) and three months post-implementation. Data was analyzed for the total number of medications and classes of medications. The second data source came from a brief anonymous questionnaire, which was uploaded directly to REDCap. All information from the questionnaire was reported in aggregate.

Data Protection Measures

All data was collected and managed through a password protected process.

Budget

Prescribers normally attend a mandatory monthly meeting with education sessions. This project's STOPP/START criteria educational sessions were presented at mandatory monthly meetings, resulting in no additional time or expense spent for training. Participants of this project did not incur any cost, nor did they receive compensation. All tools used, including computers and software, are owned by the project author. The author sent approximately \$75 to laminate copies of the STOPP/START criteria, which was provided to the prescribers for reference.

Statistical Methods

This DNP project used descriptive and inferential statistics to examine the differences among means of medications lists and two classes of medications over three months. First, descriptive statistics summarized categorical information. Second, a two-tailed dependent sample

t-test compared means across two groups including overall medications and psychotropic medications. An α level threshold of 0.05 indicated statistical significance. Normality was assessed by using skewness and kurtosis, and effect size was measured using Cohen's *d* (0.1 = small, 0.3 = medium, and 0.5 = large). McNemar's test for paired categorical samples assessed for discordant pairs within the class of medications PPIs.

Lastly, prescribers completed a questionnaire, which assessed two demographic questions and six questions that evaluated their overall comfort and confidence in identifying PIMs and reducing, tapering, or discontinuing medications evaluated as inappropriate.

CHAPTER 4

RESULTS AND DISCUSSION

Among four Southwestern LTC facilities in one metropolitan city and seven prescriber participants, medication lists for 45 residents met inclusion and exclusion criteria. Descriptive data showed the average age of residents in LTC was 79 ($SD = 7.35$) years old, receiving a mean of 15.56 ($SD = 6.29$) medications at baseline assessment. There were mixed results within the two classes of medications specifically assessed for this project, psychotropics and PPIs. Both classes lacked statistically significant changes in their use despite the total number of psychotropic medications going up and the total number of PPIs going down. Of the seven prescribers who participated in this project, one (14%) returned the questionnaire and indicated they had a significant number of total years prescribing medications along with long-term care experience.

Interpretation of findings

Overall Medications

When comparing overall medications, descriptive statistics (Table 1) and paired samples t -tests (Table 2) were conducted to look at the difference in means between baseline assessment and the 3 month post-intervention time frame. There was an increase in means from baseline ($M = 15.56$, $SD = 6.29$) to three months ($M = 16.33$, $SD = 6.84$), which was statistically significant ($t(44) = -2.35$, $p = 0.02$, two-tailed). Additionally, the magnitude for the difference in means showed a small effect size (Cohen's $d = 0.11$).

Psychotropic medications

For psychotropic medications, again, there was an increase in means from baseline ($M = 0.98$, $SD = 0.92$) to post-intervention ($M = 1.04$, $SD = 1.15$); however, this increase was not statistically significant ($t(44) = -0.77$, $p = 0.44$, two-tailed) and showed a negligible corresponding effect size (Cohen's $d = 0.03$).

Table 1

Descriptive Data (n = 45)

Variables	<i>Mean</i>	<i>SD</i>	Median
Age	79	7.35	80
Overall Medication			
(T0) Baseline assessment	15.56	6.29	15
(T1) Post-Intervention	16.33	6.84	16
PPIs			
(T0) Baseline assessment	0.18	0.39	0
(T1) Post-Intervention	0.16	0.37	0
Psychotropic			
(T0) Baseline assessment	0.98	0.92	1
(T1) Post-Intervention	1.04	1.15	1

Table 2

Paired Samples t-tests (n = 45)

Variables	<i>t</i>	<i>p Value</i>	Cohen's <i>d</i>
Overall Medication	-2.35	0.02	0.11
Psychotropic	-0.77	0.44	0.03

PPIs

Descriptive data looked at the means of PPIs from baseline assessment ($M = 0.18$, $SD = 0.39$) to post-intervention ($M = 0.16$, $SD = 0.37$), showing a decrease in use of PPIs during the intervention period. McNemar's test showed three discordant pairs which accounted for two discontinued PPIs and one newly initiated PPI during the intervention ($p = 1.0$), which was not statistically significant.

Questionnaire

The post intervention survey was sent out, with two follow up reminders one week apart, to the seven prescribers who participated in this project; only one (14%) was returned. The one survey revealed that this prescriber had significant experience prescribing medications (>25 years) and has worked in the post-acute care setting between 21-25 years. They 'strongly agreed' to feeling comfortable identifying PIMS and reducing, tapering, and/or discontinuing medications that were not beneficial to LTC residents prior to implementation of STOPP/START.

Discussion

This quality improvement project assessed the difference between use of potentially inappropriate medications in the same group of LTC residents at baseline and three months post-intervention. The data revealed an increase in medications during the intervention period, which was statistically significant.

Although this project did not have the hypothesized impact, it provided valuable insights into the complex nature of prescribing and managing medication regimens for older, multimorbid LTC residents. The prescribers themselves highlighted many of these insights.

During this project, prescribers were invited to participate in multiple check-in sessions to discuss barriers encountered or ask questions regarding the use of the STOPP/START tool. Five check-in sessions were set up at the beginning of the intervention with email reminders sent out the Friday before the next session; attendance was optional. During these sessions, two prescribers attended two different sessions and discussed what they perceived as barriers to managing medications regimes in this population.

The first prescriber noted the biggest barrier as being infrequent communication with the geriatric psychiatrist. The psychiatrist often manages psychotropic medications within the LTC setting and may not be as willing to taper, reduce, or discontinue psychotropic medications. This prescriber also noted that medication indications are sometimes incorrect. For example, residents on antipsychotic medications may be labeled as having a longstanding psychiatric disorder such as bipolar disorder or schizophrenia, but the accurate diagnosis is dementia with behaviors, which does not warrant antipsychotic medications. In fact, he stated “using an antipsychotic with a diagnosis of dementia with behaviors carries a black box warning”. He then stated that it takes time and a lot of care coordination to correct wrong diagnoses. This particular prescriber was not worried about ‘staff push back,’ stating he often starts a slow taper of high-risk medications with the option to resume the original dose if there are reported adverse side effects. He tries to communicate this to nursing staff to keep them informed of the plan of care and watch out for any changes.

The second prescriber discussed several barriers that included:

- 1) Inertia, stating this was the most significant barrier and noted “it is hard to dig deeper and get a better feel for what the patient is experiencing and their symptoms,” noting

that if a medication is in place and appears to be working or at least not harming a resident, why change it?

- 2) If a geriatric psychiatrist is involved, the primary prescriber generally defers to them for all psychiatric medications and changes.
- 3) Families have a say and sometimes remember a bad experience of when “grandma was taken off her Seroquel” and are now hesitant to make changes.
- 4) Communication is always an issue. It can be challenging to know who has made medication changes because there are so many people involved in the LTC setting, for example, “a psychiatric NP in another facility made changes, that seemed quite aggressive, and the orders were placed under this MD’s name, making it confusing to the staff about who was actually making the changes.”
- 5) The second prescriber did not feel that there was much push back from the nursing staff when medications were changed.

Finally, within the questionnaire, one question asked about barriers encountered during implementation. The one respondent noted, “fear of harming [patients] or making nurses angry.”

Although this project had a small sample size of prescribers working within four LTC facilities in one metropolitan area of north central New Mexico , the barriers encountered are likely not unique to this project/population. The complexity of managing medication lists, training multiple prescribers, continually assessing for PIMs, and having the competence to taper, reduce, or deprescribe medication in this setting inherently comes with multiple barriers making the solution to polypharmacy in LCT facilities a complicated problem that cannot be solved with one intervention.

Strengths and Limitations

Strengths

This project has several notable strengths. First, it used a validated tool specifically for U.S. nursing homes, STOPP/START. This tool is succinct and reasonably easy to use. It is organized by body systems and provides clear guidance on PIMs. Second, all nursing facilities utilized for this project are part of the same parent organization, providing consistency across each nursing facility. Third, this project brought two large, nationally recognized organizations together with a shared interest in improving resident care and reducing harm. Finally, this author was known to the prescriber organization's leadership team, which allowed for greater communication and collaboration in executing this project.

Limitations

This project contained several unavoidable limitations.

- 1) The prescribers' organization tracked and reported psychotropic medications prior to this project's implementation. Each prescriber received a monthly report on psychotropic medications prescribed and other high-risk medication such as opioids. Although this was purely for tracking purposes and had no associated intervention, bringing attention to psychotropic medications likely impacted prescribing habits prior to this project. This project did not consider the fact that medication use generally goes up over time (Brooks, 2019; Morin, 2016). It may be the case that overall medication use went up at a predictable rate over the course of this project.
- 2) The main prescribers of antipsychotic medications (geriatric psychiatrists) were not trained in STOPP/START, which may have impacted the increase of psychotropics.

Geriatric psychiatrists are not part of the organization that was trained on STOPP/START, but instead are an independent group contracted to provide this service in LTC facilities. Their recommendations for medication management are generally not changed due to the highly regulated nature of LTC facilities and their specialized education with high-risk medications.

- 3) The COVID-19 pandemic posed a large barrier to this project, by limiting face-to-face contact with the prescribers. In the past, educational intervention would have taken place in person at a monthly meeting, follow-up would have happened in real time within the LTC facilities with the prescribers, and questionnaires would have been handed out at a face-to-face conclusion of the project. Performing this project by virtual means limited meaningful interactions that may have contributed to this project's low check-in session and questionnaire participation rate.
- 4) Data collection was not as rigorous as planned. This author requested two points of data: at baseline assessment and at three months post intervention. Two sets of data were presented. The first set was returned due to unusable data that included hospice residents' information (an exclusion criteria), eMARs of all residents that had passed away several years ago, and the eMARs of residents whose prescribers were not trained on STOPP/START (exclusion criteria). The second set of data included both points of data and required thoughtful interpretation to maintain the integrity of the project. This author lacked the ability to identify residents who were hospitalized during the three month intervention period.
- 5) The short time frame for this project did not allow for change in prescribing habits.

6) Finally, the small sample size limited this project's ability to generalize the results.

Implications for Practice

This project's data is in line with literature that reports high rates of polypharmacy in older, multimorbid institutionalized adults. Even though STOPP/START alone did not contribute to lowering the overall amount of medication prescribed it carries the potential to affect prescribing habits when used as one approach in a comprehensive plan to address polypharmacy.

This project suggests that an interdisciplinary approach is needed to make lasting changes. Managing medication regimes is inherently fraught with barriers. Using a standardized tool to identify PIMs with ongoing training could eliminate the tendency toward inertia and help prescribers keep a keen eye on medication management. Additionally, involving all prescribers in PIM training, specifically those who prescribe high-risk medications such as geriatric psychiatrists, could produce lasting effects and reduce the overall number of psychotropic medications. Finally, creating a culture of constant medication evaluation with pharmacy and nursing involvement is crucial to creating change. Maintaining involvement from all interested parties and working toward the same goals can be challenging to coordinate, particularly if each group works within a different organizational framework with competing priorities toward care.

Suggestions for Further Study

Over the last ten years, there have been growing concerns about harm associated with polypharmacy in LTC, making this area of study ripe for further investigation. This project contributes to this body of knowledge by identifying that one intervention may not be sufficient to make clinically significant changes within the complex world of medication management in

older LTC residents. It also identified the need for collaboration among prescribers about the benefits and risk of PIM use.

Other suggestions for further study include formulating a basic understanding of polypharmacy in the LTC setting to: develop a formalized definition of polypharmacy creating a standard framework in which to measure ADE and harm associated with medications, obtain a basic understanding of the prevalence of polypharmacy/PIM and their effects on residents in the LTC setting, and finally identify barriers that prevent prescribers from reducing, tapering, or deprescribing medications deemed potentially inappropriate for LTC residents and develop a comprehensive plan to overcome these barriers.

Concluding Remarks

This project's intervention did not produce clinically significant results, however it highlights the difficulty in changing prescribing habits of healthcare providers with a single intervention. Barriers described by participant prescribers indicate that a multi-intervention, interdisciplinary approach to reduce medications may yield clinical and statistically significant results. While the focus of this intervention was to identify PIMs and decrease their use, the ultimate goal is for patient safety. A comprehensive medication management system should encompass interventions at all levels of care.

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APPENDIX A

University of New Mexico Consent Letter to Participate

Dear Prospective Participant,

Clare Ironside, a Doctor of Nursing Practice student from the UNM College of Nursing, is inviting you to participate in a quality improvement project titled *Limiting Potentially Inappropriate Medications in Long-Term Care*. You are being asked to participate because you are a Physician, Nurse Practitioner, or Physician Assistant working in the post-acute care setting.

Benefits include gaining competence and confidence in identifying Potentially Inappropriate Medications (PIM) and maintaining an appropriate medication regimen for Long-Term Care (LTC) residents.

Your participation in this project is entirely voluntary, and you may choose not to participate at any time.

The project involves attending an educational intervention on the *STOPP/START Criteria for US NH Population Aged 65 or Older*, participating in regularly scheduled check-in times, and completing a brief questionnaire. The educational session will occur at a meeting, where the STOPP/START (Screening Tool for Older People's Prescriptions)/(Screening Tool to Alert to Right Treatments) criteria will be introduced and discussed. After the educational session, three to six check-ins will be available, and participation is voluntary. The Check-ins will provide a designated time to discuss any questions regarding the STOPP/START criteria or barriers related to evaluating, reducing, tapering, or discontinuing potentially inappropriate medications. Finally, a brief questionnaire will take less than five minutes to complete.

There are no known risks to participating in this study. However, you may feel unsure of the next step after identifying a PIM. In this case, professional judgment and consultation with the facility's Pharmacist can assist with decision-making. Additionally, further discussion regarding difficult prescribing decisions can be discussed at the regularly scheduled check-ins. General notes, without personal information, will be taken during the check-in sessions and may be used to identify themes. Information gathered during these sessions will be reported in aggregate.

Responses to the final questionnaire are anonymous, meaning no names will appear or be used on documents, presentations, or publications. This project's team will not know what information you provided or whether you participated in the questionnaire. The questionnaire includes eight questions; five questions, based on a 5-point Likert scale (1 = strongly disagree and 5 = strongly agree), exploring your comfort level in recognizing potentially inappropriate medications before and after implementing the STOPP/START criteria. You may elect not to answer any of the questions.

Please be aware, while every effort is made to safeguard your data in REDCap (Research Electronic Data Capture) we can never guarantee the confidentiality of the data while being transmitted to REDCap.

If you have questions about the study, please feel free to ask; my contact information is provided below. If you have questions regarding your legal rights as a research subject, you may call the UNM Human Research Protections Office (505) 272-1129.

Thank you in advance for your assistance with this important project.

Sincerely,

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APPENDIX B

STOPP/START Criteria for US NH Population Aged 65 and Older

Drug Class/Physiologic System	Criteria
Potential Prescribing Omissions (START)	
Vaccines	<ul style="list-style-type: none"> ● Pneumococcal Vaccine at least once after age 60 ● Seasonal Influenza vaccine annually
Potentially Inappropriate Medications (STOPP)	
Antiplatelet/Anticoagulation Drugs	<ul style="list-style-type: none"> ● Concomitant prescriptions NSAID and vitamin K antagonist, direct thrombin inhibitor or factor Xa inhibitors ● Concomitant prescription NSAID and antiplatelet agent without PPI prophylaxis
Central Nervous System and Psychotropic Drugs	<ul style="list-style-type: none"> ● Any Phenothiazines ● Anticholinergics/antimuscarinics with delirium or dementia ● Antipsychotics (with the exception of quetiapine or clozapine) with parkinsonism or Lewy Body Disease ● Benzodiazepines for > 4 weeks ● Concomitant use of two or more drugs with antimuscarinic/anticholinergic properties ● Any tricyclic antidepressants ● Any first-generation antipsychotics ● Any duplicate prescription within these drug classes: hypnotics/sedatives, antidepressants, anxiolytics, or antipsychotics
Endocrine System	<ul style="list-style-type: none"> ● Sulphonylureas with type 2 diabetes mellitus
Gastrointestinal System	<ul style="list-style-type: none"> ● Oral elemental iron doses greater than 200mg daily ● Prochlorperazine or Metoclopramide with Parkinsonism ● PPI for uncomplicated peptic ulcer disease or erosive peptic esophagitis at full therapeutic dosage for > 8 weeks
Musculoskeletal System	<ul style="list-style-type: none"> ● COX-2 selective NSAID with cardiovascular disease ● Prescription NSAID and COX-2 selective NSAID with peptic ulcer disease, unless with concurrent PPI or H2 antagonist
Renal System	<ul style="list-style-type: none"> ● Digoxin at a dose greater than 125mcg/day ● Metformin with end-stage renal disease or dialysis ● NSAID with renal failure, end-stage renal disease, or dialysis
Urogenital System	<ul style="list-style-type: none"> ● Antimuscarinic drugs with dementia, cognitive impairment, glaucoma/cataracts/macular degeneration, or enlarged prostate ● Selective alpha-1 blockers with orthostatic hypotension
Respiratory System	<ul style="list-style-type: none"> ● Systemic corticosteroids instead of inhaled corticosteroids for maintenance therapy (> 14 days) in chronic obstructive pulmonary disease

NSAID: Nonsteroidal Anti-Inflammatory Drugs, PPI: Proton-Pump Inhibitors, COX-2: Cyclooxygenase-

APPENDIX C

Inclusion/Exclusion Criteria

Prescribers

Inclusion Criteria:

1. Physician, Nurse Practitioner, or Physician Assistant
2. TEAMHealth Employee
3. Licensed to prescribe prescription medication in the State of NM

Exclusion Criteria:

1. Any employee who does not wish to participate in the Project

eMARs

Inclusion Criteria

1. ≥ 65 years old
2. Residents who have been in the LTC facility for > 90 days
3. Residents with an anticipated length of stay of six months or longer
4. Taking five or more prescribed medications and any
 - Over-the-counter medications
 - Supplements
 - Medications taken on an as-needed (PRN) basis

Exclusion Criteria

1. < 65 years old
2. Receiving hospice services
3. Residents admitted for short-stay rehabilitation/skilled nursing with an anticipated length of stay of < 90 days.
4. Residents that have been hospitalized during the project period
5. Residents whose primary Prescriber has not been trained on STOPP/START

APPENDIX D

Questionnaire: Limiting Potentially Inappropriate Medications in Long-Term Care

Please circle the most accurate answer.

How many years have you been prescribing medication?

0-5 years 6-10 years 11-15 years 16-20 years 21-25 years > 25 years

How many years have you worked in the post-acute setting (Long-Term Care and Skilled Nursing Facilities)?

0-5 years 6-10 years 11-15 years 16-20 years 21-25 years > 25 years

Describe the barriers that you encountered implementing STOPP/START criteria

Please rate your agreement with the following questions using the scale below.

1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

1. Polypharmacy (taking five or more medications) is a problem for residents of long-term care facilities.	1	2	3	4	5
2. Before implementing the STOPP/START criteria, I was comfortable identifying potentially inappropriate medications.	1	2	3	4	5
3. After implementing the STOPP/START criteria, I gained confidence in identifying potentially inappropriate medications.	1	2	3	4	5
4. Before implementing the STOPP/START criteria, I felt comfortable reducing, tapering, or discontinuing medications that were not beneficial to Long-Term Care residents.	1	2	3	4	5
5. After implementing the STOPP/START criteria, I gained confidence in reducing, tapering, or discontinuing medications that were not beneficial to my patients.	1	2	3	4	5

APPENDIX E

Approval from Prescribers' Organization

TEAMHealth.

New Mexico Region

TeamHealth – Southwest Post-Acute Care

13280 Northwest Freeway, Ste. F355, Houston, TX 77040

(505) 858-1222, fax (818) 861-3324

TO: Clare Ironside, DNP©
UNM College of Nursing
2502 Marble Ave NE
Albuquerque, NM 87131

Date: 6/4/2021

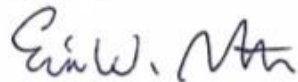
RE: **Polypharmacy in Long-Term Care facilities**

On behalf of TEAMHealth providers at these 3 Genesis facilities - Uptown Rehabilitation, Sandia Ridge Center, and Rio Rancho Center -

We support your proposal to train and educate providers using the evidence-based STOPP/START criteria to evaluate medications prescribed in our facilities to SNF and NF/LTC residents. This will overlap with and support our new use of metrics to monitor and address patterns of prescribing of psychotropic medications in our facilities.

We look forward to collaborating with you on this project.

Sincerely,



Eric W. Metzler, MD
Supervisory Clinical Lead, Post-Acute Care
TEAMHealth New Mexico

APPENDIX F

Approval from LTC Facility Administration



April 20, 2021

Clare Ironside, DNP (c)
University of New Mexico College of Nursing
2502 Marble Avenue NE
Albuquerque, New Mexico 87131

RE: Polypharmacy in Long-Term Care Facilities

Dear Ms. Ironside,

On behalf of the Genesis Internal Research Committee, I am delighted to offer this letter of support for your DNP project entitled, *Polypharmacy in Long-Term Care Facilities*.

This quality improvement project presents a wonderful opportunity to train and educate providers using an evidence based tool to evaluate medication use. We see great value in your work and believe this project and the use of the STOPP/START criteria could lead to useful practice patterns that could improve care for our residents by limiting potentially inappropriate medications. We look forward to working with you on this project and will be interested in hearing your results.

Genesis gives permission to conduct this project with the consenting prescribers from Uptown Rehab, Sandia Ridge, Bear Canyon, and Rio Rancho Center. This project is approved under the conditions of UNM HSC IRB approval and may begin once IRB approval obtained and a DUA is executed.

Good luck with your project and please let me know if I can be of further assistance.

Sincerely,

Bethany Sewell

Bethany Sewell, MSW
Director of Clinical Research
Genesis HealthCare
610-925-2489
bethany.sewell@genesishcc.com

APPENDIX G

UNM Health Science Center IRB approval



Human Research Protections Program

July 20, 2021
Christine Cogil
ccogil@salud.unm.edu

Dear Christine Cogil:

On 7/19/2021, the HRRC reviewed the following submission:

Type of Review: Initial Study
Title of Study: Limiting Potentially Inappropriate Medications in Long-term Care
Investigator: Christine Cogil
Study ID: 21-245
Submission ID: 21-245
IND, IDE, or HDE: None

Submission Summary: Initial Study

Documents Approved:

- Genesis Letter of Support.pdf
- Inclusion Exclusion Criteria.pdf
- Ironside HRP-583 Exempt Category 2 v.1.pdf
- Questionnaire- Limiting PIM in LTC v.1 7-9-21.pdf
- STOPP START Criteria for US NH.pdf
- TEAMHealth Letter of support.pdf
- UNM Consent to Participate

Review Category: EXEMPTION: Categories (2)(i) Tests, surveys, interviews, or observation (non-identifiable)

Determinations/Waivers: Employees.
Provisions for Consent are adequate.
HIPAA Authorization Addendum Not Applicable.

Submission Approval Date: 7/19/2021
Approval End Date: None
Effective Date: 7/19/2021

The HRRC approved the study from 7/19/2021 to inclusive. If modifications were required to secure approval, the effective date will be later than the approval date. The "Effective Date" 7/19/2021 is the date the HRRC approved your modifications and, in all cases, represents the date study activities may begin.