

# An investigation of quality improvement initiatives in decreasing the rate of avoidable 30-day, skilled nursing facility-to-hospital readmissions: a systematic review

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**Objectives:** The main objective was to investigate the applicability and effectiveness of quality improvement initiatives in decreasing the rate of avoidable 30-day, skilled nursing facility (SNF)-to-hospital readmissions.

**Problem:** The rate of rehospitalizations from SNF within 30 days of original discharge has increased within the last decade.

**Setting:** The research team participants conducted a literature review via Cumulative Index of Nursing and Allied Health Literature and PubMed to collect data about quality improvement implemented in SNFs.

**Results:** The most common facilitator was the incorporation of specialized staff. The most cited barriers were quality improvement tracking and implementation.

**Conclusion:** These strategy examples can be useful to acute care hospitals attempting to lower bounce back from subacute care providers and long-term care facilities seeking quality improvement initiatives to reduce hospital readmissions.

**Keywords:** readmissions, skilled nursing, quality improvement, hospital, finance, Medicare, transfers

## Introduction

Unnecessary hospital readmissions from skilled nursing facilities (SNFs) are gaining attention as a quality improvement focus due to their financial expense and association with increased patient complications.<sup>1</sup> Approximately 20%–25% of patients discharged to SNFs are readmitted to acute care hospitals within 30 days of discharge in the USA.<sup>2</sup> The average Medicare payment per rehospitalization was \$10,352 in 2006, with hospital readmissions accounting for ~\$4.34 billion in reimbursement expenses. Transfers between hospitals and SNFs are associated with increased medical errors and patient stress that can lead to functional and mental decline.<sup>3</sup>

The rate of rehospitalizations from SNFs within 30 days of original discharge has increased to nearly one-fifth since 2004, and ~90% of these rehospitalizations were unplanned.<sup>2</sup> Hospitals contributed to this trend by discharging higher-acuity patients in order to reduce average length of stay and to improve patient throughput, resulting in better financial margins.<sup>4</sup> This practice caused many nursing homes that once focused on older, noncognitive, and functionally deficient residents to shift more care toward shorter-term, high-acuity, and medically complex patients. Rehospitalization is not

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always avoidable for this population; however, retrospective analysis of readmission diagnoses and variation in geographic readmission rates suggest this metric can be improved.<sup>5</sup>

The Medicare Payment Advisory Commission found that the five potentially avoidable conditions – congestive heart failure, urinary tract infection, respiratory infection, sepsis, and electrolyte imbalance – accounted for 78% of all 30-day readmissions from SNFs to hospitals.<sup>5</sup> The average rate of readmissions among SNFs also shows wide geographic variations, with a low of 15.1% in Utah and a high of 28.2% in Louisiana.<sup>2</sup> Some of the state level differences can be attributed to reimbursement incentives, for example, a \$10 higher Medicaid payment rate being associated with a 9% lower odds of hospitalization.<sup>6</sup>

Currently, a SNF that reduces 30-day rehospitalization rates primarily generates savings for Medicare because Medicare Part A pays full cost of the first 20 days of SNF room and board and covers hospitalization expenses.<sup>6</sup> After day 21 in a SNF, there is a lower cost to Medicare as the patient now has some responsibility for their own care via copayments required by Medicare.<sup>7</sup> The lack of compensation from Medicare for the amount of care needed has created a financial incentive for SNFs to not initiate quality improvement programs. States with higher Medicaid SNF reimbursement rates generally have lower hospital readmission rates because they have more financial incentive to keep complex care patients at the facility. The Affordable Care Act (ACA) began to change the payment incentives that promote this behavior in October 2012.<sup>8</sup>

One of the programs established under the ACA was the Hospital Readmissions Reduction Program, which reduced reimbursement under the Prospective Payment System for hospitals with excess 30-day readmission for some diagnoses.<sup>8</sup> Hospitals are incentivized to not discharge patients too early and to identify and coordinate with SNFs that can maintain low readmission rates. Increased scrutiny from the Centers for Medicare and Medicaid Services (CMS) and collaboration between hospitals and SNFs led to a focus on providing high quality care at reduced costs.<sup>9</sup>

The ACA promoted the testing of a number of pay-for-performance (PFP) schemes. For instance, the ACA called for bundling payments for episodes of care and value-based reimbursement. This effort was made in order to collect data on the feasibility of CMS programs that could improve patient care without increasing cost.<sup>10</sup> The ongoing Nursing Home Value-Based Purchasing Demonstration, which started in July 2009, gives participating SNFs in Arizona, New York, and Wisconsin financial incentives to lower avoidable hospitalization rates.<sup>7</sup> Participating SNFs can earn a PFP incentive

if they are within the top 20% of SNFs or if they are in the top 20% of SNFs for overall improvement. The main objective of this literature review was to investigate the applicability and effectiveness of quality improvement initiatives in decreasing the rate of avoidable 30-day, SNF-to-hospital readmissions. It seems that most quality improvement initiative (QII) studies utilized in this review showed some element of success in their implementation. This study will look further into these successes and also identify areas where barriers also existed to meeting them.

## Materials and methods

### Design

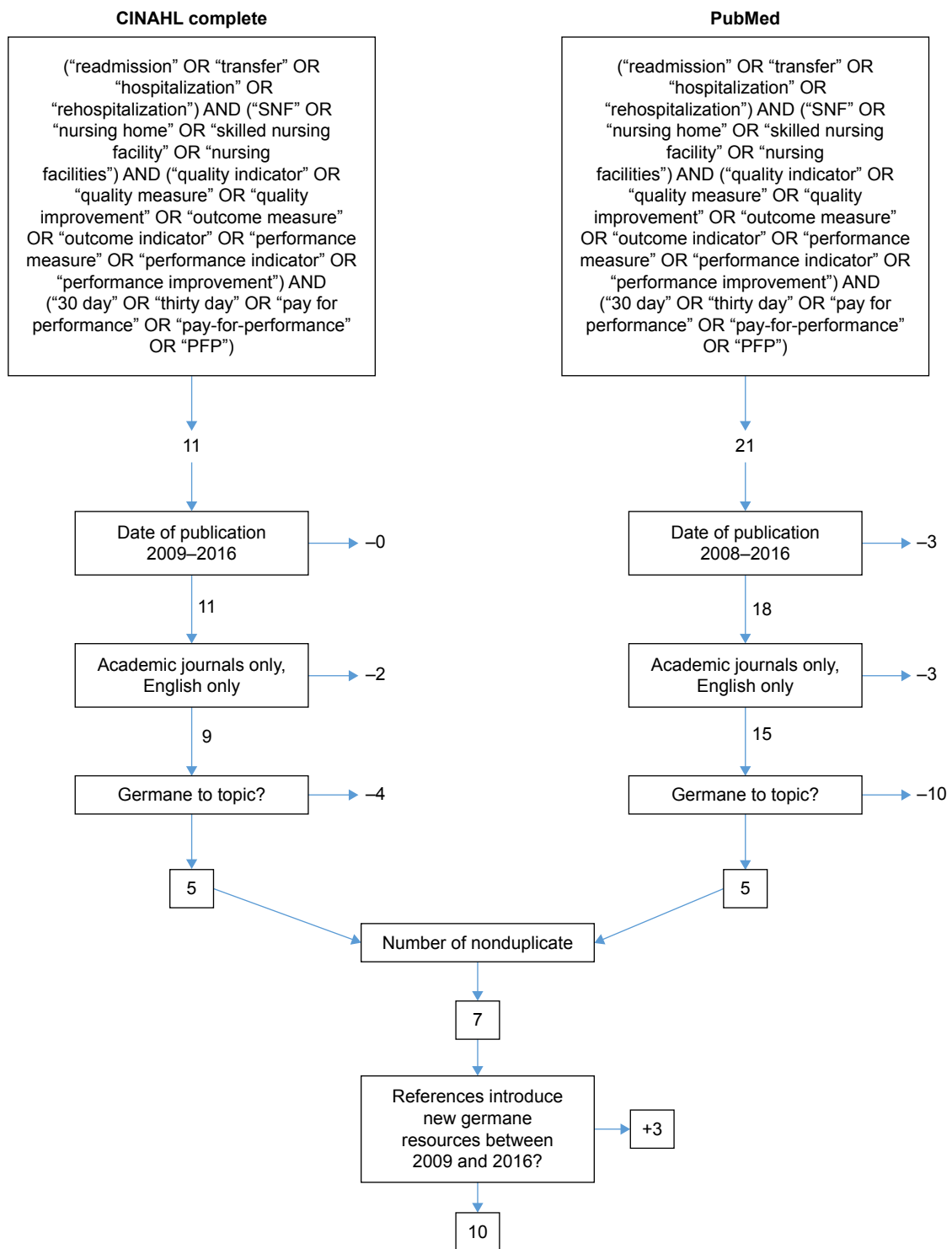
This study used a systematic review of peer-reviewed articles found in indexed databases. The Preferred Reporting Items for Systematic Reviews (PRISMA) guidelines were used to ensure consistent and precise reporting of results. The initial search was conducted on June 20, 2016 and final search was completed on July 10, 2016 using the Cumulative Index of Nursing and Allied Health Literature and PubMed. The Medical Subject Headings at the National Center for Biotechnology Information were used to discover keywords for the queries. However, there were multiple terms that appeared for the two acronyms searched PFP and SNF. To avoid artificially narrowing the initial search scope, a more inclusive keyword search was utilized. The authors examined the search results to taper the final scope. Understanding the most commonly revealed keywords led to the complex, four-string Boolean search included in Figure 1. A review of articles found in the citations led to additional resources that met the inclusion criteria.

### Inclusion criteria

All authors individually reviewed the articles from the search, determined germane literature, and summarized themes. Inclusion criteria included English-language and peer-reviewed articles published by academic journals or universities between January 1, 2009 and July 10, 2016. Articles had to explore at least one quality improvement strategy for reducing 30-day hospital readmission rates from SNFs to hospitals. Articles could reference preventable readmission rates or total readmission rates within the 30-day time period.

### Exclusion criteria

Articles were only incorporated if deemed germane by all authors. Trade industry reports and poster presentations without clear, scientific format, and a peer review process were excluded. Articles that dealt with discharge from SNFs



**Figure 1** Preferred Reporting Items for Systematic Reviews flow diagram.

**Abbreviations:** CINAHL, Cumulative Index of Nursing and Allied Health Literature; PFP, pay-for-performance; SNF, skilled nursing facilities.

or hospitals-to-home settings were not included. Articles that only mentioned readmission rates without reference to the efficacy of quality improvements were not included. Articles that did not mention rates for 30-day readmission were excluded. Similar examination outcomes demonstrated that the authors had a parallel understanding of the research

subject and scope. Bias was not considered when reviewing the research involved in this study. The final sample of articles after meeting exclusion criteria was then analyzed further for consensus among all authors for final inclusion. When analyzed, this sample yielded a kappa statistic ( $k=1$ ), showing strong reliability.

## Data analysis

Narrative summaries related to factors that influenced quality improvement initiatives were extracted from each article. These, in turn, were grouped into larger recurring themes that were either key determinants or impediments to success. The themes chosen were by consensus of the authors. Those chosen were agreed upon to be ones which provided overarching summary to the facilitators and barriers extracted. These themes were then divided in two affinity matrix tables for facilitators and barriers. Each table documents the themes, their citation occurrence, their frequency sum, and frequency percentage.

## Results

### Study selection

The article selection process is outlined in the PRISMA flow diagram in Figure 1. The initial search protocol identified a total of 32 articles from the database, of which 26 were nonduplicate. Nineteen articles were excluded for not meeting the predetermined inclusion requirements, leaving seven articles remaining. A further analysis of citations generated three additional articles that met the inclusion requirements. A total of 10 articles were used for qualitative analysis.

### Assessment tools

The 10 articles included in the qualitative analysis are summarized in Table 1 from most recent to oldest.

The authors reexamined the 10 articles and documented each quality improvement initiative or factor related to SNF-to-hospital readmissions and sorted them into positive facilitators or negative barriers. Broader themes were then assigned to each point (Table 2).

## Discussion

The introduction of the new Medicare Inpatient Prospective Payment System decreases reimbursement to hospitals with increased readmission rates.<sup>11</sup> For this reason, hospitals have been key forces in spurring improvements in transitions of care, quality of care, and coordination with SNFs.<sup>11–13</sup> Although the reimbursement model does not directly incentivize SNFs to improve 30-day hospital readmission rates, improvements made to transitions of care, and quality of acute care make SNFs stand out as referral partners to hospitals.<sup>12,14,15</sup> It is not surprising that successful strategies to reduce 30-day hospital readmissions have been advanced by hospitals and SNFs.

Sixteen facilitator themes were identified and their occurrence, frequency sum, and percent frequency are shown

in Table 3. The most cited facilitator of QI initiatives that reduced readmission rates was the use of specialized staff. Successful strategies included the use of hospital pharmacists to coordinate medication reconciliation prior to transfer and during the first days following discharge.<sup>11</sup> In fact, medication reconciliation was cited in multiple articles as a key strategy for reducing hospital readmissions.<sup>11,12,16,17</sup> Post-discharge advocate nurses were also used by hospitals to improve transitions of care to SNFs.<sup>12</sup> Similarly, other articles pointed to the use of physicians, mid-level providers, and advanced practice nurses to ensure proper care plans were made and orders written.<sup>13,17–19</sup> Multiple QI initiatives put focus on patient transfer protocols that included standardized documents, checklists, order reconciliation, and post-discharge follow-up.<sup>11,12,16–17</sup> Communication tools, such as the Situation Background Assessment Recommendation (SBAR) Method, were also cited as useful to reducing mistakes.<sup>14–16,20</sup> Workflow improvements were made to arrange the electronic medical record documentation in a more helpful and streamlined fashion.<sup>11,16</sup> Better coordination with specialists outside the direct hospital-SNF relationship was also noted. One study incorporated the use of neurologic telehealth consults.<sup>20</sup> Another study used a specialized nurse working with a state quality improvement organization to provide education to facilities on proper clinical procedures and strategies aimed at QI initiatives.<sup>13</sup> SNFs also assigned special responsibilities to existing employees, such as designating a QI champion to promote facility engagement with QI initiatives.<sup>15</sup>

Specialized staff facilitators were identified when SNFs utilized clinical supervision that did not include the standard facility employees. The clinicians discussed in the articles included pharmacists, nurse practitioners, telehealth neurologic consultants, nurse navigators, and post-discharge advocate nurses.<sup>11–13,15,17–20</sup> Most of the QI initiatives used quality improvement models as facilitators to reduce hospital readmissions.<sup>12–15,18,20</sup> The most cited model was the Intervention to Reduce Acute Care Transfers (INTERACT).<sup>13–15</sup> INTERACT is a comprehensive QI program that includes educational tools and strategies designed to help empower SNF staff to properly identify, assess, document, and communicate the changing status of patients.<sup>13–15</sup> Other QI models included the Shewhart Cycle of Plan-Do-Study-Act (STAAR),<sup>18</sup> the Modified Brokerage Case Management Model designed to connect clients with services,<sup>12</sup> and the use of a Collaborative Partner Prioritization Model to select the best institutions with which to work.<sup>20</sup> Another positive facilitator was the use of collaborative case management between SNFs and hospitals either through phone calls, direct

**Table 1** Studies selected for review and a summary of design, methods, and results

Author/date/ location	Aim	Sample/settings	Methods	Assessment tool	Key findings
Bisiani and Jurgens <sup>12</sup> /August 2015/NY, USA	Evaluate and compare two care management models on 30-day hospital readmission rates	13,000 medical records prior and 978 medical records after intervention from a Community Hospital	Retrospective, quasi-experimental, interrupted time series	Medical record data	Patient characteristics, addition of positions, and modification of workflows did not impact hospital readmission rates from SNFs
Meehan et al <sup>14</sup> / August 2015/ CT, USA	Evaluate the impact of INTERACT QIO-training on decreasing 30-day hospital readmissions from SNFs	Staff from 5 SNFs in surrounding community with ≥40 beds and ≥10% 30-day medicare beneficiary readmission rates	Retrospective, quasi-experimental, mixed methods	Hospitalization tracking tool data; staff-reported contact log; staff surveys	Mixed clinical results
Wood <sup>18</sup> /2014/ MA, USA	Define causes of hospital readmission of cardiac surgery patients from a SNF and test impact of education on 30-day readmission rate	All cardiac surgery patients discharged from the Medical Center to a SNF and the 20 nurses at that SNF	Retrospective, quasi-experimental, mixed methods	Medical record data, initial nursing survey; pre-test and post-intervention test	Evidence of a knowledge deficit and an educational need among the SNF staff nurses caring for cardiac surgery patients
Lu et al <sup>11</sup> / May 2013/ MN, USA	Determine if QI initiative focused on discharge orders and medication reconciliation at a hospital can decrease 30-day readmissions from patients discharged to SNFs	A designated intervention group of 87 patients and a control group of 1,893 patients discharged to SNFs from a teaching hospital	Retrospective, quasi-experimental, interrupted time series	Medical record data	Standardized discharge order reconciliation with pharmacist involvement in medication reconciliation led to decreased readmission rates for patients discharged from a hospital to SNFs
Sandvik et al <sup>16</sup> / May 2013/ SD, USA	Evaluate the effectiveness of universal patient transfer protocols and a collaborative community forum on reducing 30-day readmission rates from hospitals to SNFs	705 Medicare patients discharged from the hospital to SNFs	Retrospective, quasi-experimental, cross-sectional	Medicare claims data; surveys	Standardized transfer forms and processes developed between hospitals and SNFs help to reduce 30-day readmission rates
Maly et al <sup>20</sup> /2012/ PA, USA	Determine if hospital-SNF collaboration using physician partnerships, education, telemedicine, and EMR sharing can reduce 30-day readmission	A community hospital system and 29 surrounding SNFs	Retrospective, quasi-experimental, cross-sectional	Medicare claims data	SNFs with a medical director affiliated with the referring hospital had lower all-cause hospital readmission rates
Ouslander et al <sup>15</sup> / March 2011/USA	Determine if the QI program INTERACT II could reduce hospital readmission rates from SNFs	25 participating SNFs and 11 comparison SNFs located in Florida, Massachusetts, and New York	Retrospective, quasi-experimental, interrupted time series	Surveys: medical record data; SNF reported data	SNFs with the highest engagement in the QI program had the greatest reduction in hospital readmission rates
Ouslander et al <sup>19</sup> / March 2011/ FL, USA	Determine the frequency and diagnosis associated with 7- and 30-day hospital readmissions from SNFs	3,254 Medicare patients 75 and older who were discharged from a 350-bed nonteaching community hospital to a SNF	Retrospective, quasi-experimental, cross-sectional	Medical record data	CHF, renal failure, UTI, pneumonia, and COPD were the most common diagnosis associated with hospital readmissions from SNFs
Berkowitz et al <sup>17</sup> /2011/ MA, USA	Evaluate an intervention to improved discharged disposition from a skilled nursing recuperative services unit of a hospital	862 patients discharged before the intervention and 863 during the intervention from a 50-bed SNU associated with a hospital	Prospective, quasi-experimental interrupted time series	Administrative discharge disposition data; MDS assessment data	Standardized admission procedures, palliative care consultations, multidisciplinary conferences within a skilled nursing facility led to a decline in readmissions to acute care
Ouslander et al <sup>13</sup> /2009/ GA, USA	Test tools and strategies designed to assist SNFs in reducing potentially avoidable hospitalizations over 6 months	Ten pre-intervention hospitalizations were compared to 65 post-intervention hospitalizations from 3 different SNFs	Prospective, quasi-experimental interrupted time series	Direct observation; survey; MDS data; Medicare data	Despite only partial implementation, the quality improvement initiative was associated with a 50% reduction in the overall rate of potentially avoidable hospitalizations

**Abbreviations:** CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease; EMR, electronic medical record; INTERACT, intervention to reduce acute care transfers; MDS, minimum data set; QIO, quality improvement organization; SNFs, skilled nursing facilities; SNU, skilled nursing unit; UTI, urinary tract infection.

**Table 2** Themes associated with quality initiatives to reduce 30-day SNF-to-hospital readmissions

References	Positive facilitators	Negative barriers
Bisiani and Jurgens <sup>12</sup>	<ol style="list-style-type: none"> <li>1. Identification of at-risk patients can help tailor treatment</li> <li>2. Collaborative case management associated with lower readmissions</li> <li>3. Interventions saved \$412 per patient</li> <li>4. Post-discharge telephone call reduces readmission</li> <li>5. Use of a post-discharge advocate nurse</li> <li>6. Senior leadership develop service design and strategy</li> <li>7. Medication reconciliation decreased adverse events, lowers hospital readmissions</li> <li>8. Use of the modified brokerage case management model</li> </ol>	<ol style="list-style-type: none"> <li>1. Point of entry RN care manager and case. Management assistants do not reduce readmission rates</li> <li>2. Modification of work flows did not reduce readmission rates</li> <li>3. Challenge in finding experienced case managers</li> </ol>
Meehan et al <sup>14</sup>	<ol style="list-style-type: none"> <li>1. INTERACT</li> <li>2. Conducting root cause analyses of transferred residents</li> <li>3. Providing SNF institutional information to local emergency departments</li> <li>4. Leadership is critical to success of QI initiatives</li> <li>5. SBAR form and progress note</li> </ol>	<ol style="list-style-type: none"> <li>1. Some leaders did not see compelling reason to participate</li> <li>2. Additional support needed to bring about QI initiatives, not enough time</li> <li>3. Not all the QI tools were implemented equally</li> <li>4. Staff lacked technologic capabilities to use hospital tracking tools</li> </ol>
Wood <sup>18</sup>	<ol style="list-style-type: none"> <li>1. Use of the Shewhart cycle of plan-do-check-act and state action on avoidable rehospitalizations</li> <li>2. Knowledge gap in cardiac care identified, education provided in assessment, care, and interventions</li> <li>3. Nurse practitioner involvement</li> </ol>	<ol style="list-style-type: none"> <li>1. Insufficient education among SNF staff in cardiac care</li> <li>2. Patients being readmitted for preventable or manageable conditions</li> <li>3. Only 75% of staff returned educational surveys and tests</li> </ol>
Lu et al <sup>11</sup>	<ol style="list-style-type: none"> <li>1. Including pharmacists on multidisciplinary team helps reduce readmission rates</li> <li>2. Use of a standard discharge order reconciliation process and not discharging after 2 pm</li> <li>3. Medication reconciliation and 2–4 day follow up reduces hospital readmissions</li> <li>4. Improving electronic workflow reduced medication errors</li> <li>5. Limited financial resources required for meaningful results</li> <li>6. Executive leaders supported evidence-based changes</li> <li>7. Pharmacist involvement in medication reconciliation reduced discrepancies</li> </ol>	<ol style="list-style-type: none"> <li>1. One study did not show significant reduction following medication reconciliation, medication errors are common in SNFs</li> <li>2. Two extreme severity of illness groups did not have statistical reductions in readmission rates. The illness is more important than medication reconciliation</li> </ol>
Sandvik et al <sup>16</sup>	<ol style="list-style-type: none"> <li>1. Geriatric community forum used to promote multidisciplinary collaboration</li> <li>2. Nurse-to-nurse telephone report using SBAR</li> <li>3. Using a single set of forms with checklists during patient transfer</li> <li>4. Medication list with diagnosis for each medication and comments helps to reduce errors</li> <li>5. Advanced directive form can reduce undesired hospitalizations</li> <li>6. Universal documentation with prompts, safety reminders, and checklists</li> </ol>	<ol style="list-style-type: none"> <li>1. Challenges with implementation and staff engagement. Little coordination between facilities, physicians, and hospitals</li> <li>2. Low readmission rate could reflect poor-quality choices</li> <li>3. Transfer forms not always completed by sending physicians</li> <li>4. Personnel turn over causes loss of institutional knowledge and continuity of QI project</li> <li>5. Hospitalists with less nursing home experience overall began completing transfers</li> <li>6. Improper transfer of patient data, improper documentation, missing orders had been prior issue</li> </ol>
Maly et al <sup>20</sup>	<ol style="list-style-type: none"> <li>1. Collaborative partner prioritization tool</li> <li>2. Use of SBAR communication tool</li> <li>3. Hospital/SNF collaboration involving patient information and clinical educational resources</li> <li>4. Sharing of protocols for care of patients with congestive heart failure, post-myocardial infarction, and pneumonia</li> <li>5. Telehealth neurologic consults</li> <li>6. Physician form for aligning goals and sharing interest</li> </ol>	<ol style="list-style-type: none"> <li>1. Aligning hospitals and SNFs requires like-minded leaders that are willing to invest time and effort</li> <li>2. QI project needs time to grow in order to track and report findings</li> </ol>

(Continued)

**Table 2** (Continued)

References	Positive facilitators	Negative barriers
Ouslander et al <sup>15</sup>	<ol style="list-style-type: none"> <li>1. QI intervention using INTERACT II</li> <li>2. Leadership participated with in-person and telephone meetings</li> <li>3. Improved advanced care planning and consideration of palliative care</li> <li>4. Staff attended 4–6 hours of orientation</li> <li>5. Managing conditions proactively to prevent them from becoming more severe</li> <li>6. Printed forms for SNF administrators to review cause of acute transfers</li> <li>7. Pocket card and half-page report forms and progress note templates</li> <li>8. Envelopes for transfer documents with checklist on outside</li> <li>9. Longer serving SNF administrators and lower RN turnover</li> <li>10. Use of a staff member as a QI champion</li> </ol>	<ol style="list-style-type: none"> <li>1. Challenges with implementation were found</li> <li>2. SNF self-reporting of hospitalizations might not be accurate. Seasonal variation in hospitalizations</li> <li>3. Four SNFs dropped out do to loss of champion or administrator</li> <li>4. Cost of QI intervention is ~\$15,400 per year. Less-costly initiatives are needed</li> <li>5. Leaders have completing goals including census goals, preparation for surveys, and other QI initiatives</li> <li>6. Physicians and mid-level providers were not actively engaged in using QI tools</li> </ol>
Ouslander et al <sup>19</sup>	<ol style="list-style-type: none"> <li>1. Guidelines developed to reduce readmissions for common causes of rehospitalization</li> <li>2. Data support the need to monitor SNF quality to reduce readmissions</li> <li>3. Managed care programs that use physicians, nurse practitioners, and physician assistants</li> <li>4. Implementation of just some of the guidelines showed positive outcomes</li> </ol>	<ol style="list-style-type: none"> <li>1. Staffing challenges are biggest barrier</li> <li>2. Medicare fee-for-service system and declining reimbursement do not incentivize continued care of sicker patients</li> </ol>
Berkowitz et al <sup>17</sup>	<ol style="list-style-type: none"> <li>1. Physician admission procedures were standardized</li> <li>2. Patients with 3+ prior hospital admissions in past 6 months got palliative care consult. More likely to die outside of acute care setting according to wishes. Use of hospice teams to give palliative consults</li> <li>3. Bimonthly multidisciplinary root cause analysis conferences for patients fitting within readmission parameters to review whether or not readmissions could have been prevented</li> <li>4. Medication reconciliation template</li> <li>5. Use of a nurse practitioner and on site medical staff can assess acute medical conditions quickly</li> <li>6. A lessons learned email was sent out to direct care staff</li> <li>7. The shaping long-term care in America project data can be used to compare QI success</li> </ol>	<ol style="list-style-type: none"> <li>1. No criteria for physician judgment on the appropriateness of patient transfers to the hospital</li> <li>2. Intervention would need to be adapted for facilities without onsite medical staff</li> <li>3. SNFs are not always reimbursed for the extra care high acuity patients require</li> </ol>
Ouslander et al <sup>13</sup>	<ol style="list-style-type: none"> <li>1. QI using the INTERACT</li> <li>2. Use of physicians, nurse practitioners, or physician assistants</li> </ol>	<ol style="list-style-type: none"> <li>1. Participation varied and no SNF implemented all the QI tools</li> <li>2. The SBAR communication tool and “Stop and Watch” tool for CNAs were viewed as too much paperwork</li> <li>3. The leadership panel was aware of QI purpose and may have been biased in reporting. Not a controlled study</li> <li>4. Physicians and mid-level providers were not engaged in QI despite multiple communications</li> </ol>

**Abbreviations:** CNA, certified nursing assistant; INTERACT, intervention to reduce acute care transfers; QI, quality improvement; RN, registered nurse; SBAR, situation background assessment recommendation; SNFs, skilled nursing facilities.

meetings, or geriatric community forum meetings.<sup>11,12,14,16,20</sup> An example of collaborative case management included providing receiving emergency departments with information of SNF capabilities and procedure.<sup>11</sup> The staff education facilitator focused on developing specialized skills for common readmitting diagnoses, proactive management of common causes of rehospitalization,<sup>15,18,19</sup> and care paths for complex

conditions, such as congestive heart failure, post-myocardial infarction, and pneumonia.<sup>18,20</sup> Education was also used to familiarize nursing staff with the tools and protocols that were integral to the QI initiatives and to share lessons learned from root cause analysis following readmissions.<sup>14,15,17</sup>

Root cause analysis following hospital readmissions was commonly used in helping to elucidate the cause and improve

**Table 3** Facilitating themes associated with reduced 30-day skilled nursing facilities-to-hospital readmissions

Facilitator themes	Occurrences (by article number)	Sum (%)
Specialized staff	11, 13, 14, 16, 17, 18, 19, 20	8 (13)
Quality improvement model	11, 12, 13, 14, 16, 17, 20	7 (11)
Collaborative case management	11, 12, 14, 15, 16, 17	6 (10)
Care paths	11, 14, 16, 17, 18	5 (8)
Leadership engagement	11, 12, 14, 16, 17	5 (8)
Patient transfer protocol	11, 14, 15, 17, 19	5 (8)
Communication tools	12, 15, 16, 17	4 (6)
Medication reconciliation	11, 14, 15, 19	4 (6)
Advanced and palliative care planning	15, 17, 19	3 (5)
Quality improvement tracking	16, 18, 19	3 (5)
Root cause analysis	12, 17, 19	3 (5)
Staff education	13, 17, 19	3 (5)
Financial resources	11, 14	2 (3)
Implementation	17, 18	2 (3)
Workflow	14, 15	2 (3)
Staffing	17	1 (1)
Total occurrences		63

QI initiatives. Many of the SNFs in this study held root cause analysis meetings in order to learn from past readmissions.<sup>14,15,17</sup> The patient transfer protocol facilitator reflects articles that highlighted standards in transfer procedure when a hospital discharges to a SNF. Examples of transfer protocols include: the discharging hospital performing a follow-up call once a transfer has occurred, not discharging a patient to a SNF after 2 pm, and including a discharge checklist.<sup>11,12,15-17</sup> The care paths facilitator was noted when SNFs used standard care regimes to proactively address patient populations most at risk of readmission to acute care.<sup>12,15,19,20</sup> Multiple articles mentioned that medication reconciliation, the process of reviewing medication accuracy and appropriateness, is vital in preventing hospital readmissions.<sup>11,12,16,17</sup>

Utilization of communication tools, such as progress notes and the SBAR form had a positive impact on acute care readmission rates.<sup>14-16,20</sup> Quality improvement tracking through the reporting and monitoring of data proved important in comparing the success of the QI initiative.<sup>17,19,20</sup> Leadership engagement was beneficial when administrators, medical directors, and physicians took an active role in QI initiatives focused on reducing hospital admissions. Successful leaders took part in planning meetings, project design, community forums, QI implementation, root cause analysis, and goal forming and setting.<sup>11,12,14,15,20</sup> Advanced care planning, including advanced directives and do-not-resuscitate orders, alongside an emphasis on palliative care and hospice services also helped to keep SNF residents from undesired visits to acute care.<sup>15-17</sup>

Thirteen barrier themes were identified in reference to quality improvement programs to reduce SNF-to-hospital readmissions (Table 4). Issues associated with quality improvement tracking and implementation were the most frequently discussed barriers to reducing 30-day SNF-to-hospital readmissions. Examples of tracking issues included staff lacking the technical skills to use readmission tracking software,<sup>14</sup> no definitive criteria for when rehospitalization was appropriate,<sup>13,16,17</sup> the need for long-term monitoring to tell if QI initiatives were effective,<sup>20</sup> and the need to account for seasonal differences in readmission rates.<sup>15</sup> Specific examples of implementation barriers included lack of engagement by staff and physicians,<sup>15,16,18</sup> partial use of available QI tools,<sup>13,14</sup> and lack of on-site medical professionals to carry out required initiatives.<sup>17</sup> Other barriers included the need for increased staffing and specialized personnel to carry out the improvements, both of which add expenses that are not always covered by the current, pay-for-service reimbursement model.<sup>15,17,19</sup> Staffing issues included a general lack of personnel to carry out QI initiatives,<sup>14,19</sup> a lack of experienced case managers,<sup>12</sup> and a loss of QI leadership and knowledge due to turnover.<sup>15,16</sup> Use of advanced practice and specialized staff was not always effective in improving readmission rates. Three studies showed that physicians and mid-level providers were not engaged with using QI strategies.<sup>13,15,16</sup> Another article suggested that hospitalists were not as consistent in making quality discharges to SNFs as facility-associated physicians.<sup>16</sup>

Surveys also showed that there was inadequate training and support during and after implementation and a lack of knowledge and protocols for care paths specific to certain conditions.<sup>11,18</sup> External factors outside the SNF's control can

**Table 4** Barrier themes associated with higher 30-day skilled nursing facilities-to-hospital readmissions

Barrier themes	Occurrences (by article number)	Sum (%)
Implementation	12, 13, 15, 17, 19, 20	6 (17)
Quality improvement tracking	12, 15, 16, 17, 19, 20	6 (17)
Staffing	11, 12, 15, 17, 18	5 (14)
Specialized staff	11, 15, 17, 20	4 (11)
Financial resources	17, 18, 19	3 (9)
Leadership engagement	12, 15, 17	3 (9)
Care paths	13, 14	2 (6)
Collaborative case management	15	1 (3)
Communication tools	20	1 (3)
Medication reconciliation	14	1 (3)
Patient transfer protocol	15	1 (3)
Staff education	13	1 (3)
Workflow	11	1 (3)
Total occurrences		35



also act as barriers to implementation, including the location of the facility, its proximity to a hospital, and the presence of state standards or local community initiatives.<sup>12,15,16</sup> These examples help to explain why initiatives to reduce hospital readmission rates varied in their degree of success between states and communities.

A lack of leadership engagement acted as a barrier to success when leaders did not see a compelling reason to invest time and energy into QI initiatives to reduce readmissions. SNF administrators expressed that increasing census numbers and maintaining regulatory compliance were more important than reducing hospitalizations.<sup>14-16</sup> The majority of articles highlighted the fact that leadership recognized the usefulness of a QI program to reduce readmissions but felt that employees were already taxed with heavy workloads.<sup>13,15,16,18,19</sup> Staffing was a natural barrier in that additional staffing hours were needed to satisfy the QI initiatives, yet it was hard to find SNFs with ample and qualified staff.<sup>12,14-16,19</sup> Lack of staff education was a noted barrier to success because staff lacked the knowledge to care for the patients most likely to be readmitted to acute care settings.<sup>18</sup> Communication tools became barriers if certified nursing assistants and nurses in the facilities felt that forms added unnecessary paperwork.<sup>13</sup> The financial resources needed to implement and continue a QI initiative were noted by multiple articles.<sup>15,17,19</sup>

A lack of reliable data and the time needed before seeing measurable improvements meant that quality improvement tracking could be a barrier to successful reduction in rehospitalizations. More immediate metrics to measure improvements, more accurate criteria in tracking, and less reliance on self-reporting were specific examples of tracking issues cited in studies.<sup>12,15-17,19,20</sup> The implementation barrier was found when facilities struggled to set up quality improvement tools and adoption of procedures.<sup>13-17,20</sup> The care paths barrier was illustrated when patients were being readmitted for manageable conditions but the staff lacked the knowledge of how to properly care for these conditions.<sup>11,18</sup> Medication reconciliation was not a panacea to improving outcomes; medication errors were still common and did not decrease readmissions in one literature reference.<sup>11</sup> Patient transfer protocols proved imperfect due to the failure to fully complete orders and include data when transferring between levels of care.<sup>16</sup> Similarly, workflow redesign failed to impact the readmission rates to hospitals in another study.<sup>12</sup>

## Limitations

This research review has limitations in its application. All the noted studies were conducted in a quasi-experimental

manner, and most were retrospective in nature. For example, one article only considered retrospective fixed data so medical records were not accessible for root cause analysis.<sup>19</sup> Multiple articles noted that participation in QI initiatives among SNFs varied and, in some cases facilities dropped out completely.<sup>12,16,19</sup> The research relied mainly on smaller study samples at a state or community level. There was no consistent implementation across the nation or between nations that could be compared.<sup>13,15,16,19</sup> Much of the research included some aspect of self-reporting, facility statistics. Self-reporting data could invite bias and open studies to errors.<sup>13,15,16</sup>

## Conclusion

When considered from a very overarching perspective, it appears that many of the mitigating factors of the barriers presented can be overcome by facilitators which were discussed here. Allowances for the proper identification of patients and their diagnoses allows for tailored treatments to their specific condition. Collaboration in case management by teams of practitioners working with the patient will cause any barriers to care to be quickly identified, to mitigate readmissions overall. The use of post-discharge follow-up with these patients and the use of patient advocates also can be used as a tool to decrease readmissions in many circumstances. The use of quality checklist tools, such as the INTERACT/STAAR/SBAR, and other standardized protocols will allow for a more streamlined care pipeline for patients, as these tools will allow us to provide care on a more equitable level to more patients, and these tools can be hybridized to begin to address any factors, which might be identified to be causing readmissions further reducing them as time progresses. In addition, staffing and management should be striving to provide proper education to ensure that readmissions will decrease. Any of these interventions require a strong commitment from management, so that the benefits of QII protocols are realized over time.

Hospital readmissions have become a national focus. SNFs working to find ways to reduce 30-day readmissions to acute care may consider adopting a quality improvement procedure. This study supplied a systematic review of both facilitators and barriers summarizing the results of two scholarly databases. These strategy examples can be useful to acute care hospitals attempting to lower bounce back from subacute care providers, and long-term care facilities seeking QI initiatives to reduce hospital readmissions. Focusing on a continuum of quality care results in better treatment efficiency, improved patient safety, and increased communication within partnering hospitals and SNFs.

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This article has not been published previously elsewhere in whole or in part, and it is not under consideration for publication elsewhere. It is approved by all authors, and tacitly or explicitly where the work was carried out, and that, if accepted, it will not be published elsewhere including electronically in the same form, in English or in any other language, without the written consent of the copyright-holder.

## Disclosure

The authors report no conflicts of interest in this work.

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