

Improving Pain Outcomes in Home Health Patients

Through Implementation of an Evidence-Based Guideline Bundle

Pain is often undertreated and underreported in the elderly. Many of these individuals receive home healthcare services for management of their conditions. Home healthcare agencies (HHAs) have outcome measures that are publicly reported. The purpose of this project was to implement an evidence-based (EB) guideline bundle to improve the outcome measure “Improvement in Pain Interfering With Activity.” This quality improvement (QI) project used a pre-/posttest design. The setting was a hospital-based HHA in Arizona. The target sample included Medicare patients with chronic pain and pain that interfered with activity. The approach included a review of published clinical practice guidelines addressing pain management, and identification of relevant interventions for the home healthcare setting. A bundle of three interventions was created for implementation. Clinical staff was educated on use of the bundle. Chart audits were conducted on patients meeting the inclusion criteria to determine if the bundle was used, and if the patient had an improvement in pain. There was a statistically significant improvement in the outcome “pain interfering with activity” in the patients who had the bundle (78% vs. 48%) used in their care ($p = 0.007$). Clinical staff readily incorporated use of the bundle into their practice, showing that implementation of an EB guideline bundle is an effective way to incorporate EB practices into the home healthcare setting.

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Introduction

Pain and pain management have been important healthcare issues for many decades. Pain caused by age-related disorders is common among the older people, with up to 50% of older adults reporting pain (Stewart et al., 2012; Takai et al., 2010), but pain can be difficult to assess (Byrd, 2011). It is not only underrecognized in the elderly, but undertreated (Abdulla et al., 2013) and underreported (Jones, 2006). Treatment for pain tends to be limited to pharmacological agents; there is a general failure to consider alternative pain relief methods (Abdulla et al., 2013). In addition, no known interventions are effective for every type of pain (Byrd, 2011). Pain and fear of causing pain affect quality of life and can lead to a decrease in activity level (Takai et al., 2010). Over time, inactivity can lead to further disability, including deconditioning and obesity, which can lead to additional medical problems and other chronic illnesses (Wilson et al., 2010). The cost of treating chronic pain is high. Approximately \$65 billion is spent annually in direct medical care for patients with chronic pain and lost income for their caregivers (Shin & Kolanowski, 2010).

Purpose of the Project

Home healthcare agencies (HHAs) must publicly report specific outcome measures. One of these outcome measures is “Improvement in Pain Interfering With Activity.” HHAs must monitor and work to improve their outcomes. This is important for patient outcomes and for financial reasons. When value-based purchasing is implemented by the Centers for Medicare & Medicaid Services (CMS), the financial stability of a HHA will depend on outcomes being in the top 20th percentile. In addition, accountable care organizations will seek home healthcare partners who report high patient outcomes and patient satisfaction scores.

In 2001, the Institute for Healthcare Improvement developed the “bundle” concept, focused on improving



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critical care (Resar et al., 2012). A “bundle” is a set of evidence-based (EB) interventions for a defined patient population and care setting. To document compliance with a bundle, all elements of the bundle have to be used in the patient’s care unless it was medically contraindicated (Resar et al., 2012). EB guideline bundles have been successfully used in acute care to address patient care problems; however, no research on the use of bundles in home healthcare was found. One approach to improving HHAs’ quality scores is to implement EB practices into patient care. An EB guideline bundle can offer a low cost and effective way to ensure evidence-based care is being provided.

The Project

In this HHA, the CMS Home Health Compare scores for the measure “Improvement in Pain Interfering With Activity” have been below the top 20% for many years. The purpose of this project was to implement and evaluate an EB guideline

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bundle to improve the agency’s outcome for this measure. This was a QI project with a pre-/posttest design. The plan was to develop the guideline bundle, implement the bundle in the HHA, and evaluate its impact.

Project Aims

Three aims were identified:

1. Determine to what extent home healthcare clinicians will use an EB guideline to structure their plan of care and interventions for pain management.
2. Determine whether the adoption of an EB guideline bundle for chronic pain management improves the reported outcome “Improvement in Pain Interfering With Activity.”
3. Identify barriers to successful implementation of the EB guideline bundle.

Methods

The setting of this QI project was a hospital-based HHA located in Arizona. The agency’s

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patient population is 79% Medicare, mostly female, with an average age of 78 years. Approval was obtained from the hospital and the university's institutional review boards. Subject privacy was protected as most of the data were pulled as an aggregate (without patient identifiers) from the HHA software program. Data that did contain patient information were used only for the purpose of chart audits to determine if the bundle was implemented in the patient's plan of care. All personal identifiers were removed before the data were entered into the data collection tool.

Identification of Relevant Clinical Guidelines

Three clinical guidelines were retrieved: (a) a guideline on nursing protocols for pain management for geriatric patients developed by the Hartford Institute for Geriatric Nursing (Horgan & Yoon, 2008); (b) a guideline on diagnosis and treatment of low back pain developed by the American College of Physicians and the American Pain Society (Chou et al., 2007); and (c) a guideline on chronic pain developed by the American College of Occupational and Environmental Medicine (2008). In addition, a guideline developed by the Registered Nurses Association of Ontario (RNAO; 2007) and another by the British Geriatric Society and British Pain Society (Abdulla et al., 2013) that were related to pain management and were intended for use by nurses were included. These guidelines were reviewed to identify which interventions had the strongest level of evidence, and whether they correlated with the findings of studies reported in the literature.

All five guidelines had similar recommendations. The RNAO guideline and the American College of Occupational and Environmental Medicine guideline both reported strong levels of evidence supporting the recommended interventions. In addition, both guidelines had very specific interventions that could be incorporated into a guideline bundle. An analysis using the

AGREE II Instrument (Brouwers et al., 2010) indicated that both guidelines were of high quality and appropriate for use.

Bundle of Practice Change Recommendations

The following bundle was created using a combination of interventions that were supported by the highest quality of evidence and had the strongest recommendations for adoption. See Box 1 for complete bundle information.

1. Combine pharmacological methods with nonpharmacological methods to achieve effective pain management. (*Grade of recommendation = C*)
2. Institute psychoeducational interventions as part of the overall plan of treatment for pain management. (*Grade of recommendation = A*)
3. Recognize that cognitive-behavioral strategies combined with a multidisciplinary rehabilitative approach are important strategies for treatment of chronic nonmalignant pain. (*Grade of recommendation = A*)

Rating System for Strength of the Evidence:

- A: Strong evidence base: Two or more high-quality studies
- B: Moderate evidence base: At least one high-quality study or multiple moderate quality studies
- C: Limited evidence base: At least one study of moderate quality
- I: Insufficient evidence: Insufficient evidence found

Source of Data for Outcome and Process Measures

The major source of data was an existing data set, the Outcome Assessment and Information Set Version C (OASIS-C), which is completed at multiple time points in care. Time points are at the start of care, resumption of care (i.e., after a hospital stay), or recertification (i.e., when a patient completes a 60-day episode and requires another episode of care). An ending time point is agency discharge or transfer to an inpatient setting. Patients who die or are transferred to other settings receive an abbreviated OASIS assessment that does not include the relevant measures.

Outcomes are determined by comparing responses to the "M" questions at the beginning time point to the ending time point. According to

the comparison of responses, a patient may improve, stabilize, or decline in any of the outcome areas. For example, movement from a response of “4” to a “3” indicates improvement, movement from a response of “2” to a “2” is stabilization, and movement from a response of “3” to a “4” indicates decline.

The HHA software program was used to pull aggregate data on the number of patients eligible for use of the bundle, and whether they improved on the “Improvement in pain that interferes with activity” outcome measure. The documentation was reviewed to determine if the home healthcare nurses and therapists used the guideline bundle in the patient’s care, what interventions were used, and if improvement in pain interfering with activity occurred by discharge. This information was entered into an Excel spreadsheet and then imported into SPSS version 20 (IBM, Inc., Armonk, NY) with no patient identifiers.

Target Sample

The project target sample was HHA Medicare patients with chronic pain and also pain that interfered with activity. Inclusion criteria were any patient responding 3 or 4 on M1242 “frequency of pain that interferes with activity” on the OASIS-C. Response 3 is “daily but not constantly” and response 4 is “all the time.” Chronic pain is identified in the chronic conditions section of the OASIS-C in item M1018. Exclusion criteria were: documented confusion, as it would be difficult for the staff to assess their level of understanding of any education given; and patients responding 0 (“no pain”), 1 (“has pain, but doesn’t interfere with activity”), or 2 (“less often than daily”) on M1242.

Implementation Strategies

Mandatory education for nurses, physical therapists, and occupational therapists was provided on pain, pain management, and the guideline bundle in mid-December 2013. The education session was held at three different times to keep the size of each session small. This allowed staff to ask questions or clear up any confusion they might have had regarding the bundle. Staff was provided patient education materials on specific types of exercise, and complementary modalities that could be used for pain management. This gave them the tools they needed

Box 1. Bundle of Practice Change Recommendations for Pain Management

1. Combine pharmacological methods with non-pharmacological methods to achieve effective pain management. (Grade of recommendation = C)

- Patients using over-the-counter medications for management of chronic pain should be educated and assessed for potential adverse effects, as those are most likely to occur among chronic medication users.
- Nonpharmacological methods of treatment should not be used to substitute for adequate pharmacological management.
- The selection of nonpharmacological methods of treatment should be based on individual preference and the goal of treatment.
- Any potential contraindications to nonpharmacological methods should be considered before application.

2. Institute psychoeducational interventions as part of the overall plan of treatment for pain management. (Grade of recommendation = A)

- Reassurance that chronic pain is common, in the absence of specific disorders has a good prognosis, and does not cause (or have to cause) severe disability is important to communicate to the patient.
- Fear of further injury or missing a diagnosis also needs to be addressed if the patient with pain is to progress. Mind and body can be blended together in a comprehensive pain program by ensuring the patient with pain understands the connection.

- Patients should be encouraged to maintain as high a level of function as possible and resume activities of daily living and instrumental activities of daily living.

3. Recognize that cognitive-behavioral strategies combined with a multidisciplinary rehabilitative approach are important strategies for treatment of chronic nonmalignant pain. (Grade of recommendation = A)

- Graded exercises to assist in achieving a return to maximal function are indicated. Aerobic and strengthening exercises appear most helpful for the rehabilitation of most chronic pain conditions.
- Institute specific strategies known to be effective for specific types of pain, such as superficial heat and cold, massage, relaxation, imagery, and pressure or vibration, unless contraindicated. (Grade of recommendation = C)

Note. All three recommendations must be implemented to constitute best practice.

for patient teaching even though they may not have had much knowledge about a particular modality. For instance, nurses normally do not teach patients about exercise programs, so information on types of progressive exercises they could teach patients gave them more confidence in teaching that intervention. In addition, the staff was told that they did not need to use

A “bundle” is a small set of evidence-based interventions for a defined patient population and care setting.

any additional templates or forms to implement the bundle in their care. They were instructed that all three interventions in the bundle must be used to determine that the bundle was used in the patient’s care. Other implementation strategies included: presentation at staff meetings on guideline bundle use as well as voice mail and e-mail reminders.

Evaluation Plan

Process Evaluation and

Outcome Evaluation Plan

The process evaluation included data collection from staff meeting minutes, staff sign in sheets for education sessions, and a journal that was completed “real time” throughout the implementation to document when and how events occurred and any challenges, barriers, or accomplishments. The outcome evaluation included data collection on how many patients were eligible for use of the guideline bundle, how often staff actually used the guideline recommendations for eligible patients, and what specific interventions were used if the entire guideline bundle was not adopted. The specific outcome measure tracked and evaluated for achievement of the objective was improvement in pain that interferes with activity.

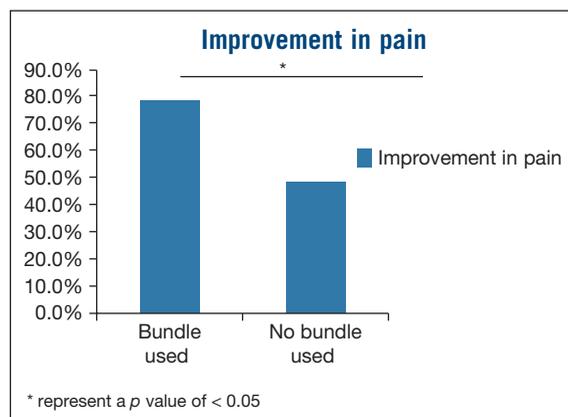


Figure 1. Comparison of Improvement in Pain Interfering With Activity scores of patients who had the bundle versus patients who did not have the bundle used in their care.

Results

Statistical analysis was performed using SPSS version 20.0 (IBM, Inc., Armonk, NY) and GraphPad Prism 5 (GraphPad Software, La Jolla, CA). A chi-square analysis was used, with an alpha level of less than 0.05 set for statistical significance.

Aim 1

Data were collected on 91 patients who met inclusion criteria between January 1 and April 30, 2014. The average age was 74 years old. Fifty-three of the 91 (58%) were female. Of those 91 patients, the guideline bundle was implemented on 64 (70.3%). This far exceeded the goal that at least 30% of eligible patients would have the bundle implemented. In addition, 6 of 9 (66.6%) physical therapists and occupational therapists used the bundle in their practice, and 4 of 9 (44.4%) nurses used the bundle in their practice. This exceeded the goal that at least 30% of clinicians would use the bundle.

Aim 2

Use of the guideline bundle was found to have a statistically significant impact on improvement in pain interfering with activity ($\chi^2 (1) = 8.01, p = 0.007$). There were 27 of the 91 (29.7%) patients that did not have the bundle used, and 13 of those 27 (48.1%) patients saw an improvement in pain interfering with activity. A total of 64 of the 91 (70.3%) patients had the bundle used, and 50 of those 64 (78.1%) patients had an improvement in pain interfering with activity (Figure 1).

Aim 3

This project found that home healthcare clinicians were willing to incorporate an EB guideline bundle in their practice. There were surprisingly few barriers to implementing the bundle. Feedback from staff showed they understood the three interventions and readily incorporated them into their practice. The main reason cited by those clinicians who did not use the bundle was they forgot, or they were focused on other more urgent problems with the patient.

Discussion

The majority of patients eligible for use of the bundle had the bundle implemented in their care. In addition, a majority of therapists used

the bundle when delivering care to the relevant patients. There were certain trends noted during the chart audits. When multiple nurses saw a given patient, they were less likely to teach the patient about pain and pain management. There was documentation on the pain level and what the patient stated he or she was doing to manage pain, but no documentation of follow-up teaching related to pain management. Nurses were focused on specific tasks such as wound care or intravenous infusions that were needed during that visit. Patients who had only nursing were less likely to have the bundle used and less likely to have an exercise plan or instruction about the importance of staying physically active, with most of the focus on use of pain medications compared with patients who received both nursing and therapy. This may reflect that patients who were seen only by nurses had other care needs that limited the amount of time the nurse could devote to implementation of the pain bundle, and that nurses may be less comfortable with developing exercise plans. Patients with multiple home healthcare episodes over time were less likely to have the bundle used, and less likely to show an improvement in pain. Again, there was documentation of the patient's pain level and what they stated they were doing to manage their pain, but no teaching or focus on pain management. The focus was on the current problem or reason for this admission to home healthcare.

Home healthcare is a highly regulated setting, with an overwhelming amount of documentation requirements. Medicare payment can be denied if any of the required documentation is not completed within the strict guidelines of the CMS. This HHA had implemented other EB guidelines over the past 8 years with limited success in terms of staff acceptance and use of the guidelines. Past EB guidelines have been lengthy, in-depth documents that clinicians had to attach to their normal documentation and complete. Feedback from staff indicated they were not using the guidelines because they were too cumbersome, and they were too busy to do extra documentation. Previous guidelines were used by only 30% of the clinical staff at best. This project was different from past projects in that a "bundle" of three EB interventions was created instead of a lengthy guideline. The fact that the staff could incorporate use of

Patients with multiple home healthcare episodes over time were less likely to have the bundle used and less likely to show an improvement in pain.

the bundle into their normal documentation, instead of using an additional form, very likely explains the higher use of the bundle than expected.

In addition, staff was provided with the tools they needed to implement the bundle. The three interventions were rather general recommendations, but staff was provided with specific information on what each intervention "looked like" in practice. Also, providing staff with patient handouts on modalities such as guided imagery, or relaxation exercises gave them the ability to teach something that they personally may not have had much knowledge about previously.

Limitations

One study limitation is there is no way to determine that the clinicians actually performed the interventions. The data were collected from the visit notes, not from actually observing the staff and their patient care. However, this is the only practical approach to collecting the required data. Another limitation is the small sample size. It will be important to continue to collect data on bundle use and improvement in pain scores over time. It will also be important to monitor CMS outcome data and Home Health Compare data to see if the Improvement in Pain Interfering With Activity score increases.

Finally, it would have been useful to track the patients' rating of their pain from admission to discharge, and not just whether improvement in pain interfering with activity occurred. It was noted in multiple charts that the patient's rating of their pain decreased over time, but at discharge improvement in pain interfering with activity did not occur. This could be because of inconsistencies in the clinician's documentation, or different clinicians doing the start of care OASIS-C and the discharge OASIS-C. It also could be a result of pain decreasing but not sufficiently as to no longer interfere with activity.

The use of an EB bundle is an effective strategy to use in implementing care in the

home healthcare setting. Selecting three to five interventions with the highest levels of evidence, and assisting clinicians to incorporate those interventions into their practice may be more accepted by busy clinicians than a very detailed and lengthy guideline. Patient outcomes can be improved in the home healthcare setting, using EB guidelines, without adding additional documentation requirements. ■

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The author declares no conflicts of interest.

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