

Deprescribing in Hospice Patients: Discontinuing Aspirin, Multivitamins, and Statins

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Abstract

Objective: To facilitate deprescribing of aspirin, multivitamins, and statins in hospice patients enrolled in Mayo Clinic Hospice, Rochester, Minnesota.

Patients and Methods: During the fall of 2019, we conducted a quality improvement project to improve care of Mayo Clinic Hospice patients by decreasing the percentage of patients taking aspirin, multivitamins, or statins. Project interventions included the addition of a palliative medicine fellow to the hospice interdisciplinary team, nurse education, and implementation of an evidence-based deprescribing resource tool. The resource tool included a communication framework to guide deprescribing conversations and a literature summary supporting deprescribing. The project team recorded the number of patients taking 1 of these medications by intermittently surveying the hospice census. Process and counterbalance measures were tracked with online surveys of hospice nursing staff.

Results: At the start of the project, 22 of 69 patients (32%) were taking aspirin, a multivitamin, or a statin. After introduction of the deprescribing resource tool and the addition of a palliative medicine fellow to the interdisciplinary team, this was reduced to 20 of 83 patients (24%), a 24% decrease. Results appeared to be driven primarily by a reduction in multivitamin use (33% decrease). Self-reported comfort and knowledge about deprescribing improved among the hospice nursing staff, as did satisfaction in their workflow from 5.4 to 6.0 (maximum, 7).

Conclusion: The addition of a dedicated team member to address medication issues and provision of an evidence-based deprescribing resource tool appear to reduce the use of unnecessary and potentially harmful medications in ambulatory hospice patients.

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As Western societies are aging, advances in modern medicine mean that more people are living longer with multiple medical comorbid conditions (*multimorbidity*).^{1,2} As a result, hospice enrollment is increasing.³ With this rise in multimorbidity among hospice patients comes an increase in the number of prescriptions for each person, with many averaging more than 15 medications.⁴⁻⁸ In fact, as patients near death, their medication burden continues to grow.^{6,8} Although many of these prescriptions are comfort oriented, many hospice patients continue to take scheduled medications for

chronic conditions that are ineffective or possibly harmful at the end of life.

The prescription of unnecessary medications with the potential for more harm than good is termed *polypharmacy*.⁴ The negative consequences of polypharmacy are numerous and include increased risk of adverse drug reactions, drug-drug interactions, reduced functional capacity, medication nonadherence, higher symptom burden,⁹ reduced quality of life,^{5,9} and increased risk of death.^{10,11} Providing high-quality hospice care requires attention to these risks and implementation of appropriate deprescribing practices as the standard of care.



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Deprescribing is a collaborative process whereby medications that are unnecessary, ineffective, or inappropriate are withdrawn.¹⁰ In particular, medications prescribed for primary prevention are no longer indicated at the end of life.^{10,12-21} Studies suggest that aspirin, multivitamins, and statins are key targets for deprescribing in hospice patients to reduce adverse events and to improve quality of life.^{10,12-23} Unfortunately, time limitations, provider uncertainty about the ongoing benefits of medications, and reluctance of patients to change medications are significant barriers to deprescribing.^{4,6,24,25} This information suggests a substantial opportunity to streamline the deprescribing process for hospice patients and to improve provider confidence.⁹ Interventions that have been successful toward promoting deprescribing in other studies include the use of deprescribing tools and decision trees, dedicated deprescribing education, and structured medication management.^{10,25-33} Nurses who care for hospice patients have been shown to be willing to discuss deprescribing when conversations are framed around medication adverse effects and decreased quality of life.³⁴

Using this background information as a rationale, we implemented a quality improvement project for deprescribing practices at Mayo Clinic Hospice. Here we describe the project and its subsequent evaluation, along with applicable recommendations.

PATIENTS AND METHODS

Defining the Project

This project was implemented at Mayo Clinic Hospice in Rochester, Minnesota, between September 1 and December 1, 2019. The project was reviewed by direct verbal communication and email with key stakeholders, including hospice nurse care coordinators, nurse administrators, medical directors, hospice physicians, and pharmacists from Mayo Clinic Hospice. Their suggestions and feedback were included in the development of the project. Our target population for deprescribing was adult, ambulatory hospice patients enrolled in Mayo Clinic Hospice during the study period.

Listening sessions with hospice stakeholders indicated that many team members

were interested in efforts to improve deprescribing practices for hospice patients. Hospice care relies on an interdisciplinary team model to provide expert symptom management for complex patients at the end of life. Because hospice patients' symptoms are rapidly evolving, they often require intensive and frequent adjustment of comfort-based medications. In a busy interdisciplinary team meeting, where the review of care for multiple patients requires brevity, the focus is often on short-term medication issues needed to provide expert symptom control. Understandably, the review of long-term medications may have lower priority in these discussions.

Although pharmacists and physicians are intimately involved in the review of patients' medications, the hospice nurse care coordinator provides the bulk of the face-to-face care and direct communication with patients and families. Deprescribing conversations are challenging, and successful conversations require both a high degree of confidence in the data behind deprescribing and substantial comfort in communicating the importance, rationale, and process of deprescribing. Empowering hospice nurses to feel confident and comfortable in the deprescribing process is key to success.

In an effort to overcome these barriers, our project team, consisting of palliative medicine fellows, hospice physicians, hospice nurse administrators, and a hospice pharmacist, developed a resource tool for the deprescribing of 3 key medication classes: aspirin, multivitamins, and statins. The resource tool included a communication guide based on the *FRAME* deprescribing model proposed by Felton et al.²⁰ The name of this method is a simple acronym highlighting the necessary steps for successful deprescribing, which include the need to fortify (*F*) trust, to recognize (*R*) the patient's willingness for deprescribing, to align (*A*) deprescribing recommendations to the patient's goals of care, to manage (*M*) cognitive dissonance, and to empower (*E*) patients and caregivers to continue the conversation.²⁰ Our resource tool was a modified version of the *FRAME* algorithm that included suggested scripts to be used by the nurse for each of the 3 targeted medications ([Supplemental Material](http://mcpiqjournal.org), available online at <http://mcpiqjournal.org>). A summary of the

literature supporting deprescribing of these medications, focusing on benefits and harm reduction, was also included in the resource tool.¹³⁻²⁰ Our team met with the entire hospice nursing team to provide basic education on the importance of deprescribing and how to use the resource guide.

In addition to the resource tool and educational sessions, a palliative medicine fellow was added to the hospice interdisciplinary team meeting. The fellow was tasked with identifying patients taking 1 of the 3 medication classes and reviewing deprescribing considerations with the patient's hospice nurse. Our aim was to reduce the percentage of Mayo Clinic Hospice patients taking aspirin, a multivitamin, or a statin by 20% during the 3-month study period, without decreasing the *counterbalance measure* of nursing satisfaction with the patient care workflow. At baseline, there was no defined process for deprescribing.

Project Measurement

We monitored the Mayo Clinic Hospice patient census on a monthly basis using Plan-Do-Study-Act (PDSA) cycles.³⁵ A spreadsheet was used to capture monthly totals of the number of patients taking aspirin, a multivitamin, or a statin, and baseline and postintervention data on these numbers were compared. In addition to census review, we surveyed the hospice nurses monthly to capture secondary outcome measures of hospice nurse comfort level with deprescribing conversations and confidence in the literature behind the benefits of deprescribing aspirin, multivitamins, and statins. Nurse perceptions of how the interventions affected patient care were also captured. These data were collected using a self-reported Likert scale (1 to 7), with higher scores conveying more positive opinions.

After collection of baseline census data, our team conducted an onsite formal didactic session with all hospice nurses. We reviewed the data behind the 3 classes of medications chosen for the intervention and educated nurses on how to use the resource guide. This session also included an open forum for hospice nurses to discuss previous challenges with deprescribing conversations and to strategize together ways to overcome barriers

to the process. During the course of the intervention, we conducted regular staff check-ins to gather real-time feedback on the project. We then incorporated those suggestions into each subsequent PDSA cycle and reevaluated.

Our counterbalance measure was nurse report of satisfaction with the deprescribing process to ensure that the intervention did not interfere with the nursing workflow of patient visits. Counterbalance data were also collected through anonymous self-report on monthly nursing surveys (rated on the same scale of 1 [low opinion] to 7 [high opinion]). In addition, we held a focus group with hospice nursing staff and nursing administration several weeks into the intervention to better understand areas of improvement for refinement of the resource tool and deprescribing process.

Analyzing the Project

The DMAIC (Define, Measure, Analyze, Improve, and Control) framework and PDSA cycles were the primary quality improvement methods used for the project.^{35,36} We created a plan by obtaining baseline data and then engaging and listening to key stakeholders. Our plan was then implemented into the defined project. We used PDSA cycles monthly throughout the duration of the project to refine our process.

Data on numbers of patients taking each medication at each time point (4 dates during the 3-month project) were summarized as percentages. The percentage decrease in medication use was calculated from baseline to the end of the study. Survey results were summarized as the mean of all responses on the 7-point scale.

RESULTS

Improvement With Intervention

At the start of the project, the total hospice census was 69 patients. Of these 69 patients, 22 (32%) were taking aspirin, multivitamins, or statins; 12 (17%) were taking aspirin, 15 (22%) were taking a multivitamin, and 3 (4%) were taking a statin (Table 1). By December 1, 2019, at which time the hospice census was 83 patients, the percentage of patients taking aspirin, multivitamins, or statins

TABLE 1. Percentage of Hospice Patients Taking Targeted Medications

Characteristic	All	Aspirin	Multivitamins	Statins
Medication use by hospice census ^a				
August (baseline) (n=69)	22 (32)	12 (17)	15 (22)	3 (4)
September (n=77)	22 (29)	14 (18)	15 (19)	6 (8)
October (n=70)	18 (26)	13 (19)	10 (14)	2 (3)
November (n=84)	19 (23)	11 (13)	13 (15)	3 (4)
December (end) (n=83)	20 (24)	11 (13)	12 (15)	4 (5)
			(n=82)	
Decrease (August to December)	24%	24%	33%	No change (<10%)

^aValues are No. (%) of patients.

had decreased to 24% (n=20). This represents a relative decrease of 24% (Table 1). The positive effect appeared to be driven primarily by a decrease in multivitamin use, with 15% of patients (12/82) taking a multivitamin at project completion. The calculated decrease in multivitamin use was 33%. Relative decrease in aspirin use was more modest (24%), with 13% of hospice patients (11/83) taking aspirin at study end (Table 1). Statin prescriptions remained relatively unchanged.

Initial survey of the hospice nurses showed that the mean value (of 7) for comfort in deprescribing conversations was 5.9, their confidence in the data was 3.3, and their satisfaction with the deprescribing process was 5.4 (Table 2). By project completion, mean hospice nurse comfort in deprescribing conversations increased from 5.9 to 6.3 of 7 (Table 2). Mean hospice nurse confidence in the data behind deprescribing of aspirin, multivitamins, and statins increased from 3.3 to 5.8. The counterbalance measure of hospice nurse satisfaction during the deprescribing workflow was not adversely affected and actually improved from 5.4 to 6.0. By study completion, 4 of 6 surveyed hospice nurse care coordinators (67%) believed that the intervention had a positive impact on patients.

TABLE 2. Hospice Nurse Survey Data^a

Survey date	Discussion comfort	Data confidence	Deprescribing satisfaction
October 7 (n=7)	5.9	3.3	5.4
November 11 (n=6)	5.0	4.5	4.8
December 18 (n=6)	6.3	5.8	6.0

^aAll values are the mean response on a Likert scale of 1 (low) to 7 (high).

Control Summary

Baseline and implementation data were communicated to stakeholders and hospice nurses during each PDSA cycle and after the intervention. Data monitoring continued during the intervention period. After completion, we met with the hospice team and invited stakeholders to discuss these data and to determine process refinements based on PDSA and team experiences with the process. As hospice nurses have developed greater comfort with the deprescribing process and patient and family engagement, the next step in operational control most likely hinges on 2 things: transfer of project stewardship from graduating palliative medicine fellows to another team member and continued engagement of hospice nurses in the process.

DISCUSSION

Through our intervention, we successfully initiated the deprescribing of aspirin, multivitamins, and statins in Mayo Clinic Hospice patients without decreasing the satisfaction of nurses in their workflow (our counterbalance measure). In addition, the majority of hospice nurse care coordinators believed that the intervention had a positive effect on patients. Hospice nurse comfort level with deprescribing conversations and confidence in the data trended positively during the study period as well.

Our aim was to reduce the percentage of Mayo Clinic Hospice patients taking aspirin, a multivitamin, or a statin by 20% during the 3-month study period, which was met overall (24% decrease). On data review, we noted that the bulk of the relative decrease

in the use of aspirin, multivitamins, and statins was driven by deprescribing of multivitamins (33% decrease). Aspirin use had a moderate reduction (24%), but which was also above our goal of 20%. Unexpectedly, the number of hospice patients taking statins remained relatively unchanged, possibly because of the low number of hospice patients taking a statin, approximately 4%: 3 of 69 patients at initial data collection and 4 of 83 at project completion.

One reason for the greater reduction in multivitamin use may be that patients are less committed to these nonprescription items than to medications prescribed directly by a provider. Financial considerations also may be involved in this imbalance. Many multivitamins and nutritional supplements are purchased over the counter, representing out-of-pocket cost to patients and families. For many patients with prescription drug coverage, prescribed medications may actually be less expensive than over-the-counter medications and may be free for many. Engaging patients and families in deprescribing medications that were not prescribed by a physician and are often costly may be easier than deprescribing a long-term medication for multimorbidity that the patient may believe is still necessary and causes no direct financial harm.

The initial resource tool was a fairly limited document focused on 3 specific medications. Nurse care coordinators believed that in the future, a more expansive education program and a broader resource tool would be helpful. Including a larger list of medications with strong data for deprescribing at the end of life, such as the well-validated OncPal list, would be a good next step.²⁹ Adding supplemental, patient-specific education resources would also most likely be helpful in further facilitating the deprescribing process.

The project also showed that personalized medication review can be cumbersome and time-consuming, especially for a hospice program with a larger census. This project taught us that teamwork is important for understanding the issue of deprescribing and for creating an intervention to meet the needs of our team members. The goal was for nurses to feel confident in working with patients and families to deprescribe medications that may no longer

provide benefit or even cause harm. Future directions could include operationalization of the deprescribing process through the use of the electronic health record to automatically flag medications targeted for deprescribing.

Our quality improvement project had several limitations. First, because it was part of our yearlong fellowship, the measurement and remeasurement period for the intervention was only 3 months. In addition, not all hospices will have the additional staff, 3 fellows, to dedicate to quality improvement. Last, because our hospice is affiliated with a large academic medical center, referral bias may have contributed to our specific hospice population, and thus our results may not be generalizable to all programs.

CONCLUSION

Provision of an evidence-based deprescribing resource tool, including communication frameworks and summaries of the literature, as well as the addition of a dedicated team member to address medication issues appears to reduce the use of unnecessary medications in ambulatory hospice patients. Although this quality initiative was not a controlled study, it demonstrates feasibility that similar, low-cost interventions could be a good start toward promoting deprescribing of unnecessary and often harmful medications in hospice patients. Further research is needed to determine whether a similar but more extensive deprescribing resource tool, focusing on more medications and including patient-specific educational content, would be more beneficial. In addition, using the electronic health record system to automatically flag specific medications to consider for deprescribing in hospice patients may streamline the process and remove some of the burden of medication review.

ACKNOWLEDGMENTS

Editing, proofreading, and reference verification were provided by Scientific Publications, Mayo Clinic.

SUPPLEMENTAL ONLINE MATERIAL

Supplemental material can be found online at <http://mcpiqjournal.org>. Supplemental material attached to journal articles has not been

edited, and the authors take responsibility for the accuracy of all data.

Abbreviations and Acronyms: PDSA = Plan-Do-Study-Act

Potential Competing Interests: The authors report no competing interests.

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