Multiple Myeloma Mentorship

Bridging communication and educational gaps

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BACKGROUND: The 2014 Multiple Myeloma (MM) Mentorship Program provided a focused, interactive, peer-to-peer educational experience, including updates in MM, for 10 mentees that led to advanced clinical educator status.

OBJECTIVES: The objective of the program was (a) to improve mentees’ knowledge, competency, confidence, and level of performance in the management of MM and (b) to build speaking expertise.

METHODS: From May 2014 to March 2015, 10 mentees were educated on MM with a structured serial learning curriculum. Mentees then presented slide decks, and modular activities were opened to a national audience of professionals. Pre- and post-test surveys were compiled, and a RealIndex® composite score was calculated.

FINDINGS: Gains were measured across the curriculum in learning domains of knowledge, confidence, and practice strategy. Pre-/post-test scores show that the mentorship cohort’s average scores on knowledge, confidence, and performance were higher compared to the national program.

SIGNIFICANT CHANGES TO THE MULTIPLE MYELOMA (MM) landscape have occurred since 2003. With six drugs approved since 2012 (i.e., pomalidomide, carfilzomib, panobinostat, daratumumab, ixazomib, and elotuzumab), keeping up to date on drugs to treat MM and the management of side effects is more challenging than ever for general oncology nurses. The 2014 MM Mentorship Program (MMMP) was an online educational activity designed to bridge serial learning activities and independent clinical practice to meet the educational needs of oncology nurses and was modified following feedback from previous mentorship programs (Faiman, 2011; Faiman, Miceli, Richards, & Tariman, 2012). The 2014 MMMP provided a focused, interactive, peer-to-peer educational experience for 10 mentees, leading to advanced clinical educator status, as confirmed by AXIS Medical Education, Inc. The curriculum included activities that focused on the diagnosis and treatment of MM in first-line, maintenance, and relapsed or refractory settings, provided strategies for side effect management, and highlighted the importance of survivorship care for patients with MM.

Background
MM is an incurable, but treatable, cancer of the bone marrow plasma cells and is estimated to have affected about 30,330 new patients in 2016 (Siegel, Miller, & Jemal, 2016). Advances in survival among patients with MM have been observed since 1996, with the overall survival estimated to be 47% at five years (Siegel et al., 2016). With improved survival, patients are challenged by cumulative effects of the disease and treatment, such as peripheral neuropathy, cytopenia, and recurrent infections (Faiman & Richards, 2014).

When Americans were surveyed, nurses were among the highest regarded healthcare professionals in terms of ethics and trust (Riffkin, 2014). With this confidence in care, combined with the first-line nature of the nurse’s job responsibilities, nurses commonly identify side effects and follow up on management issues in patients with MM (Kurtin & Faiman, 2013).

The number of quality educational opportunities for nurses and healthcare professionals has declined since 2006, despite an increased need for such activities. These changes are, in large part, because of diminished funding. Education is particularly important as new drugs with sophisticated mechanisms of action become available for administration. In addition, patients with
MM are living longer than ever before and may endure cumulative physical and financial side effects of treatment. Gaps exist in the diagnosis and management of MM, as well as the management of side effects, and these gaps must be addressed (Raje et al., 2014). To address the unmet educational needs of nurses caring for patients with MM, the 2014 MMMP was implemented.

Methods
From May 2014 to March 2015, 10 mentees, representing nine states, were paired with one of two experienced MM mentors. Mentors were defined as MM clinical experts who coach, teach, guide, and empower mentees to achieve educational milestones that can assist them in providing optimal management of MM. Mentees were identified based on desire to participate and geographic location. Mentees were defined as oncology nurses, oncology nurse educators, or advanced practice nurses being mentored through a collaborative education process to initiate, evaluate, and implement evidence-based nursing care for the highest quality outcomes. Each mentee was instructed about best practices in the diagnosis and management of MM within a structured serial learning curriculum. The curriculum included a test-and-teach baseline self-assessment activity, two self-study sessions, and two virtual summits, broken into two modules (see Figure 1). Mentees then presented two MM-focused slide decks created by the mentors to a total of 257 learners at practice settings nationwide. These activities were targeted toward a national cohort of oncology and hematology-oncology nurses and nurse practitioners, as well as other healthcare professionals who treat patients with MM in various practice settings (e.g., inpatient, outpatient, community). The audience included nurses, physicians, and support staff. Mentees completed a final self-assessment to conclude their participation in the MMMP, and they needed to achieve a passing score of 90% or higher to attain advanced clinical educator (ACE) status. All mentees met or exceeded this critical milestone and achieved ACE status. The modular activities were also opened to a national audience of healthcare professionals (national cohort). The modular activities for the national cohort were available online through RealCME. The objective of the program was not only to improve mentees’ knowledge, competency, confidence, and level of performance in the management of MM, but also to build their skills as subject matter experts and speakers in MM. Pre- and post-test results of the four learning domains (i.e., knowledge, competence, confidence, and practice strategy) were compiled across all the activities on the MMMP. Learner performance was evaluated by RealIndex®, a multidimensional, situation-based question that addresses the clinical application of the curriculum’s learning objectives and represents a surrogate marker for learner performance.

Assessment
Analysis of all learning outcomes was conducted using the RealMeasure platform, which uses matched question sets to assess specific learning domains (i.e., knowledge, competence, confidence, and practice strategy), in addition to the RealIndex performance metric. Participant responses were collected at the beginning and end of each activity (pre- and post-test [four activities], baseline, and final) and six weeks after activity completion. All statistical analyses were conducted using SPSS®, version 19.0. All participants in the curriculum were presented with a real-life clinical case study scenario (the RealIndex), followed by a series of behavioral statements to reflect the learner’s approach to the case study. The case study scenario assesses knowledge of latest published data, assessment and diagnostic tools, relevant clinical guidelines, and ability to apply new knowledge to the scenario at hand. The index question is administered before the participant’s first activity (baseline) and after each activity of the curriculum. After the first response to the RealIndex question, participants can refine their responses based on progressive learning. The multidimensional question aligns with the progression of a

“Gains measured across the curriculum reflect the need for specialized education for oncology nurses.”

FIGURE 1.
LEARNING STRUCTURE OF THE 2014 MULTIPLE MYELOMA MENTORSHIP PROGRAM

MODULES
- Component I: Treatment of multiple myeloma in the first-line, maintenance, and relapsed or refractory settings
- Component II: Survivorship and side effect management in patients with multiple myeloma

ACTIVITIES
1. Baseline self-assessment
2. Self-study for component I
3. Self-study for component II
4. Virtual summit for component I
5. Virtual summit for component II
6. Live presentation for component I
7. Live presentation for component I
8. Final self-assessment
participant’s applied clinical knowledge, assessing the impact of serial interventions on clinical practice behaviors. Internal consistency of the items in RealIndex was measured using reliability analysis. Reliability was measured as high, with Cronbach alphas from 0.715–0.838.

Statistical Analysis
The data were first analyzed using frequencies. Individual questions were analyzed for pre- and post-test comparisons with a matched-pair methodology. Dependent and independent sample t tests were used to assess differences between mean pre- and post-test responses; differences were considered significant at p ≤ 0.05. Dependent t-test calculations were performed on matched pairs of participant scores. Analyses of variance assessed differences among groups of learner cohorts. Effect size is expressed as a non-overlap between performance score distributions and was calculated using Cohen’s d. Statistically significant outliers or extreme scores were determined using the Grubbs test, also called the extreme studentized deviate method, and those were removed prior to final data analysis.

Results
For the mentorship cohort (n = 10), significant improvements were measured across the curriculum in knowledge (6%), confidence (11%), and practice strategy (25%) at p ≤ 0.01 (see Figure 2). For the mentorship cohort, baseline scores were 76%, and final scores were 82% on the RealIndex (relative change of 9%, p < 0.0005). For the national cohort, baseline scores were 62%, and final scores were 71% (relative change of 14%, p < 0.0005). The gains observed in competence (13%) and on the RealIndex (9%) did not meet statistical significance because of the small size of the cohort sample. Mentees demonstrated an average gain of 9% on questions associated with the curriculum self-assessment that was presented to learners before participating in the program, as well as at the conclusion of the program. In addition, mentees were assessed regarding their ability to present the curriculum information. The mentees presented the information to a national audience and, during the course of 20 live meetings, 257 learners participated, and 213 received continuing education credit. Participants rated the effectiveness of the mentee presentations highly in both modules (99%). Mentees’ presentation performance was also assessed by the course-appointed mentors, and all received a 4.7 or higher on a scale of 1 (poor/needs serious improvement) to 5 (excellent/no improvement needed). All mentees achieved ACE status, and a final evaluation survey indicated a high degree of satisfaction with the various curriculum components. Satisfaction was scored on Likert-type scale ranging from 1 (poor) to 5, with averages ranging from 4.7–5.

The national cohort had 539 participants, including 261 nurses, 59 nurse practitioners, 39 physicians, and 10 physician assistants; 254 participants identified their specialty as

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**FIGURE 2.**
SIGNIFICANT GAINS MEASURED ACROSS LEARNING DOMAINS

**MENTORSHIP COHORT (N = 10)**

<table>
<thead>
<tr>
<th>Knowledge (p = 0.01)</th>
<th>Competence (p = 0.141)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before: 91%</td>
<td>After: 96%</td>
</tr>
<tr>
<td>Relative change: +6%</td>
<td></td>
</tr>
<tr>
<td>Before: 78%</td>
<td>After: 88%</td>
</tr>
<tr>
<td>Relative change: +13%</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Confidence (p = 0.001)</th>
<th>Practice (p &lt; 0.0005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before: 4.5</td>
<td>After: 4.8</td>
</tr>
<tr>
<td>Relative change: +11%</td>
<td></td>
</tr>
<tr>
<td>Before: 3.9</td>
<td>After: 4.9</td>
</tr>
<tr>
<td>Relative change: +25%</td>
<td></td>
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</tbody>
</table>

**NATIONAL COHORT**

<table>
<thead>
<tr>
<th>Knowledge (N = 341, p &lt; 0.0005)</th>
<th>Competence (N = 346, p &lt; 0.0005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before: 66%</td>
<td>After: 92%</td>
</tr>
<tr>
<td>Relative change: +39%</td>
<td></td>
</tr>
<tr>
<td>Before: 56%</td>
<td>After: 93%</td>
</tr>
<tr>
<td>Relative change: +66%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Confidence (N = 346, p &lt; 0.0005)</th>
<th>Practice (N = 349, p &lt; 0.0005)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before: 3</td>
<td>After: 3.8</td>
</tr>
<tr>
<td>Relative change: +28%</td>
<td></td>
</tr>
<tr>
<td>Before: 3.3</td>
<td>After: 4.2</td>
</tr>
<tr>
<td>Relative change: +26%</td>
<td></td>
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</tbody>
</table>

Note. Confidence was based on a scale of 1 (not at all confident) to 5 (very confident). Practice was a performance metric and based on a scale of 1 (never) to 5 (always). Competence and knowledge were measured by pre-/post-test questions through RealCME. Knowledge and competence questions had only one correct answer per question.
hematology-oncology and 18 as family medicine/general practitioner. Significant improvements were measured across the curriculum in all learning domains ($p < 0.0005$).

An item-level analysis of the self-assessment revealed two areas of continued education need for the mentorship cohort regarding the pathophysiology of MM and the safety and efficacy of current treatment regimens. A statement-level analysis of the RealIndex identified two additional performance gaps addressing preventive measures for venous thromboembolism and medication management for diverse patient populations (e.g., age, frailty, comorbidities).

The mentorship cohort was more proficient than the national cohort, as demonstrated by comparatively higher average performance scores in all domains. These findings highlight the success of the mentorship component on learner performance relative to performance of the national cohort that did not receive individual mentor guidance. A poster featuring the outcomes and impact of the 2014 MMMP was presented at the JADPRO Live at the 2015 Advanced Practitioner Society for Hematology and Oncology annual meeting.

**Implications for Nursing**

Oncology nurses contribute to improved patient outcomes in terms of side effect management, decreased hospital emergency department visits, and general education (Duncan, Mason, & Thirwell, 2015; Kunos, Olszewski, & Espinal, 2015; Meisenberg, Graze, & Brady-Copertino, 2014; Zhou et al., 2015). Oncology nurses are required to maintain continuing education for licensure, but most states do not mandate education within their practice area for nurses who are not certified by the Oncology Nursing Certification Corporation. This is unfortunate because oncology nurses must acquire knowledge of new therapies, treatments, and supportive care strategies to pass that knowledge to other nurses, other practitioners, and, most importantly, to their patients to improve care. Barriers to acquiring knowledge of new therapies, disease updates, and treatments include a lack of time to attend continuing education seminars, lack of funding, and a lack of qualified nursing researchers to conduct research to improve knowledge (Knof et al., 2015; LoBlondo-Wood et al., 2014; Peek, 2015; Raje et al., 2014). Therefore, oncology nurses must remain up to date on new information and become more involved in nursing research to improve knowledge in a variety of areas related to practice and symptom care.

MMMP is among the only mentorship programs that focuses solely on improving the knowledge of oncology nurses regarding MM through a series of virtual and live educational opportunities. Oncology nurses are required to have specific knowledge and competence in a variety of subject areas, and more specialized education is needed in MM. Keeping abreast of the advances in the diagnosis and management of MM is a challenge for oncology nurses. This program provided the learner with self-study and live learning opportunities to enhance learning about MM. The future of nursing educational activities will undoubtedly rely on similar types of virtual and live learning opportunities to deliver new information. Programs that combine virtual and live education can be a useful way to help oncology nurses learn about new drugs and treatments not only for MM, but also for other cancers. This mentorship program demonstrates the feasibility of such learning programs for oncology nurses.

**Conclusion**

The 2014 MMMP program built upon knowledge gained in previous programs because the program incorporated self-study components and live learning activities to improve learner proficiency. Despite the small sample size of mentees ($n = 10$), their greater gains measured across the curriculum in all learning domains reflect the need for specialized education among oncology nurses and support the creation of future educational activities featuring an individualized mentorship component. Future programs are underway to expand on these results and continue this model of specialized nursing education.

**REFERENCES**


