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The RightSTEPS initiative: Continuing education impact on clinicians’ optimal medical therapy practices for chronic heart failure

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ABSTRACT

Purpose: Despite the existence of expert recommendations that can improve morbidity and mortality, reduce the need for hospitalization or readmission, and enhance quality of life in patients with heart failure (HF), many patients do not receive optimal medical therapy (OMT). The goal of this initiative, titled RightSTEPS, was to help physicians take the right steps to apply evidence-based HF management strategies in clinical practice.

Methods: Using the PRECEDE-PROCEED Model aimed at improving the clinical behavior of the learner, the instructional design featured 23 online and live face-to-face activities offering up to 16 credit hours of CME/CNE credit. These activities were delivered sequentially in three phases: predisposing, enabling and reinforcing. The lessons provided concise, pragmatic, stepwise management strategies aimed at empowering clinicians to prescribe evidence-based, guideline-directed OMT for patients with HF.

Results: The predisposing and reinforcing online activities within the initiative reached a total of 71,510 learners with 23,902 successfully completed activities and post-tests; the enabling face-to-face activities reached a total audience of 763 clinicians. This initiative resulted in a statistically significant ($p < 0.0001$) increase in knowledge and competence related to HF OMT among the clinician learners. Furthermore, follow-up surveys indicated a commitment from learners to implement these guideline-directed strategies in their clinical practice.

Conclusions: This initiative demonstrated that the design of the RightSTEPS curriculum, using the Precede-Proceed model with sequentially-delivered, blended learning, provides a methodological framework to help learners translate knowledge into improvements in clinical behavior with the potential to improve patient health outcomes.

KEYWORDS
Cardiovascular system; evidence-based medicine; best evidence medical education; continuing; instructional design

Introduction

Chronic heart failure (HF) is a complex, heterogeneous disease that can be overwhelming for providers, care teams, patients, and their caregivers. These stakeholders may perceive themselves as unable to address the continuous stream of problems, including multiple comorbidities and vast system-level disparities in patient care, as well as rapid dissemination of the latest in scientific findings, guidelines, and treatments. Together, these problems can affect individual providers’ abilities to successfully attend to patient needs.

Despite evidence-based expert guidelines for optimal medical therapy (OMT) in heart failure, there are significant gaps in clinicians’ adherence to these recommendations. (Deswal et al. 2006; Chen et al. 2011; Foebel et al. 2011; Abete et al. 2013; Piña and Ventura 2014; Moe et al. 2015; Yancy et al. 2017). Ongoing clinician education on OMT, including appropriate use of both newer and more familiar medications, is therefore necessary to achieve better outcomes in patients with HF. (Fonarow 2006; Yancy et al. 2013; Moe et al. 2015; Yancy et al. 2017).

To this end, Haymarket Medical Education (HME) and the American College of Cardiology (ACC), collaborated to develop, implement, and evaluate a two-year educational initiative centered on improving the use of OMT for chronic HF to promote better patient outcomes. The initiative, titled ‘RightSTEPS: Optimizing Medical Therapy for Chronic Heart Failure,’ also sought to provide clear guidance for incorporating new data and evidence into clinical practice through the use of scenarios that model clinicians’ real-world interactions with patients, drawing upon the principles of effective communication and care coordination.

Practice points
- Clinicians have had limited success in managing heart failure, due to inadequate use of evidence-based, guideline-directed optimal medical therapy.
- A comprehensive curriculum aimed at the entire HF treatment team provided a framework that helped learners improve knowledge and clinical competence.
- This replicable educational model can be applied in a range therapeutic areas with different audiences.
Methods

A multimodal, blended learning design, featuring multiple instructional approaches and certified live and asynchronous educational activities, supported learners’ knowledge acquisition and, specifically, improvements in clinical behavior. The ACC-HME collaborative developed a framework of sequenced activities using concepts from the PRECEDE-PROCEED model to maximize educational impact and support sustainable behavior change for both clinicians and patients (Green and Kreuter 2005; Gielen et al. 2008). ACC and HME collaborated on all aspects of design and development, and ACC was the accredited provider of the certified education.

The set of educational activities within the curriculum was made available through HME’s national online learning management platform, myCME™, and promotion of the education to a national audience of clinicians was implemented in partnership with the National Minority Quality Forum and American Association of Heart Failure Nurses. The certified education was supported through an independent educational grant from Novartis Pharmaceuticals Corporation.

The target audience for the RightSTEPS initiative included cardiologists, internists, primary care physicians, nurses, nurse practitioners (NPs), physician assistants (PAs), and other clinicians who care for patients with chronic HF. Given the complexity of the problem, the scope of the initiative, and the desire to develop an integrated curriculum that reflects and fosters the interrelated roles of key stakeholders in HF management, the educational design was informed by input from a variety of physicians, NPs, PAs, and nurses, as well as patients and caregivers. RightSTEPS was fully aligned with the National Learning Competency areas established by the Alliance for Continuing Education in the Health Professions, including collection of both formative and summative data and the use of a customized educational format to design an intervention aimed at the entire HF patient care team (Alliance 2019).

The sequential learning curriculum incorporated a blended learning approach that included (1) online predisposing educational activities to prime clinicians for education (Learn), (2) live, face-to-face enabling activities to motivate active participation and empower change (Practice), and (3) reinforcing online, on-demand activities (Perform) in a format that leads clinicians stepwise through the knowledge and skills they need to achieve clinical quality improvement (see Figure 1).

The RightSTEPS curriculum—consisting of 23 activities with up to 16 total credit hours of CME and CNE—was initiated in June 2016, with activities delivered sequentially through June 2018 (see Table 1). All activities were certified for ≥12 months from their individual initial posting date to ensure continued broad reach on demand, and selected activities were recertified for an additional 12–18 months following determination that the content remained current and relevant.

The overarching learning objectives for the initiative are shown in Table 2. As the cornerstone of the HME Network, myCME™ is the online home for continuing education that reaches 2.2 million healthcare professionals across more than 20 medical specialties. All of the online activities were housed on a dedicated online education website within the myCME learning platform, entitled Cardiology Learning Center, along with other resources and tools for clinician and patient education in cardiology subjects. Target goals of the RightSTEPS curriculum included reaching 72,000 learners and garnering 13,000 completed post-tests.

The sequential design of the curriculum provided an opportunity for ongoing learner assessment and refinement of content in response to changes in the HF management landscape. In addition, ongoing learner assessment and analysis of outcomes evaluations from all phases of the curriculum informed the development of a summary monograph that addressed ongoing concerns and controversies in the management of HF among clinicians who participated in the RightSTEPS curriculum. Furthermore, the 2 video-based activities included in the reinforcing education were enduring versions of previous live presentations, updated to reflect changes in the treatment landscape and the availability of new HF treatment guidelines.

As a supplement to the clinician-focused education, education for HF patients and caregivers was provided in a series of 8 live meetings linked to 8 live clinician education meetings; no outcomes data were collected for these patient/caregiver meetings.

Predisposing activities (learn)

Posting online educational activities on myCME—HME’s medical education website—moved formal instruction from a time-limited group learning space (classroom/lecture hall) to a self-paced individual learning space. The series of online lessons was designed to uncover teachable moments in chronic HF care, show the relevance of the education in addressing day-to-day clinical challenges, and prime the content needed for the face-to-face initiatives. This approach also laid the groundwork for structured online after-education activities that reinforced the initial learning experience. Topics covered in the predisposing activities included signs and symptoms, diagnosis, pathophysiology, guideline-driven care, and the role of newer agents in the HF treatment armamentarium.

Enabling activities (practice)

Priming the content with predisposing, individual online learning activities transformed the face-to-face encounter into a dynamic, interactive experience offering opportunities for the faculty to identify and address any misinterpretations or misunderstandings. The rationale for the live sessions was to offer learners well-defined, concept-driven, hands-on application of knowledge. The live activity empowered learners to develop and implement new knowledge and skills as they assessed their patient encounters with the overall goal of improving outcomes. A special effort was made to locate the live sessions in regions of the United States where the HF death rate is higher than the national average (see Figure 2).

Reinforcing activities (perform)

This last phase of the curriculum was designed to strengthen the cognitive imprint of what had been learned previously so that it could be more readily recalled and
Table 1. Components of the RightSTEPS Curriculum for Clinicians: Predisposing, Enabling, and Reinforcing Educational Activities.

<table>
<thead>
<tr>
<th>Activity phase</th>
<th>Curriculum elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn (predisposing, online); 18 self-paced, on-demand online educational activities</td>
<td>7 Expert Perspectives video webcasts addressing crucial aspects of optimal medical therapy (OMT; 0.5 CME/CNE credit hour per activity).</td>
</tr>
<tr>
<td>Practice (enabling, live face-to-face)</td>
<td>7 Viewpoint e-articles on bridging gaps between OMT and clinical practice (0.5 CME/CNE credit hour per activity).</td>
</tr>
<tr>
<td>Perform (reinforcing after-education, online); 3 self-paced, on-demand online educational activities</td>
<td>4 case-based videos addressing challenges in the management of heart failure in special populations—women and communities of color (1.00 CME/CNE credit hour per activity).</td>
</tr>
<tr>
<td></td>
<td>20 CME/CNE-accredited meetings at regional academic medical centers/hospital systems (2.00 CME/CNE credit hours per activity).</td>
</tr>
<tr>
<td></td>
<td>Implementation of guideline-directed medical therapy.</td>
</tr>
<tr>
<td></td>
<td>Navigating MACRA (Medicare Access and CHIP Reauthorization Act)/MIPS (Merit-Based Incentive Payment System).</td>
</tr>
<tr>
<td></td>
<td>1 print monograph/e-article to close the learning feedback loop by addressing key challenges/concerns identified by learner responses to the predisposing and enabling activities (1.00 CME/CNE credit hour).</td>
</tr>
</tbody>
</table>

Figure 1. Schematic diagram illustrating interrelationships of programs housed within the Cardiology Learning Center.
applied in day-to-day patient care. Reinforcing activities in RightSTEPS included an enduring video-based conference capture from one of the live expert-led sessions; a print and online monograph exploring ‘Concerns in the Management of Chronic Heart Failure: Staying on the Path to Optimal Medical Therapy,’ and an opt-in ‘Coaching for Quality Improvement’ educational program developed by the ACC.

Assessment and evaluation: an ongoing process

ACC and HME applied a comprehensive evaluation approach, using a set of quantitative and qualitative assessment tools, to measure the effectiveness of the educational initiative in meeting its overall goals and learning objectives. The evaluation tools included pre- and post-activity assessments of participation, satisfaction, knowledge, and competence; self-assessment of intent to change practice behaviors, and an 8-week follow-up outcomes survey to determine the extent to which practice changes had been implemented and captured self-reported observations of improvements in patient outcomes as a result of participation in the educational activities (Moore et al. 2009).

Results

From 31 January 2017, through 1 June 2019, the online activities within the initiative reached a total of 71,510 online learners—99% of the projected goal for the predisposing, enabling, and reinforcing activities combined. Learners were defined as individuals who viewed the activity information page, regardless of how many times that person visited the activity. In addition, the face-to-face activities reached a total audience of 763 clinicians.

Impact

Learners across all three phases of the initiative demonstrated meaningful improvements in their understanding of, and desire to act on, evidence-based, guideline-directed strategies for providing OMT in patients with chronic HF, in alignment with the program’s learning objectives and
desired outcomes. Figure 3 illustrates the overall improvements in knowledge and competence for the predisposing (on-demand, online), enabling (live), and reinforcing (on-demand, online) activities when comparing pre-activity with post-activity assessment results. Among the 23,902 completed educational activities and related post-tests, matched-pair analysis of the individual learner’s pre-activity responses to questions measuring self-reported knowledge and competence related to the specific content area of the educational activity were compared with the individual learners’ post-activity responses to matched questions.

For questions assessing knowledge and competence related to the learning objectives of the individual activities, there were marked, statistically significant ($p < 0.0001$) improvements between the pre-activity, or baseline, assessments and the post-activity assessment, which indicates that the educational activities had a positive effect on learners’ knowledge and competence related to chronic HF topics. Specifically, the following were observed:

- **Learn**
  - In the predisposing set of activities, the percentage of baseline knowledge and competency questions that were correct among learners was 46%; this increased to 86% correct responses in the post-activity assessment, representing an 87% change.

- **Practice**
  - In the enabling activities, correct responses to questions assessing knowledge and competence related to chronic HF improved from 42% at baseline assessment to 66% at post-activity assessment (56% change).

- **Perform**
  - In the reinforcing activities, 43% of knowledge and competence questions were answered correctly at baseline, and 95% were answered correctly at post-activity assessment (121% change).
  - Also within the reinforcing activities, correct responses to questions assessing knowledge related to the Medicare and CHIP Reauthorization Act (MACRA) improved from 45% at baseline to 100% post-activity (122% change).

**Activities with greatest participation**

Among the educational activities in the RightSTEPS curriculum, the activity that demonstrated the highest level of participation was one of the reinforcing activities, the monograph titled ‘Concerns in the Management of Chronic Heart Failure: Staying on the Path to Optimal Medical Therapy,’ with 10,257 learners and 3170 post-tests completed. Notably, the content of the monograph was developed and shaped on the basis of formative assessment results including feedback received from the previous online (predisposing) and live, face-to-face (enabling) activities. The other four activities in the top five of participation were 30-minute online video-based activities (predisposing), ranging from 3813 to 7029 learners and 1153 to 2382 test completions each. Topics covered by those video-based activities included guideline-directed pharmacologic treatment of chronic HF and integration of new therapies into clinical practice.
Changes in practice

Learners responded to follow-up assessments that were distributed electronically approximately 8–12 weeks after the learner completed an educational activity. Surveys were sent to 23,902 learners; 519 evaluable responses were received (2.17% response rate). Within this sample of 519 learners, 68% (n = 353) reported that, as a result of the education, they ‘always’ or ‘often’ incorporated strategies related to the care and management of their patients with chronic HF, resulting in clinically relevant improvements. Clinicians reported the following specific patient outcomes:

- Fewer hospitalizations and readmissions.
- Reduced symptoms.
- Improved function.
- Improved quality of life.
- Increased compliance with medication regimens.

Another 25% of respondents said they ‘sometimes’ made use of strategies to improve these outcomes among their patients with chronic HF; only 7% said they employed such strategies ‘not often’ or ‘never.’

Identifying barriers to change

Self-reported intent to change does not always result in actual change, as learners identified a number of systemic barriers to practice improvement. More than half (55%) of participants who responded to a survey eight weeks after the educational activity (n = 519) said they had experienced difficulty in navigating systems-based factors, such as insurance, reimbursement, or legal issues. A majority (53%) also pointed to issues of patient adherence and resistance to change as barriers they had encountered. Encouragingly, only 12% felt that lack of convincing evidence to warrant changes in practice was an obstacle. One-third (34%) cited lack of time or resources to consider making changes, and nearly 1 in 4 (24%) said they needed more knowledge about evidence-based strategies and their implementation in day-to-day care.

Discussion

Heart failure is a complex, challenging, and costly disorder to manage over the long term, requiring the skills and expertise of a multidisciplinary team of healthcare professionals. To help improve those skills, RightSTEPS offered an evidence-based, guideline-driven, blended learning curriculum using a predisposing-enabling-reinforcing approach to deliver a rich variety of learning opportunities over a span of two years. The goal was to educate, motivate, and empower clinicians who provide care for patients with chronic HF, leveraging OMT as a tool to improve outcomes. By keeping in step with evolving treatment guidelines, clinicians are better positioned to initiate appropriate treatments, individualize care plans, provide patient education, and facilitate effective post-discharge self-care.

RightSTEPS helped to close gaps in the current care of chronic HF. Clinicians actively engaged with and learned from the sequential curriculum, measurably increased their levels of knowledge and competence, initiated changes in their practice to better provide OMT to their patients with chronic HF, and expressed specific intent to continually improve upon their performance. The high rates of improvement in knowledge and competence—especially in the online, on-demand predisposing and reinforcing activities—revealed comparatively low levels of baseline understanding of optimal therapy for HF prior to the educational intervention.

Participants took advantage of both text-based and online video activities to meet their learning preferences, as evidenced by robust participation across many different activity formats. Engagement in a variety of presentations, from standard didactic to case-based activities, demonstrates the value of providing highly personalized learning opportunities. The curriculum offered a blend of activities aimed at different specialties and levels of expertise; activities designed for mobile devices to provide convenient, on-the-go learning; and activities of varying duration, ranging from 15 minutes to two hours, accommodating the schedules of busy clinicians.

A limitation of the curriculum is that it did not access medical records; thus, the design did not allow for assessment of objective patient outcomes or of documented changes in prescribing practices as a result of the learning. Nevertheless, the assessments elicited subjective, self-reported reflection on the potential impact of intended and actual performance changes on patient outcomes. One limitation of the methodology is that the response rate for the eight-week follow-up assessment was 2.3%, which limits the representativeness of the data for this stage in the analysis.

Notwithstanding these limitations, RightSTEPS offers a model for excellence in educational design, as it customizes a proven approach—the PRECEDE-PROCEED model—to fit the specifically identified educational needs and performance gaps of its target audiences. The program incorporated educational elements designed to include reflection, self-assessment, and coaching as tools to help learners translate knowledge into improvements in clinical behavior. Building on this foundation, the activities—and the specific clinical topics addressed within them—were carefully sequenced to maximize their educational impact, in accordance with established pedagogic principles (Ritter et al. 2007).

A key lesson learned is how the collaborative approach that is required among clinicians who care for patients with chronic HF echoes the ways in which ACC and HME—and the individual institutions that hosted our face-to-face activities—have partnered with each other. The collaboration has not only contributed to our individual ongoing growth and engagement with self-assessment and lifelong learning, but also has strengthened our understanding of how continuing education can best be delivered through a ‘systems thinking’ perspective.

The target audiences selected for this initiative reflect the ACC’s recognition of and commitment to fostering the development and education of the next generation of clinicians providing cardiovascular care. The many challenges related to management of HF and other cardiovascular conditions—combined with a shrinking physician workforce and increased demands on healthcare professionals’ time and resources—underscore the importance of a
multidisciplinary, multifaceted approach to continuing professional development and patient care.

The educational model of RightSTEPS can be sustained over time and scaled up to reach even greater numbers of clinicians who manage patients with HF. The model is fully replicable and can be applied in any number of therapeutic areas with a wide range of target audiences. While there were substantial improvements in knowledge, competence, and practice relative to the overarching learning objectives of the program, further ongoing education is needed to eradicate barriers to the provision of OMT for patients with chronic HF.

Conclusion

Achieving meaningful, durable behavioral change requires a curriculum crafted to deliver education in multiple ways, over time, in a logical continuum from predisposing, to enabling, and finally through reinforcing activities, each with its own educational rationale. This stepwise, self-reinforcing educational intervention was designed to reduce variations in practice in providing optimal therapy for patients with chronic HF.

Recognition of gaps in care laid the foundation for an educational initiative anchored by a simple unifying concept: to reduce individual performance variation in prescribing OMT by ensuring that clinicians are equipped with the knowledge and skills to optimize their management of chronic HF. Careful implementation of evidence-based interventions has the potential to decrease mortality and improve quality of life in patients with HF and help reduce hospitalizations and readmissions.

Overall, the results of this initiative show that learners enthusiastically engaged with and learned from the curriculum, substantially increased their levels of knowledge and competence, and demonstrated positive actions as well as intent to change their behaviors to improve the treatment of their patients with HF. Ongoing outcomes assessment of the RightSTEPS initiative has served to document gaps in knowledge, competence, and performance as part of a continuous feedback loop that continues to inform the development of future educational activities.

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Disclosure statement

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