Using Clinical Practice Guidelines to Improve Patient Care

Tosha B. Wetterneck, MD; Mary H. Pak, MD

ABSTRACT
Clinical practice guidelines incorporate the best available evidence for the management of a disease or an aspect of disease treatment or prevention into a single document for health care providers. The quality of practice guidelines has improved by adopting standard approaches to the development of guidelines and reviewing their quality for use in patient care. Implementing guidelines into clinical practice can improve quality and efficiency of care and will likely benefit from a multidisciplinary, multifaceted approach.

INTRODUCTION
Clinical practice guidelines offer a way to disseminate evidence-based practices for disease treatment and prevention. Their evolution is, in part, a response to a growing body of literature showing large variations in practice for many disease states despite adequate evidence to guide appropriate care, such as aspirin and beta-blocker use after myocardial infarction.1 Payors for health care, including the Centers for Medicare and Medicaid Services and the corporate consortium Leapfrog group, as well as individual health maintenance organizations, are beginning to use clinical practice guidelines to measure and reimburse hospitals and physicians based on their performance, or “pay for performance.” However, physicians are not always aware of or may not agree with clinical practice guidelines, so these guidelines are not incorporated into their practices.2-3 Variation has also been seen in the quality and content of guidelines for specific disease states such as pneumonia,4 benign prostatic hyperplasia,5 and drug therapy.6 It is important for physicians to be able to assess the quality of clinical practice guidelines as well as be able to implement changes to their practice to achieve the best patient outcomes.

CLINICAL PRACTICE GUIDELINE BASICS
Clinical practice guidelines are “systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances.”7 They bring together the best available evidence and expert knowledge to guide decision making. A good guideline will provide the physician with decision points that, combined with the physician’s clinical judgment and the patient’s preference, will lead to the best decision for that patient. Clinical practice guidelines are developed by a wide variety of organizations including physician groups, health maintenance organizations, specialty organizations, and government-created task forces. Therefore, guidelines may vary greatly as to the purpose, the intended audience, the evidence used, the recommendations, and the implementation strategies. The National Guideline Clearinghouse™ (www.guideline.gov) is an on-line database of evidence-based guidelines with strict criteria for inclusion on the Web site. The site allows side-by-side comparison of guidelines and provides guideline synthesis to point out areas of agreement and disagreement in guideline content for a given subject. Guidelines are also commonly found in specialty journals and on specialty organization and quality improvement organization Web sites.

CHOOSING A QUALITY GUIDELINE
Case Report
A 55-year-old woman comes to the Emergency Department (ED) with a swollen, painful left leg. She had arthroscopic knee surgery 1 month ago. An ultrasound of the lower extremity shows proximal venous thrombosis. The ED physician calls you to admit the patient for treatment. You think the patient may be able to be treated as an outpatient and search for evidence to support your decision. A brief search on the...
National Guideline Clearinghouse™ Web site yields the guideline on “Antithrombotic Therapy for Venous Thromboembolic Disease” by the Seventh American College of Chest Physicians (ACCP) Conference on Antithrombotic and Thrombolytic Therapy.8

Three questions can aid the appraisal of the quality of a clinical practice guideline and whether it will be helpful: (1) Are the guideline recommendations valid,9 (2) What are the recommendations, and (3) Will the guideline help you take care of your patient?10

Are Guideline Recommendations Valid?
To know if the recommendations are valid, it is important to know if the guideline considered all of the important outcomes and options for treatment and how the evidence for these were identified and synthesized. It is also important to know if recent medical developments were incorporated and if the guideline has been reviewed and tested. Your review of the ACCP guideline shows that it is organized by treatment categories starting with treatment of deep venous thrombosis (DVT). The interventions that were considered for treatment include intravenous unfractionated heparin, low molecular weight heparin and a vitamin K antagonist. The considered outcomes are recurrent DVT and pulmonary embolism, major bleeding, quality of life, and postthrombotic syndrome. An accompanying article published with the ACCP guideline describes the methodology of the guideline development.11 The expert panel performed a systematic review of the literature taking into consideration the risks, benefits, and alternatives of the treatment options and patient preferences, followed by a review of the draft guideline by other practitioners before publishing. The guideline, at its outset, refers the reader to an article published at the same time, which addresses newer anticoagulant options that could be considered but were not included in the guideline because of timing of the publication of the article.

How Good Are the Recommendations?
Specifically, the recommendations should be evaluated for practicality and importance, strength of evidence, and what to do if the evidence is uncertain. There are many methodologies used to grade evidence in clinical practice guidelines. The ACCP guideline outlines specific recommendations for anticoagulation for acute DVT. If low molecular weight heparin is selected as treatment, outpatient therapy is recommended. The text describes that this is practical in select patients. For the ACCP guideline, there are numerical and letter designations for grading of recommendations. The number grades the strength of the recommendation (1 = strong, 2 = weak). The letter grades the methodological strength of evidence (A = randomized controlled trials, B = randomized controlled trials with limitations, C = observational studies). The grading for the outpatient treatment recommendation is 1C.

As a different example, the United States Preventive Services Task Force uses a standard letter designation (A, B, C, D, I) to rate the strength of the evidence and the magnitude of the net harm (A = good evidence for improved health outcomes, benefit substantially outweighs harm) and rates the quality of the evidence as good (well-designed, well-conducted studies in representative population), fair or poor.12 Regardless of the grading designations, the guideline should describe the methodology for grading and the grading itself should inform the reader of the strength of the recommendation and the type of evidence used to arrive at the recommendation.

Are Findings Applicable to Your Patient?
The third question asks if the findings in a guideline have applicability to your patient. To evaluate this, one should ask if the guideline’s objective matches the evidence being sought and whether the recommendations can be applied to your patient. You decide the guideline’s purpose seems consistent with your goal of deciding what would be optimal treatment for your patient with DVT; specifically, whether the patient can be treated as an outpatient. You note that the article lists exclusion criteria from the studies looking at home care and you believe the patient would be capable of giving herself shots at home. The patient’s preference for home or hospital treatment now needs to be assessed.

Quality of Guidelines
Because of the variability of the content and quality of clinical practice guidelines, standard criteria have also been developed from which to create guidelines and assess their quality. A list of 18 items that should ideally be part of a guideline was assembled by a panel of experts at the Conference on Guideline Standardization (COGS).13 Many of these criteria have already been discussed above. However, other criteria to consider include: (1) an overview abstract that includes the guideline’s creation date and where it is available; (2) the organization that developed the guideline, the method of prerelease review of the guideline, funding sources, and author conflicts of interest; (3) clearly defined disease states and interventions; (4) implementation considerations or barriers to implementation; (5) the presence of algorithms to aid decision making; and (6) the guideline’s expiration date or next expected update. Not all
high-quality guidelines will contain these items, nor will they be relevant to all guideline topics; however, these criteria are an assessment framework for the reader.

**STRATEGIES TO ENSURE SUCCESSFUL GUIDELINE IMPLEMENTATION**

You have taken the time to review the DVT guidelines to guide treatment of your patient, and you would like to raise awareness of these guidelines in your institution and have their recommendations become standard of care in your hospital and your practice. Dissemination of evidence-based practices through the implementation of clinical practice guidelines is critical given variation in adoption of practices and the potential impact on quality of care. Effective implementation is key to this systems improvement. However, the mere dissemination of the clinical practice guideline to providers is not likely to have a major impact on practice.\textsuperscript{14,15} Multiple interventions directed at providers, patients, and system change would be most successful in producing lasting changes. Multifaceted approaches that include reminders, audits, feedback, and academic detailing produce the most successful change.\textsuperscript{15} Table 1 outlines specific interventions and examples of interventions to improve the use of guideline-based care for patients with DVT. It is very important that changes to the system involve simplification of processes that enable providers to accomplish their tasks more easily, thus leading to acceptance as a path of least resistance to change.\textsuperscript{16}

The support for the implementation of the clinical guideline is just as important as the interventions themselves. Several strategies should be employed from the start of the guideline implementation project.\textsuperscript{17} First, administrative support at the highest level of the organization is crucial both for resources and for buy-in for system change. Strong physician leadership is also needed to support the changes and to garner full support from other care providers. Understanding organizational culture and choosing interventions that work within this culture will also help buy-in for change. For example, if the ED culture does not support educating and discharging a patient with acute DVT, perhaps a stepwise approach to change could be initiated. The first step would involve brief admission of these patients for treatment initiation, patient education and establishment of foolproof follow-up. With successful implementation of this modified step, the initial care for DVT and education can occur in the ED with subsequent discharge without admission. Lastly, baseline data and measurement of change with feedback given to providers will help maintain the momentum for change and ensure that the goal is met. For example, the number of patients diagnosed with acute DVT and treated at home versus admitted and the length of stay for admission for acute DVT may be followed and reported. Once a practice guideline is implemented, the care should be reviewed every 2-3 years for new evidence requiring change in practice.

When evaluating the success of the implementation of clinical practice guidelines in an organization, it is important to remember that guidelines do not take the place of physician judgment or patient preference—they only serve to support this decision making. Certain patient populations, like the elderly and chronically ill with multiple comorbidities, may not be able to meet all of a practice guidelines’ recommendations.\textsuperscript{18} For these patients, the potential harm of polypharmacy, the preferential treatment of other disease states or patient prognosis may preclude the starting of a new medication or the performance of screening tests.

**CONCLUSIONS**

Clinical practice guidelines are an important means of disseminating evidence-based practices for a specific disease or condition. Understanding how to evaluate

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**Table 1. Implementation Strategies for DVT Treatment Guidelines**

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Example</th>
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<tbody>
<tr>
<td>Clinical practice guideline</td>
<td>ACCP “Antithrombotic Therapy for Venous Thromboembolic Disease”</td>
</tr>
<tr>
<td>dissemination</td>
<td></td>
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<tr>
<td>Policy and procedure</td>
<td>Policy requiring patient assessment for DVT prophylaxis and home treatment options for acute DVT</td>
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<tr>
<td>Provider reminders</td>
<td>Computerized reminder to order prophylaxis postoperatively</td>
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<tr>
<td>Academic detailing</td>
<td>One-on-one focused provider education in clinics and Emergency Department</td>
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<tr>
<td>Patient education</td>
<td>Educational materials about home therapy for DVT</td>
</tr>
<tr>
<td>Checklists</td>
<td>Patient education checklist for home DVT therapy</td>
</tr>
<tr>
<td>Standardized provider order sets</td>
<td>Preprinted order set for Acute DVT with automatic Nurse Case Manager review for discharge options</td>
</tr>
<tr>
<td>Algorithms</td>
<td>Risk assessment algorithm to consider patients acceptable for home treatment</td>
</tr>
<tr>
<td>Nomograms</td>
<td>Heparin dosing nomogram</td>
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</tbody>
</table>

* Choose multiple strategies
a guideline for quality and applicability to patient care is important. Physicians can work with their organizations to implement clinical practice guidelines through multifaceted interventions using proven strategies to ensure success.

REFERENCES
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