Although clinical practice guidelines offer considerable promise for improving health-care outcomes, significant hurdles exist in implementing guideline recommendations. The conference attendees and invited experts participated in three discussion groups that developed recommendations for assisting the American College of Chest Physicians (ACCP) in adopting strategies for guideline implementation. The following are summaries of the breakout sessions.

**Guideline Development and Dissemination Discussion Group**

*Moderator: Richard Irwin, MD, FCCP*

Considering the expense of guideline development and the difficulties inherent in their dissemination, we might question whether guidelines are worth the effort. The participants of the breakout session agreed unanimously that guideline development and dissemination were worthwhile endeavors of the College and other specialty organizations. Even if guidelines are not read in their entirety or followed by the majority of health-care providers for whom they are developed, guidelines do serve as a reference source of evidence-based material on specific subjects. They also identify limitations of our knowledge and needed areas for investigation.

To enhance the effectiveness and to ensure the validity of the guidelines, the College should incorporate a standard methodology for development and should continuously monitor their currency and effects on practice. The College should consider the following recommendations:

- Develop a manual to standardize guideline development, dissemination, and implementation. An ACCP task force would be charged with developing this manual, using published templates as a point of departure.
- The College would serve as a steward for each of its guidelines to ensure the integrity of development and implementation strategies.
- Guidelines will be more effective if they are user-friendly and if they focus on problem-oriented topics.
- Guidelines should always be evidence-based.
- To enhance their effectiveness, the College would publish guidelines in three forms:
  1. A comprehensive, referenced text containing an executive summary
  2. A quick reference guide for clinicians that contains the key points, presented in a problem-oriented format, with management protocols
  3. An education guide for patients.
- Guidelines published by the College would be frequently updated. Electronic publication allows frequent modification of guidelines to maintain their currency.
- Once a topic has been selected, a multicomponent topic Task Force would be convened, which can be divided into the following three subcommittees:
  1. A guideline development group
  2. A guideline continuing medical education (CME)-linked group
  3. A guideline implementation group

Effective dissemination of a guideline is important for the effectiveness of the guideline overall. Guidelines should be disseminated not only to physicians but also to health-care organizations, insurers, pharmaceutical industry representatives, and other parties with an interest in the guideline contents, so as to assist the dissemination process (Fig 1).

Key elements of the dissemination process, shown in Figure 1, are as follows:

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1. The ACCP should partner with others, such as industry; other specialty organizations; local health-care systems; vendors of electronic automated systems who sell software programs that become part of medical records in local health care systems; and insurers.

2. The ACCP should rely heavily on the use of electronics, such as publication of guidelines on the Web; incorporation of guidelines into automated medical records; presentation of workshops for College members and opinion leaders to demonstrate how electronic media can be used to disseminate guidelines.

CME DISCUSSION GROUP
Moderator: W. Michael Alberts, MD, FCCP

CME represents an important pathway for disseminating clinical practice guidelines. Unfortunately, we have little empiric evidence that demonstrates the profound effect that CME can have on altering physician practice patterns. To maximize the impact of CME, the ACCP should tailor its guideline implementation strategies to embody available research findings about how physicians learn and about the elements of effective CME programs. CME programs on guideline implementation should be problem-based and should incorporate interactive techniques, which have been found to enhance physician learning.

CME activities present clinicians with varied rewards that include accrual of CME credit, new approaches to specific clinical problems in their practices, networking with colleagues, and a survey of relevant advances in their medical field. Because of the varied purposes of CME, provider behavior change should not be expected to occur from CME alone when the ACCP uses CME to disseminate guideline recommendations.

Effective use of CME for guideline implementation would employ three strategies.

• Inform physicians of the content of the guideline itself;
• Provide information on implementing the guideline in the practice environment;
• Present tools to assist physicians in evaluating and monitoring the outcomes of their guideline implementation efforts.

The ACCP needs to promote investigative interests among its membership regarding ideal CME approaches to guideline implementation.

The ACCP may augment its CME efforts for guideline implementation by developing partnerships with other organizations. These organizations might include fellow professional societies that include pediatric, family medicine, surgical, and general internal medicine disciplines; quality improvement organizations, such as the Institute for Health Care Improvement; and advocacy groups, such as the American Association of Retired Persons.

CME efforts to support guideline implementation should extend beyond traditional printed materials and physician meetings. Web-based technologies, computer-based decision support tools, and electronic media such as CD-ROMs should receive greater attention for guideline dissemination. Following the principles of the Agency for Health Care Policy and Research, the ACCP could provide guide-

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**Figure 1.** A clinical practice guideline (CPG) dissemination plan. For a CPG to be most effective in leading to favorable patient outcomes, we propose that it be disseminated via multiple pathways to physicians. Examples of actions the ACCP may want to take to facilitate the dissemination process are shown.
lines on the internet that are indexed and available for downloading. Because of the importance of the Internet, the ACCP should consider appointment of a Web editor, who would organize and maintain Web-based CME programs. The Web site might provide a new case each month pertaining to a recent guideline topic, chat rooms for e-mail discussions, and lunch-hour computer conferences.

In developing a menu of educational offerings around guideline topics, the College will need to conduct market research to determine a favorable mix of educational approaches. Ongoing monitoring of the effects of educational efforts will further assist the College in selecting an ideal educational approach. The College needs to encourage physician-certifying organizations, such as the American Board of Internal Medicine, to publicize the fact that certifying and recertifying examinations emphasize knowledge that has been presented in valid published guidelines.

**GUIDELINE IMPLEMENTATION**

**DISCUSSION GROUP**

Moderator: Richard Wunderink, MD, FCCP

As in politics, “all guidelines are local,” meaning that guidelines are successful only if they are supported and adopted by physicians in their local practice environment. Consequently, the College should focus guideline implementation strategies toward physicians in their individual practice settings. To encourage the acceptance and dissemination of guideline content, mechanisms will need to be developed for presenting ACCP guidelines to local practice organizations, such as state or regional medical associations and professional society chapters. Adoption and promotion of guidelines by local opinion leaders are important methods for changing physician practices. The College will need to identify local opinion leaders and obtain their involvement in guideline implementation.

Once opinion leaders are identified, the College can provide these individuals and groups with CME opportunities to assist their colleagues in adapting guideline recommendations for their practice setting. The College should develop a guideline implementation “toolkit” that provides opinion leaders and local implementation teams with methods and resources for promoting organizational and physician change (Table 1). The toolkit could include survey instruments to measure an organization’s readiness for change as well as reasons for resistance to acceptance of guideline recommendations. It could also provide strategies for promoting change, content material for introducing guideline content into practice, menus of available guideline dissemination materials from the College, and models of group methods for modifying general guidelines to suit specific practice settings.

Because of the importance of effective opinion leaders, the College should provide CME on physician leadership, guideline implementation, and strategies for institutional change. Course material could be presented at seminars or provided in the form of tapes, slides, and printed or electronic media.

The College can foster the development of local networks that promote rapid dissemination of information and assist the development of user groups, listserves, and educational chat rooms to promote guidelines. Some existing groups within the College’s organizational structure may be suitable for participating in this network. Rapid response teams from the College can be made available to local groups who need strategies to overcome hurdles to guideline implementation. The College could facilitate national networking to assist local groups in contacting other physicians and groups who have overcome similar problems. Groups with specific research interests could be assisted by the College in identifying other physicians involved with guideline implementation to establish research collaborations.

The College should consider developing an implementation pilot project to assess both innovative strategies for guideline implementation and their effects on patient outcomes. Requests for proposals could be developed with the financial support of industry, health care organizations, and third-party payers. The ACCP Health and Science Policy Committee could also sponsor projects to validate the College’s published guideline recommendations.

<table>
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<tr>
<th>Table 1—Content of Guideline Implementation Toolkits</th>
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<tr>
<td>Definitions of terms</td>
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<td>Introduction to guidelines, guideline implementation, and evidence-based medicine</td>
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<td>Severity assessment and adjustment tools</td>
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<td>Patient educational materials</td>
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<td>Physician educational material</td>
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<td>Slide kits</td>
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<td>Brief executive guideline summaries</td>
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<td>Pocket guides</td>
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<td>Interactive CME</td>
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<td>Access to speaker bureau</td>
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<td>Dartmouth atlas-like material to demonstrate regional variations in care pertinent to the specific guideline</td>
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<tr>
<td>Data collection instruments</td>
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<tr>
<td>Software support for guideline implementation, data collection</td>
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<td>Electronic decision support programs for personal digital assistants and computer desktops</td>
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Translating Guidelines Into Practice
A wide array of educational and decision support tools are necessary to promote guideline dissemination and implementation. A synopsis of a guideline’s recommendations on pocket-sized cards promotes adoption. The College should expand its patient-focused educational materials, with guideline recommendations, both in print and on the Web. It should also evaluate the feasibility of providing on the Web electronic forms of guidelines that can be downloaded to physicians’ personal electronic/digital assistants. Guidelines can also be incorporated into decision support tools that can be accessed from physicians’ computer desktops at the point of care.

Adult learning theory emphasizes the importance of “learner readiness” before any real learning or personal change can occur. Consequently, the College should assist physicians in identifying knowledge gaps they may have regarding information contained in current guidelines. The College can post case problems on the Web, within CHEST, or at annual meetings, with answers from published guidelines. Case problems can also be posted on the Web with answers provided through links to other organizations’ guidelines.

Reference
1 Shaneyfelt TM, Mayo-Smith MF, Rothwangl J. Are guidelines following guidelines? The methodological quality of clinical practice guidelines in the peer-reviewed medical literature. JAMA 1999; 281:1900–1905