To improve the effectiveness of evidence-based clinical practice guidelines (CPGs), four other components of implementation are necessary. Together, they impressively optimize the process and outcomes of health care, and reduce undesirable variation of care. Aside from CPGs, the four components help make up a successful, long-term, facility-wide, comprehensive disease-management program. First, executive clinical and administrative leaders need to create the expectation and reveal hands-on commitment. Second, work-simplification tools are needed to accomplish the tasks more effectively and to encourage a path of least resistance. Third, useful, accurate metrics are needed to provide feedback for patients and health-care providers who need the most assistance. These metrics must be easily obtained, disseminated in near-real time, patient-specific, anonymous to others, and penalty free. Fourth, and most important, with nonmonetary compensation, this review addresses the question, “What’s in it for all the passionate people who assist in the delivery of health care?”

Key words: clinical practice guideline; condition management; disease management program

Abbreviations: CPG = clinical practice guideline; DMP = disease management program; DoD = Department of Defense; EPR = expert panel report; JCAHO = Joint Commission for Accreditation of Healthcare Organizations; MHS = Military Health System; NAEPP = National Asthma Education and Prevention Program; NCQA = National Committee for Quality Assurance; PEF = peak expiratory flow; QI = quality initiatives and improvements; VHA = Veterans Health Administration; WIIFM? = “What’s in it for me?”

The ultimate goal for most health-care advocates is to improve the process and outcomes of health care and thus to reduce undesirable variation of care. Evidence-based clinical practice guidelines (CPGs) and the intended audience that will provide or receive health care are the obvious critical components. The not-so-obvious, but equally critical components of quality improvement and implementation of CPGs include executive leadership (to create the expectation); tools (how to do tasks in a simpler and more effective way); metrics (which patients and health-care providers to target for assistance); and all the passionate people who assist the providers and patients in health-care delivery. Using a military paradigm, the goal of reducing undesirable variation of care is the conflict that needs resolution. The CPGs are the doctrine. The executive is the General giving the marching orders. The tools are the weapon-systems hardware. The metrics is the military intelligence. Last, but not least, the people are the weapon-systems personnel.

Attempts to implement CPGs at individual military treatment facilities (eg, from medical centers to stand-alone clinics) were rarely successful for the entire facility or for a long period of time. Efforts to promulgate improved care based on consistent usage of guidelines in the expert panel report (EPR) on asthma from the National Asthma Education and Prevention Program (NAEPP), as sponsored by the National Heart, Lung, and Blood Institute,1 proved to be very difficult nationwide. The same finding has been observed in civilian settings with a myriad of topics.2 Partial solutions have been learned and are discussed elsewhere.3–9 In the Air Force, it was discovered at a few locations that success could be achieved if implementation was done in the context of a local, comprehensive, disease management program (DMP; Department of Defense [DoD] publication).

Condition management includes the management both of diseases and of nondisease conditions (eg, pregnancy), but the terminology is confusing to many clinicians. The same abbreviation is also used for case management and care management. Condition/disease management can be simply defined as
evidence-based, cost-effective, quality care throughout the continuum, for the lifecycle of the disease/condition. DMPs, or initiatives, have also been called disease management and disease state management. DMPs put all the parts of the aforementioned military and health-care campaign together. This effort fulfilled at least two of the four strategic initiatives for the US Air Force Medical Service and parts of several of 23 strategic initiatives for the DoD Military Health System (MHS), the US Army, and the US Navy. The Air Force health-care system impacts on the care of 2.6 million people. The MHS covers 8.3 million people and is composed of the three military medical services of the Air Force, Army, and Navy (DoD publication).

DMPs can delight all stakeholders, reduce undesirable variation, and achieve valuable results.3-9 The stakeholders include patients, payers, health-care providers, executive leadership, and the Joint Commission for Accreditation of Healthcare Organizations (JCAHO), etc. The perspective for this article comes from military and civilian experiences.

BACKGROUND

DoD CPG Efforts

In view of the suboptimal customer satisfaction with managed care (and the DoD was no exception), the three military services embarked on numerous initiatives. After obtaining baseline metrics in a variety of primary prevention and secondary prevention realms (eg, 5,000 hospitalizations for DoD asthma worldwide; DoD publication), the MHS explored aspects of effectively launching DMPs. In view of a worldwide need for consistent care, the MHS specifically examined what was needed, who would assist, and how to convince others. The latter would have to examine, with nonmonetary compensation, “What’s in it for me?” (WIIFM?) for the health-care providers, patients, and hospital administrators alike.

The Air Force chose in July 1996 to collect all available CPGs on asthma (both pediatric and non-pediatric), diabetes, and hypertension. At the time, only asthma had well-recognized CPGs (ie, > 100 pages long), but the information needed to be condensed to become more effective. The CPGs needed a one-page Executive Summary, needed customization to be in line with the worldwide DoD pharmaceutical formulary, and needed other implementation tools. Rigorous evidence-based CPGs (eg, for asthma, based on the US Preventive Services Task Force method) were written by March 1997. Preliminary “tool kits,” including memory aids and “work simplification tools,” were designed with the help of experts such as A. Gray Ellrodt, MD; Kathy Lohr, PhD; and Scott Weingarten, MD. The asthma initiative was called the “Keep TABS on your asthma” initiative, based on four of the six key features of the then-new EPR-2 from the NAEP10; TABS was an acronym for Trigger avoidance and control; Action plan in writing; Best peak flow, function, and symptoms; and Spacer and Steroid usage (preferably inhaled; other anti-inflammatory aerosols were acceptable as well).

An Air Force tool kit for asthma eventually included newly created, locally adaptable, electronic versions of implementation tools that were sent by e-mail worldwide by November 1997. The implementation tools included patient handouts on triggers, and steroids adapted from the EPR from the NAEP; the creation of a symptom-based and peak expiratory flow (PEF)-based action plan; recommendations to use a particular spacer and to use its instructional materials; and recommendations to use the instructional materials provided with PEF meters and to achieve the best peak flow, function, and symptoms. Other locally adaptable electronic resources included the following: critical pathways created for usage in emergency departments and non-intensive care wards; an outpatient documentation sheet; a list of references for patients and their parents (eg, Web sites, newsletters, books, etc, and their prices); guidelines and documentation forms for occupational asthma issues; an 11-page CPG; a 1-page Executive Summary (with an innovative severity-classification and treatment Table based on the EPR-210; and a 12-page bibliography. The Air Force CPG was based on the EPRs of the NAEP, the Joint Task Force on Practice Parameters CPG,11 and a British CPG.12 An Air Force Web site was available listing the important contact information of 23 facilities that had launched an asthma program in the previous year. The proposed metric on asthma medication (eg, steroid) usage by the Health Employer Data and Information Set-3, created by the National Committee for Quality Assurance (NCQA), was adapted to data available in the DoD worldwide data system in April 1997. A worldwide data retrieval system and this adapted metric were unveiled in September 1997 at a worldwide conference for the clinical leaders of all 78 Air Force medical facilities.

However, the voluntary dissemination of all this material to individual health-care providers, although highly encouraged by the Office of the Surgeon General of the US Air Force, was inconsistent and largely a failure (DoD publication). Only one location that utilized a DMP was successful (Asthma Education Program, David Grant Medical Center, Travis AFB, CA; DoD publication). Meanwhile, from June to November 1997, the Air Force
participated in the Veterans Health Administration (VHA) effort to create an algorithm-based asthma CPG (DoD publication).

In the spring of 1998, the Army examined the successes of various civilian and military institutions and then contracted with the RAND Corporation (Santa Monica, CA) to formally explore the utility of tool kits. The Air Force and Navy participated with the Army to create a similar algorithm-based asthma CPG from July to November 1998. Meanwhile, the Air Force, and subsequently the Navy, consulted Lovelace Health Systems (Albuquerque, NM) because of their successful Lovelace "Episodes of Care" Program.

DoD/VHA CPGs Efforts

Plans were underway for a DoD/VHA algorithm-based asthma CPG. This was accomplished from November 1998 to July 1999. The DoD/VHA designees convened to create the following: a symptom-based and PEF-based action plan; recommendations to use a particular spacer/holding chamber (and to use its instructional materials); recommendations to use the instructional materials provided with a specific preferred PEF meter model; an outpatient documentation sheet; asthma education and asthma case manager checklists; a set of process and outcome metrics; and worldwide availability of a particular leukotriene modifier (DoD publication). In August 1998, the Delphi process selected DoD/VHA metrics. The Army and the RAND Corporation are exploring the best ways to disseminate asthma and low back pain CPG tool kit materials. Some of these items include laminated pocket cards/reminders, a patient encounter form completed by both the patient and the provider, and additional patient handouts, brochures, and videos.

The CPGs will impact the care of 12 million patients at > 300 facilities worldwide. They are to be used at all facilities and include recently completed CPGs on tobacco use cessation, low back pain, hypertension, asthma, COPD, and diabetes. Scheduled to start soon are CPGs on myocardial infarction, hyperlipidemia, and depression/suicide prevention. The DoD/VHA CPGs are living documents, aimed to start soon are CPGs on myocardial infarction, hyperlipidemia, and depression/suicide prevention. The DoD/VHA CPGs are living documents, aimed to use the instructional materials provided with a specific preferred PEF meter model; an outpatient documentation sheet; asthma education and asthma case manager checklists; a set of process and outcome metrics; and worldwide availability of a particular leukotriene modifier (DoD publication). In August 1998, the Delphi process selected DoD/VHA metrics. The Army and the RAND Corporation are exploring the best ways to disseminate asthma and low back pain CPG tool kit materials. Some of these items include laminated pocket cards/reminders, a patient encounter form completed by both the patient and the provider, and additional patient handouts, brochures, and videos.

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Lovelace Health Systems is a health maintenance organization that covers approximately 200,000 people. In 1995, they selected 30 diseases that accounted for 80% of costs. They achieved outstanding patient and health-care provider satisfaction, as well as improvement of clinical outcomes. Additionally, they reduced 75% of their accreditation problems, and significantly reduced their costs (by ≥ 25% in some areas). They attained a full 3-year NCQA accreditation and became the first accredited JCAHO charter network with commendations. They received kudos from a variety of nationwide businesses and organizations.

Discussion

DMPs vs the Status Quo

DMPs help solve key problems. They are aimed at the most common and expensive conditions from the perspectives of the patient and the health-care facility. DMPs fulfill corporate (eg, Air Force, MHS) strategic initiatives and numerous metrics (eg, JCAHO, Health Employer Data and Information Set-3, DoD/VHA, Air Force, MHS). DMPs align superbly with other initiatives aimed at health-risk appraisal, primary prevention efforts, and health and wellness efforts. Most importantly, they reduce undesirable variation of care. Encounter management then differs between the paradigms of status quo vs DMP care. The differences are summarized in Table 1.

Health-care providers believe that they are doing a great job. They admit that they have variation. Indeed, they customize care to each patient. They assert that they have no undesirable variation. Usually in their busy practices, they have little reason to review CPGs or to use tools. After all, what’s in it for them? In essence, they have no need to heed CPGs unless one can show them otherwise, based on good metrics selected from good evidence-based medicine.

Can the Problem Be Measured?

An excellent metric must be accurate, easy to obtain, and, to disseminate in near-real time, have anonymity and lack of penalty or sanction for the clinician (at least until the information is correct and the clinician had an adequate opportunity to change

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<th>Table 1—Differences Between Status Quo and DMP Care Paradigms</th>
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<td>Variables</td>
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practice habits). Such a metric could be a process metric. For example, for asthma, the metric could be based on prescriptions. The metric could evaluate the ratio between the anti-inflammatory (controller, preventer) therapy prescribed and the bronchodilator (reliever, rescue) therapy prescribed. Much interest in this has been exhibited by the NCQA, Kaiser, Lovelace Health Systems,3 and many other managed care corporations. Using such a metric, the Air Force has confirmed that it is no different from other sectors of managed care and that there is an undesirable variation of care.

What Is the Problem?2

In order to understand how to succeed, it is prudent to study prior failures. Why do some great programs and initiatives fail? Quality initiatives and improvements (QI) can evolve in two ways: a status quo way and the DMP way, as shown in Table 2.

In the status quo way, the leader initially says, “Oh, okay. Good luck!” Then, when more people, time, and resources are needed, the leader says, “Sorry, can’t do it.” The best evidence for change is evidence-based CPGs and baseline metrics. The best way for a leader to reveal commitment may be via a chartered “blue ribbon” panel or a population health support function or office. Strategic reprioritization then brings more local metrics.

How Good Can the DMPs Be in a Not-for-Profit, Non-University, Federal Facility?2

Results for one institution, based on 2 years of efforts (from design to results) in two areas of interest, are as follows: in all-age asthma, hospitalizations were down 79%, emergency department visits were down 71%, missed work, school, and child care days were down 66%, and there was a 70% increase in satisfaction. In the Family Practice Clinic itself, admissions were down from 2.70 to 1.25/1,000 patients, with pediatric admissions down to 1.70/1,000 patients (near national benchmarks).

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<th>Table 2—Evolution of QI</th>
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<tr>
<td><strong>Status Quo Way</strong></td>
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<td>Individual wants systemwide QI</td>
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<tr>
<td>Evidence for change questionable</td>
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<tr>
<td>Leader will not support any extra resources</td>
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<tr>
<td>QI are limited or die when individual leaves</td>
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<td>No outcomes or information</td>
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What Is Needed, Who Helps, and WIIFM? That Needs To Be Addressed in Order To Improve?2

The five critical DMP start-up components are as follows: executive leaders with hands-on commitment at all levels; evidence-based CPGs of all kinds; work simplification tools and kits; information systems from health-risk appraisals to quarterly patient-specific, provider-specific feedback; and passionate people at all levels.4–8 After this is attained, four mature DMP components include patient and staff education; care and utilization management; marketing; and community resilience partners (religious, civic, and welfare groups, businesses, etc; DoD publication). For a large facility or corporation, the Air Force (and now the MHS) has learned to provide Web-based and CD-ROM-based information on how to create and sustain population health and DMP initiatives, on who else has done similar activities, and on what CPGs are available. A centralized help desk and field support are critical. Conferences on population health and CPGs have been held for the senior and mid-level executives, from clinical to administrative (DoD publication).

The civilian lessons learned are that DMPs are used by most successful health maintenance organizations and that management resistance is common. There are financial pressures because the average program start-up costs are several hundred thousand dollars. There is a need for short-term successes and rapid return on investment. DMPs need to and can address marketing, enrollment, and cost-effectiveness for the health-care plan.3,9

The Air Force lessons learned are just how crucial the senior leadership is all the way to the top, and how the clinical executive leaders are unsuccessful alone. The senior leadership (ie, the facility chief executive officer) should become the principal sponsor and make “tough decisions”; without it, the Air Force has witnessed 100% failure (DoD publication). Reprioritizing resources includes hands-on commitment by the leaders. For maximal effectiveness, when a facility intends to launch several DMPs eventually, there must be a facility-wide steering group of some kind. Successful low-cost ideas include the following: acknowledging contributions; sending letters of appreciation (including inspiring, short, grateful memos to team members), as well as giving “pats on the pack” in a public forum; reducing redundancies in the hierarchy and in clinical processes; reflecting DMP activities in the minutes of the executive medical staff; and, lastly, assuring clinicians who worry about credentials issues that there is no penalty for trying and failing (DoD publication).
Think WIIFM?

Tell the health-care providers that the DMPs will be marketed to patients and that patient care will improve. The staff nonmonetary incentives are that they will have improved effectiveness and thus a better (and likely shorter) work day, as well as improved scores on performance measurement. Nearly all clinicians want to “get a better grade on the test.” You can herd providers! Discover their incentives: reduce redundancies; give useful, nonpenalizing, patient-based, accurate, near-real-time feedback.\textsuperscript{6–8} In addition, there are always nonsalary financial awards rewards (eg, travel, equipment, etc). Avoid certain terms such as report cards, profiles, and audits. Prevention conference education for them could include measures of clinical quality available; detailed “how to get DMP started at our workplace in 16 steps” presentations; and suggested timelines including clinician feedback reports. The Air Force has provided the conferences, the Web sites, the centralized help desk (toll-free lines and e-mail), and will be providing quarterly, near-real-time, patient-specific, provider-specific, secure, Web-based feedback reports. Aggregate reports have provider anonymity. Prevention conference education for them could also include least-to-most successful personnel; methods for delivery of patient education (eg, education that changes behavior); successful provider-convincing approaches; DMP team selection methods based on distributed metrics and other high-value target-assessment features; position descriptions of the Director of Population Health Management; and other sources of assistance (DoD publication).

Recommendation

If we are serious in the civilized world about improving the process and outcomes of health care and thus reducing undesirable variation of care, then we need to get more aggressive not only about creating evidence-based CPGs, but about implementing them. Implementation will require focus on the other four components of DMP-like programs. First, we need executive clinical and administrative leaders to create the expectation. Second, we need the work-simplification tools to make the change a path of least resistance. Third, we need useful metrics to best target the patients in need. Fourth, and most important, we need to consider the question, “What’s in it for all the passionate people (WIIFM?) who assist in the delivery of health care?” These five components of a DMP transcend the four models proposed to best influence the behavior of physicians and other health-care providers. Indeed, they distill portions of the social influence, adult learning, diffusion of innovation, and social marketing theories and models.\textsuperscript{2}

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