Evaluation of the Low Back Pain Practice Guideline Implementation in the Army Medical Department

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The Army Medical Department (AMEDD) is committed to establishing a structure and process to support its military/medical treatment facilities (MTFs) in implementing evidence-based practice guidelines to achieve best practices that reduce variation and enhance quality of medical care. AMEDD contracted with RAND to work as a partner in the development and testing of guideline implementation methods for ultimate application in an Army-wide guideline program. Taking the approach of testing new methods on a small scale, the AMEDD/RAND project fielded three sequential demonstrations over a two-year period, in each of which participating MTFs implemented a different clinical practice guideline. All the demonstrations worked with practice guidelines that were established collaboratively by the Departments of Veterans Affairs (VA) and Defense (DoD). In the first demonstration, four MTFs in the Great Plains Region implemented the practice guideline for low back pain. Next, the practice guideline for asthma was implemented by four MTFs in the Southeast Region. Last, the practice guideline for diabetes was implemented by two MTFs in the Western Region.

RAND performed evaluations for each demonstration that included a process evaluation and an analysis of effects on clinical practices. This report presents the findings from our evaluation of the implementation of the practice guideline for low back pain in the Great Plains Region demonstration. These findings incorporate and extend our earlier process evaluation findings for activities and progress
during the first three months the demonstration MTFs worked with the low back pain demonstration.\(^1\)

Specific components of RAND’s evaluation for each demonstration included the following:

- **Process evaluation** documented the implementation activities of participating MTFs, described their successes in changing clinical practices, identified successes and challenges reported by the sites, and obtained their feedback regarding U.S. Army Medical Command (MEDCOM) support.

- **Analysis of effects** estimated the extent to which the sites’ implementation activities affected specific measures of service delivery for low back pain, with comparisons to a control group of MTFs that did not implement the guideline.

- **Benchmarking** described variations in practices across MTFs for the measures used in the analysis of effects to help identify priorities for future interventions and for comparing individual facilities to benchmarks for target levels of performance.

- **Methods development** documented the measurement methods developed and the related data requirements to provide a basis for future systemwide monitoring of progress in achieving best practices for each condition addressed by a guideline.

**BACKGROUND**

DoD and the VA initiated a collaborative project in early 1998 to establish a single standard of care in the military and VA health systems, with the goals of (1) adaptation of existing clinical practice guidelines for selected conditions, (2) selection of two to four indicators for each guideline to benchmark and monitor implementation progress, and (3) integration of DoD/VA prevention, pharmaceutical, and clinical information efforts. With this approach to guideline development, DoD and the VA made a commitment to use of evidence-based practices in their health care facilities. Each practice guideline

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\(^1\) Unpublished RAND research by Donna O. Farley, Georges Vernez, Elaine S. Quiter, and Shan Cretin.
is a statement of best practices for the management and treatment of the health condition it addresses. The DoD/VA working group designated an expert panel to develop each practice guideline and to develop recommendations for the metrics to be used by the military services and the VA to monitor progress in guideline implementation. The recommendations for practices in each component of care take into account the strength of relevant scientific evidence, which is documented in the written practice guideline (VHA/DoD, 1999).

The Practice Guideline for Low Back Pain

The principal emphasis of the DoD/VA low back pain practice guideline is on acute low back pain, which is defined as low back pain occurring during the first six weeks after the initial onset of pain. Five key guideline elements were identified by the expert panel responsible for the low back pain guideline (see Chapter One, Table 1.1). The guideline recommends use of conservative treatment (minimal clinical intervention) for acute low back pain patients to allow recovery to take place naturally, which occurs in 80–90 percent of the patients. Patients should be educated on self-care management techniques, including reduction in activity and light exercises to help ease the pain. Imaging studies or laboratory tests are not recommended initially except for cases with symptoms indicating the presence of a more serious condition. Pain medications may be used to ease patients’ discomfort, but these should not include muscle relaxants. The last part of the guideline addresses care for chronic low back pain, recommending referrals to physical therapy or manipulation for patients who do not respond to conservative treatment and have intense, continuing pain.

Expected Effects on Health Care Practices

When the MTFs implemented the low back pain guideline, clinical practices should have changed to reflect a new emphasis on conservative treatment for patients during the first six weeks following the initial visit (defined as acute low back pain), to be followed in later weeks by appropriate consultation and referral to specialists for patients who still have low back pain (defined by the guideline as
chronic low back pain). To the extent that MTFs had been treating acute low back pain patients more aggressively than the guideline recommends, we would expect reductions in the use of manipulation (by physical therapy or chiropractic), frequency of primary care visits, specialty referrals, imaging studies, laboratory tests, and prescriptions for pain medications during the first six weeks of care. For chronic low back pain patients, the use of specialty care and diagnostic tests was predicted to increase because the guideline offers direction to primary care providers that could encourage them to treat these patients more proactively than they had previously.

Our analyses focused on patterns of service delivery and pain medication prescriptions during the conservative treatment period. We tested six hypotheses, stating that increased use of conservative treatment for acute low back pain patients will lead to a decrease during the first six weeks of care in the

1. percentage of patients referred to physical therapy or manipulation
2. number of follow-up visits per low back pain patient
3. percentage of acute low back pain patients referred to specialty care
4. percentage of acute low back pain patients prescribed muscle relaxants
5. percentage of acute low back pain patients prescribed narcotics
6. percentage of nonsteroidal anti-inflammatory drugs (NSAIDs) prescribed that are high cost.

These hypotheses are based on the assumption that an MTF effectively introduces and maintains the new approach of conservative treatment, which involves reducing the amount of services and medications provided to patients during the early weeks of low back pain. Therefore, we expect to observe the hypothesized changes in clinical practices only in those MTFs that proactively implemented

\(^{2}\)The guideline leaves the actual timing of specialty referrals to the judgment of the clinician, depending on the severity of pain and presence of other symptoms during the conservative treatment period.
the new practices, and we also expect to observe effects that are related to the particular intervention strategy of each MTF. For example, there should be a reduction in referrals to specialty care only for those MTFs that defined specialty referrals as a priority and actually undertook actions to reduce inappropriate referrals.

A Systems Approach to Implementation

A systems approach was applied in the AMEDD practice guideline implementation demonstrations, an approach that was amply supported by lessons from the demonstrations. The demonstrations highlighted that two main dimensions need to be addressed to ensure successful changes in practices by MTFs and other local facilities: (1) build local ownership or “buy-in” from the staff responsible for implementing the new practices, and (2) ensure that clinical and administrative systems are in place to facilitate staff adherence to the guideline.

Drawing on published literature and the experiences observed in the AMEDD demonstrations, we identified six critical success factors that strongly influence how successful an MTF will be in integrating new practices into its clinical and administrative processes (Chodoff and Crowley, 1995). In the evaluation, we assessed the performance of demonstration participants on these factors: (1) visible and consistent commitment by the MEDCOM leadership at all levels, (2) ongoing monitoring and reporting of implementation progress in carrying out an action plan, (3) implementation guidance to the MTFs by MEDCOM, (4) identification of an effective physician guideline champion at each MTF, (5) dedicated time and adequate resources for the guideline champions, and (6) rapid integration of new practices into a clinic’s normal procedures.

The DoD/VA low back pain guideline was introduced in the Great Plains Region in November 1998 at the demonstration kickoff conference. The asthma guideline demonstration began in the Southeast Region in August 1999, and the diabetes guideline was introduced in the Western Region in December 1999. The guideline implementation process used in the demonstration consisted of (1) the practice guideline and metrics, (2) a guideline toolkit of materials to support the MTFs’ implementation activities, (3) a kickoff planning conference at which demonstration MTF teams developed their implemen-
tation strategies and action plans, (4) MTF implementation activities following the kickoff conference to carry out the teams’ action plans, (5) information exchange among the teams to share experiences and build on each other’s successes, and (6) monitoring of implementation progress by both MEDCOM and the participating MTFs. Each demonstration was followed by Army-wide implementation of its guideline, beginning with the low back pain guideline in spring 2000.

The Demonstration Sites

Each demonstration was located in a different region to maximize the training and exposure of MTF personnel to the practice guidelines and implementation methods in preparation for systemwide implementation. The low back pain guideline demonstration was conducted with MTFs in the Army Great Plains Region. This region was selected for the first demonstration because it contains a large number and diversity of Army posts, MTFs, and populations served. A large number of all Army active duty personnel are stationed at Great Plains Region posts, and many military retirees and their dependents live within their catchment areas. Four MTFs in the Great Plains Region served as demonstration sites: William Beaumont Army Medical Center at Ft. Bliss, Darnall Army Community Hospital (ACH) at Ft. Hood, Evans ACH at Ft. Carson, and Reynolds ACH at Ft. Sill.

The four MTFs represented diverse patient populations, facility sizes, and service mixes. They also varied in other clinical and educational activities. At the time of the demonstration, two MTFs were sites for the DoD-Medicare Subvention Demonstration, in which the MTFs enrolled and provided services to Medicare-eligible DoD beneficiaries, and they also were chiropractic demonstration sites. These demonstrations changed their primary care service patterns. Chiropractic services historically had not been available in military facilities, so the other two MTFs did not have these services. The chiropractic demonstration was intended to generate information for use by DoD in deciding whether to provide chiropractic services in its health facilities.
THE RAND EVALUATION

The evaluation of the demonstration consisted of a process evaluation and an analysis of the effects of the guideline on service utilization. The specific methods and data used in the evaluation are described in Chapter Two and Appendix A.

In the process evaluation, the RAND team used a participant-observer approach to learn from and about the MTFs’ experiences, to provide feedback, and to facilitate shared learning among the MTFs throughout the demonstration and evaluation process. The purposes of the process evaluation were to (1) document the actions and experiences of the participating MTFs and assess performance relative to each of the six critical success factors; (2) identify areas where AMEDD policies, systems, and processes can be strengthened; and (3) assess the degree to which MTFs can build on their experiences with the demonstration to implement additional DoD/VA guidelines.

In the process evaluation, we collected information from the participating MTFs through a series of site visits, monthly progress reports prepared by the MTFs, and questionnaires completed by individual participants. Three site visits were conducted at each demonstration site: an introductory visit before the kickoff conference, a post-implementation visit in June 1999 at three to four months after the MTFs began implementing the guideline, and a second post-implementation visit in February 2000 (at month nine or ten of implementation). During each post-implementation site visit, RAND staff interviewed the MTF’s implementation team and others involved in changing practices in response to the new guideline. Summary reports of the results of the final round of site visits for the four participating MTFs are presented in Appendix B.

The purposes of the analysis of the effects of guideline implementation were to (1) document the extent to which intended actions were actually implemented by the MTFs; (2) monitor short-term effects on service delivery methods and activity, and where feasible, on client outcomes; and (3) develop metrics and measurement methods that can be adopted by the MTFs and MEDCOM for routine monitoring of progress.

An interrupted time series comparison-group design was used to assess the effects of the low back pain guideline demonstration. Quar-
terly administrative data on service utilization and medication prescriptions were collected for low back pain patients served by the demonstration and comparison (control) sites, which provided trend information both before and after introduction of the guideline in the Great Plains Region. The comparison group allowed us to control for temporal trends that might account for changes in the indicators. (See Chapter Two for the criteria and methods used to select comparison MTFs.) We selected indicators based on the hypotheses regarding effects of using conservative treatment for acute low back pain (listed above). The measures were appropriate choices for this demonstration because most of the participating MTFs focused their implementation actions on service delivery for acute low back pain (rather than chronic low back pain).

The patient population for this study was limited to active duty Army personnel who received care for acute low back pain at one of the demonstration or comparison sites during the time period of the study. This design was selected because we could not obtain complete pharmaceutical data for all patients using these MTFs. The pharmacy data constraint was important because use of pain medications is a major aspect of care for acute low back pain patients, and one-half of the indicators selected for the study are measures of pain medication use. Because acute low back pain is one of the major causes of lost duty days for active duty personnel, this study provides useful information even though it is limited to this population. We encourage expansion of the analysis to also include family members and retirees as other service utilization and pharmaceutical data become available.

**KEY FINDINGS FROM THE DEMONSTRATION**

This first demonstration to field test methods for implementation of clinical practice guidelines yielded rich insights even as the MTFs struggled to achieve lasting new practices. The performance of the demonstration and control MTFs on the six hypotheses for acute low back pain care (listed in the previous section of this summary) varied significantly at baseline (the six-month period before MTFs started working with the guideline). Introducing the guideline had few measurable effects related to those hypotheses. Despite these weak findings, the demonstration made a considerable contribution to im-
provements in methods for subsequent guideline demonstrations, and ultimately, for implementation of the low back pain guideline in all Army health facilities as of January 2000.

Two of the six critical success factors (see the previous section) emerged as the most important issues for the demonstration with respect to the limited success of the participating MTFs in improving low back pain care practices. Serious progress in practice improvement cannot happen without (1) having fully committed leadership at all levels and (2) establishing a credible monitoring and reporting system to provide accountability for desired improvements. The remaining four critical success factors contribute to the effectiveness and timeliness of actions, but they are not expected to support extensive progress in change if the leadership and monitoring are not in place.

Effects on Clinical Practices

At baseline, we found not only substantial variation across the demonstration and control MTFs on all six hypotheses, but also high levels of use of muscle relaxants, despite the guideline advice that muscle relaxants are not indicated. Muscle relaxants were prescribed for almost one-half of the acute low back pain patients. This baseline performance argues for proactive changes in practices for low back pain care to reduce variations and achieve the evidence-based practices specified in the practice guideline.

The implementation activities had only limited effects on care for low back pain patients during the first year the demonstration sites worked with the practice guideline. Also, the effects that were achieved were for service delivery rather than for prescribing of pain medications. The only overall effect for the demonstration was a decline in physical therapy referrals during the demonstration period. This effect was the result of large reductions in physical therapy referrals by two facilities that had established this goal as a priority in their implementation action plans.

The changes in service delivery that we observed typically could be identified with individual sites and were consistent with the site’s implementation strategies. The strongest of these were the Site A strategy to use back classes to reduce use of physical therapy, which
was observed in the data as declines in physical therapy referrals; and the Site D strategy to establish the physical medicine department as gatekeeper and reduce inappropriate specialty referrals, which was observed in the data as shifts of referrals to the physical medicine department from other specialties.

Performance on the Six Critical Factors

Research on practice guideline implementation has documented that a commitment to the implementation process, including use of multiple interventions, is required to achieve desired changes to clinical practices. This demonstration had mixed performance in the extent to which the six critical factors were realized, which affected the MTFs’ progress in implementing practice improvements.

1. **Command leadership commitment at the MTF, regional, and corporate levels.** The AMEDD central and regional leadership expressed strong support for the demonstration, but initial verbal support was not followed by actions to provide resources to support the work or require active monitoring and reporting of the sites’ performance in implementing new practices. Furthermore, the level of commitment by local MTF commanders varied, and changes in command further eroded support over time. This mixed response was understandable, given that this was the first demonstration in a new MEDCOM initiative and there were concerns regarding its effects on MTF workloads and costs. Many providers, including physicians in leadership roles, have instinctive negative reactions to practice guidelines as “cookbook medicine,” which indeed we heard in our evaluation. Unfortunately, “wait and see” positions by command teams can become a self-fulfilling prophecy leading to failure of implementation efforts. We believe this lack of leadership commitment contributed to the limited results of the low back pain guideline demonstration.

2. **Monitoring of progress.** The demonstration did not perform well in the area of monitoring, in part because this was the first demonstration and it was put into the field very quickly, even as the DoD/VA practice guideline was still being completed. The guideline expert panel did not select the key metrics for systemwide monitoring until well into the demonstration period. Further, MEDCOM did not have the resources to establish a monitoring system at the corpo-
rate level. Without structured guidance from the corporate level, the sites varied widely in their approach to monitoring, and most did not routinely measure their progress in introducing new practices or effects on service delivery patterns. Not having such data is important because, in the absence of objective evidence, providers and clinic staff tend to believe that they are performing well and either do not have to make changes or that changes they made were successful. These beliefs are often overly optimistic.

3. **Guidance and support to the MTFs by MEDCOM.** MEDCOM made a solid commitment to providing the MTFs with policy guidance and technical support to enhance their ability to implement best practices for low back pain treatment. Such support can also encourage consistent practices across the Army facilities. The nature of this support evolved during the demonstration, ultimately including preparation of a toolkit of support materials, hands-on technical support through site visits, and coordination of information exchange among the MTFs. MEDCOM staff limitations led to some delays in preparing the low back pain toolkit materials, especially at the start of the demonstration. We believe this committed support by MEDCOM has been a powerful foundation for the practice improvements achieved in the guideline demonstrations, as MEDCOM learned from each field test and applied those lessons to subsequent demonstrations.

4. **Guideline champions who are opinion leaders.** From the start, MEDCOM identified Army-wide guideline champions who were respected leaders with a commitment to using the guideline to improve the quality of care. The participating MTFs also identified well-respected physicians to serve as guideline champions, and most of these physicians showed a commitment to leading the implementation activities for their facilities. Some of the initial champions were replaced in the course of the demonstration because of rotations and deployments. This demonstration highlighted that it sometimes will be difficult to find a champion who both has enthusiasm for the guideline and is a respected opinion leader, and at times, facilities will have to make trade-offs between these factors.

5. **Resource support for champions.** All of the MTF commanders designated champions to lead the implementation of the guideline, but few of the champions received tangible support for their activi-
ties (other than attendance at the kickoff conference). Most of them had to perform the implementation work in addition to their regular workload. In most of the MTFs, a facilitator designated by the MTF commander provided staff support to the champion, and for some facilitators, this role was an integral part of their regular job. The need to do “double duty” means that champions are able to make only a time-limited commitment to such an initiative, after which they either “burn out” or must turn their attention to other priorities. Thus it is important to integrate new practices into ongoing procedures as quickly and effectively as possible, within the available time of the champion.

6. **Institutionalization of new practices.** Staff turnover or shifts in policies at the command level can destabilize efforts to introduce and sustain new practices. Three of the participating MTFs made early progress in achieving practices consistent with the low back pain guideline. The fourth MTF viewed low back pain as a low priority and planned few practice changes. Two of the active sites lost momentum over time, one because of heavy workload demands related to deployments, and the other because of changing priorities associated with changes in command. Only one site achieved practice changes that are likely to remain in place. These changes have a good chance of surviving because they addressed an issue that was important to providers and MTF leadership. We note, however, that even successful practice changes may be vulnerable to later policy shifts with subsequent changes in MTF leadership, which occur about every three years.

**LESSONS FROM THE CORPORATE PERSPECTIVE**

A primary goal of the low back pain guideline demonstration, as well as of the subsequent demonstrations for the asthma and diabetes guidelines, was to test and refine a corporate system for implementing evidence-based best practices as specified in the guidelines. Thus, our evaluation was interested in the experiences of the participating MTFs as they introduced new practices as well as in the effects of those practices, to the extent they were effectively put into place, on clinical practices for low back pain.

Guided by the experiences of the low back pain, asthma, and diabetes demonstrations, an effective corporate implementation strat-
egy emerged over time for practice guideline implementation across the Army Medical Department. The field experience bore out the value of using a systems approach, in this case including both corporate and local roles. Continuous quality improvement techniques served well in planning and carrying out the implementation steps, showing the value of using a series of incremental steps, each of which builds upon previous steps to achieve continual improvements in health care processes and outcomes over time.

Given the weak effects on clinical practices found for the low back pain guideline, however, further work is needed to focus the attention of the leadership and strengthen actions to achieve the practices supported by scientific evidence. The following specific action items emerged from the low back pain demonstration that are within MEDCOM’s authority and responsibility:

- Maintain the proactive role of MEDCOM in managing a coordinated guideline implementation program across the system, including the responsiveness it has shown to MTFs as they have pursued local implementation activities. MEDCOM has eased the workload for MTFs by providing tools and technical guidance, thus enhancing the potential to achieve practice improvements.

- To support the establishment of a system-level monitoring process to track MTF progress in improving clinical practices, develop the data and analytic capability to perform measurements and report results to the MTFs. The analytic function should be equipped to provide training and support to MTFs for their local monitoring processes.

- When introducing a new practice guideline for MTF implementation, provide clear guidance and instructions so the MTFs know what is expected of them and where they have the flexibility to act locally. Set objectives and define which aspects are mandated and which are left to MTF discretion. Maintain a balance between flexibility for local MTF approaches and sufficient policy direction to be sure that AMEDD is moving toward greater consistency in practices.
• Provide resources to support implementation activities at levels commensurate with the expected workload and results, including resources for both MEDCOM and the MTFs.

• Reevaluate the MEDCOM policy on the use of standard forms in the management of care for conditions addressed by the practice guidelines. Although the low back pain documentation form was shown to improve provider efficiency, it became a point of contention that often distracted from the real task at hand. The number of new forms will multiply as more guidelines are introduced, which could be detrimental for the program if not presented appropriately.

• Develop contractual mechanisms to ensure that contract providers participate in implementing improved practices and to ensure that MEDCOM is able to monitor the performance of these providers using the same metrics applied to the MTFs. Contract providers resisted participation for the low back pain guideline, and they were not actively involved in other demonstrations. These attitudes are due in part to financial incentives created by their contracts, where they are paid based on the number of visits they complete, and time spent on any other activities is unpaid time.

• Provide proactive MEDCOM leadership for ensuring information exchange among MTFs. Individual MTFs are not likely to volunteer for the extra work involved in taking the lead in communicating with others without incentives and support from above.

• Provide guidance and training to the MTFs on how to perform effective patient education as part of the treatment of conditions covered by practice guidelines, including techniques for encouraging patients to assume greater responsibility for self-care.

• Pay attention to the details of the many issues the MTFs raise as they work with a guideline. Examples of issues that occurred in the low back pain demonstration (as well as later in the asthma and diabetes guideline demonstrations) include how to handle patients presenting with multiple concerns or diagnoses, placement of documentation forms in the medical chart, procedures for use of diagnostic codes for visits, and reading levels for patient education materials.
• Managing care according to the DoD/VA practice guidelines represents a proactive primary care management approach for patients with specific health conditions. Thus, consider replacing traditional utilization review functions with this more proactive approach to achieve appropriate and consistent practices.

LESSONS FOR THE TREATMENT FACILITIES

As we observed the experiences of the participating MTFs during the demonstration, several items surfaced that MTFs are likely to face regularly in implementation efforts:

• Momentum (or lack of it) will strongly influence progress in achieving new practices. Therefore, teams should strive to capitalize on the momentum generated by the start-up activities when the team is defining problems and preparing its action plan. Two essential elements are to quickly go into the field to test new ideas, and to frequently communicate what is being learned with those not on the team.

• Command leadership commitment is necessary for changing clinical practices, but alone it is not a sufficient ingredient. Leadership must hold the teams accountable for following through on implementation actions, monitoring progress, and achieving their goals.

• The best chance of establishing lasting new clinic procedures requires the sincere involvement by all clinic staff. It is worth taking the time required to educate all potential participants about the goals and contents of a guideline and to build their understanding and acceptance of the best practices being introduced.

• Action plans need to evolve and change over time. Even the best designed and executed action plan is unlikely to change the practices of all patients and providers. Ongoing monitoring will suggest new areas that need to be addressed, and continuing interventions will be needed to sustain and spread changes needed for full compliance with practice standards by all those involved.

• Among the first actions that should be taken in implementing new practices are to define the metrics for monitoring and to work with the appropriate offices to get the necessary data. Ide-
ally, the implementation team should establish the capability to provide monitoring feedback to its MTF clinics within a month or two after beginning implementation of new clinical practices.

- Personnel rotations are an ongoing part of military life, and they should not be an excuse for lack of progress on implementing improved practices. As each MTF defines its action plan and schedule, it should anticipate and plan for military rotations, including effects on the clinic staff and on the members of the implementation team itself. Any surprise personnel movements that affect staffing can be accommodated by action plan updates and revisions.