Modifying Physician Behavior to Improve Cost-efficiency in Safety-Net Ambulatory Settings

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Abstract: Change interventions in one form or another are viewed as important tools to reduce variation in medical services, reduce costs, and improve quality of care. With the current focus on efficient resource use, the successful design and implementation of change strategies are of utmost importance for health care managers. We present a case study in which macro and micro level change strategies were used to modify primary care physicians’ practice patterns of prescribing diagnostic services in a safety-net’s ambulatory clinics. The findings suggest that health care managers using evidence-based strategies can create a practice environment that reduces barriers and facilitates change. Key words: ambulatory services, physician behavior, primary care, safety-net

Over the last few decades, widespread variability in clinical practices has been well documented in the United States. Such variations persist in virtually all areas of medical practice, including rates of surgery, drug prescription, diagnostic testing, hospitalization, and length of stays (Ashton et al., 1999; Chassin et al., 1986; McGlynn et al., 2003). The noted variability suggests that some patients end up with inappropriate and/or overutilization of medical care that serves no benefit for improving health outcomes but contributes only to increasing health care costs. These concerns over rising costs and striking variations in physician practice patterns have led to a growing interest in the standardization of health care delivery through the use of various change strategies (Baskerville et al., 2001; Chilingerian & Sherman, 1990; Harris, 1990; Main et al., 1995). With the focus on efficient and effective resource allocation, successful design and implementation of change strategies are of utmost importance for today’s health care managers.

The effectiveness of innovative organizational changes in policies, procedures, structure, as well as behavioral changes in practice patterns, is critical in particular for the publicly funded safety-net hospitals and their ambulatory clinics. Facing an ever-increasing
burden of uncompensated indigent care as the number of uninsured individuals rise, safety-net providers are simultaneously experiencing reductions in both tax dollars and charitable contributions. Currently, about 1 in 5 nonelderly Americans is uninsured, which creates challenges for this vulnerable population, the organizations that serve them, and the US health care system overall (Kaiser Family Foundation, 2010). Thus, the financial burden on states, localities, and safety-net providers must be met as best possible through innovations in care delivery.

This article contributes to the research as to what strategy or strategies are appropriate in a safety-net setting for modifying primary care physicians’ behavior regarding ambulatory services. We present a case study in which multiple change strategies at the macro and micro levels were implemented in community-based clinics serving the members of Jackson Access Plus, an innovative managed care program for the uninsured residents of Miami-Dade County in Florida. Our results indicate that significant reductions were achieved and sustained in the cost per member per month (PMPM) for services delivered to uninsured patients by tracking and monitoring utilization data and sharing of best practices among the employed physicians of the safety-net’s ambulatory clinics.

BACKGROUND

Health care managers have been under increasing pressure to establish “best practices” within their facilities in order to improve both effectiveness and efficiency in the delivery of medical services. Change strategies are important tools to assist in reducing variations in physician practice patterns in an effort to eliminate unnecessary or inappropriate care and thereby improving efficiency. Since reduced variance of care can lead to clinical benefits for patients and cost savings for health systems and payers, there is continuing interest as to why some change strategies at the macro level have been remarkably unsuccessful in influencing physician practice patterns (Smith, 2000).

Various studies report and/or evaluate the utilization of organizational theories in change efforts within hospitals, health maintenance organizations, and other managed care organizations, as well as clinical practice settings (Bazzoli et al., 2004; Bradley et al., 2004; Liebhaber et al., 2009; Miller, 1998; Moulding et al., 1999). Moulding et al. (1999) found the most crucial factor in successful intervention to be a multifaceted dissemination and implementation strategy. However, Main et al. (1995) point out that mutually reinforcing interventions may only have modest success because health care managers fail to consider both environmental and physicians’ readiness to change. As such, managers need to address the barriers to change while creating an environment for minimizing conflicts associated with resistance to change. More recently, evidence-based management has emerged as an effective tool to guide behavioral change and practice patterns (Kovner et al., 2009).

While health care managers are under increasing pressure to plan for and deliver health care services in an efficient and cost-effective manner to ensure the future survival of their organizations, physicians are under increasing pressure to justify their patterns of clinical practice and productivity. Changes, focused on reducing variations in health care delivery, have at times resulted in confusion, frustration, and conflict between physicians and managers (Kleinke, 1997; O’Connor & Lanning, 1992). Physicians may view an organizational change strategy as a perceived threat to their professionalism (Stamps & Boley Cruz, 1994).

Previous studies have reported that because physician autonomy is based on expert knowledge and individual patient care rather than on organizational accountability, physicians disfavor and will resist policies that constrain their practice patterns (Borkowski & Allen, 2002, 2003; Ku & Fisher, 1990; Rappolt, 1997). Although some evidence suggests that participation in decision making can lead to significant reduction in resistance to organizational change, not enough is known about successful modification of physician practice patterns. To successfully implement change,
Managers need to effectively reduce the tension between the clinical autonomy and independence needs of physicians and the needs of the organization to control resources and variations in patient care (Marcus, 1985).

STRATEGIES FOR CHANGE

At the macro level, health care managers need to first consider the driving and restraining forces for organizational change. The force field model of Lewin (1947) provides a framework to understand the forces that will influence physicians' adoption or non-adoption of change in their practice behaviors. Borkowski and Allen (2002) note that a key restraining force would be physicians viewing management-initiated change efforts as inappropriate and unnecessary substitution for their clinical judgment. Driving forces that could encourage physicians to modify their practice patterns would be (1) improved quality of care, (2) reallocation of resources/cost containment, (3) legislative mandates, and (4) financial penalties and/or incentives. To effectively initiate change, managers need to assess the tension between the driving and resisting forces and then alter the balance of these forces by addressing individual physician and practice environment issues. Building on Lewin's work, others such as Kotter (1996) provide managers with the guidance for successful organizational change at the macro level. Kotter introduced an 8-step approach: the first 4 steps address changing the status quo, steps 5 through 7 introduce new policies and/or practice patterns, and step 8 institutionalizes the change (Borkowski, 2005).

At the micro level, Hersey and Blanchard (1993) state that reducing resistance to change requires the involvement of the individual or group in direct participation for selecting the best method for development and implementation of change. A significant advantage of using the participative change cycle, although time consuming, is that once the change is accepted, it tends to be long lasting “since everyone has been involved in the development of the change, each person tends to be more highly committed to its implementation” (Hersey & Blanchard, 1993, p. 377).

Interestingly, though, evidence on the effectiveness of participatory strategies by physicians related to the development and implementation of clinical practice changes is mixed. For example, Ford et al. (1987) document an unsuccessful attempt to implement practice changes that involved participation. However, studies by Spiegel et al. (1989) and Gottlieb et al. (1990) imply that participation in practice guideline development, along with other intervention strategies, increases the likelihood of successful implementation. Other intervention strategies, such as the dissemination of changes by “opinion leaders,” that is practitioners recognized by their peers as trusted sources of clinical information, appear to successfully alter physician practices (Liebhaber et al., 2009; Lomas et al., 1991). Similarly, Taylor et al. (2010) emphasize “transformational physician leadership” as a critical element in influencing the behavior of other physicians in the group. As such, physicians leading physicians appears to be a critical strategy in efforts to alter physician behavior.

Other researched interventions for modifying physician behavior include continuing medical education strategies with or without opinion leaders, administrative interventions, feedback on practice norms with educational reinforcement efforts, peer review programs, financial incentives, and other reimbursement arrangements.* Overall, there is no unifying theory of physician behavior change (Smith, 2000), and a combination of strategies may be more effective than a single intervention (Teleki et al., 2006), including mutually reinforcing approaches such as local participation of opinion leaders, didactic and interactive educational sessions, simulation training, audit and feedback interventions, evidence-based decision aids, and active system-oriented implementation. The mixed evidence on the

*See reviews by Borkowski and Allen (2003), Greco and Eisenberg (1993), and Smith (2000).
effectiveness of change strategies regarding physicians’ clinical practice highlights the need for continued research efforts to better understand physicians’ motivation or resistance for change.

CASE STUDY

Here we present a case study describing the fiscal outcomes achieved by primary care physicians after multifaceted change interventions were implemented to encourage more efficient use of ambulatory services. The organizational change strategies emphasized the use of Kotter’s step approach interchangeable with Hersey and Blanchard’s participative change cycle to modify salaried physicians’ prescribing of diagnostic services. The settings were community-based primary care clinics (PCCs) under the Jackson Access Plus program, part of the Jackson Health System (JHS) in Miami-Dade County in Florida. The JHS’s Division of Ambulatory and Community Health designed and implemented mutually reinforcing interventions at the macro and micro levels to influence primary care physicians’ clinical ordering behaviors. No financial bonuses or other targeted economic incentives were used to encourage particular practice patterns.

Miami-Dade County

Miami-Dade County is home to a diverse population of about 2.5 million individuals. More than 60% of the county population is Hispanic, the ethnic group identified by the US Census data to have the highest uninsured rate nationwide (32.1% in 2007). The same data source reflected that Miami-Dade’s poverty level (15.3%) was above both state and national levels (12.1% and 13.0%, respectively), and the county’s median household income ($43,495) was below the state and national levels ($47,804 and $50,665, respectively). In 2008, the Health Council of South Florida estimated that the uninsured rate in Miami-Dade was approximately 35%, up from 29% in 2004 as reported by the Florida Health Insurance Study (Agency for Health Care Administration, 2004). Clearly, Miami-Dade is in the forefront of localities struggling with their responsibility to provide quality health care for its indigent and uninsured populations.

The Jackson Health System

The JHS is an integrated health care delivery system that consists of multiple PCCs and specialty care centers as well as a variety of school-based clinics, 2 long-term care nursing facilities, a network of community mental health facilities, clinics in the county’s correctional facilities, and 2 community hospitals. As the designated safety-net health care provider, the JHS receives county funding through a half-cent sales tax. In addition, the JHS receives a portion of the county’s property tax proceeds. The JHS receives the same amount of county funding regardless of the total amount of “free care” the system provides.

Given the recent economic downturn and the associated growth in the uninsured population in Miami-Dade, the unfunded gap between charity/free care provided by the JHS and its local tax support has widened over the years, with the difference growing to $230 million in 2010. As partial response to the widening of this financial gap, a multifaceted approach was developed to change primary care physician practice patterns to encourage more efficient use of ambulatory services for Jackson Access Plus program members.

The Jackson Access Plus program

Jackson Access Plus is a comprehensive program that utilizes primary managed care principles in the delivery of health care services to Miami-Dade’s indigent/uninsured population. The program was designed to improve access to the appropriate use of primary care, provide patient education and care coordination, and encourage best clinical practices.

Jackson Access Plus program members are residents of Miami-Dade County (1) who have an income at or below 100% of the federal poverty level and (2) are not eligible for any other health care coverage. Program enrollment occurs at first contact with the primary care centers by the eligible individual. All enrolled individuals were assigned to a
Physician Behavioral Changes in Safety-Net Ambulatory Clinics

specific physician within a designated JHS clinic, to foster and encourage a long-term patient-physician-center relationship. Qualifying residents remain enrolled until (1) other health coverage is obtained, (2) the patient no longer resides in Miami-Dade, or (3) no services are provided within a 12-month period.

Modifying primary care physician practice patterns

Following Kotter’s (1996) step approach for change, the administrative and physician leaders of the Division of Ambulatory and Community Health and the Department of Ambulatory Managed Care and Quality* communicated the urgency of the need to change current clinic-level practice patterns due to unfunded gap affecting JHS’ fiscal solvency. Media coverage of JHS’ financial challenges highlighted the need to address the growing deficit that was in part attributed to the ambulatory care clinics. The system’s financial deficits provided the initial momentum for the PCCs to examine the physicians’ practice patterns and identify potential inefficiencies in the ordering of diagnostic services.

The division leadership formed a coalition to design and implement the necessary change program with strategies directed at both the organizational (macro) and clinic/physician (micro) levels. All PCC medical directors joined the coalition and became change agent champions within each clinic. The coalition shared the goals of the change program with staff physicians as well as the managerial and other clinical PCC personnel: (1) access to care for the indigent population, (2) encouragement of the patient-physician-center relationship, (3) coordination of care, (4) data-driven utilization management, and (5) sharing best practices. Communicating the vision of the change program to all individuals within the PCCs strengthened the overall commitment to the change and helped solidify a team approach for success.

Rather than adopting a prescriptive approach to change the physicians’ practice behavior, the division leadership provided each PCC monthly diagnostic services utilization reports for the top 25 diagnoses with peer-reviewed evidence-based prescribing protocols. The sharing of information provided the physicians an opportunity to examine the costs and benefits associated with any incremental diagnostic service prescribed. The transparency of the cost data allowed the physicians to identify redundancies and inefficiencies. The decentralized decision making to the PCC level empowered the physicians to (1) identify inappropriate utilization patterns and (2) implement clinic-specific protocols and responses. Each clinic’s implementation strategies were designed within the overall framework of the program as determined by the particular member and neighborhood characteristics.

Consistent with the principles of evidence-based management (Cohn & Lambert, 2005; Kovner et al., 2009; Sparer et al., 2002), the PCCs were provided timely feedback, with monthly data analysis identifying key trends in membership, practice patterns, utilization of care, and patient satisfaction. The PCCs held monthly meetings to review the data that provided a forum to not only identify immediate needed improvements but also opportunities for continuous improvement. No specific decision support tools were introduced; instead, improvements in the efficiency of care were realized through physicians mutually reinforcing changes in the care processes.

Three to 4 actionable items were identified by each PCC every month. Thereby, each PCC identified and implemented new changes as appropriate for the individual center based upon the data reports and experiences. Best practices across the PCCs were identified and shared at medical directors’ meetings to encourage further improvements and maintain momentum. The monthly data reports followed by scheduled meetings over the first 24 months of the change program’s deployment solidified physician involvement in the

*Hereafter, this combined team of division and department administrative and physician leadership is referred to as Division leadership.
design and implementation of sustained change, which facilitated institutionalization of the approaches.

Data and analytic methods

To measure the impact of the various interventions for organizational and physician behavioral changes, we examined PCC-specific data over a 2-year period. The data were obtained from 2 JHS database systems for the periods October 1, 2005, to September 30, 2006 (Y1), and October 1, 2006, to September 30, 2007 (Y2). Of the 12 PCCs in the JHS at the start of the Jackson Access Plus program, 6 were included in the analyses whereas 6 others were excluded because of small or transient populations. The analysis is based on the following centers and the respective deployment dates:

Juanita Mann (JM) October 1, 2005
Liberty City (LC) October 1, 2005
North Dade (ND) April 1, 2006
Penalver (PV) October 1, 2006
Jeff Reaves (JR) November 1, 2006
Rosie Lee (RL) February 1, 2007

The rollout time frame of the deployment for the change program allows us to make comparisons across the 6 PCCs in terms of change outcome. Change outcome was measured as the cost PMPM unit of service at the clinic level. As such, this required us to first examine the membership growth for each center during the study period and then the change in ambulatory costs. The Jackson Access Plus membership was defined as all eligible individuals who received health services at specific centers over the previous 12 months. Given that all uninsured eligible patients were automatically enrolled in Jackson Access Plus, the increase in membership is not attributable to marketing but reflects more uninsured patients seeking care from the safety-net.

Figure 1 reflects the growth in membership in each of the 6 centers during the study period. Each center’s membership figure at the time of introducing the change program is normalized to 100% and the number of members at any other month is represented as a percentage of that benchmark figure. Note that the uncharacteristic dips in June to July 2007 are attributed to the introduction of a new electronic medical record system that caused inconsistencies in data collection during that period.

RESULTS

Membership growth

JM and LC centers deployed the change program in October 2005. Although neither center experienced major changes in membership, this was not the case for the other 4 centers. For example, the next center deployment was ND, which experienced a significant increase in the number of members. Expressed in terms of its membership figures as of the deployment date, the number of members was 86% at the beginning of Y1 and increased to 130% at the end of Y2.

Following ND, the PV and the JR centers initiated the change program, with both experiencing a rapid growth in membership after the deployment. The simultaneous deployment may have been a factor in explaining the similarities in the trends we observe for these 2 PCCs. At the beginning of Y1, both started around 75% of their deployment date membership. At the end of Y2, PV had reached 132% whereas JR reached 124%. PV experienced the most dramatic rise in membership as compared with the other 5 centers. The last center to introduce the change program was RL in February 2007. Membership at RL grew from 70% at the beginning of Y1 to almost 120% by the end of Y2.†

*Therefore, for any center, any percentages above (or below) 100 represent increases (or declines) compared to the membership at the deployment date.
†Given that we only have about half a year of data available for RL after its deployment date and considering the potential inconsistencies in the data for July-August 2007, the results for this specific center should be interpreted with caution.
Physician Behavioral Changes in Safety-Net Ambulatory Clinics

**Figure 1.** Membership (as a percentage of the values at the deployment date for each individual center). JR indicates Jeff Reaves; JM, Juanita Mann; LC, Liberty City; ND, North Dade; PV, Penalver; RL, Rosie Lee.

**Ambulatory care costs**

After reviewing the centers’ membership growth, we examined the ambulatory care cost figures. Because of the growing trends in membership and utilization, we corrected these figures for the number of members and express them in PMPM units for each of the 6 centers. In addition, cost figures are corrected for the rising costs of delivering service. The corresponding health care inflation rate during this period, measured using the consumer price index for medical care services, was 9.6%. The cost figures were deflated to correct for this fast increase in prices of medical care services and the results reflect real cost figures.

Figure 2 presents the trends in real ambulatory costs PMPM at each center. As in Figure 1, we normalize each center’s deployment date real costs to 100% and the monthly real costs are represented as a percentage of that benchmark figure. Although the cost figures in June and July of 2007 might be atypical, the overall trends over the 2-year period provide a consistent picture.

For the first 2 centers deployed (LC and JM), significant increases in the real ambulatory costs PMPM were observed in the initial months of implementation. However, by the end of Y2, the centers were successful in lowering their ambulatory costs PMPM to 80% or less compared with their starting figures. The temporary increases in costs during the initial months of implementation may be attributed to a learning curve because LC and JM were the first 2 centers deployed, and this pattern

*Thus, percentages above (or below) 100 represent increases (or declines) compared to the real cost of ambulatory care PMPM at the deployment date.*
in the cost figures is not observed for any of the other 4 centers. As the new processes and data feedback became more familiar, the capability to interpret, design, and implement PCC-specific interventions became more effective.

ND was deployed in April 2006, and the center experienced a significant decline in the real ambulatory costs PMPM starting 2 months after the deployment date. This finding may suggest that the lessons learned at the first 2 centers had been put into use by the center staff. Within 1 year, the cost figures declined to about 60% of the deployment cost figures and continued to decrease further until the end of Y2 to about 50%. The next 2 centers deployed about the same time are JR and PV, which display similar patterns to ND in terms of the steady decline in cost figures soon after the deployment. By the end of Y2, within less than 12 months since deployment, both JR and PV managed to reduce their cost figures down to about 60%. Finally, RL also displays immediate reductions in the real ambulatory costs PMPM while the graph oscillates around the 100% figure throughout the period before the deployment date of April 2007. Within a few months, ambulatory costs at this center were brought down to about 60%.

It is important to note that in the case of all 4 centers for which we have data points before the deployment dates, that is, ND, PV, JR, and RL, the real ambulatory costs PMPM are relatively stable up until the start of the intervention. This stability despite the sharp increases in the membership suggests that the change strategies were being successfully implemented throughout the entire period, well before the deployment dates. However, significant decreases in real ambulatory costs
Physician Behavioral Changes in Safety-Net Ambulatory Clinics

PMPM took place right after deployment dates at each center, pointing to the impact or effectiveness of the additional interventions introduced during the period.

This case study has several limitations. First, we relied on data that were collected for administrative purposes rather than for research. Second, the multimethod approach prevents the measurement of the impact of specific interventions. Third, our analysis does not address other medical services delivered within the PCCs. The separate and unlinked structure of the financial and clinical data systems prevented exploration of possible changes in the quality of care or other costs associated with this population.

DISCUSSION

The number of uninsured people in the United States, Florida, and Miami-Dade continues to grow as funding continues to decrease. The funding gap requires constant and creative efforts by the JHS to provide medical care. The Jackson Access Plus program is an innovative strategy for providing primary managed care to this population that was accompanied by an organizational strategy to encourage change in physician prescribing behavior.

This article points to a few conclusions regarding the effectiveness of change strategies. To effectively influence physician behavior, health care managers need to create a practice environment that reduces barriers and facilitates change. As pointed out by Smith (2000), development and implementation of change strategies need to be theory driven and evidence based. The JHS experience indicates that the cost-effectiveness of health care delivery to a large urban uninsured population can be improved by designing and implementing change in concert with organizational theories of participative and change management.

Central to this achievement is the assignment of all uninsured patients to a designated PCC and a physician that provide the patient with a medical home and the use of evidence (data)-based management of medical services through regular and timely feedback of utilization data to the PCCs and physicians. As noted earlier, the division leaders found collaboration across the system in various improvement initiatives. Thus, continuing and broad initiatives that supported the goals of the Jackson Access Plus change program became institutionalized across the community-based clinics. Our findings suggest that safety-net systems can effectively address cost-efficiency of primary care services for uninsured patients through a multimethod change strategy.

The analysis presented here used administrative data that were collected for purposes other than research. As a result, we were unable to provide a complete assessment of the impact of the interventions across the full continuum of health care utilization, quality of care, and health outcomes, as well as overall cost impacts for this population under the Jackson Access Program. Despite these limitations, the findings validate physician leadership and involvement as critical elements in changing behavior and practice patterns. As physicians and clinics improve data systems, the ability to link financial, clinical, and quality data will allow more comprehensive evaluation.

REFERENCES


