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Ten Years of Outpatient Redesign:
Experiences of the
Institute for Healthcare Improvement

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Making High-quality, Patient-centered Care a Reality

[AQ1]

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Abstract: The Institute for Healthcare Improvement and others have spent a decade transforming the concept of patient-centered care from the realm of idea to the reality of practice. In this introduction, we provide a summary of this transformation, and the practical steps practices and health systems can take to make their transition to providing more patient-centered care. **Key words:** *care team, IHI, measurement, patient-centered care, reliability, self-management*

MORE THAN 2 DECADES AGO, primary care clinicians began to measure not only “patient satisfaction” with care but also the physical, social, and emotional factors that affect patients’ health and well-being, that is, “what matters to the patient” (Nelson et al., 1983). More than a decade ago, a critical review of the literature identified collaborative interaction between a clinician or clinical team and the patient as the final common pathway for the improvement of patient function (Wagner et al., 1996). The term “patient-centered” care affirms the power of knowing and acting on what matters to the patient and the proven benefits from collaborative interaction. Moreover, “patient-centered” care rejects the notion of paternalistic “doctor-centered” healthcare services (Davis et al., 2005; Wagner et al., 2005). Regardless of the origins of the term, there is a growing recognition that the provision of care centered

on patients’ needs and expectations is a key attribute of quality care (Bergeson & Dean, 2006).

In 1999, as the “patient-centered” concept was starting to take hold, the Institute for Healthcare Improvement (IHI) began its program for the Idealized Design of Clinical Office Practice (IDCOP). Within the IDCOP model, the patient-provider interaction was placed at the “heart of care” (Kilo & Endsley, 2000). However, there was also a recognition that ideal practice required much more than a focus on the collaborative interaction and effective care alone. It required attention to ensuring that patients have easily available access to that care, evidence-based care that is delivered consistently over time, and a vital workforce for delivering the care. Donald M. Berwick, MD, the President and CEO of IHI, asserted that when these attributes of ideal practice were optimally combined, patients would be able to strongly agree that “I receive exactly the care I want and need exactly when and how I want and need it!”

Since that time, IHI and others have continued to explore how best to put the patient experience at the heart and center of redesign efforts in ambulatory care. In this introduction to the series, we provide an overview of both the experiences and the practical steps practices and health systems can take so that their patients attain “exactly

[AQ2]

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[AQ3]

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the care they want and need." This series has been written in the spirit of sharing what we and others have learned so that all ambulatory care-based practices can adapt the ideas described here and make the delivery of patient-centered care a reality for millions of patients.

LESSONS LEARNED FROM 10 YEARS OF EXPERIENCE

With the advantage of hindsight and 10 years of experiences from many participating practices and health systems, we have identified 5 helpful principles for making high-quality, patient-centered care a reality.

It is important to understand and influence the culture

- At the policy level, current payment priorities and methods favor interventions for acute, episodic-based care. For example, although most payment systems provide coverage for office visits, they do not pay for follow-up contact by the care team with patients needing ongoing support for managing their medications, creating healthy diets, or exercise programs. In addition, care is fragmented with little coordination of care across providers because payment systems reimburse providers for specific episodes of care (Fisher et al., 2003). More subtly, even the clinical decisions of physicians within the office will reflect the intensity of medical resources of the environment in which they find themselves (Sirovich et al., 2006).
- Leadership matters! At the organizational level, progress toward improvement is greatly impacted by the way in which the "owner" of a clinical practice sets policies and reinforces the importance of improvement. When leadership and staff priorities are not aligned, poor quality is likely (Tucker, 2008). For example, if financial incentives for physicians are tied to the number of patients seen rather than the overall care and/or quality of the care provided, the focus is then on volume and

not care. On the other hand, when leadership is aligned with staff and vice versa, exemplary care can happen.

Make wise use of preexisting models and methods

- The IHI has developed and utilized a number of models such as the IDCOP model discussed above to help practices improve care processes and patient outcomes. It is important not to see a model as a rigid roadmap without little regard to resource requirements or inherent limitations for spread to other conditions and patient populations.
- Some methods and models seem to work better when their components are "sequenced." For example, among small, independent practices, a specific sequence derived from the Chronic Care Model (Wagner et al., 1996) and microsystem (Nelson et al., 1983) principles is being delivered at almost no cost to many smaller practices cross the United States (Ideal Medical Practices.org).
- Start with the full scale in mind. Although a number of practices have had initial dramatic results from collaborative and other learning methods that focused on improving care for particular subpopulations of patients such as those with diabetes or asthma (Chin et al., 2004; Schonlau et al., 2005), they have not always been able to apply the changes to all patients in their practice. Asking the question of how specific changes can be planned and sequenced to be more easily applied to all populations of patients has emerged as a promising approach to total system redesign.

Place what matters to the patient in the center

- Healthcare professionals are well trained to assess, diagnose, and prescribe for what, bioclinically, is the matter with the patient. Healthcare professionals are less comfortable assessing and helping manage issues that matter to the patient (such

as their functional limits or their information needs). In addition, many practices do not have processes in place to support the provider in being able to respond to complex psychosocial and behavioral health issues. The issues that matter to the patient are at the heart of patient-centered care (Moore & Wasson, 2006a).

- Patient-centered care will not occur unless patients help set the agenda for practice redesign. Practice may have patients serve in an advisory capacity either as part of a patient council or as a member of the care team or having patients comment on care using surveys. Practices are less accustomed to placing what matters to a particular patient on the agenda of the clinical staff. For assessing and helping manage issues that matter to the patient, different approaches, tools, and techniques are necessary. “CARE vital signs,” described in an article by that name, illustrates how patient-centered care can be implemented in any setting with any patient population.

Minimize complexity

- At all levels—policy, organizational, and especially at the front line—the greater the number of “handoffs,” the greater the opportunity for misunderstanding, mistakes, waste, and errors (Fisher et al., 2003; Wasson, 2008; Wasson et al., 2007). Paradoxically, the inclusion of many complementary roles within a team can sometimes undercut its efficient and effective function. Reliability of service is a useful byproduct of reduced complexity.

Use the lowest cost, most adaptable technology

- The last decade has witnessed tremendous advances in healthcare technology and promotion of its virtues. Many office practices are using electronic medical records, automated registries, e-mail, and even e-prescribing. However, few of these technologies begin with the patient and follow him or her seamlessly through the care processes. A previous issue of

the *Journal of Ambulatory Care Management* was devoted to “Technology for patient-centered collaborative care” (Moore & Wasson, 2006b). Relevant examples are reintroduced in this issue of the journal.

THIS SERIES OF ARTICLES

The series of articles that follow report on a decade of experience building on the foundation of IHI’s IDCOP. Table 1 provides an overview of the “take-home” messages from these articles. The intent of all the authors is to make sure that the “take-home” is practical and replicable for most primary and many specialty care settings.

Even if usual care is not yet particularly patient-centered, one would hope that it would at least be reliable and safe care. Unfortunately, this is not the case. For example, depending on their burden of illness, from 1% to 7% typical adult patients report a personal harm in the past year (Ideal Medical Practices.org). Unreliable service and design of practice undercut any effort to improve care. One key learning from IHI’s work has been that reliability strategies associated with higher levels of success include consideration of human factors in design of work processes. In “Making patient-centered care reliable,” the authors emphasize the factors, both human and system, that have to be changed if high reliability is to become an intrinsic property of care.

Without a patient’s involvement, the outcomes of patient-centered care will be inadequate. “Activation of patients for successful self-management” describes how to effectively activate patients for successful self-management even when the clinical circumstances are less than ideal.

When physicians, nurses, medical assistants, receptionists, and others who help support patient care focus on the needs of their patients and the vitality of their function as a team, it is more likely to identify, implement, and sustain necessary improvements than is possible in an environment where there is little recognition or support for the

Table 1. Overview of “take-homes” for the Institute for Healthcare Improvement outpatient series

Article	Theme	“Take-home”
“Making high-quality, patient-centered care a reality”	For practices large and small, much has been learned through the experience of Institute for Healthcare Improvement and others that has relevance for all	Five lessons for office practice improvement
“Making patient-centered care reliable”	Reliability principles underlay all high-quality activities of patient care	The 3-tiered process for building reliability
“Activation of patients for successful self-management”	Collaborative care and improved patient outcomes depend on patient self-management	Tools and methods for patient activation Practice changes to incorporate patient activation
“Optimizing the care team”	For many practices, a care team is needed to provide the best possible care. The challenge is to make the team processes reliable and patient-centered	Attributes of highly functional care teams and how to implement and measure these attributes in practice
“Accessing patient-centered care using the advanced access model”	Advanced access is of high value to patients and improves office efficiency	Six high leverage changes for advanced access. Case examples show systemwide improvement
“Balanced measures for patient-centered care”	Balanced measurement is feasible in busy office practices and critical for improvement	Patient-reported measures that are actionable offer many benefits at little cost Brief baseline measures for patients Brief baseline measures for office staff
“CARE vital signs”	For visual learners or time-constrained practitioners, “CARE vital” signs offers an easy way to plan patient-centered care for every patient	Adolescent, adult, and geriatric examples that illustrate C = Check for what matters A = Action as planned R = Reinforcement for impact E = Engineer for many

development of a care team. In “Optimizing the care team,” the authors describe some useful methods for making a care team as patient-centered and reliable as possible.

Since beginning its office practice improvement work, advanced access has been a central focus of IHI activities, yet many patients still experience long waits for routine appointments with their primary care physicians or for a referral to a specialist. The article titled “Accessing patient-centered care using the advanced access model” describes the methods and benefits of improving access to care and

emphasizes 6 high-leverage changes for making it work in any clinical setting.

In “Balanced measures for patient-centered care,” the authors make the case that patient and staff ratings of care should be considered to be just as valuable as bioclinical or process measures. Moreover, patient measures are inherently actionable and likely to result in better care. The authors demonstrate how practices that build patient-reported measures into everyday work have twice as many patients reporting that they receive exactly the care they want and need.

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Finally, in an article titled “CARE vital signs,” we emphasize the value of a simple tool designed for 2 purposes: (1) to improve patient-centered care for a particular patient and (2) to stimulate the clinicians to build on that use to improve patient-centered care for all patients. For practices wanting to make patient-centered care more than jargon, this is a simple and very effective way to begin.

The series of articles represents the efforts of many participants to improve medical care during the past decade. Future scientific developments and social trends will undoubtedly bring changes in clinical care and the methods needed to improve it. Despite the inevitability of these changes, we hope that the content of these articles will be useful for years to come.

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Making Patient-Centered Care Reliable

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Abstract: Multiple reports have concluded that healthcare does not reliably meet patient needs and can even cause harm. The Institute for Healthcare Improvement (IHI) has adapted reliability principles and methods from other industries and applied them in healthcare with promising results in hospital settings. This article describes how one outpatient system successfully applied the IHI reliability methods to multiple clinical and administrative processes. How the application may differ in outpatient environments is also discussed. In particular, the patient role is much more central, and a strong collaborative engagement with the patient is likely necessary to achieve high reliability. Applying reliability principles to patient-centered processes is a critical and undeveloped area. **Key words:** *healthcare quality, patient-centered care, practice improvement, process improvement, reliability, safety*

OVER the last decade, multiple reports (Committee on Quality of Health Care in America, Institute of Medicine, 2001; Kohn et al., 2000; McGlynn et al., 2003) have increased the awareness that healthcare does not reliably meet patient's needs and can even cause harm. A multitude and wide array of improvement efforts have emerged to address the situation and, although hope remains, progress is frustratingly slow toward the goals set by the Institute of Medicine. In light of this situation, the Institute for Healthcare Improvement (IHI) explored utilizing reliability principles, successfully applied in other industries, to support improvement efforts in healthcare. Thus far, these principles and the resulting method (tested predominantly in hospitals) have shown some promising results toward consistent and appropriate care,

reduction in defects, and improved outcomes (Nolan et al., 2004; Resar, 2006).

This article describes the application of these reliability methods within 1 ambulatory care setting and presents evolving responses to the following questions:

1. Is the IHI reliability method useful in ambulatory care settings?
2. Does application of the IHI reliability approach differ for ambulatory care?

SYSTEM AND PROCESS APPROACH

The Committee on Quality Health Care in America, Institute of Medicine (2000, 2001) [AQ3] writes that it is system's improvement and not simply the training and education of professionals that will lead to transformation of care. Yet, taking a systems and process view in healthcare can be a significant shift for some healthcare professionals. For example, a common assumption noted in medicine is that quality is determined by the physician's skill, hard work, and expertise rather than by the system (Berwick et al., 2002). This assumption has led to an emphasis on professional autonomy and variability in how

From the Institute for Healthcare Improvement Office Practice Community (Drs Baker and Crowe and Ms Lewis); Neil Baker Consulting (Dr Baker); Hamilton Consulting, LLC (Dr Crowe); and CareSouth Carolina, Inc, and Institute for Healthcare Improvement, Indian Health Service Innovations in Planned Care (Ms Lewis).

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a process is performed (Espinosa & Nolan, 2000; Resar, 2006).

The IHI defines reliability as failure-free operation over time (Nolan et al., 2004). It is the failure-free operation of processes over time that contributes to the reliable operation of the system. In this article, the definition of processes is the manner in which work gets done. A process involves input from materials, methods, people, environment and equipment, action upon and within the inputs, and an output to a customer(s). These multiple work processes make up system of care. For the purpose of this article, Deming's definition of *system* will be adopted: "a system is a network of interdependent components that work together to try to accomplish the aim of the system" (1982, p. 50). One might add reliably that improving the processes of the system toward the system aim is foundational to quality improvement theory and methods.

[AQ4]

THE IHI RELIABILITY METHOD

As part of its efforts to learn more about the application of reliability principles in healthcare, the IHI organized a Learning and Innovation Community of clinical teams from hospital settings to test the effectiveness of reliability principles and methods. The community used definitions of levels of reliability based on a mathematical framework, but designed for simplicity and usefulness in healthcare. For example, a 10^{-1} level of reliability is defined for healthcare as 80% to 90% success rate (1 or 2 failures out of 10 opportunities) as opposed to that number's precise mathematical definition. Strategies closely associated with these levels of reliability were identified, explored, and tested in the community. A 3-tier application model (Table 1) was developed on the basis of this work. Much learning occurred in the community and is documented in the IHI Innovation Series white paper (Nolan et al., 2004).

One key learning from the community was that reliability strategies associated with higher levels of success include consideration of human factors in the design of work processes. Human factors can be described as

the "study of the interrelationships between humans, the tools humans use, and the environment in which we live and work" (Kohn et al., 2000, p. 63). Historically, reliability in healthcare has depended on intent, memory, hard work, and vigilance (Resar, 2006). In any work situation, humans are vulnerable to stress, complexity, and fatigue. Reliability science takes into account such factors and supports redesign of work processes to aid memory and accurate task completion. As noted in systems and process thinking, failures are more often a result of poor design of tasks and work flow rather than individuals' efforts.

In the authors' experience, the progressive implementation of reliability strategies increases the likelihood of successful processes' improvement. Lower-level reliability strategies (eg, 10^{-1} , Prevent initial failure) should be implemented before strategies for achieving higher levels of reliability (eg, 10^{-2} , Identify failures and mitigate) because the latter usually requires more resources, time, and attention (see Table 1).

APPLICATION OF THE IHI RELIABILITY METHOD IN AN OUTPATIENT SETTING

CareSouth Carolina, Inc, is a rural healthcare system in Hartsville, South Carolina, serving 31,000 medically underserved patients. Over the last 10 years, CareSouth has vigorously pursued quality improvement and has experienced significant success. For example, in 1999, CareSouth joined a collaborative to improve the care of diabetes. They applied change concepts from the Care Model (Wagner, 1998) and monitored the success primarily using outcome measures such as HbA_{1c} levels. Within 3 to 6 months, their pilot clinic improved the average HbA_{1c} in their population from 12% to 9%.

Despite this success, however, CareSouth was aware of their failures and frustrated with insufficient progress. Their increasing awareness of the value of improving processes versus focusing only on the outcome led them to test the application of the IHI reliability method. In retrospect, after becoming familiar with reliability principles, CareSouth

[AQ9]

Table 1. Reliability definitions and strategies*

Reliability strategies		
Level	Definition	Strategies and methods to achieve
10^{-1}	When a process is measured, it shows an 80% to 90% success rate; or 1 or 2 failures out of 10 opportunities	<p>Prevent initial failure</p> <p>Intention: Awareness, initial memory aids, personal checklists</p> <p>Education: Feedback of data, training, in-services</p> <p>Basic standardization: Common equipment, standard orders, standard rooms, protocols</p>
10^{-2}	When a process is measured it shows a 95% success; or 5 failures out of 100 opportunities	<p>Identify failures and mitigate (Human factor changes)</p> <p>Structure: Build decision support and reminders into the process of care and/or administrative work</p> <p>Affordances: Make the desired action the default, make use of habits and patterns</p> <p>Differentiation and constraints: Make use of visual aids, blocking actions</p> <p>Scheduling key tasks: Discharges and transfers</p> <p>Intentional redundancy: Repeat task by multiple providers</p> <p>Standardization: Essential work processes, tasks, roles, environment</p>
10^{-3}	When a process is measured it shows a 99.5% success; or 5 failures out of 1000 opportunities	<p>Identify critical failures and redesign</p> <p>Monitor performance: Review performance regularly and provide feedback to the system</p> <p>Examine every failure: Use every failure to redesign the process, develop processes for workers to handle failures, use failure modes and effects analysis</p>

[AQ10]

*Reprinted with permission from Nolan et al. (2004) and Resar (2006).

believes that their failures were due in part to utilizing primarily the changes that focused on a 10^{-1} level of reliability, but also few changes that focused on a 10^{-2} level of reliability (see Table 1). Also, they did not intentionally build the changes into the system after testing. These insights became much clearer after an attempt to spread the pilot clinic's success with diabetes to other clinics failed.

The CareSouth spread strategy consisted of teaching about changes from the Care Model such as using training, awareness, checklists, and performance feedback to improve care. These are all lower-level (10^{-1}) reliability methods. However, many strategies for achieving higher (10^{-2}) reliability, which were applied by the pilot clinic and critical to the pilot clinic's improvement, were not recognized as such and, therefore, were not

included in the spread strategy. This was most likely due to the organization's lack of familiarity with the language and concepts of reliability. The higher-reliability strategies applied by the pilot clinic were as follows:

- **Affordances:** Make the desired action the default; for example, patients were sent to the laboratory on arrival at the clinic.
- **Build in reminders:** Patients needing an HbA_{1c} test were given a pink-colored reminder notice that served as a visual reminder for the laboratory to do an HbA_{1c} test.
- **Standardization:** To prevent repeat laboratory draws, the laboratory always drew a standard amount of blood that enabled them to conduct additional tests if ordered by the physician later in the visit.

After becoming familiar with reliability methods (with the assistance of IHI), CareSouth began to systematically define their desired level of reliability of processes and progressively apply the relevant strategies. For example, they identified 5 processes that were felt to be based on evidence and tightly linked to improved outcomes, hence requiring high consistency of completion. These processes were as follows:

- 2 HbA_{1c} tests annually, at least 90 days apart,
- nutrition education,
- body mass index (BMI) performed and noted in chart,
- prescription of statin (if indicated), and
- annual low-density lipoprotein testing.

CareSouth identified a new pilot improvement team, which included 2 physician practices. To determine the level of reliability for specific processes, they regularly reviewed 20 records of patients with diabetes. Performance on delivering all 5 processes was determined along with reasons for failures. For example, the team progressively applied the following 10⁻¹ (Prevent initial failure) and 10⁻² (Identify failures and mitigate) changes to increase the reliability of obtaining a BMI:

- Staff were educated about the intention to obtain BMI at every visit (10⁻¹ reliability method).
- Performance feedback for staff was initiated (percentage of patients with diabetes with a completed BMI) (10⁻¹ reliability method).
- Body mass index became a data element on the standardized Core Elements flow sheet (10⁻² reliability method, make use of habits and patterns).
- The Core Elements flow sheet was placed on the front page of the medical record (10⁻² reliability method, Affordance and differentiation).
- Body mass index was assessed multiple times: by the nurse checking in the patient, by the physician, and by the care manager (10⁻² reliability method, Redundancies).
- The care manager reviewed the record the day before the visit to determine if a

BMI was entered into the registry (10⁻² reliability method, Redundancies).

- The job description for all personnel was updated to include the task of ensuring BMI documentation at every visit (10⁻² reliability method, Standardization).
- Patients were consulted to help develop educational materials on the basis of initial negative reactions to the way they were approached about BMI (10⁻³ reliability method, Monitor and feedback).

The percentage of patients with diabetes with a completed BMI improved from very low (<20%) to 100%, a level that has been sustained for 6 months. The progressive and intentional approach to improve BMI reliability is reflective of the team's approach to improve the reliability of all 5 components of care. However, different reliability methods were utilized depending on the types of failures identified. For example, a common reason for failure to prescribe a statin (when indicated) was lack of awareness: physicians needed further training on indications and choice of medication (10⁻¹ reliability method).

The results of CareSouth's effort are encouraging. In the pilot clinic, all 5 processes of recommended diabetes care were eventually completed 100% of the time in each of the 20 patients reviewed monthly. Figure 1 shows results for 1 physician. Recently, the outcome measure of HbA_{1c} < 7 for all patients with diabetes in the registry for both physicians in the pilot clinic appears to have improved (Fig 2).

With the application of 10⁻³ reliability strategies, the pilot clinic continues to review its data monthly to identify failures and determine additional areas for redesign. For example, chart reviews revealed that failures in HbA_{1c} testing commonly occurred for patients whose visits to the clinic were infrequent. CareSouth identified that this particular patient population required a different work process, and reliability strategies were applied to make necessary improvements. For example, checking the registry each month and calling these patients became a standardized part of the care manager's role. This change resulted in improved HbA_{1c} testing

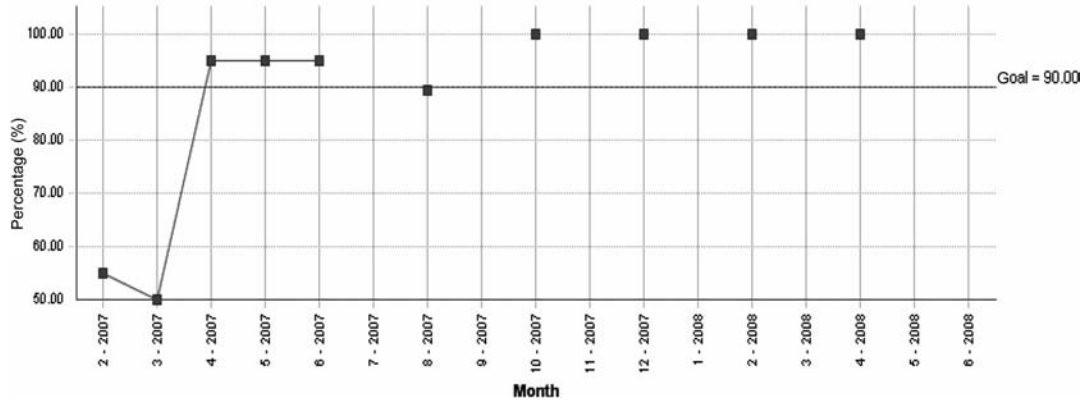


Figure 1. Percentage of time all 5 care components are completed in 20 patients each month (1 physician)—CareSouth Carolina, Inc.

from 56% to greater than 90% in this patient population.

CareSouth began applying reliability methods to many other processes using the 3-tier method. For example, they improved the rate of pain assessment from less than 30% of patients to the current level of 98%. Starting with 10^{-1} reliability methods, CareSouth noted that there was no standardized pain assessment tool in use. Once a tool was established, organization-wide training was required because it was a new practice for all staff. Performance feedback for staff on use of the tool was given monthly.

The next stage of improvement addressed the human factor issues (10^{-2} reliability meth-

ods). For example, taking advantage of existing staff habits and patterns, CareSouth integrated pain assessment into the Core Elements tool, which had become standard in all clinics. In this way, completion of pain assessment became the required default action. Having the nurse complete the pain assessment also developed redundancies, and then the provider checked the assessment and discussed it with the patient. Continued review of process performance revealed that patients did not always understand the pain assessment questions, which prevented completion of the assessment. Learning from previous BMI work, patients were engaged to help revise the pain assessment tool that also incorporated visual

[AQ5]

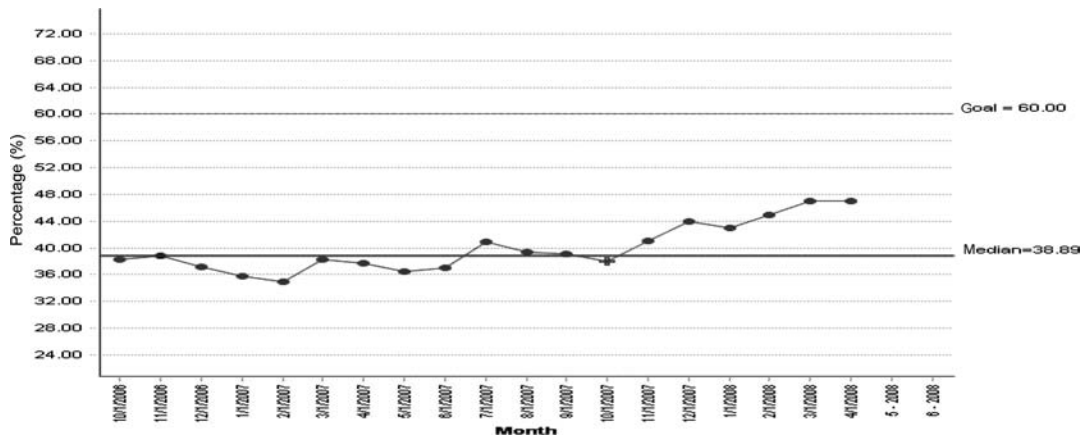


Figure 2. Percentage of patients in pilot clinic with HbA_{1c} < 7—CareSouth Carolina, Inc.

aids (eg, *faces with frowns and smiles* was added to the form as indicator of pain level).

CareSouth has innovatively applied their learning in clinical reliability to other areas. Using reliability methods, they improved the collections processes, resulting in an approximate \$20,000 monthly increase in revenue with a tandem reduction in bad debt. Continued confidence and learning in the principles and methods of reliability have led them to deeply integrate this approach into their structure. For example, they have developed a monthly organizational report with performance results on all key processes currently identified as central to optimal patient care.

SUMMARY

The 3-tier approach to achieve intended levels of reliability adapted by IHI for health-care has led to significant improvements in certain inpatient processes. There is less reported experience in outpatient settings. The experience of CareSouth in applying reliability strategies in the outpatient setting has demonstrated improvements in multiple processes, and evidence is emerging that outcomes may be changing as a result. On the basis of the CareSouth case example and the authors' limited experience in helping teams apply reliability methods in the office practice environment, we feel that reliability principles appear to show considerable potential for application to ambulatory care settings.

Furthermore, in the authors' experience, outpatient clinical improvement teams from a variety of organizations are consistently enthusiastic about reliability. A common evaluative request is to suggest incorporation of training in reliability principles at the initiation of improvement efforts. Although many reliability strategies encompass familiar and recognized improvement methods that have been taught for years, the grouping into a framework that progressively leads to higher reliability seems to provide a useful construct and a welcome pathway for improvement.

For example, a clinic working on improving chronic care described to the authors their ef-

fort to adapt clinical guidelines for chronic illness care and translate key recommendation into flow sheets. This effort then led to extensive trainings supported by performance feedback, resulting in levels of improvement far below their hopes. Similar to CareSouth's experience, this team also identified their reliance on 10^{-1} reliability strategies and lack of 10^{-2} reliability methods as a factor in their disappointing results.

The CareSouth experience suggests that, once learned, these principles can be applied to any process, including those interventions that are foundational to patient-centered care. One key learning from their experience is to start simple, applying reliability methods to a single process that clearly needs to be highly reliable. As skill and understanding increase, gradually move to more complexity.

Progression in complexity may also help identify subgroups of patient populations (referred to as *segments* by IHI) who have differing needs, such as individuals who are infrequent visitors to the clinic or who have chronic pain, and often require variations in work processes to meet these needs. The segmented approach may help us find the way to achieving highly reliable care for *all* patients.

Although early in our exploration, the authors have also identified several characteristics of outpatient settings that differ from inpatient settings and may influence the application of reliability methods. In particular, the patient, family, and community are the primary "care managers" in the outpatient setting. We believe that a strong collaborative engagement is necessary to reliability in the outpatient environment, and applying reliability to collaborative, self-management support, and patient-centered processes is a critical and undeveloped area. In addition, processes in the outpatient environment address both acute and chronic issues, occur episodically, and are sustained over a period of time period—often years. The effect of this difference is not clearly or entirely known; however, this episodically defined long-term relationship is expected to be a significant factor in application.

In the inpatient setting, reliability methods have been applied to groups of processes called *bundles*. As noted by Carol Haraden, PhD, vice president at IHI, “a bundle is a structured way of improving the processes of care and patient outcomes; a small, straightforward set of practices—generally three to five—that, when performed collectively and reliability, have been proven necessary and sufficient to improve patient outcomes” (Institute for Healthcare Improvement, 2006). Supported by strong evidence, these work processes generally occur at a specific time and place and by a specific person, “no matter what” (Institute for Healthcare Improvement, 2006). The authors recognize that there are most likely tightly linked processes crucial to outcomes in the outpatient environment, and the CareSouth example in diabetes suggests the usefulness of such groupings of processes to improve reliability. However, the characteristic of outpatient processes as episodic and occurring over a long period of time excludes the use of bundles as defined by IHI.

In addition, the lack of close proximity and the episodic, long-term relationship complicate the identification of important related processes that are assumed to be synergistic. Although perhaps not as obvious or closely related in time, other contextual factors might have equal influence but are less visible. CareSouth, for example, instituted a systemwide care manager role to ensure the development of self-management goals and follow-up with patients. It is conceivable that the care manager processes are as tightly linked to improvement in HbA_{1c} levels as the 5 processes that were the focus of improvement at the clinic level.

The awareness of a workforce outcome associated with the CareSouth pilot clinic stimulated much discussion between the authors. The pilot clinic site that applied reliability methods to diabetes care processes has the highest percentage of staff participating in the CareSouth wellness program. This group of staff also has shown significant improvement in their health status (eg, blood pressure control, smoking cessation). Furthermore, overall CareSouth staff satisfaction (measured twice

yearly for the entire organization) has more than doubled during the time when the organization has been implementing reliability strategies. These factors give rise to questions regarding the potential effect of applying reliability methods on the working environment itself or, inversely, the working environment’s interplay with reliability.

Perhaps the reliability work gives a sense of systematized structure and fosters teamwork toward a common and known aim—factors often associated with results (Resar et al., 2005). Or, perhaps linking important processes supports adult learning and the cognitive strategy of clustering, defined by Stolovich and Keeps (2002) as “different ways to arrange information for easier perception, understanding, retention and recall” (p. 95), supporting the ability of staff to function more effectively. Or perhaps the bundle concept or tightly linked processes are actually (or also) an equal human factors issue related to human organization, learning, and motivation. Perhaps the improvement in staff wellness at the CareSouth clinic, which used reliability methods, is indicative of a tight link between the well-being of patients and the well-being of staff. Although the authors currently have more questions than answers, further explorations into useful methods for grouping processes, as well as a better and more complete understanding of the reasons for their effect, are intriguing and vital areas for future development.

CONCLUSION

Reliability methods appear to have great promise for improving both inpatient and outpatient processes toward reducing harm and meeting patient needs. Regardless of the setting, however, every process cannot be made highly reliable. There are simply not sufficient resources, and not every process requires the highest level (10^{-3}) of reliability. Systematic prioritization and grouping of processes for high-reliability improvement using criteria based in evidence, experience, and multiple perspectives (patient,

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workforce, and provider) need to be further understood and developed. In addition, identifying and exploring intended and unintended consequences of the reliability journey might help move toward a more enlightened view of one's system consistent with the aim of a system proposed by Deming (1993) years ago:

"The aim proposed here for any organization is for everybody to gain . . . over the long term. For example, with respect to employees, the aim might be to provide for them good management, opportunities for training and education for further growth, plus other contributors to joy in work and quality of life" (p. 51).

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Activation of Patients for Successful Self-Management

Laurel Simmons, SM; Neil Baker, MD; Judith Schaefer, MPH; Doriane Miller, MD; Scott Anders, MD

Abstract: Patients, not healthcare providers, are the primary managers of their health conditions. Current healthcare falls short of providing the kind of support that patients need to optimally manage their conditions. But there are simple and effective self-management support tools and methods that are easy to learn and can be used within the time constraints of the office visit. In addition to tools and methods, supporting self-management requires practice redesign to reliably deliver optimal care to all patients. Whether the care team consists of a solo physician or a large, multiphysician organization, applying basic principles and using simple tools can enable patients to take a more active role in improving their health. **Key words:** *action planning, goal setting, patient activation, patient-centered care, planned visit, self-care, self-management support*

RATIONALE AND BACKGROUND

Patients, not healthcare providers, are the primary managers of their health conditions. However, current healthcare falls short of providing the kind of support that patients need to optimally manage their conditions. Many patients do not understand what their doctors have told them (Schillinger et al., 2003), nor do they feel included in decisions about their care (Schoen et al., 2004). Others are not yet even aware that taking an active role in managing their condition can have a big impact on how they feel and what they are able to do.

Changing health behaviors is not an easy task. Patients often manage difficult treatments within a complex psychosocial context. Clinicians need to create a collaborative relationship that addresses patients' priorities, circumstances, and goals. The health provider thus becomes a colleague, offering guidance and support instead of solely telling patients what to do to manage their health.

In the context of a collaborative relationship with shared decision making, clinicians can provide the elements of self-management support, including self-monitoring and problem solving, goal setting, and action planning. When patients receive collaborative self-management support, they have fewer hospitalizations, improved quality of life, and improved clinical outcomes in several ambulatory sensitive conditions (Lorig et al., 1999; Norris et al., 2002).

Such a collaborative framework for patient care is a fundamental transformation of the patient-caregiver relationship (Bodenheimer et al., 2005). Making this shift seems daunting in the face of existing time and resource constraints in ambulatory care practice. This article describes the authors' experience over the last 5 years in projects that helped provide

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some answers to the following questions:

1. Are there brief interventions to effectively enhance collaborative care that any provider could implement with minimal training?
2. What practice and systems redesign elements are necessary for optimizing care for all patients?

METHODS

The experience we offer is based on 2 initiatives:

1. *New Health Partnerships: Improving Care by Engaging Patients*, an initiative of the Institute for Healthcare Improvement, funded by the Robert Wood Johnson Foundation, has worked with 35 teams in 3 different projects to identify best practices in collaborative self-management support. Patients and family members have been involved at every level of the project.
2. The Institute for Healthcare Improvement Learning and Innovation Community on Redesigning the Clinical Office Practice has brought together teams from a variety of healthcare organizations to explore how best to implement patient-centered, collaborative care. The community has tested tools and methods stemming from both the New Health Partnerships initiative and ideal medical practices, an ongoing project to develop patient-centered care within very small and solo practices (Moore & Wasson, 2007).

TOOLS AND METHODS FOR PATIENT COLLABORATION AND ENGAGEMENT

The following tools and methods are selected on the basis of our experience that they are relatively easy to learn and can generally fit within time constraints of office visits. We know that even brief interventions to enhance the collaborative relationship can be effective (Von Korff et al., 1997). These tools and methods are just a start. Honing skills and

knowledge in collaborative care is an ongoing endeavor.

Preparation for the visit

In a systematic review of studies on provider-patient interaction, Griffin and colleagues (Griffin et al., 2004) concluded that “complexity is not necessary for success; patients who simply provided practitioners with written information about needs, emotional concerns and functional status prior to consultation were less anxious or showed improvement in functional status afterwards.” A short form that elicits patient concerns or needs, either mailed in advance of the visit or completed in the waiting room, can be sufficient.

Agenda building

In collaborative care, patients and providers work together to create a list of agenda items for discussion during the visit. A simple visual aid such as the “bubble diagram” (Table 1) is a way to focus both the patient and the provider on the range of issues that are important to the patient. Providers are often concerned that the patient will have a long list of items that cannot possibly be covered during the office visit. However, patients can be engaged to help prioritize agenda items for the time available (Epstein et al., 2008).

Ask-Tell-Ask-Close the loop

Patients often leave the office visit without understanding or remembering important care instructions and medication information (Roter & Hall, 1989), which may lead to worse outcomes such as higher hospitalization rates (Safeer & Keenan, 2005). Twenty percent of patients read at a fifth-grade level or below for which written healthcare information is not often tailored. Physicians cannot expect that patients will spontaneously reveal their lack of understanding. Also, physicians may not provide basic information that patients need. In one study, physicians explained the adverse effects of medications or instructions about one third of the time (Tarn et al., 2006). Using a simple method such as Ask-Tell-Ask-Close

Table 1. Resources*

Tools, methods, resources	Purpose
Bubble Diagram	Enable collaborative agenda setting
Ask-Tell-Ask-Close the loop	Ensure patient understanding and recall
Readiness for Change Sample Dialogue	Enable collaborative agenda setting
Importance/Confidence Rulers	Support and initiate behavior change
Goal Setting/Action Planning Forms	Support and initiate behavior change
Problem Solving Form	Address patients' barriers to achieving success with behavior change
Follow-up Checklist	Design a process for patient follow-up
<i>How's Your Health</i>	Support and evaluate patient self-management
Communications skills reference	Remind providers of good communication techniques using a simple reference
Planned visit checklist	Design efficient self-management support visits using all staff
Ottawa Decision Aid Web site	Provide patients with evidence-based decision support

*A wealth of free tools and resources for collaborative self-management support are available for download at Institute for Healthcare Improvement's New Health Partnerships Web site (<http://www.newhealthpartnerships.org/PatientActivation>).

the loop can help improve communication and patient understanding.

- *Ask permission:* The provider asks permission to give information about a topic of importance to the patient ("Would you like to hear more about . . .?"). This establishes a respectful tone with the patient.
- *Tell:* Explanations and written material are most effective when given in response to the patient's expressed agenda and tailored to their ability to understand. Simple visual aids can be very effective (See the CareSouth Carolina case example). Patients can also be referred to online decision support such as *How's Your Health* (Table 1).
- *Ask for understanding:* The physician asks the patient if he or she understands the instructions and provides additional information or clarification as needed.
- *Close the loop:* The physician asks the patient to restate the information as the patient understands it. The provider can then tailor the information for the patient's needs and level of understanding. In one study with diabetes patients, patients recalled and comprehended only

12% of new concepts introduced during the visit. Those patients whose recall and comprehension were assessed were more likely to have hemoglobin A_{1c} levels below the mean (Schillinger et al., 2003). In this study, use of the closing the loop technique was not found to add time to the visit duration.

Readiness for change assessment

Patients are more likely to succeed with a health behavior change when the change can be related to a matter that is important to them and when they are confident that they can achieve the change. Simple ratings of level of importance and confidence using a scale of 0 to 10 can give a quick indication of readiness and next steps. Ratings of less than 7 on either measure signify less likelihood of success and the need to explore concerns and barriers with the patient, or even to select a different topic for health behavior change (Miller & Rollnick, 1991) (Table 1).

Goal setting, action planning

Once a health goal is chosen that is important and meaningful to the patient, the

next step is collaborative work to create an action plan, framing small steps that have high likelihood of success. In one study, action planning was found to take as little as 1 or 2 minutes or as long as 20 minutes. The average was 6.9 minutes (MacGregor et al., 2006). Some patients may require a longer visit or additional contacts to help achieve their self-management goals. Most patients are best served by a short process that is revisited, improved, and modified over time. Participating organizations in the New Health Partnerships initiative created 1-page "action planning forms" to facilitate self-management support (Table 1).

Problem solving

The physician can use a step-by-step process to assist the patient in identifying problems and testing solutions to overcome barriers. Problem solving is a skill generic to a large cross-section of issues in managing chronic illness (Table 1).

Follow-up

Collaboratively set goals, creation of an action plan, and high patient confidence for making behavior changes are not enough to guarantee healthy change. Follow-up with patients, during subsequent visits and between visits, to assess progress and adjust plans as needed is an essential part of self-management support (DeBusk et al., 1994; Wasson et al., 1992; Weinberger et al., 1995). Inter-visit follow-up occurs 1 week after the visit and nurses, medical assistants, and trained lay volunteers can often provide the necessary support. Practices with secure Internet portals can provide additional patient support by e-mail and updates to online patient records. A follow-up checklist may make this task quicker and more reliable (Table 1).

PRACTICE REDESIGN

Establishing a system of support for patients often requires practice redesign to make efficient use of staff time and other resources, to ensure appropriate training, and to reliably deliver and document care. Ideally, re-

design also leverages community and family resources and identifies new ways for patients to interact with a variety of healthcare providers.

Redesign in very small and solo practices

In the ideal medical practice model (Moore & Wasson, 2007), which is focused on very small and solo practices, overhead and panel size are reduced so that the physician can spend more time with patients. In this design, a public domain information system, *How's Your Health*, offers practices and patients ready access to patient-reported data and outcomes to tailor self-management support. Information and tools available through *How's Your Health*, telephone counseling, and group visits all provide a menu of options to tailor support to patient needs. The changes for redesign described in this article, however, primarily focus on larger practices (Table 1).

Key changes for practice redesign in multiphysician practices and larger organizations

Train the entire care team for effective communication

All staff can be trained in the simple tools described above. More comprehensive training is important for key members of the care team who specialize in coaching patients. Organizational teams participating in the New Health Partnerships initiative received intensive training in motivational interviewing communication skills, which they reported was essential to their success with collaborative self-management support (Table 1).

Optimize roles and develop the care team

All care team members are part of the collaborative relationship with patients. Many patients will require more than a single contact to establish an action plan and receive follow-up support. The physician alone cannot do all of this work. With training and a team-based care approach, care team members can help fulfill patient support needs, thereby making

the physician's role and time more focused and efficient.

Plan the visit

Involving the whole care team in the patient visit requires close coordination to sustain consistency and collaboration. This process can begin with identifying the essential tasks of the clinical visit, designing efficient workflows, and training staff to fill new roles. Flow mapping a planned visit for diabetes care is one method that can be used for such processes as previsit planning, laboratory testing and results, registry checks, self-management support coaching, and other essential elements (Table 1).

Document self-management activity

Documentation of patient needs and priorities and action plans is just as necessary for follow-up and care coordination as recording traditional clinical data. Expectations and requirements for documentation have to be built into office practice policies and care team responsibilities.

Link to community resources

Patient self-management is a 24/7/365 activity. It is important to link patients and family members to support resources in the community. Patients participating in the New Health Partnerships initiative report that they value referrals from their care providers. Begin by seeking and establishing collaborative connections with select community-based resources. Identify 2 or 3 relevant, high-quality community programs and maintain a list of these programs, along with current phone numbers, that care team members can use to refer patients as appropriate.

Offer patient decision support

An increasing number of patient medical decision aids are available to patients and providers online. For example, *How's Your Health* offers information to patients that they can use independently or with their providers (Wasson & Benjamin, 2006) (Table 1).

CASE EXAMPLE: CARESOUTH CAROLINA

CareSouth Carolina is a rural healthcare system in Hartsville, South Carolina, serving more than 31,000 patients, many of whom are low income. There are high rates of chronic illness in the population. The system has worked since 1999 to improve chronic illness care through adoption of evidence-based guidelines and the chronic care model.

Dr Scott Anders, Medical Director, had achieved steady improvements in rates of hypertension control. However, he felt his results were still suboptimal. About the same time, Mr B, a 50-year-old patient with diabetes and hypertension, came in for a visit. Over the last 2 years, Mr B had been steadily gaining weight and required ongoing adjustment to his antihypertensive medications. Nothing they tried seemed to work, including giving Mr B many written materials about hypertension.

On reviewing the patient record Dr Anders noted that, several years earlier, Mr B had been able to lose 100 lb and no longer required hypertension medications as a result. Over the course of conversation during the office visit Mr B blurted out, "I can't read or write and I've never told anyone." Mr B's previous improvement was the result of remembering instructions to lose weight and exercise given to him by an endocrinologist. These instructions were no longer helpful to Mr B because he could not remember them. He also could not read the new handouts he received, and the blood pressure numbers he and Dr Anders talked about did not make sense to him.

This moment changed Dr Anders's practice and, ultimately, all practice at CareSouth Carolina. CareSouth began to realize the high prevalence of issues with health literacy in their population and other barriers to improving chronic illness care. For example, providers often heard patients make statements such as "My blood pressure has never and can never be controlled" or "It runs in my family and something I just have to live with." Also, there was a belief that "if it doesn't hurt, it doesn't need to be fixed," making it

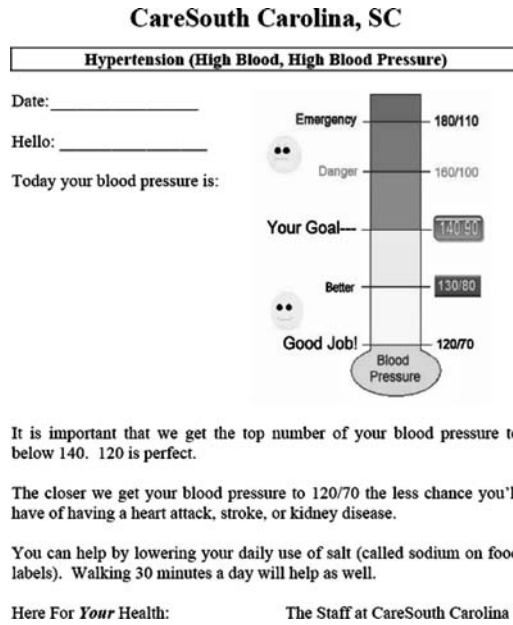


Figure 1. CareSouth Carolina high blood pressure thermometer visual aid.

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difficult to create a shared sense of urgency about treatment.

In January 2005, Dr Anders and CareSouth Carolina introduced the “high blood pressure thermometer,” a visual aid to help patients better understand how to control hypertension (Fig 1). Over the next 6 months, Dr Anders saw an increase in the number of his patients who had control of their hypertension, from 54% to 65%. Patient ratings of confidence in managing their conditions rose from 42% to 88%.

The thermometer helps providers, staff, and patients have a shared understanding of desired care management and makes closing the loop much easier. CareSouth Carolina expects all staff who interact with patients to review the thermometer at each encounter so that there are repeated chances to ensure and improve patient understanding. Patients know the whole care team is on board with them. Now, even when patients feel good, control of blood pressure makes some sense. And they are less likely to face the embarrassment of saying “I can’t read or write.”

Dr Anders set all of this change into motion by closing the loop with one patient.

CASE EXAMPLE: UNITE HERE HEALTH CENTER

UNITE HERE Health Center is a primary and specialty care center run by the UNITE HERE labor union that treats immigrant workers in New York City. More than 90% of patients’ income is less than 200% of the poverty level. Most patients’ primary language is Spanish, Chinese, or French Creole and many of the center’s staff is bilingual or multilingual.

The clinical improvement team led by Dr Heidi Frances decided to focus on weight management, an important issue in the patient panel. Given the doctor’s limited time, the team piloted a new role, care manager/coach, with Julie Kaye, the clinic nutritionist. Julie began to reach out to Dr Francis’ patients whose body mass index was more than 30 kg/m², offering to coach them in weight management. Initially, many patients

were unused to such proactive contact and did not agree to a coaching visit.

Ms L, one of Dr Francis's patients, wanted to lose weight for some time and tried multiple diets without any lasting success. When Julie contacted her to offer a coaching appointment, she was surprised but decided to give it a try. Julie listened to Ms L's past difficulties with weight management and engaged her in looking for a possible next step. Ms L felt it would be a manageable increase in exercise to walk 3 additional blocks to a different subway stop during her commute. This also meant she could avoid changing trains and save time.

Dr Francis's team learned that patients were more likely to focus on obesity issues once they met with Julie. To meet demand and expand the coaching role to other conditions, the improvement team needed to involve additional clinic staff. Using tools supplied by the New Health Partnerships initiative, Julie developed a staff-training curriculum for self-management support. Initial trainings were with volunteers (mostly medical assistants) who expressed an interest in learning the role. The training was designed to be fun, model the coaching process, and encourage staff to experiment with their own behavior changes. The trainees quickly learned basic skills for goal setting and action planning. The medical assistants reflected the ethnic and language background of the patients and related particularly well to them.

Ms L's journey to greater health is still unfolding. As she experienced the benefits of walking she wanted to do more but felt bored simply walking alone in her neighborhood. She and Julie brainstormed possible ways to solve that problem, and now she talks on her cell phone with her favorite cousin who feels good about supporting Ms L in her new healthy habits. Ms L has now taken on a new role as patient advisor to the clinic's improvement team and she is involved in training new coaches. Her story is an inspiration to staff and other patients alike.

To make self-management support even more accessible, Ms L, Julie, and other

coaches have begun outreach through the union to bring information and support to the worksites, offering lunchtime group programs on healthy eating, goal setting, and action planning.

Dr Francis's patients have now become accustomed to being in regular contact with the clinic staff. Their coach may call to see how an action plan is going or to tell them about new opportunities for actively managing their health conditions. Some patients, like Ms L, come to the clinic frequently because they have become valued collaborators in helping other patients and in improving the quality of care at UNITE HERE.

SUMMARY AND CONCLUSION

Bringing together the medical expertise of the clinician and the experience of the patient in applying that expertise to effectively manage health is the biggest challenge of collaborative care. It is also the promise of improved health for the 100+ million people in the United States with a chronic health condition who account for approximately 75% of healthcare costs in the United States (University of California, San Francisco Institute for Health Aging, and the Robert Wood Johnson Foundation, 1996).

In both case examples, single providers employed very simple techniques and worked together with patients to significantly improve their health. These experiences led to larger practice and system changes, enabling providers to tailor interactions to patient needs. In the authors' experience, making changes to promote collaborative self-management support by first testing new tools and methods can promote a successful shift in staff attitudes and organizational culture.

To meet the challenge of implementing collaborative self-management support, the healthcare delivery team or clinical microsystem (Batalden et al., 2003) takes on new importance in performing the variety of roles and tasks required to offer truly patient-centered care. Whether this microsystem

consists of a solo physician or a large, multi-physician organization, applying basic principles and using simple tools can enable

patients to take a more active role in managing their chronic conditions and improving their health.

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Transforming Care Teams to Provide the Best Possible Patient-Centered, Collaborative Care

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 Cindy Hupke, RN**

[AQ2]

Abstract: Patient experience of care is now a crucial parameter in assessing the quality of health-care delivered in the United States. Continuity, patient-driven access to care, and being “known” by a provider or practice, particularly for patients with chronic diseases, have been shown to enhance patient satisfaction with care and health outcomes. Healthcare systems are challenged to effectively meet the wants and needs of patients by tailoring interventions based on each person’s unique set factors—his or her strengths, preferences, and personal and social context. Creating care teams, a coordinated multidisciplinary group of healthcare professionals, enables a practice to take advantage of the skill sets represented and redesign care delivery with the patient and community as the focal point. This article describes the attributes of highly functioning care teams, how to measure them, and guidance on creating them. A case example illustrates how these ideas work in practice. **Key words:** *care team, patient centered, planned care, primary care*

IT USED TO BE that patients saw the physician when they had an acute need. They received a diagnosis, a targeted intervention, and left the physician’s office in short order. Over time, the nature of primary care has changed dramatically. The typical primary care practice today manages many more patients with 1 or more chronic conditions, many with mental and behavioral health needs, and all with preventive screening needs. In one study, 45% of Americans 65 years or older had 2 or more chronic conditions (Wolff et al., 2002). Helping people manage and prevent chronic conditions requires more than a diagnosis and a prescription. Patients with chronic conditions spend little of

their time in the medical office and, in effect, all are self-managing their conditions.

Patient-centered, collaborative care requires new ways of delivering care. Office practices, and the healthcare system as a whole, must be designed to reliably collaborate with patients and respond to an individual’s strengths and challenges in managing his or her care, including the psychosocial context, available financial and support resources, ability to self-manage, and barriers to self-care (Epstein et al., 1993; Epstein et al., 2005). Working with a person and tailoring healthcare to better fit the context of the individual is called “patient-centered” care and has been described in the medical literature (Maes & Karoly, 2005; Wasson et al., 1999). An article in this series on patient activation describes how clinical practice improvement teams are working to address patients’ preferences in the context of their own settings. [AQ5]

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One analysis of a typical primary care practice with 2500 patients documented more than 7 hours of work per day to attend to that

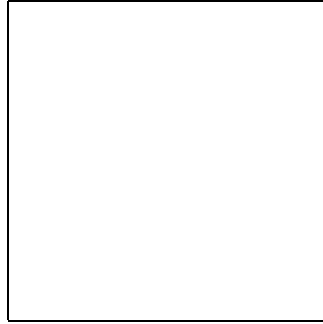


Figure 1. Office practice staff survey: How to measure care team functioning.

[AQ13]

day's patients with chronic conditions; add to that more than 10 hours per day of preventive and acute care (Ostbye et al., 2005). This example makes it strikingly obvious that the traditional 15-minute office visit is no longer sufficient to fulfill patients' care needs. Many practices have implemented advanced access principles—such as simplifying appointment types and times and delegating work to others in a coordinated team effort—to better meet patient needs (see the article titled “Accessing patient-centered care” in this series).

Most practices have tried to meet patient needs by adding staff trained in social work, behavioral health, medication adherence, nutrition, and other disciplines and skills. This article focuses on 10 years of experience working with office practices that have developed a “care team”—a coordinated group of individuals in the practice who actively participate in meeting the needs of individual patient and the population served by the practice. The attributes of a high-performing clinical care team are measurable and can be successfully implemented in primary care practices. Figure 1 is a list of staff survey questions that can be used to measure attributes of a highly functioning team.

1. In this office, I always have the opportunity to do what I do best everyday.
2. In the last 7 days, I have received recognition or praise for doing good work.
3. Our office staff works like a team. We have high levels of trust and collaboration. We appreciate complementary

roles and recognize that all contribute to a shared purpose.

4. I would recommend this office practice as a great place to work.
5. How easy is it to ask anyone a question about the way we care for patients?
6. Technology in this office smoothly links patient care with a rich information environment. The information environment is designed to support the work of the clinical team.
7. Our office has a full staff meeting (providers, nurses, medical assistants, office staff) at least every 6 weeks, and those meetings focus on how we can best work together to better address the needs of our patients.
8. Our office keeps an up-to-date display of information about our performance.
9. Our office knows how confident individual patient is in controlling and managing most of his or her health problems or concerns.
10. Our office has regular meetings with groups of patients (either in a patient advisory board or in scheduled patient group visits).
11. What would make this practice much better for patients?
12. What would make this practice much better for those who work here?

DEFINING A “CARE TEAM”

“A team is a small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable” (Katzenbach & Smith, 2005).

Any group of people working together for a defined population of patients is a de facto team, but we will follow Bodenheimer's lead and only use the term “care team” when referring to highly functional teams and not to unplanned groupings of individuals who do not exhibit the attributes and outcomes of a highly functional team (Bodenheimer, 2007, p. 6). The goal of the care team is to deliver patient-centered,

collaborative, evidence-based care both to individuals and the patient populations the team serves (Wasson et al., 2008).

Patient-centered, collaborative care is made possible through an intentional service orientation and tailoring of the work to meet the needs of the population(s) and individuals served. An intentional service orientation eliminates barriers to care by improving access to the team (eg, implementing advanced access principles, providing e-mail and phone care) and embeds continuity of care so that the patient is “known” and long-term trusting relationships can be established. For example, a pediatric practice in a high-income area will need a different care team configuration than a practice with a high volume of low-income patients with chronic disease. Providing tailored, patient-centered care relies on recognizing and addressing the wants and needs of the individual patient by working within the individual’s psychosocial context, available financial and support resources, ability to

self-manage, and address barriers to self-care (Epstein et al., 1993; Epstein et al., 2005).

For more than a decade, improvement teams and faculty participating in the Institute for Healthcare Improvement (IHI) Learning and Innovation Community on Redesigning the Clinical Office Practice have tested team function strategies as a means to improve quality of care, patient and staff satisfaction, and office efficiency. Although there is much yet to learn, this collective experience provides some insight to those behaviors and attributes that differentiate highly functioning care teams from ever-larger groups of clinicians and practice staff working together to provide care.

CREATING HIGHLY FUNCTIONING PATIENT-CENTERED, COLLABORATIVE HEALTHCARE TEAMS

Becoming a high-performing clinical team—that is, one able to provide truly

[AQ6]

Sidebar. A partial list of reasons cited as generating interest in the development of care teams follows

- Improved ability to address the expanded scope of work of patient-centered and evidence-based care (Wagner, 2000).
- A highly functioning care team may improve efficiency and increase the number of patients seen per unit time, thus increasing revenue and/or access to care (MGMA data and experience of Institute for Healthcare Improvement faculty working with practices over the past decade).
- Improved patient and population experience of care and outcomes:
 - Nurses, other healthcare professionals and, at times, lay healthcare providers are skilled in patient self-management support and education, prevention and chronic disease management, care coordination, and population management (Bodenheimer, 2007; Wagner, 2000).
 - The likelihood of patient follow-through on preventive and chronic disease care improves with improved experience of care (Lacy et al., 2004; Ling et al., 2006; Wasson et al., 2008).
- Teams can offer different perspectives and a complement of knowledge and skills for the benefit of a particular individual patient’s or a population’s care (Bodenheimer, 2007; Wagner, 2000).
- Increased satisfaction of physicians, nurses, medical assistants, and other healthcare professionals is related to being able to work at the top of their licensure, leading to greater staff retention (experience of Institute for Healthcare Improvement faculty).
- A strong care team supports the ability to “max pack” the visit, meaning, when appropriate, the patient and provider can decide on performing a number of needed services in 1 visit. This process ultimately increases patient satisfaction, increases effective clinical approaches and outcomes, and increases access for additional patients. (See the article titled “Accessing patient-centered care” in this series.)

[AQ7]

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patient-centered, collaborative care—does not just “happen.” It takes intent, hard work, willingness to change, and measurement to assess improvement. To promote a patient-centered focus that meets the needs of both individual patient and the community, it is necessary to change the roles and the work of individuals in office practices and the organizations in which they operate. “The factors identified with better performance include good leadership, a clear division of labor, training of team members in their personal roles and in team functioning, and team-supporting policies of the organization within which the team is working” (Bodenheimer, 2007, p. 6). Bodenheimer notes the need for a significant and ongoing investment in training, the creation of protocols that define tasks and who will perform them, adoption of team rules, including decision making and communication, and protected nonpatient care time for team meetings.

The care team can be an effective engine to reach the goals of patient-centered, collaborative care and improved outcomes; however, team care can also result in fragmentation of communication, continuity, and accountability. This fragmentation can result in a degraded experience of care and worse outcomes for the patients served (see the sidebar).

Sidebar.

A 2006 survey of *Wall Street Journal Online* readers demonstrated a 100% increase in hospitalization and emergency department use when readers with chronic conditions were not able to identify “one in charge” of their care (Wasson, 2008).

What has to happen so that healthcare professionals can and do perform their work, daily and over time, to provide care that is focused both on the clinical conditions and “what matters” from the patient perspective? What attributes do patients say are important?

In the authors’ work with practices over the last decade, surveys of office practice staff demonstrate a high correlation of the following attributes with positive patient experience and improved outcomes (see the article titled “Balanced measures for patient-centered care” in this series).

- It is clear what is expected of each person at work and he or she has the materials and equipment that are needed to accomplish the role in his or her job. It is easy for care team members to understand and discuss processes of care.
- Information for and about the patient’s health and wellness is available to the care team when needed (history, diagnoses, laboratory and test results, etc).
- Everyone on the staff is valued, and there is respect and sharing.
- Feedback of performance is routine, and there are professional growth opportunities.
- Care team members have positive attitudes.

These attributes are more likely to be present when practices and organizations intentionally take them into account when forming care teams and when the care teams engage in certain behaviors discussed below.

For care teams to function at a high level and achieve the desired patient-centered, collaborative care goals, organizational leadership must view the care team model as “the way we do business.” That is, the care team model is the means for achieving strategic, long-term goals; business plans are based on care team resource needs; and the model is “hard-wired” into the system through training, job descriptions, and perhaps team incentives.

Office practice improvement teams working with IHI have tested the following strategies to create patient-centered, collaborative care teams.

- Invite patient and family representatives to participate in the care team to provide feedback and advice on the re-design of care processes. For example, patient and/or family representatives fully

participate in a care team's regular data review and quality improvement work.

- Promote excellent team communication daily and ongoing. For example, conduct daily or twice daily care team huddles in which the provider, nurse, secretary, and other team members meet for 5 to 20 minutes.
- Proactively plan care for individuals and for the panel of patients by anticipating fluctuations in demand for care and planning needed care. For example, the nurse and nurse practitioner huddle once or twice daily to review the day's appointment schedule to determine in advance which patients need updated vaccines or require blood tests for their conditions. (For more on huddles, search "Huddles" on www.IHI.org.)
- The care team meets weekly to review processes of care and fine-tune roles and functions. For example, as part of its daily huddles, the care team discovers that several patients have to schedule return visits to have blood work completed. The team devises a protocol for identifying patients flagged for "blood work follow-up" prior to the scheduled office visit.
- Provide regular feedback on process and outcome measures to the care team. For example, on reviewing data, the care team notes that its patients with chronic conditions are less confident in managing their conditions. The team investigates and begins to pilot group visits to enhance patient self-management skills.
- Improve minute-to-minute communication by moving care team members into physical proximity. For example, locate the scheduler next to the nurse or provide team members with real-time 2-way communication devices (eg, walkie-talkies).
- Optimize each person's role on the team based on the scope of practice, experience, skills, and abilities. For example, each team member performs a subjective analysis of his or her own work. When this information is shared in the team huddle, the team elects to shift some clerical work from a nurse to a secretary.

- Collaborate with community resources to improve the health of people in that community. For example, the practice identifies and evaluates programs offered by the local community center and refers patients with diabetes to healthy cooking and water fitness classes.
- Use the clinical information system (CIS) to proactively query, manage, and plan for both individual patient and the population of patients. For example, a team member runs a CIS query for all patients recently prescribed an antihypertensive medication who are still not achieving adequate blood pressure control. Those patients receive proactive follow-up and support (population management). Or, the receptionist runs a CIS report for each patient visit, identifies preventive and chronic condition needs for those patients, and responsibility to follow-up on identified needs is assigned in the team huddle.

CASE STUDY: CLINICA CAMPESINA

Clinica Campesina, a community health center in Northwest Denver, began caring for underserved and medically vulnerable people in the 1970s as a small practice with 1 nurse practitioner. As the health center grew over time, leadership recognized that its ability to maintain patient and population care focus—to "be big but feel small to patients and staff"—would be better served by using mini-clinics or care teams.

[AQ8]

Over time, Clinica Campesina created service delivery options to meet the complex needs of its patients. Starting with existing staff, staff roles were optimized and *teams* focused on specific panels of patients were created. This enabled the staff to learn what processes and tools were needed to support the care team's delivery of patient-centered care. Eventually, partnerships with other important services such as integrated behavioral health and group visits were strategically added to meet the many different needs of their patients.

The formation of Clinica's care teams was guided by research and continual feedback

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from their own patients. It is worth noting that their journey started 10 years ago and they continue to improve their care delivery.

Clinica Campesina's approach to developing care teams was to create "pods" of providers and care team members, supported to reliably deliver patient centered, collaborative care:

- *Service orientation—continuity*: A primary care provider's (PCP's) patients know that they are part of the "purple pod" or the "orange pod" in the clinic. When the PCP is not available, his or her patients see one of the other 2 providers in the pod, limiting the number of possible providers with whom the patients must interact.
- *Service orientation—access*: Clinica employs the principles of advanced access to "meet today's demand today."
- *Service orientation—efficiency*: A well thought-out electronic health record (EHR) provides instantaneous messaging to the care team, identifying patients who need an appointment and when; patient preferences or needs (eg, no gas money or a question about a new medication); and needs that can be met without a face-to-face office visit. Given the care team's focus on meeting patient needs, team members are tuned into their electronic tasks and act on the messages in a timely manner. The EHR also provides key clinical and patient information at the point of any interaction, giving care team members access to key current clinical information (eg, laboratories, self-management activity, barriers to self-care, or referral information). It is important to note that most of these processes were designed well before the implementation of the EHR, which meant that Clinica was clear on how the EHR should support the work of the care team.
- *Service orientation—efficiency*: A PCP's care team is located in its own "pod," or physical space, designed to support great teamwork, efficiency for staff and patients, and a vital work environment.

The team is colocated, meaning all desks are in an area together, have line of sight, meaning every care team member can see patient flow from registration to check-out, and continuous flow of work. For example, the examination rooms are built larger than many so that all tasks to complete the visit, such as drawing blood, can happen in the examination room. On a very busy day, the area is fairly quiet because patients and staff are only moving in and out of examination rooms. A simple visual flag system lets care team members know what the patient needs next.

- *Care team tasks and roles are defined and planned*: Patients become more familiar with the entire care team over time as they begin to receive assistance and care from these team members. Patients are greeted by care team members at the front desk; medical assistants and nurses know the patient and the patient knows them; a medical records team member may provide assistance with health information; and a case manager or social worker can assist with referrals, care coordination, self-management, or behavioral health issues. Increasingly, patients gain confidence in all care team members, not just their PCP, giving patients access to a variety of people who know and respect them and provide a variety of skills, knowledge, and styles. The care team also includes a small number of members, functioning at their highest level of skill and licensure, who are committed to the common purpose of caring for the panel of patients and share in the team's performance goals for which all team members hold themselves mutually accountable.
- *Organizational support for frontline work*: Clinica Campesina ensures that the support structures needed to provide patient-centered, collaborative care and to support the care team in its daily work are in place. Examples of important support structures include hiring staff who will thrive in the Clinica environment, a training program that develops

and supports staff in providing patient-centered, collaborative care, information, and supply systems that ensure that the care teams have what they need, when they need it, to provide the care needed.

- *Work is organized to serve local population needs:* The care team is also supported in delivering care based on the needs of different subpopulations in the patient panel. Many of Clinica's patients have incomes at or below the poverty level, and they struggle with their health and getting care needs met. All care teams are familiar with the barriers to healthcare that poverty presents and they are trained to assist patients with referrals to community resources, access to programs for obtaining medications and other treatments, and low cost ways for patients to self-manage their care. Group visits, offered for people with chronic conditions and to deliver obstetrics and well care, provide alternative venues for patients who like and benefit from group support and socialization.
- *Feedback on performance:* Population-based care is reinforced with regular performance feedback to the pod and for each provider. Incentives are awarded on the basis of team performance rather than individual performance, and every staff receives an incentive when targets are met.

Care teams are composed of members with advanced academic degrees and those who have a high school general equivalency diploma. The care teams work so well together because of the shared goal of taking good care of their patients. Clinica care teams are successful because the health center makes care and information easy to access; decreases stress for staff and patients and provides a caring environment in which patients feel comfortable and confident in the care providers; and focuses on efficiently providing *what* is needed (eg, information, equipment, skills, and knowledge) *when* the patient needs it so that the patient's time is not wasted.

TENSIONS AND UNANSWERED QUESTIONS REGARDING CARE TEAMS

There are unknown factors and inherent tensions in the current US healthcare environment that pose barriers to developing care teams. First, the reimbursement model is focused on productivity, volume, and procedural care, and not necessarily on meeting the overall healthcare needs or preferences of the patient or the overall coordination of care.

Second, there is no fixed number of individuals who make up the perfect care team. Some high-performing teams are large and complex with representatives from multiple disciplines (Nelson et al., 2003), whereas other care teams are as small as 2 people (Wasson et al., 2008). The right size and composition of a care team is driven by the following factors.

- The needs of the patient population served.
- The complement of skills and capacity of the team members.
- The quality of the organizational support.
- The degree to which the needs of the population can be served outside the context of the team. If good external resources and good communication exist, it is possible to create a virtual care team and keep the size of the internal primary care team small. For instance, the practice might collaborate well with social work, behavioral health, community resources, and specialists outside their walls and, therefore, have a smaller primary care team. On the other hand, there may be few if any external resources available and the primary care team might need to grow to include social work, behavioral health, and other team members to meet the needs of the patient population.
- The degree to which leadership in the organization values the patient-centered care the team provides and can build a financial business plan that makes the care team model sustainable. If the work of the care team is not valued and goes uncompensated, or a sustainable business plan is not created, there are few organizations

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or practices that would be willing to staff the work.

Third, there is a tension between optimizing the role of each care team member and maintaining flexibility in roles to achieve smooth workflow. One extreme optimizes roles to such a degree that a team member might impede workflow by saying, "That is not my job." At the other extreme, team members perform work that should optimally be provided by another team member. Both can lead to bottlenecks. The middle ground is very fluid as it is based on the workflow of that moment. Cross-training of care team members is one strategy to address smooth flow of patient care. Most practices would benefit from a more careful consideration of roles and reorganizing the care team's work to better match each individual's licensure and scope of practice.

SUMMARY

Highly functioning care teams will play an increasingly important role as the healthcare delivery system makes necessary adjustments to meet the needs of patients and families today and in the future. Care teams can add value through improved efficiency, staff satisfaction, improved patient experience of care, and improved outcomes (Wagner, 2000, and experience of IHI faculty.) High-functioning

teams require intention and support—they do not just happen when a group of people work together. Patient-centered, collaborative care takes intention and support. There continues to be a large gap between what we know and what we do to deliver the best evidence-based care as we reliably listen and adjust to the context of the patient's preferences, resources, family support, and self-management abilities.

Highly functioning care teams are more likely to occur when there is good leadership support in the organization and teams have specific training, protocols defining tasks and who does them, protected nonpatient time for meeting, and clear guidelines about decision making and communication. It is advisable to measure the attributes of a high-functioning team and work on those specific attributes that lead to improved team function.

How everyday work will be performed in an office, who is best suited to do what aspects of the work, and ongoing improvement to meet important patient-centered care goals are all informed by the local environment, including licensure, scope of practice, labor negotiations, and the individual strengths of team members. The Clinica Campesina case study is an example of how one organization, over the course of time, created highly functioning care teams that are focused on the needs, preferences, and context of its patients.

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Accessing Patient-Centered Care Using the Advanced Access Model

Catherine Tantau, BSN, MPA

Abstract: Waits and delays for healthcare are legendary. These delays are not only frustrating and potentially hazardous for patients and providers but also represent significant cost to office practices. The traditional medical model that defines urgent care versus routine care is a vain and futile attempt to sort demand. This approach is at constant odds with patients' definition of urgency. Trusting patients to determine when and how they want to access care makes sense from a customer service perspective. If approached systematically using the principles of Advanced Access, patient demand patterns can be tracked to forecast demand. These demand patterns become the template for deploying the resources necessary to meet patients' needs. Although not a simple journey, the transformation to Advanced Access provides an entree to patient-centered care where patients can say, "I get exactly the care I want and need, when I want and need it." **Key words:** *advanced access, appointment demand and supply, backlog reduction, continuity, high-leverage changes, patient-centered care*

WAITS AND DELAYS for service in both primary and specialty care have become legendary (Merritt, Hawkins & Associates, 2004). The cost of these delays falls directly on the practice, both financially and in terms of patient, provider, and staff satisfaction. For example, although conventional wisdom may suggest that appointment schedules that are filled well in advance and far into the future are money in the bank, in reality these delayed, overcrowded schedules choke off new growth and generate higher no-show rates for appointments (Johnson et al., 2007). More importantly, from the patient's perspec-

tive, in these systems it is impossible to respond positively to the question, "I get exactly the care I want and need, when I want and need it." Delayed systems can be described simply as those practices that cannot reliably deliver patients "exactly the care they want and need, when they want and need it." To meet this standard, practices must be in a position to offer patients an appointment today, for any problem, with the provider of choice or another care team member in the absence of the chosen provider. This is the definition of Advanced Access; it is the gold standard for eliminating waits and delays for care. Advanced Access requires that the distinction between urgent and routine appointments be eliminated and patient preference directs when and with whom appointments take place (Murray & Tantau, 2000).

Advanced Access can be viewed as the on-ramp to care. The best clinical care, if inaccessible to patients, is ineffective. Since the creation of Advanced Access 12 years ago (Murray & Tantau, 1998), much has been learned to fully develop this model. This is in large part a credit to the hundreds of clinical teams and organizations that have tested the principles of Advanced Access in their

[AQ2]

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practices, both in primary and in specialty care. As this body of work has evolved, the notion that not all care must be provided with face-to-face visits has gained strength. Patients have driven this challenge, questioning the value of an office visit for a routine prescription refill, a normal laboratory result, a recheck for a stable chronic condition, etc.

Meanwhile, as practices began adopting Advanced Access strategies and dramatically reducing waits for appointments, they began to understand that managing their supply of appointments must match true patient demand for appointments. At that point, the notion that not all services require an appointment was put to the test vigorously and successfully. Nevertheless, although the Advanced Access model has broadened the definition of "services," appointments remain a fundamental building block of the model. The idea that demand and supply for all patient services (advice, phone calls, teaching, registration, message taking, etc) can be quantified to forecast demand and deploy supply for these services is one of the key developments in the Advanced Access model. It is where efficiency and access merge, simplifying key office processes and recognizing that there is rarely value in delays for any process or service.

WHY IS PATIENT-CENTERED APPOINTMENT ACCESS IMPORTANT?

The inherent struggle between patients' definition of what requires urgent attention and the medical definition of an urgent clinical need has proven to be a daily frustration for both patients and practices. Putting the decision about when, how, and by whom patients will be seen into patients' hands was once a radical concept. However, many practices now recognize that putting up barriers to what patients want is futile and wasteful. Furthermore, they have found that letting patients direct the demand for and timing of appointments allows the practice to study the natural demand patterns that emerge from the population they serve. These demand pat-

terns provide insight into how the practice can match supply with demand for services on a daily basis, a critical aspect of sustaining improved access.

Some findings from application of the Advanced Access model include the following:

- When patients have unfettered access and continuity with a provider of choice, demand for services decreases. This delights patients (Consumer Driven Healthcare, 2002) and provides the practice with "breathing space" for growth, improvement work, and redesign efforts (Murray & Tantau, 2002).
- Continuity (ie, consistently matching patients with their primary care provider [PCP] or specialist of record) has long been identified as a satisfier for patients and providers as well as a mechanism to quiet demand (Plauth & Pearson, 1998) and reduce cost (Raddish et al., 1999). However, continuity is possible only when delays are dramatically reduced and patients can see the provider of choice at a time that is convenient for them. Optimal continuity is simply not possible in delayed systems where patients frequently see someone other than their PCP or specialist of record when they are ill and vulnerable because their provider of choice is unavailable. Continuity can become a hallmark of the practice when delays are eliminated.
- Allowing the natural flow of patient demand to guide the deployment of supply significantly reduces the amount of time spent on activities such as phone calls, messages, triage, scheduling, etc. The care team's skills can then be optimized when clerical support staff can more effectively do their work and clinical staff, including providers, are freed up to concentrate on providing clinical care.
- In a practice where demand for services exceeds supply and delays for services persist, the aggressive testing of high-leverage changes has been shown to be a reliable approach to improving access to care (see the "High-Leverage Changes" section).

Table 1. Foundational elements of patient-centered advanced access

Element	Outcome
Capacity	Ensure daily supply meets predicted demand
Continuity	Satisfier for patients, providers, and staff, decreases demand
Demand and supply equilibrium	Sustains access improvement over time

FOUNDATIONAL ELEMENTS FOR PATIENT-CENTERED ADVANCED ACCESS

There are 3 foundational elements for successful and sustainable Advanced Access improvement (Table 1). These include the following:

- *Capacity*: Simply put, this refers to the availability of appointment slots each day to meet the predicted demand for appointments for each provider and the practice as a whole. These appointments are not “carved out” each day (ie, saved for same-day appointments) to meet urgent demand; they are open and available for booking and have been for some time (Droste, 1999). These appointments are available today because yesterday’s work was done yesterday and last week’s work was done last week.
- *Continuity*: This refers to the consistent matching of patients with their PCP or specialist of record when one is appointed. In the absence of the PCP or specialist, the patient may either opt to see a practice partner today or wait for the provider to return. The patient is free to choose (Murray & Tantau, 2000).
- *Demand and Supply Equilibrium*: This key element has emerged as a critical component for sustained access improvement. Although the need to balance de-

mand and supply at the outset (Tantau, 2008) is well understood, we have more recently begun to understand the need for rigorous and continuous monitoring of these 2 dynamic properties to ensure constant equilibrium over time. Relevant seasonal patterns can be tracked; however, the dynamic nature of market shifts or unexpected losses of supply (providers) can disarm practices that are not habitually monitoring and adapting to these fluctuations.

Beyond the 3 foundational elements noted above, the transition from traditional access models characterized by differential delays for urgent and routine appointments to Advanced Access requires the systematic testing and implementation of 6 high-leverage changes (Murray & Tantau, 2000). These include the following:

1. match demand and supply daily,
2. reduce backlog,
3. simplify appointment types and times,
4. create contingency plans,
5. reduce demand for unnecessary visits, and
6. optimize the care team.

Table 2 provides an overview of these 6 high-leverage changes. A more detailed summary of each follows.

Match demand and supply daily

Matching demand and supply requires a rigorous and quantifiable assessment of daily demand patterns for each provider in the practice. Demand measurements are obtained in real time, reflecting current demand patterns of the population served. Demand formulas distinguish between external demand coming from the population and internal demand generated by the practice (Tantau, 2005). This distinction enables the practice to identify streams of demand over which they have control. Once demand patterns are established, supply is deployed to meet that predicted demand. Anecdotally, when practices begin to measure they often discover that supply exceeds demand; it is just hidden in delays in the system. Understandably, providers and staff assume demand outstrips supply given their

Table 2. High-leverage changes for patient-centered advanced access and examples of strategies

High-leverage change	Examples of strategies
Match demand and supply daily	Calculate demand and deploy supply commensurately
Reduce backlog	Increase supply temporarily to overcome demand curve
	Use “smart strategies” to quiet demand
	Improve continuity
	Increase visit intervals
	Do more with some visits
Simplify appointment types and times	Standardize appointment types and times and limit restrictions
Create contingency plans	Identify those events likely to interfere with optimal office flow (eg, flu season, staff vacations)
	Develop plans to adjust when those situations occur
Reduce demand for unnecessary visits	Increase visit intervals
	Absorb urgent visits into the schedule
	Avoid overflow of patients to urgent care
Optimize the care team	Elevate all members of the care team to the highest level their education and training allows
	Standardize best practices

daily experience of delays, full schedules, and double-booked appointments. Therefore, objective measurement of both demand and supply is critical to improving access (Table 3).

Reduce backlog

Backlog reduction refers to actively reducing the delay for an appointment, measured as the amount of time in days to the third next available routine appointment. For example, a measure of zero days indicates there is no delay because the third next available appointment is today. There are multiple strategies that teams use to reduce backlog. These include the temporary addition of supply (providers) to overcome the current demand stream, referred to as hard strategies. In addition, “smart strategies” help practices redesign for long-term sustainable results. Examples of smart strategies include extending visit intervals, fully utilizing other care team members to shift some clinical care and most clerical work away from providers, optimizing continuity, “max-packing” visits (doing as much for patients during the visit to reduce future work), and combing schedules for duplicate visits (Murray & Tantau, 1998).

[AQ3]

Simplify appointment types and times

Complex schedule templates with multiple appointment types and times and intricate restrictions are challenging to support. Matching the right patient with the right problem in the correct slot in a delayed system is virtually impossible. Testing the simplification of appointment types to 1 or 2 types and limiting restrictions can increase supply that may be shrouded (Murray & Tantau, 1998).

Create contingency plans

It is important for practices to identify events, either expected or unexpected, that cause disruptions in supply and demand such as ill staff or providers, a community outbreak, flu season, peak vacation season, a code in the office—virtually anything that can interfere with the normal flow of work and either increase demand or reduce supply. Many of these events can be predicted, for example vacations and flu season. Other situations are less predictable but still occur, for example, an ill provider or a staff member. Identifying these events in advance and preparing contingency plans to address them

Table 3. Calculating daily appointment demand, supply, and activity

Calculation	Definition	Methodology
Demand	The total number of appointment-booking transactions each day of the week for each provider. Include both external (patient-driven) and internal (provider-driven) demand.	<p><i>External Demand</i> The total number of appointment requests called in or referred to the practice and booked today, regardless of the day to which the appointment is actually assigned.</p> <p><i>Plus</i> the total number of walk-in patients requesting an appointment today and booked.</p> <p><i>Plus</i> the total number of patients deflected to other venues because of lack of appointments.</p> <p><i>Internal Demand</i> The total number of patients seen today and booked again for a return visit.</p> <p><i>Note:</i> Total demand can sometimes be retrieved electronically by capturing the number of appointment-booking transactions each day.</p>
Supply	The total number of appointments available each day of the week for each provider and the practice as a whole.	Count the total number of appointments generally available on a blank schedule template for each day.
Activity	The total number of patients who were actually seen each day of the week by each provider and the practice as a whole.	At the end of each day, count the total number of patients seen by each provider. This is sometimes referred to as the number of encounters or visits.

can mitigate much of the disruption in the practice.

Reduce demand for unnecessary visits

Particularly in instances when demand outstrips supply, or growth of the practice is desired, practices can identify opportunities to reduce demand. These opportunities include, but are not limited to, the following:

- making continuity a hallmark of the practice;
- max-packing visits;
- managing primary care panel size;
- extending visit intervals where clinically indicated (Schwartz et al., 1999); and
- providing group visits, phone visits, e-visits.

Optimize the care team

This is another powerful strategy for balancing demand and supply. The basic principle involves moving work away from the provider, who is often the constraint in the system, to other members of the care team. As wasteful delays are eliminated, some of the work associated with tending those delays simply goes away. This frees staff to concentrate on the work they are uniquely qualified to do. Clinical staff are free to focus on clinical work and clerical staff can concentrate on the timely completion of important clerical tasks necessary for an efficient practice. For example, when delays for appointments are eliminated, many practices find that hours of nursing time, formerly spent

on triaging urgent patients versus routine patients, are now available to assist providers and patients in the management of chronic conditions (Grumbach & Bodenheimer, 2004; Bodenheimer, 2004). Similarly, phone staff report that transaction time for booking an appointment shrinks with Advanced Access as they are able to offer patients an appointment at a time that is convenient for the patient, with the provider of choice. This frees phone staff to be more productive, increases the rate of "first call resolve" for patients, and requires fewer interruptions and messages to clinical staff who formerly were called upon to intervene in the appointment-booking process.

The use of these 6 strategies can lead to a dramatic reduction in waits and delays for services in a variety of areas. Some healthcare organizations have incorporated the philosophy that there is rarely value in delays into all their operations. Ministry Medical Group (MMG) in Wausau, Wisconsin, is one example of such an organization. They adopted Advanced Access in primary and specialty care, in mental health, imaging, laboratory, and rehabilitation services. The availability of any service at MMG today, for any patient, streamlines the journey for patients traversing various services. This organizational access standard eliminates constraints that emerge when various services have dissimilar delays. Patient needs are met continuously and smoothly.

Note: The anchor metric for Advanced Access is delays, measured as the time in days to the third next available routine appointment. The first or second available appointment often reflects "noise" in the system such as a cancellation or random opening of an appointment slot. The third next available appointment more reliably reflects when the schedule actually has substantial capacity.

TWO CASE STUDIES

The following case studies explore the experience of 2 distinct and structurally differ-

ent healthcare organizations that adopted Advanced Access to promote patient-centered care and reduce waits and delays for care. Despite significant differences in patient populations, services offered, size of practices, location and payer profile, the adoption of Advanced Access led to significant reduction in delays for services in both organizations.

The MMG adopted Advanced Access across their system as described above. Providence Community Health Centers at Capitol Hill HC in Providence, Rhode Island, implemented Advanced Access in Internal Medicine, Obstetrics and Gynecology, and Pediatrics. Both systems methodically tested and applied the high-leverage changes for Advanced Access noted above with strikingly similar results. This outcome is not surprising; although the populations served and organizations are quite different, the principles of Advanced Access remain the same and deliver similar results.

Ministry Medical Group

The MMG is a traditional multispecialty, mixed-payer model with large and small practices in urban, rural, and suburban areas, spread over a wide geographic area in Wisconsin. They approached implementation of Advanced Access in 2 phases using an Internal Collaborative model and included all major clinical services. The MMG aims to improve access were aggressive. The organization made the decision to establish an enterprise-wide access standard that was consistent with what is often referred to as the "gold standard for access." Their goals are as follows:

- *Primary Care:* Offer an appointment today for any reason with the PCP or team-mate in the absence of the PCP.
- *Specialty Care:* Offer an appointment today with someone in the department and within 5 days with a specific specialist.
- Offer a surgery or procedure date within 5 days of deciding that a surgical or procedural intervention is required.
- *Imaging:* Offer an appointment today for each modality including computed tomography, magnetic resonance imaging, ultrasound, and mammography.

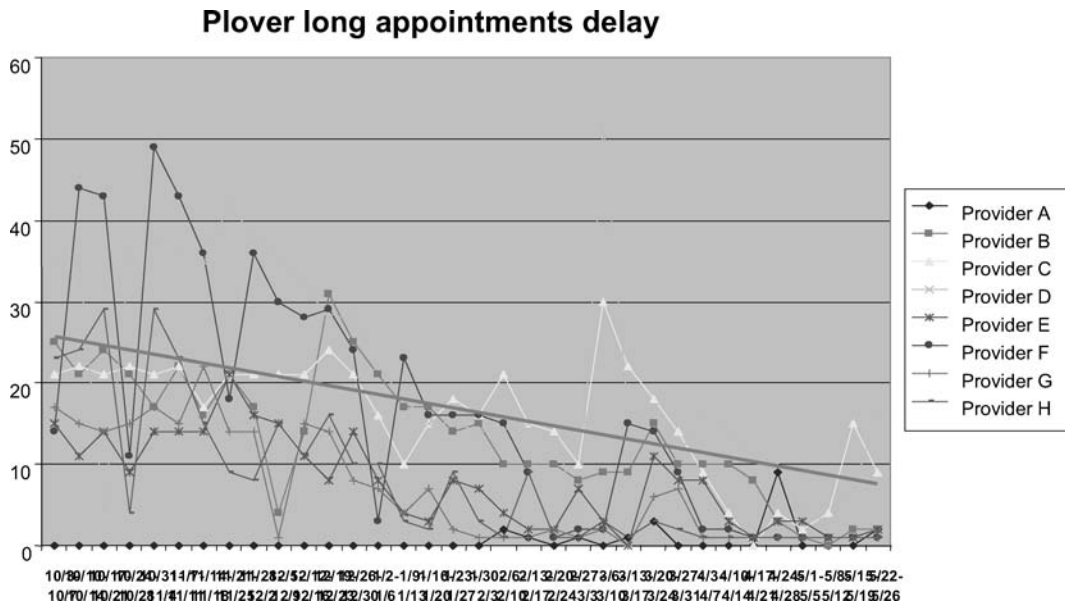


Figure 1. Ministry Medical Group Plover Primary Care Medical Offices reduction in appointment delays.

- *Mental Health:* Offer an appointment today for any problem with the therapist of record or teammate in the absence of the therapist of record.

The MMG used the 3 foundational elements of Advanced Access (Table 1) as well as all 6 high-leverage changes (Table 2) to achieve their aims. All improvement teams participated in rigorous testing of these changes.

The MMG Advanced Access Initiative resulted in improvement in a variety of clinical areas. Figure 1 is an example of primary care access improvement at the MMG Plover Medical Offices. Delays for routine care at Plover were reduced from an average of 25 days to an average of 8 days with most providers at zero days delay for an appointment when they were in the office.

[AQ9]

The MMG affectively reduced delays for appointments and procedures in a number of medical and surgical specialties. The results of the work done in ENT are shown in Figure 2 where the delay for ENT surgeries longer than 1 hour was reduced from 58 days to 2 days.

An important factor in successful systemwide implementation of Advanced Access was the reduction in waits and delays for Imaging Services. At 2 sites, Imaging Teams

successfully reduced delays in all modalities with differential delays, to a single day for each modality (Figs 3 and 4).

PROVIDENCE COMMUNITY HEALTH CENTERS AT CAPITOL HILL HC

Providence Community Health Centers at Capitol Hill HC provides services to an inner city, urban population, including pediatrics, obstetrics and gynecology, and internal medicine. Access improvement was undertaken in all 3 departments simultaneously. The goal was to have a consistent standard for access across all 3 services. In addition to a strong desire to improve access, Capitol Hill was concerned about their consistently high no-show rate that averaged 30%. With the implementation of Advanced Access the no-show rate dropped to less than 15% (Fig 5). Capitol Hill recognized that long delays in their system were linked to higher no-show rates. They also adopted the “gold standard” for access in all 3 departments. Their goal is to: *Offer an appointment today, for any problem, with the PCP or other care team member in the absence of the PCP.*

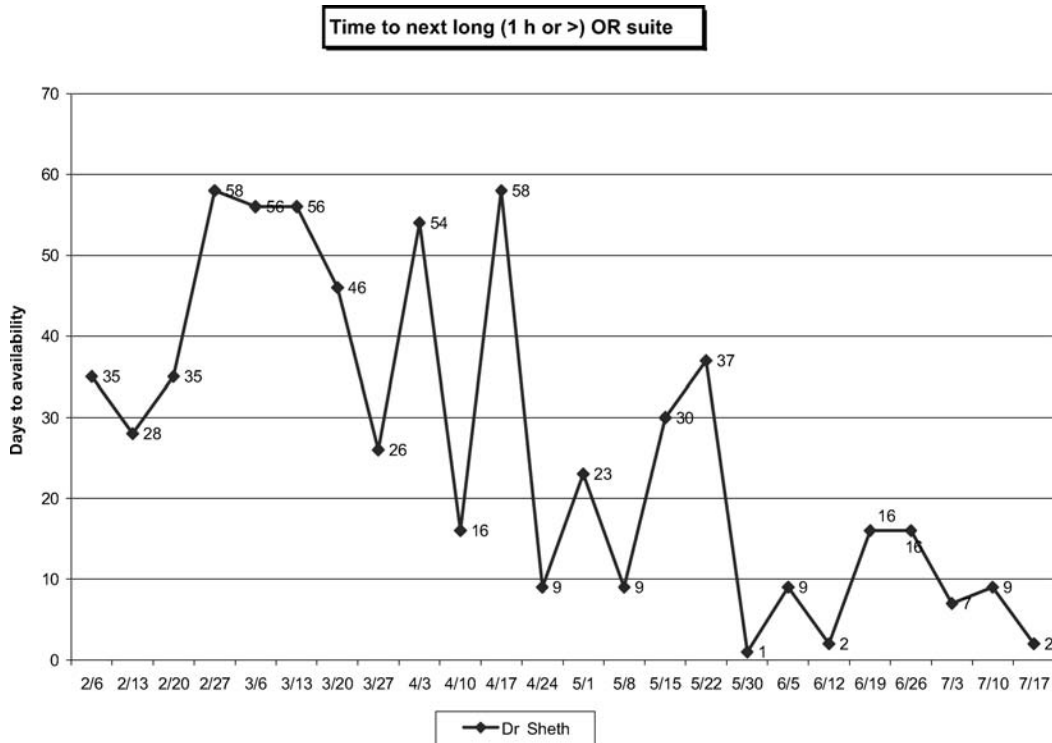


Figure 2. Ministry Medical Group reduction in delays for ENT surgery.

Capitol Hill implemented all 6 Advanced Access high-leverage changes with particular emphasis on matching demand and supply, reducing demand for unnecessary visits, and actively promoting same-day appointments. See Figure 6 for their results.

Comparisons

The application of Advanced Access significantly reduced delays for patients at both the MMG and Providence Community Health Centers at Capitol Hill HC, despite considerable differences between the 2 organizations in

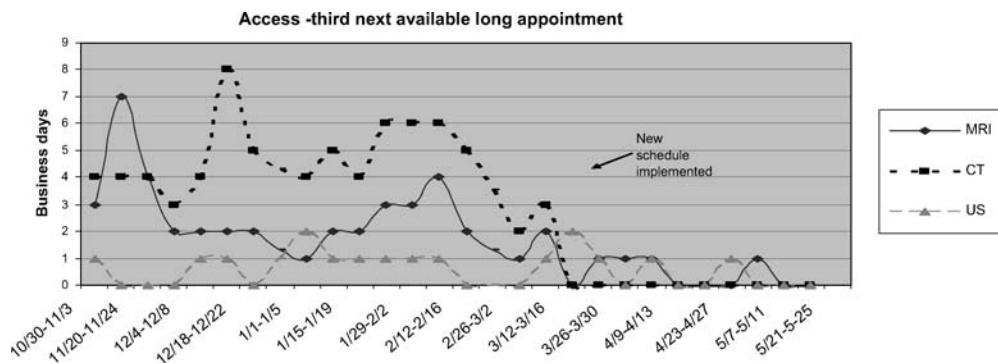


Figure 3. Ministry Medical Group reduction in delay for imaging services—site A.

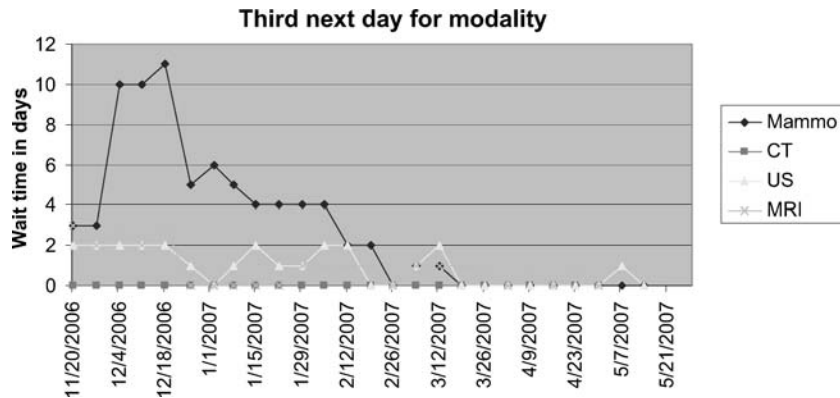


Figure 4. Ministry Medical Group reduction in delay for imaging services—site B.

terms of patient populations, services offered, size of practices, location, and payer profile.

Each organization started with a preliminary measurement of demand trends by day of week and by provider. These patient- and provider-driven demand trends provide the basis for deploying supply commensurate with demand. Figure 7 is an example of an analysis by Huron Gastroenterology in Ann Arbor, Michigan, that compares the practice’s appointment demand, supply, and actual patients seen (activity). A similar analysis was done for the group’s gastrointestinal procedures to provide a complete picture of the practice. Both the MMG and Providence Community Health Centers at Capitol Hill HC also used this technique in their work to understand demand and supply.

Remarkably, in most practices supply exceeds demand. This fact is masked in delayed

systems where patients and care team members struggle with completely full schedules every day. The impression in most delayed systems is that demand exceeds supply when, in fact, this is rarely the case. Hence, a demand/supply analysis is critical to understanding what is actually happening in any given practice (Tantau, 2006). Table 3 provides a quick guide for calculating daily appointment demand, supply, and activity for a practice.

Although there are many examples of successful groups who have transitioned to Advanced Access, dramatically cutting delays for appointments to a single day and deferring to patients to determine when and by whom they would like to be seen, there are some classic pitfalls that teams may stumble into on their access journey. A recent article in the *Annals of Internal Medicine* described some of the common shortfalls that can occur as

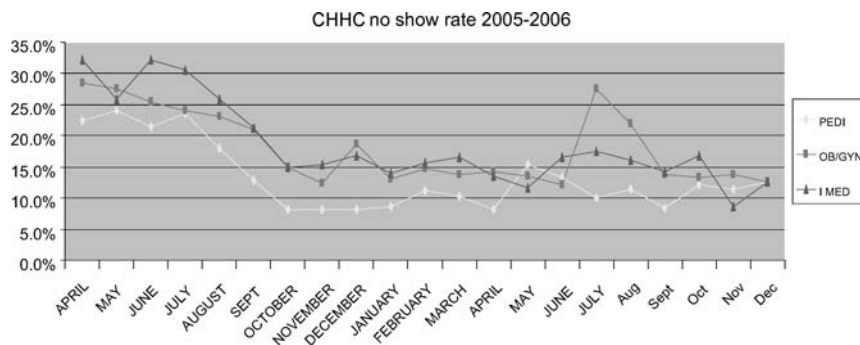


Figure 5. Providence Community Health Centers at Capitol Hill HC no-show rate.

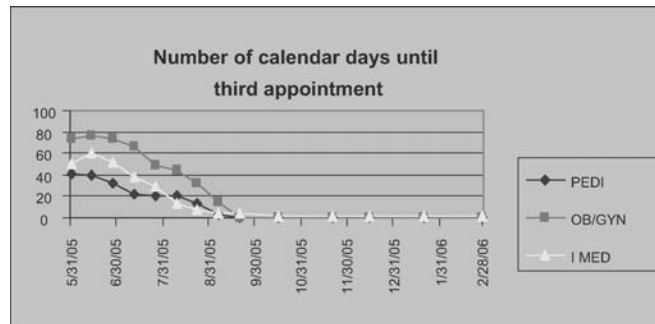


Figure 6. Providence Community Health Centers at Capitol Hill HC delay reduction for appointments.

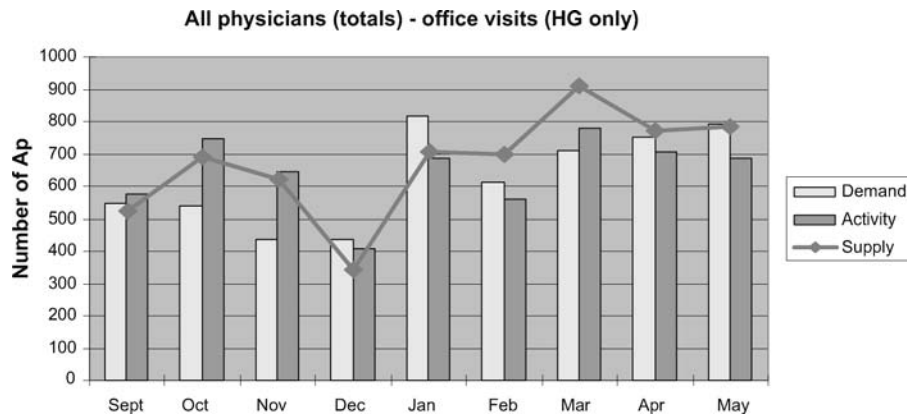


Figure 7. Office visit demand, supply, and activity for Huron Gastroenterology.

Table 4. Common pitfalls

Pitfall	Outcome
Poor continuity	Increases demand Decreases satisfaction
Inadequate backlog reduction	Practice is not transformed Difficult to sustain improvement
Lack of rigorous demand and supply monitoring	Backlog reemerges Lapse into imbalance in demand and supply
Lack of contingency planning	Lapse into imbalance in demand and supply
Carve-out strategies	Future supply is limited Backlog reemerges

teams move to Advanced Access (Mehrotra et al., 2008).

Common pitfalls include the following (Table 4):

- Poor continuity, which drives up demand.
- Backlog reduction that relies solely on working harder and does not test the “smart strategies” to incorporate fundamental changes in managing demand.
- Lack of contingency planning.
- Failure to rigorously monitor and match demand and supply daily and weekly for each provider.
- Revert to carve-out strategies to reserve future supply rather than address backlog that will reemerge when demand and supply are not balanced.
- Improve delays, but never quite make it to zero days’ delay. One of the keys to sustaining Advanced Access is to actually reach the goal of consistently offering patients an appointment today, for any problem, with the provider of choice or teammate in the absence of that provider. Reductions in delays are wonderful for patients. However, the experience of coming to work every day with sufficient appointments to meet today’s predicted demand is what transforms practices and the people who work in those practices. This is often the strongest driver for sustainability.

SUMMARY

Advanced Access systems are designed to respond to patients’ desire to get an ap-

pointment when they choose and with the provider of their choice. By definition, this means appointments must be available today and clinical distinctions between urgent care and routine care are irrelevant. When demand and supply are consistently in equilibrium, future supply remains available for future demand. This makes it possible to optimize continuity between patients and providers and creates opportunities to explore other options for designing the ideal medical office practice.

A systemwide or enterprise-wide standard for access to care provides patients with a familiar and reliable offer of an appointment today, for any problem, with the provider of choice or other teammate in the absence of that provider. In all departments, adoption of a systemwide access standard appears to increase practice accountability and, when spread beyond traditional clinical teams and into departments such as imaging and the laboratory, strengthens long-term sustainability.

Trusting patients to determine when and how they want to access appointments and providers in a practice makes sense from a customer service perspective. It also provides practices with the information they need to appropriately deploy resources (supply). Beyond understanding demand patterns, practices and organizations can use the foundational elements of Advanced Access and tested high-leverage changes to reduce delays and respond to daily demand from both returning and new patients in a variety of services.

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Balanced Measures for Patient-Centered Care

John H. Wasson, MD; Neil J. Baker, MD

Abstract: The Institute for Healthcare Improvement has long supported the use of balanced measures to assess improvement among patients at both the individual and the population levels. Although biomedical outcomes and process measures have been widely accepted, patient-reported measures are still not in widespread use. The most common use of such measures is at the population level to gauge satisfaction with care long after it has been provided. This article examines barriers and solutions to including patient-reported measures at the point of care. **Key words:** *practice improvement, patient-centered care, healthcare quality, measures of quality*

WE know that measurement is essential to guide improvement. It is logical that if we want improvement to lead to optimal patient-centered care, we must include measures that bring the voice of the patient into the learning process. When the Institute for Healthcare Improvement began its Idealized Design of Clinical Office Practices project, it asked a panel of experts to design an idealized measurement system. The result was a balanced measurement system that used structure, process, and outcome measures to evaluate the changeover time. Patient experience measures were necessary components of this system (Hess et al., 1999).

However, a balanced approach that explicitly includes comprehensive patient-reported measures has been impeded by multiple factors such as

- confusion about the meaning of patient-reported measures,
- barriers to collecting and analyzing patient-reported measures, and
- a lack of ability to respond to the measures.

This article discusses each of these barriers and also describes several practical methods to address them.

UNDERSTANDING THE MEANING OF PATIENT-REPORTED MEASURES

Two common causes of confusion about the meaning of patient-reported measures are:

- The historical tendency to value “hard” over “soft” measures, and
- A lack of understanding about the differences between comparison and action measures.

Hard versus soft measures

Decades of research have documented the value of patient-reported measures in screening, monitoring, and promoting collaborative care; aiding in decision making; and enhancing “patient-centered” communication (Greenhalgh & Meadows, 1999; Moore & Wasson, 2006). Patient-reported measures identify “what matters” to the patient and can even reflect biomedical variables (such

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as cholesterol and blood pressure levels) that are so often the focus of medical care guidelines (Physician Practice Connections—Patient-Centered Medical Home, 2008; Wasson 2006).

Despite the value of patient-reported measures, during healthcare professional training, such data are usually labeled as “subjective” (soft), whereas bioclinical data (eg, laboratory results and findings by the clinician) are labeled as “objective” (hard). As a result, laboratory measures for blood glucose control are readily accepted despite the fact that this measure can be poorly related to important patient outcomes when applied to patients with complex conditions (Gandhi et al., 2008). National policies continue to favor certification and pay for performance based on intermediate outcomes (such as laboratory tests) and process measures (such as the measure “third next available appointment,” policies regarding no shows, and the use of a patient registry) rather than patient-reported measures (Physician Practice Connections—Patient-Centered Medical Home, 2008).

Comparison measures versus action measures

One widely accepted notion is that more competition in healthcare will improve its value. Comparison measures of performance on patient satisfaction, for example, are considered critical in competition. Because money and prestige depend on the accuracy and validity of these comparisons, the data are usually summarized over many observations and retrospectively analyzed. Such data are not real-time for a particular patient. Although changes to the system of care can result from taking action on the basis of such comparison measures, the likelihood of an individual patient benefiting in a specific, tailored way is uncertain at best. Even if payment is linked to such comparison measures, quality improvement for the population of patients will not necessarily occur (Landon & Normand, 2008; Pearson et al., 2008; Petersen et al., 2006). Finally, such measures often ask patients general questions about satisfaction (eg, “I would recommend this practice. . .”), which do not

lend themselves to identifying specific actions to address issues.

With “action” measures, by contrast, a single laboratory or a patient-reported measure can trigger an action for a particular patient in real time. Patient-reported measures are designed to lend themselves to specific action. For example, patient ratings on the helpfulness of information they receive about their conditions direct attention to what information needs to change. Certainly, such measures can also be aggregated at a population level to help inform improvement efforts as described in the clinical examples at the end of this article.

The differences between patient-reported “action” measures and those used for comparison are illustrated in Table 1. The information in Table 1 supports the proposition that neither comparison nor action measures are superior to the other; a balance of both is most likely to result in better care.

DATA COLLECTION AND ANALYSIS

When office practices think about surveying their patients, they usually envision the elaborate process required for comparison measures. For example, comparisons require probability sampling and obsessive follow-up of nonresponders to ensure that the respondents are representative of the patient population. Indeed, the methodology for accurate comparison is often so complex and alien to the customary work of health professionals that many health systems use consultant companies to perform data gathering and analysis. Some experts have even suggested the need for regional data initiatives and special electronic health records to overcome the barriers (Landon & Normand, 2008).

Barriers for collection and analysis of measures intended for clinical action also have to be addressed, but the issues seem less formidable. For example, as part of clinical practice, it is quite efficient to have patients complete a relatively brief survey that can identify, without requiring detailed analysis, the issues that are important to them. In a separate article, we illustrate this point by the use of CARE Vital Signs. CARE Vital Signs

Table 1. Differences between patient-reported action and comparison measures

	Patient-reported measures leading to specific actions for individual patients	Patient-reported measures used to quantify specific actions for many patients (the “population”)
Patient role	Patient report is part of self-assessment and feedback	Supplies data for research variables or “satisfaction” for payment (does not include patient self-assessment and feedback)
Information	Limited to a few measures that are “just good enough” so that response burden is minimized for any patient	Often includes many measures for precision of estimates; sampling strategies are designed to ensure comparable estimates
Information cycle	Information for action by patient and clinician “today”	Usually delayed aggregate summaries (often requires adjustment for confounders); payment and reputation may depend on comparisons
Behavioral assumption	Screening for “what matters” to individual patients enhances collaborative care between patients and clinicians	Clinicians will “respond” to the data (but, by definition, summaries and report cards miss opportunities for individual patient interventions)

offers a method for practices to routinely screen patients to determine whether they have common important issues for which effective actions might be implemented (see the article on CARE Vital Signs). After about 10 CARE Vital Signs are completed, the practice will have insights about its care processes; after 30 CARE Vital Signs, the practice will be able to estimate and plan for patient needs.

HowsYourHealth.org is a clinical information system based on patient report that offers actionable information about what matters to patients and also aggregates patient experience of care measures (such as access, efficiency, and continuity) for comparisons. In real time, a practice can assess many variables and, after only a handful of completed surveys, examine their performance against the ideal. If national comparisons are desired, the practice can sort the data by important predictors of response, such as patient illness burden and financial status, so that the results are not highly biased by the characteristics of the patients. Practices that use HowsYourHealth.org do not have to think about

how to add patient-reported measures into chronic disease registries . . . the patient does that for the practice.

RESPONDING TO PATIENT-REPORTED MEASURES

The clinician’s ability to respond effectively to a patient-reported measure is the most difficult obstacle to surmount. Clinicians have to address the problems identified through patient-reported feedback, but even providing a potentially actionable measure for a particular patient at the point of care will not necessarily result in better care for that patient (Ahles et al., 2006). Professional training is generally focused on responding to traditional biomedical information and measures and not on “what matters to patients” as indicated by patient-reported measures. For example, in our experience, a physician is much more likely to feel effective responding to an HbA_{1c} level of 9 as opposed to patient-reported measures such as those on CARE Vital Signs, including ratings of emotions, confidence, and

pain. When clinicians do feel confident in responding to patient-reported measures, they are most concerned about having time during the office visit to do so properly (Greenhalgh & Meadows, 1999).

The “Activation of patients for successful self-management” article in this series addresses some of these concerns. Additional aspects of the design of measurement collection and analysis, work processes, and care team roles help clinicians enhance their ability to respond to patient-reported measures:

1. Use existing measures designed specifically for office practice settings. Although some measures and groupings of measures may seem better than others for a particular setting or purpose, a practice should initially test existing measures that have been explicitly designed for delivering patient-centered care in an office practice. Otherwise, the practice risks debility from sorting through measures for research, measures for comparisons, measures for different languages, measures for low literacy, and so on. The CARE Vital Signs article provides an example of a “low-tech” patient-centered tool that helps identify what matters most to patients and a description of its use. Alternatively, a practice can ask patients to complete HowsYourHealth.org before their next scheduled appointment. Both these tools enable even the busiest clinic to make tangible the concept of actionable patient-reported measures.
2. Enhance the impact of patient-reported measurement tools by building reliable processes for acting on the data. Even if practices develop effective processes to respond to patient-reported measures, these processes have to be made reliable. Feedback alone does not lead to higher levels of reliability (Ahles et al., 2006) (See the “Making patient-centered care reliable” article in this series.)

The more timely and simply action measures are “fed” into the care process and the more predictable and sustained the response to those measures, the bet-

ter the outcomes for patients (Ahles et al., 2006; Greenhalgh & Meadows, 1999; Wasson et al., 1999). HowsYourHealth.org, for example, makes information that is tailored to patient responses the default action. This is a step in the right direction, but the practice will have to engage staff in ensuring that the information is received, understood, and incorporated into everyday care to have a robust improvement in reliability.

3. Change the function of the practice to enhance *both* staff and patient experience. Too often, practices redesign specific processes without fundamentally restructuring the way work is done (Wasson et al., 2003). (See the “Optimizing the care team” article in this series.) The interrelationship between patient-reported measures of care quality and staff-reported levels of practice function is illustrated in the following example.

During a 2-year period (2005–2007), 62 practices asked office staff 6 questions about office function and 50- to 69-year-old patients to complete a 25-item paper-based derivative of the more thorough HowsYourHealth.org survey (Appendices 1 and 2). The 25 items were chosen to examine patient experiences of care, knowledge of their illness, and their financial status. Table 2 shows the relationship between the responses of the 464 professional and nonprofessional staff and 1228 patients. The association of higher patient-reported care ratings with higher office function ratings by staff is apparent for several measures.

In Table 2, the measurement of office function refers to staff ratings in response to the 6 statements such as “I would recommend this office practice as a great place to work” (see Appendix 1). The results vary somewhat depending on whether patients have little burden of illness (eg, 1 condition) and adequate financial status versus high burden of illness (2 or more conditions) and poor financial status.

Table 2. Patient-reported measures of care quality are reflected in staff ratings of practice function

Measure of office function*	Provider continuity			Very easy access			Efficiency			Very good information for chronic diseases			Confidence with self-management			Care is "Perfect" nothing about medical care could be better			I receive exactly the care I want and need exactly when and how I want and need it					
	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	95 91	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	66† 46‡	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	89† 75‡	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	83† 72‡	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	50 43	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	61 57	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	63 55	Little burden of illness and/or adequate financial status	Burden of illness and/or poor financial status	61† 46‡
Above median																								
Below median																								

* A total of 464 staff in 62 clinical office practices.

† Difference between above and below median is significant at $P < .05$.

‡ Difference between above and below median is significant at $P < .01$.

These results strongly suggest that office function must often be redesigned to enhance patient-centered care (Wasson et al., 2008).

SOME PRACTICE EXAMPLES

The following examples illustrate how patient-reported measures are being used in various practice settings.

Small independent clinics

Ideal medical practices (www.IdealMedicalPractices.org) are independent practices from across the United States that participate in a virtual quality improvement collaborative. All practices use HowsYourHealth.org to assess their patients' general function, concerns, symptoms, health habits, chronic condition management, communication with clinicians, and quality of healthcare services. The Web tool then tailors information to each patient's responses, including specific guidelines and suggestions for the management of chronic conditions, and offers instantaneous feedback of responses for the patient and clinician. It also produces a portable health record for the patient and automatically enters data into a registry for the clinician (on the basis of the patient's diagnoses, functional limitations, confidence with self-management, and several biomedical measures).

With the HowsYourHealth.org real-time results at their disposal, practices can compare their performance to other practices also using the Web-based tool. Several practices have published articles based on the patient data (Guinn & Moore, 2008; Ho, 2007; Wasson et al., 2008). These practices have incorporated the use of the Web tool into their existing practice flow, usually before a scheduled office visit. Typically, the office practice asks about 30% to 50% of their patient panel to complete the HowsYourHealth.org survey each year so that, over the span of 2 or 3 years, all patients in the practice have used the survey at least once. John Zalewski, MD, an internist at St John's Mercy Medical Group in St Louis who participated in the Ideal

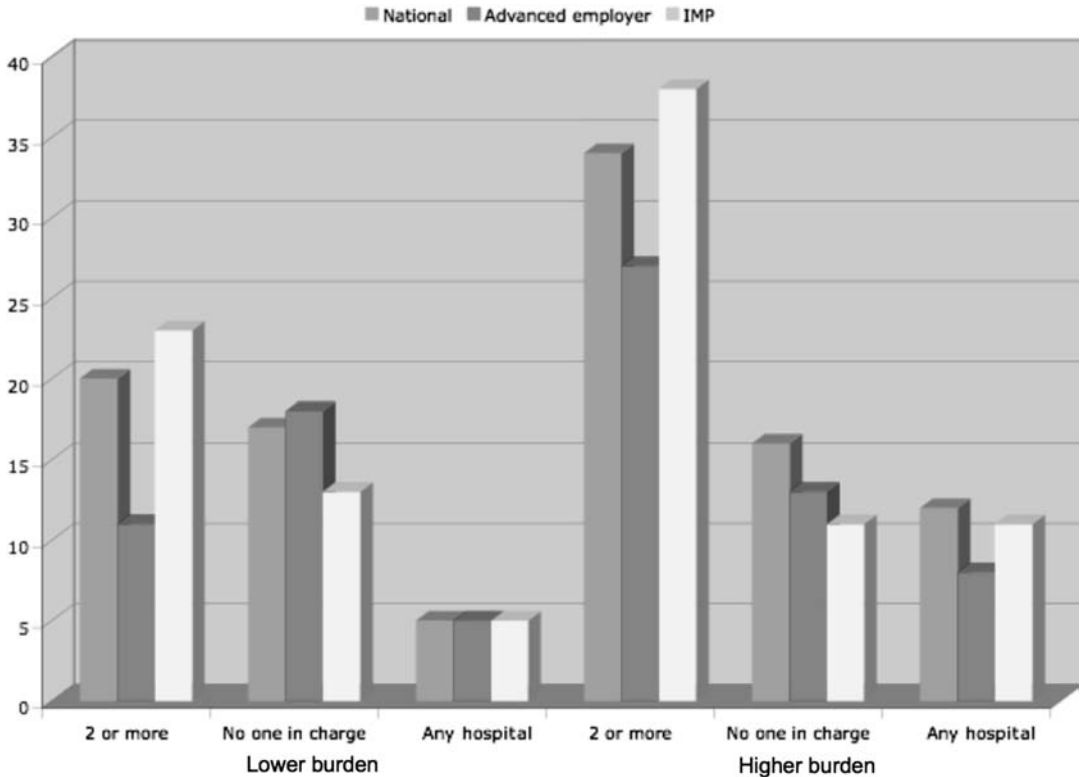


Figure 1.

Medical Practices collaborative, describes what happens:

There is so much to accomplish in the typical of- fice visit. Sometimes in trying to manage a pa- tient's diabetes, high blood pressure, medications,

preventive needs, etc., we may fail to respond to what is bothering the patient most. The How's Your Health tool works. I found myself completely changing course during an office visit recently after reviewing a patient's pre-visit How's Your Health survey.

Table 3. Using patient-report measures to manage blood pressure (CareSouth Carolina)*

Time period	Range of patient-reported measures of collaborative care, %		Range of outcome measures, %
	Information is excellent	Confidence with self-management	Blood pressure controlled
Baseline: 2007 (January-June)	10-33	40-60	51-55
Changes introduced phase 1: 2007 (July-December)	35-88	40-80	58-64
Changes introduced phase 2: 2008 (January-April)	80-90	80-90	66-67

*From Wasson et al. (2008).

A large employer-based healthcare system

Wisconsin-based QuadMed provides healthcare to 12,000 employees and dependents of the owner company, Quad/Graphics. It offers incentives to its employees to use HowsYourHealth.org to stimulate self-management and facilitate communication between clinicians and patients. A valuable by-product of using the Web-based tool is QuadMed's ability to compare their performance with those of other organizations. QuadMed has been working to improve coordination of care, that is, decreasing the current level of fragmentation in patient care experience. For example, Figure 1 illustrates patient-reported ratings of care fragmentation and hospital utilization based on the respondent burden of illness of QuadMed employees and dependents, labeled in the table as "advanced employer" ($n = 14,000$); Ideal medical practices, labeled as "IMP" ($n = 4000$); and a national comparison ($n = 70,000$). When compared with the IMP and national examples, QuadMed's employees and dependents are less likely to have 2 or more physicians. For individuals with a higher burden of illness, less fragmentation of care among 2 or more physicians is associated with fewer hospitalizations. QuadMed has consistently documented lower costs of care when compared with comparable populations (Fuhrman, 2005).

A safety net healthcare system

CareSouth Carolina provides care to more than 30,000 patients in rural South Carolina. Over time, the health system has identified that "excellent" ratings for 2 patient-

reported measures—patient confidence with self-management and care information—are all it needs to monitor how well the system is providing care for most chronic conditions. CareSouth uses these measures at the aggregate (population) level to guide improvement in their care processes and also at the point of care to help tailor interventions for individual patients. Table 3 shows how CareSouth uses patient-reported measures to monitor progress in managing patients' blood pressure over time.

CONCLUSION

For 2 reasons, the Institute for Healthcare Improvement's original vision of balanced measures to assess improvement at both the individual patient and the population levels is now poised to become a reality. First, the concept of balanced measurement has always made sense: bringing the voice of the patient and the staff into the design and delivery of healthcare represents a huge benefit. Second, many of the practical concerns about patient-reported measurement have been addressed. The measures, tools, and care processes discussed in this article have been tested with thousands of patients across hundreds of practices and organizations. Initial testing results indicate that their use is feasible and meaningful to guide improvement. It is now time to use patient-reported measures and tools in a concerted fashion to help determine how best to redesign care systems and sequence changes to lead to improved quality of care. Traditional bioclinical measures alone are not likely to get us there.

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Appendix 1

Office Staff Survey: Staff-Reported Measures to Assess Office Practice Function

Office practice staff are asked to complete this 6-question survey to assess office practice function. For this report, the median score of practice function was 12 out of a best score of 6 and a worst score of 26; the interquartile range of the score was 10 to 16.

1. In this office, I always have the opportunity to do what I do the best everyday.
1 = *Strongly agree* 2 = *Agree* 3 = *Disagree* 4 = *Strongly disagree*
2. In the last 7 days, I have received recognition or praise for doing good work.
1 = *Strongly agree* 2 = *Agree* 3 = *Disagree* 4 = *Strongly disagree*
3. Our office staff works like a team. We have high levels of trust and collaboration. We appreciate complementary roles and recognize that all contribute to a shared purpose.
1 = *Strongly agree* 2 = *Agree* 3 = *Disagree* 4 = *Strongly disagree*
4. I would recommend this office practice as a great place to work.
1 = *Strongly agree* 2 = *Agree* 3 = *Unsure* 4 = *Disagree* 5 = *Strongly disagree*
5. How easy is it to ask anyone a question about the way we care for patients?
1 = *Very easy* 2 = *Easy* 3 = *Difficult* 4 = *Very difficult*
6. Technology in this office smoothly links patient care with a rich information environment. The information environment is designed to support the work of the clinical team.
1 = *Strongly agree* 2 = *Agree* 3 = *Unsure* 4 = *Disagree* 5 = *Strongly disagree*

Appendix 2

Patient Survey: Patient-Reported Measures to Assess Office Practice Quality of Care

This survey is given to patients aged 50 to 69 years. The survey questions are derived from items in the HowsYourHealth.org Web-based survey. Because survey responses involve entry into a file for scoring, many practices find it advantageous to offer the Web-based version for free, which can be obtained by registering at www.IdealMedicalHome.org.

We are asking some of our patients, aged 50–69, to complete a brief survey about their health and healthcare. We are using this information to improve our services.

We do not wish any patient names. Thank you very much.

Please check (✓) the best answers. After completing the survey, place it in the self addressed stamped envelope.

1. During the past 4 weeks, have you been bothered often or always by emotional problems such as feeling anxious, depressed, irritable, sad or downhearted, and blue?
 Not at all (1)
 Slightly (2)
 Moderately (3)
 Quite a bit (4)

If you checked this, is your doctor or nurse aware of the problem?

- Yes (1) No (2) I am not sure. (3)
 Extremely (5)

If you checked this, is your doctor or nurse aware of the problem?

- Yes (5) No (2) I am not sure. (3)

2. During the past 4 weeks, how much body pain have you generally had?

- No pain (1)
 Very mild pain (2)
 Mild pain (3)
 Moderate pain (4)

If you checked this, is your doctor or nurse aware of the problem?

- Yes (1) No (2) I am not sure. (3)
 Severe pain (5)

If you checked this, is your doctor or nurse aware of the problem?

- Yes (1) No (2) I am not sure. (3)

3. Has a doctor told you that you have any of these problems:

Please check (✓) all that apply.

- High blood pressure (1)
 Heart trouble or hardening of the arteries (2)
 Diabetes (sugar) (3)
 Arthritis (4)
 Asthma, bronchitis, or emphysema (5)
 Serious obesity (more than 15% overweight) (6)

If you checked (✓) that you have high blood pressure, heart trouble, diabetes, arthritis, breathing problems, or obesity, *please answer questions 4 to 8. If not, go to question 9.*

4. In general, how would you rate the information given to you about these problem(s) by your doctor or a nurse?

Please check (✓) the best answer.

- Excellent (1)
 Very good (2)
 Good (3)
 Fair (4)
 Poor (5)
 I do not remember receiving any information. (6)

5. If you indicated that you have breathing problems:

How would you rate the information your doctor or a nurse gave you about?

How to adjust medicines for your shortness of breath?

- Excellent (1)
 Very good (2)
 Good (3)
 Fair (4)
 Poor (5)
 I do not remember receiving any information. (6)

6. If you indicated that you have diabetes:

How often do you keep your blood glucose (sugar) within normal range (between 80 and 150)?

- I do not test my blood glucose. (1)
 All the time (2)

- Often (3)
- Sometimes (4)
- Rarely (5)
- Never (6)

7. If you have high blood pressure:

Do you check your own blood pressure?

- Yes, often (1) Yes, sometimes (2) Almost never (3) Never (4)

8. What was your last blood pressure? What was the high number of your blood pressure (systolic blood pressure)?

- Under 100 (1)
- 100-120 (2)
- 121-130 (3)
- 131-140 (4)
- 141-150 (5)
- 151-160 (6)
- 161-170 (7)
- Higher than 171 (8)
- I do not know. (9)

9. Do you have one person you think of as your personal doctor or nurse?

- Yes (1) No (2)

10. How easy is it for you to get medical care when you need it?

- Very easy (1)
- Easy (2)
- Somewhat difficult (3)
- Very difficult (4)
- I have not needed medical care. (5)

11. When you visit your doctor's office, how often is it well organized and efficient and does not waste your time?

- Most of the time (1)
- Some of the time (2)
- Almost never is it efficient. It often wastes my time. (3)
- Does not apply to me. I seldom visit a doctor's office. (4)

12. How confident are you that you can control and manage most of your health problems?

- Very confident (1)
- Somewhat confident (2)
- Not very confident (3)
- I do not have any health problems. (4)

13. Are there things about your medical care that could be better?

- No, my care is perfect. (1)
- Yes, some things (2)
- Yes, a lot of things (3)

14. Do you have enough money to buy the things that you need to live everyday, such as food, clothing, or housing?

- Yes, always (1)
- Sometimes (2)
- No (3)

15. In the past 2 years, have you had a test for cancer of the bowel?
___ Yes (1) ___ No (2) ___ No, but I have had a colonoscopy in the past 9 years. (3)
16. Do you think that any of your medications are making you sick?
___ Yes (1)
___ No (2)
___ Maybe, I am not sure. (3)
___ I am not taking any medications. (4)
17. In the past year, have you been in the hospital or visited an emergency department?
___ Yes (1) ___ No (2)
18. In the past 3 months, did you have an illness or injury that kept you in bed for all or most of the day?
___ Yes (1) ___ No (2)
19. During the past 2 weeks, how much did physical health or emotional problems keep you from working the hours you needed to work?
___ Physical or emotional problems *did not limit* my ability to work at all. (1)
___ Physical or emotional problems *did limit* my ability to work a small amount (about 10% to 20%). (2)
___ Physical or emotional problems *did limit* my ability to work a large amount (more than 20%). (3)
20. When you think about your healthcare, how much do you agree or disagree with this statement: "I receive exactly what I want and need exactly when and how I want and need it."
___ I agree strongly. (1) ___ I somewhat disagree. (3)
___ I somewhat agree. (2) ___ I disagree strongly. (4)
21. Are you seeing a specialist physician?
___ Yes (1) ___ No (2) ___ I am not sure. (3)
- If you answered *Yes*, please continue to Question 22.
22. If you are seeing a specialist physician and your primary physician, do you have one doctor who you feel is in charge of your medical care?
___ Yes (1) ___ No (2) ___ I am not sure. (3)

Thank you for completing this survey!

Please return in the enclosed self-addressed stamped envelope.

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CARE Vital Signs Supports Patient-centered, Collaborative Care

John H. Wasson, MD; Steve Bartels, MD

Abstract: CARE Vital Signs refers to a standard form created by practices to Check what matters to patients, Act on that assessment, Reinforce the actions, and systematically Engineer or incorporate actions into staff roles and clinical processes. On its face, CARE Vital Signs is a deceptively simple tool that, when properly used, can help a practice attain levels of efficiency and quality. This article describes the rationale for Adult CARE Vital Signs and the ways it can be used for the greatest benefit. **Key words:** *behavior change, care team, collaborative care, patient centered*

IN CLINICAL PRACTICE, someone obtains vital signs, such as blood pressure, pulse, temperature, and respiration rate, to assess body functions before the patient is evaluated by a healthcare professional. CARE Vital Signs refers to a standard form created by practices to Check what matters to patients, Act on that assessment, Reinforce the actions, and systematically Engineer or incorporate actions into staff roles and clinical processes (Wasson et al., 2003). Thus, CARE Vital Signs offers a method for practices to routinely screen patients to determine whether they have common, important issues for which effective actions might be implemented without necessarily depending on an evaluation by a healthcare professional. For example, based on particular items in CARE Vital Signs, office staff

might implement standing orders to provide specific screening tests or self-management education to the patient.

CARE Vital Signs has proven to be useful for both patients and practices. Patients benefit because this method offers the promise of reliable action for “what matters” to them: CARE Vital Signs supports patient-centered, collaborative care (Moore & Wasson, 2006). Practices benefit from using this approach in 2 ways. First, doctors and nurses find that knowing “what matters” to patients improves the efficiency and effectiveness of the care they deliver. For example, the presence of pain and emotional problems adversely impacts patient confidence with self-management, which, in turn, undermines the proven power of collaborative care (Wagner et al., 1996; Wasson et al., 2006b, 2008b). Second, as practices incorporate CARE Vital Signs, the professional and nonprofessional staff invariably uncover inefficient, behaviorally unsophisticated processes and invent better processes and means of deploying the practice’s workforce. For example, instead of relying only on the physician, a medical assistant can be trained to help patients use valuable self-management resources for particular issues identified by CARE Vital Signs (Wasson et al., 2003).

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[AQ1]

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The Institute for Healthcare Improvement has encouraged the use of CARE Vital Signs in its various collaboratives and programs to redesign office practices. On the basis of this experience, this article illustrates the typical lessons practices learn when they implement CARE Vital Signs.

In the actual order learned, the lessons are as follows:

- Who will do this? (Implementation)
- What will our patients say? (Population)
- What actions might we take and reinforce? (Behaviorally sophisticated actions)
- How do we build CARE Vital Signs or the concept of CARE Vital Signs into practice? (Resource planning)

CARE VITAL SIGNS: IMPLEMENTATION

The Institute for Healthcare Improvement faculty present CARE Vital Signs as a “standard form” to office practices (Appendices 1–3). The faculty inform practices that the questions on the form have been extensively tested and that there is an advantage to try it “as is” before considering modifications for their setting. Office staff are encouraged to begin using CARE Vital Signs with 10 patients, perhaps with 1 patient in the morning and 1 in the afternoon over the course of 5 working days. Most practices will be able to complete 10 CARE Vital Signs; those that have difficulty will need to improve practice function before proceeding (see “The How and Why of Balanced Measurement”).

[AQ2]

The simple request to complete 10 CARE Vital Signs engages the office in an evaluation of its patient flow. Who does what and why? Who will do CARE Vital Signs, when, and how? Michelle A. Eads, MD, a physician in Colorado Springs, offers the following guidance when implementing CARE Vital Signs:

I want to share a few tricks I’ve learned about using the CARE Vital Signs forms.

We do this only for annual preventative physical appointments (or for people we suspect need self-management support and won’t go to www.howsyourhealth.org) and not at every en-

counter. The medical assistant takes the patient’s vitals, enters them into the computer as usual, then gets the [CARE Vital Signs] provider form in front of her and gives the patient the patient [version of the CARE Vital Signs form]. They both fill out the forms simultaneously. The medical assistant tells the patient their vitals and body mass index (BMI), and then the patient looks at the pain/feelings/health habits charts [on the form], and tells my medical assistant what their numbers are. Then the patient brings in both copies to me and I circle/add the appropriate actions, scan the provider copy into the medical record, and give the patient their copy.

CARE VITAL SIGNS: POPULATION

By starting with a small sample of 10 patients, most practices will identify some new insights by chance alone or perhaps none at all. In order that staff do not draw erroneous conclusions based on an inadequate sample, it is important for a practice to identify how its population of patients is likely to respond. The following is an overview of responses from 85,000 adults, aged 19 to 59, who completed the HowsYourHealth.org Web-based survey tool, from which a few survey items are excerpted as part of CARE Vital Signs.

Adult CARE Vital Signs emphasizes 6 items: pain, emotion, body mass index, general health habits, confidence with self-management, and possible illness related to medications. Across any 50 practices, the middle 25 practices (ie, the 25–75 interquartile range) have from 25% to 40% of their adult patients reporting no abnormality on CARE Vital Signs, as well as 6% to 17% reporting 3 or more abnormalities. Table 1 shows selected problems of patients based on the number of abnormalities reported on CARE Vital Signs.

By assessing the number of reported CARE Vital Signs abnormalities, clinicians immediately understand that patients with few reported abnormalities, and therefore fewer problems, require fewer services. Table 1 underscores this clinical observation. Table 2 demonstrates a dramatic decrement in the quality of care when an increasing number of CARE Vital Signs abnormalities are reported.

The data in Tables 1 and 2 illustrate that CARE Vital Signs is a simple method for

Table 1. Sample of patient problems by category based on number of reported Adult CARE Vital Signs abnormalities

Patient problems by category	% Of patients reporting abnormal Adult CARE Vital Signs		
	No abnormalities	1-2 abnormalities	≥3 abnormalities
Medications			
Taking more than 5 medications	1	4	19
Common diagnoses			
Hypertension	12	22	43
Arthritis	7	14	32
Respiratory	7	10	22
Diabetes	2	6	19
Atherosclerotic cardiovascular disease	2	4	11
Poor health habits			
Smoker	10	15	25
Exercising <4 d/wk	43	65	86
Prevention not done			
No mammogram in past 2 y (females aged 50-69)	10	13	22
Common chronic symptoms (often/always)			
Weight and nutrition concerns	5	24	60
Joint pains	5	17	50
Sleeping problems	6	17	49
Back pain	5	14	48
Dizzy, tired, fatigue	4	15	48
Troublesome home environment			
Inadequate social support	5	11	30
Possible domestic abuse (female)	6	12	26
Adverse impacts on life			
Hospitalized in past year	5	8	18
Harmed by healthcare in past year	1	2	4
Confined to bed in past 3 mo	13	22	44
Difficulty doing usual activities or tasks in past month	0	3	25
Limit on hours needed to work in past 2 wk	8	22	57
From CARE Vital Signs*			
Not confident (no or maybe)	0	75	96
Obese ("trouble": body mass index > 30)	0	36	76
Pain (moderate or severe)	0	12	63
Pills causing illness (yes or maybe)	0	13	54
Bothersome emotions (quite a bit, extremely)	0	8	50
Not good general health habits (a little or none)	0	3	30

*See Appendix Figure 1 for response category from Adult CARE Vital Signs.

Table 2. The association of Adult CARE Vital Signs abnormalities with quality of care

Quality indicators	% Of patients reporting abnormal Adult CARE Vital Signs		
	No abnormalities	1-2 abnormalities	≥3 abnormalities
Information and assistance			
Excellent information about chronic disease(s)	47	28	15
Helped live with their problem(s)	54	42	24
Care processes			
Very easy access to needed medical care	60	39	28
Office is efficient: My time is not wasted	66	56	48
Relationship with clinicians			
I have a personal clinician	75	73	73
I have 2 or more clinicians	17	24	37
I know who is in charge (if 2 or more clinicians)	82	76	72

identifying patients who are likely to have few, some, and many medical and psychosocial issues, as well as few, some, and many deficiencies in quality of care.

CARE VITAL SIGNS: BEHAVIORALLY SOPHISTICATED ACTIONS AND RESOURCE PLANNING

Other lessons learned from the data in Tables 1 and 2 include the following:

- There are too many problems to be dealt with one at a time, even if the office visit time was extended.
- There is too much information for a patient to remember when it is communicated at one time.
- There is a need to segment patients into categories and provide effective generic solutions to problems because a disease-by-disease or a problem-by-problem intervention is not feasible.

The challenge, of course, is knowing what “generic solutions” are effective. Although this is still an area of active research, 4 interrelated actions have evidence of value:

1. *Segmentation* of patients into meaningful categories for which specific actions

are routinely prescribed (Wasson et al., 2006a).

2. *Problem solving* and *action planning* as techniques to identify key issues of concern and simple, feasible strategies to begin addressing these issues (Ahles et al., 2006).
3. *Brief, repetitive intervention* rather than overwhelming, 1-time exhortation (Stange et al., 2002; Von Korff et al., 1997).
4. *Confidence building* so that patients become comfortable and adept at self-management (Wasson et al., 2006b).

Table 3 summarizes examples of initial generic solutions to problems reported as abnormalities on Adult CARE Vital Signs. All of these actions require collaboration and bidirectional information transfer between patients and a member of the office staff. (The office staff member does not need to be a clinician!) All interventions will require the office practice to be accessible and efficient.

In addition to the actions specified in Table 3 for specific problems identified from CARE Vital Signs responses, office practices need to assess the intensity of any action over

Table 3. Examples of initial generic solutions for abnormal Adult CARE Vital Signs responses

Patient problems identified from abnormal Adult CARE Vital Signs responses	Initial generic solutions*
Not confident	<ol style="list-style-type: none"> 1. Review understanding of confidence 2. Identify what things the patient feels least confident about and why 3. Begin "campaign for confidence"
Pain	<ol style="list-style-type: none"> 1. Determine the source and nature of pain 2. Identify problem-solving strategies* 3. Initiate medication management
Medications are perhaps causing illness	<ol style="list-style-type: none"> 1. Identify which medications are suspected 2. Determine how the medications are "causing illness" 3. Assess the impact on patient "compliance" with taking medications 4. Explore possible alternatives
Emotional issues	<ol style="list-style-type: none"> 1. Determine the source and nature of emotional issues 2. Identify problem-solving strategies* 3. Initiate medication management
General health habits/obesity	<ol style="list-style-type: none"> 1. Explore the nature of barriers 2. Identify problem-solving strategies*

*For more details on these initial generic solutions, refer to "Activation of Patients for Successful Self-management." Several tools are available at www.howsyourhealth.org.

time. Behavioral research underscores the importance of reinforcing most actions so that they have a sustained effect. For patients, this often implies feedback and follow-up. For professional and nonprofessional staff, actions need to be systematically engineered (ie, the "E" in CARE) into staff roles and clinical processes to improve reliability.

Resource planning enables providers to deliver higher quality, more efficient care to patients: if it is scheduled, it will happen; if it is not planned, it is difficult to make it happen. This approach requires knowledge of both "what is the matter?" and "what matters" and uses this information to segment patients into behaviorally meaningful categories such as patients with low needs, medium needs, and high needs. Resource planning also requires healthcare providers to match care that is known to be effective with the high-leverage "commonalities" among 80% of

the patients in each category (Wasson et al., 2006a).

Resource planning for low-needs patients

Low-needs patients with *no* CARE Vital Signs abnormalities reported, regardless of diagnoses, generally require fewer services. About 40% of patients with adequate finances are low-needs patients versus 20% of poor patients. Should low-needs patients require services from the practice, they need immediate and unfettered access, high continuity and reliability of care, and very good information so that they may make appropriate adjustments in their care. Although some patients in this category may have chronic diseases, they are confident in self-management and have no pain or emotional issues that will impede their ability to manage their conditions (Wasson et al., 2008b). The clinician's role is to

reassure them of their good health status, reinforce healthy behaviors, and provide proven preventive care. The HowsYourHealth.org registry function can be used to remind patients to complete the on-line health survey tool annually, helping ensure these patients maintain positive health behaviors and continue to do well.

Resource planning for medium-needs patients

Medium-needs patients with 1 to 2 CARE Vital Signs abnormalities reported do not achieve key care goals with consistency. Although the majority of these patients do not feel confident with self-management, those who do may need less reinforcement. However, as a general rule, these patients generally perceive that they have received low-quality information about their problems and can benefit from simple strategies to help them better understand and cope with identified issues.

Care South Carolina devised and tested a simple reinforcement strategy by medical assistants based on a "red-yellow-green" colored information sheet to improve patient understanding of their health problem and confidence in managing it. The results were dramatic in terms of increased patient confidence and better control of their blood pressure. (Wasson et al., 2008a)

In a controlled trial, 3 phone calls to patients to support self-management of patient and emotional problems proved significant and lasting. (Ahles et al., 2006)

In addition to the basic services required by low-needs patients, the practice may introduce some of the initial generic solutions (Table 3) and experiment with different types of reinforcement such as e-mail or phone follow-up. Because medium-needs patients have many other potential issues, full assessment by using the HowsYourHealth.org survey tool is a helpful way for clinicians to identify "what matters" and provide tailored information. The article in this series, "Activation of Patients for Successful Self-management," contains additional resources for enhanced self-management support.

Resource planning for high-needs patients

High-needs patients with 3 or more reported CARE Vital Signs abnormalities require much greater frequency and depth of interaction with the practice, as well as consultation and support from additional external sources. Given these patients' multiple needs, it is imperative that patients, family members, and all providers have a shared understanding of priorities and goals for managing identified problems. About 25% of poor patients have high needs versus 10% of patients with adequate finances.

In addition to providing the same services as those required by medium needs patients, a typical office practice will benefit from having a designated staff member who coordinates care for high-needs patients. Most importantly, this staff member needs to continuously provide brief, proactive reinforcement of self-management support and monitoring of important health concerns by phone, if possible, or at every office visit. Group visits are another beneficial way to fulfill the care needs of both medium-needs and high-needs patients (Improving Chronic Illness Care, 2008).

CONCLUSION

CARE Vital Signs has proven to be a useful tool for assisting practices that want to improve their provision of patient-centered, collaborative care. Three versions for adult, adolescent, and geriatric patients are included in the appendices. Any of these CARE Vital Signs forms can be customized by adding or deleting items, and items may be implemented in a staggered fashion over time to avoid overwhelming staff. A shorter version of the CARE Vital Signs is often used either initially by a practice to gain experience with the concept of CARE or as a tool for more frequently monitoring of the patients. The critical factors to determine which CARE Vital Signs items to use in a practice depend on the estimated frequency of abnormalities in a patient population and the ability of staff

to adequately manage abnormalities when they are identified. Completing 30 CARE Vital Signs forms usually gives an office practice a good estimate of the frequency of expected abnormalities. However, we urge practices to be very careful about permanently eliminating measures of emotional health, confidence

with self-management, and pain because these factors have decisive influence on patient outcomes (Wasson et al., 2008b).

On its face, CARE Vital Signs is a deceptively simple tool that, when properly used, can help a practice attain levels of efficiency and quality.

[AQ3]

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Appendix 1

[AQ10] Adult CARE Vital Signs

Patient Self-Assessment

Today's date _____

Name _____

1. What questions or concerns do you wish to discuss?
(please state in the space provided)

2. Pain score _____ (see below)
 3. Feeling score _____ (see below)
 4. Health habits score _____ (see below)
 5. Are you confident in managing your health problems? (circle one)
 Yes No Maybe Not applicable
 6. Are your pills making you ill? (circle one)
 Yes No Maybe Not applicable
 7. What does your weight and height tell you? (see below)

What is your weight? (in pounds)

Your height without shoes	Pay attention	Trouble
5 feet	Over 128	Over 148
5 feet 4 inches	Over 146	Over 169
5 feet 8 inches	Over 164	Over 190
6 feet	Over 184	Over 213
6 feet 4 inches	Over 205	Over 238






_____ Pay attention _____ Trouble _____ Neither "pay attention or trouble"

Thank you.

During the past 4 weeks...






Pain

How much bodily pain have you generally had?

No pain		1
Very mild pain		2
Mild pain		3
Moderate pain		4
Severe pain		5






Feelings

How much have you been bothered by emotional problems such as feeling anxious, depressed, irritable, or downhearted and blue?

Not at all		1
Slightly		2
Moderately		3
Quite a bit		4
Extremely		5

Health habits

How often did you practice good health habits such as, using a seat belt, getting exercise, eating right, getting enough sleep, or wearing safety helmets?

All of the time		1
Most of the time		2
Some of the time		3
A little of the time		4
None of the time		5

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Appendix 2

Adolescent CARE Vital Signs

Patient Self-Assessment

Today's date _____

Name _____

1. What questions or concerns do you wish to discuss?
(please state in the space provided)

2. Pain score _____ (see below)

3. Feeling score _____ (see below)

4. Social support score _____ (see below)

5. Health habits score _____ (see below)

6. Do you exercise for about 20 minutes 3 or more days a week? (circle one)
 Yes, most of the time Yes, some of the time No, I usually do not exercise this much

7. How often in the past 4 weeks have you been bothered by trouble solving problems? (circle one)






Never Seldom Sometimes Often Always

Thank you.

During the past month...






Pain

How often were you bothered by pains such as backaches, headaches, cramps, or stomach aches?

None of the time		1
A little of the time		2
Some of the time		3
A lot of the time		4
All of the time		5






Feelings

How often did you feel anxious, depressed, irritable, sad, or downhearted and blue?

None of the time		1
A little of the time		2
Some of the time		3
Most of the time		4
All of the time		5






Social support

If you needed someone to listen to or help you was someone there for you?

Yes, as much as I wanted		1
Yes, quite a bit		2
Yes, some		3
Yes, a little		4
No, not at all		5

Health habits

How often did you practice good health habits such as using a seat belt, getting exercise, eating right, getting enough sleep, or wearing safety helmets?

All of the time		1
Most of the time		2
Some of the time		3
A little of the time		4
None of the time		5

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CARE Vital Signs for preteens and teens (aged 8–18) would give the distribution of findings shown in the following table on the basis of number of abnormal vital signs. (Analysis based on 3500 respondents to the HowsYourHealth.org Web-based survey tool). The age of respondents do not change by the number of abnormalities. Females are represented a bit more frequently in those with abnormalities: 53% for none, 60% for 1 to 2, and 65% for 3 or more. Overall, about 40% to 45% of preteen/teens will have no abnormalities, an equal number 1 to 2 and 10% to 15% will have 3 or more. The HowsYourHealth.org survey does not include an income question for preteens/teens.

Twenty percent of those with no abnormality have seen a counselor in the past year, whereas 31% of those with 3 or more abnormalities have seen a counselor.

The following table illustrates that preteen/teens with problems are less likely to talk about them, the more abnormalities they have.

Problem area	Talked to someone based on abnormal vital signs for ages 8–18		
	No abnormalities	1–2 abnormalities	≥3 abnormalities
Emotion	NA	76%	46%
Pain	NA	75%	49%
School work	58%	51%	35%
Risk behaviors	53%	44%	22%
Social support	NA	22%	17%

The last table illustrates the quality of the discussions and percentage of discussions preteen/teens have had with a doctor or a nurse.

Problem area	If they talked to someone, how helpful was it?		
	No abnormalities	1–2 abnormalities	≥3 abnormalities
Pain			
% Claiming discussion was quite helpful	NA	29	18
% Talking with a doctor or a nurse	NA	49	54
Risky behavior			
% Claiming discussion was quite helpful	49	29	18
% Talking with a doctor or a nurse	4	17	12

Appendix 3

Geriatric Care Vital Signs

The analysis is based on 3500 responses of patients 70 years or older to the www.HowsYourHealth.org Web-based survey tool.

In a majority of practices, about 40% of the patients older than 70 will have no abnormal responses, 40% will have 1 or 2 abnormal responses, and 20% will have 3 or more. However, if a practice cares for patients with low financial status, the distribution will change dramatically with only 10% having no abnormalities and 60% having 3 or more. Appendix Table 1 provides samples of diagnoses, health habits, symptoms, use of assistive devices, and instrumental activities of daily living. Also, it provides days sick in bed and previous use of the hospital. Not surprisingly, every sample marker of illness increases with the number of abnormal Geriatric CARE Vital Signs.

Appendix Table 2 illustrates the quality of care for patients who have adequate finances on the basis of abnormalities on Geriatric CARE Vital Signs. The greater the number of abnormalities, the worse is the perception of care.

ILLUSTRATIVE *ACTIONS* THAT MIGHT BE TAKEN AFTER USING GERIATRIC CARE VITAL SIGNS

Low-needs patients

Patients whose Geriatric Vital Signs have no abnormalities are very low needs patients. Although some of them have chronic diseases, they are confident in self-management and have no pain or emotional problems that will impede their ability to manage their concerns (Wasson et al., 2008a). Except for the smokers among them, the vast majority will also have about a 5 years' longer life expectancy than average for their age (Welch et al., 1996).

A clinician's job is to reassure patients of their good health status, reinforce healthy behaviors, and provide proven preventive care after informing them of their likely life expectancy. The patients should also be encouraged to continue their self-management activities by performing a health check-up annually on-line by using free, noncommercial tools such as HowsYourHealth.org. If this survey tool is used, its registry function can be used to remind them every year to complete the HowsYourHealth.org tool to make sure that they are continuing to do well. They should also be reminded to complete or update an advanced care plan.

Medium-needs patients

These patients have 1 to 2 abnormal responses to the Geriatric CARE Vital Signs. Appendix Table 3 illustrates the types of action an office might consider. (Similar lists of actions generated by expert panels are available elsewhere) (Wenger et al., 2007).

Within this category, the office staff can describe explicit actions and "standing orders" for each of the responses. Many of these actions need not be executed by a physician. In addition, group visits are a very useful enhancement for the typical office visit of a patient who has a few CARE Vital Sign problems.

Because these patients have so many other issues, a comprehensive tool such as HowsYourHealth.org might be used before the next office visit to tailor information for their

Patient Self-Assessment

Name _____ Today's date _____






1. What questions or concerns do you wish to discuss?
(please state in the space provided)

2. Pain score _____ (see below)
 3. Feeling score _____ (see below)
 4. Social support score _____ (see below)
 5. Do you often have trouble eating well? (circle one)
 Yes, often Yes, sometimes No, never
 6. Do you often have trouble remembering or thinking clearly? (circle one)
 Yes, often Yes, sometimes No, never
 7. Do you often have trouble with dizziness or falls? (circle one)
 Yes, often Yes, sometimes No, never
 8. Are your pills making you ill? (circle one)
 Yes No Maybe Not applicable
 9. Are you confident in managing your health problems? (circle one)
 Yes No Maybe Not applicable
 10. How do you rate your health in general? _____ (see below)

Thank you.






Pain

During the past 4 weeks ...
How much bodily pain have you generally had?

No, pain		1
Very mild pain		2
Mild pain		3
Moderate pain		4
Severe pain		5


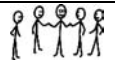



Feelings

During the past 4 weeks ...
How much have you been bothered by emotional problems
such as feeling anxious, depressed, irritable, or downhearted and blue?

Not at all		1
Slightly		2
Moderately		3
Quite a bit		4
Extremely		5






Social support

During the past 4 weeks...
Was someone available to help you if you
needed and wanted help? For example, if you
—felt very nervous, lonely, or blue
—got sick and had to stay in bed
—needed someone to talk to
—needed help with daily chores
—needed help just taking care of yourself

Yes, as much as I wanted		1
Yes, quite a bit		2
Yes, some		3
Yes, a little		4
No, not at all		5

Overall health

During the past 4 weeks...
How would you rate your
health in general?

Excellent		1
Very good		2
Good		3
Fair		4
Poor		5

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Appendix Table 1. A sample of patient characteristics by category of Geriatric CARE Vital Sign*

Sample patient characteristic	Abnormal Geriatric CARE Vital Signs		
	No abnormalities	1-2 abnormalities	≥3 abnormalities
Medications			
>5 medications	15	28	48
Common diagnoses			
Hypertension	41	54	61
Arthritis	34	51	63
Atherosclerotic cardiovascular disease (any manifestation)	17	26	36
Atherosclerotic cardiovascular disease (congestive heart failure)	3	6	13
Diabetes	10	16	31
Respiratory	10	15	26
Health habits			
Smoker	22	22	30
Not exercising >3 d/wk	37	49	79
Common symptoms			
Wetting	3	8	24
Constipation	4	7	23
Sleeping problems	7	16	36
Instrumental activities of daily living limits			
Cannot get out of the house without help	2	8	30
Cannot handle finances	2	7	18
Impact on life			
Using cane or wheelchair	5	19	40
Confined to bed in last 3 mo	9	15	37
Hospitalized in past year	14	22	39
Quality of life "bad"	0	2	25
Harmed by healthcare in past year	1	2	4
From CARE Vital Signs			
Not confident	0	62	88
Pain	0	30	70
Overall health fair or poor	0	15	72
Pills perhaps causing illness	0	17	54
Lacking social support	0	17	36
Emotional problems	0	5	41
Problems thinking	0	9	37
Dizzy or falling	0	3	23
Eating/nutrition problems	0	1	21

*Values given are in percentages.

need and help the clinical staff find out "what matters" to these patients. Patients with medium or high needs will often require family members assist them with the use of computers.

High-needs patients

This group of patients represents a rather frail group of elderly patients. They invariably require many services and are at high risk for death, rehospitalizations, and harms associated with

Appendix Table 2. Quality of care reported for 70 years or older patients with adequate financial status*

Quality indicators	Abnormal Geriatric Vital Signs		
	No abnormalities	1-2 abnormalities	≥3 abnormalities
Information and assistance			
Excellent information about chronic disease(s)	50	28	15
Helped live with their problem(s)	59	53	32
Care processes			
Very easy access to needed medical care	62	47	25
Office is efficient: My time is not wasted	87	82	69
Relationship with clinicians			
I have a personal clinician	91	90	91
I have 2 or more clinicians	37	61	66
I know who is in charge	89	88	80

*Values given are in percentages.

healthcare. However, despite their illness burden, about 1 in 4 do not have a clear idea about who will make decisions for them if they become too sick to speak for themselves. They also tend to overestimate their likelihood of survival.

Many of these patients will benefit from the same approaches suggested for medium-needs patients. Given these patients multiple needs, it is imperative that family members, the patient, and other providers are all on the “same page” about management issues, priorities, and goals. The special survey within www.howsyourhealth.com for frail patients may be invaluable for assessing their needs and providing basic education based on their needs. The tool can save much clinician time and help the family and the patient be sure they are on the “same page.”

If possible, the office should designate someone to look out for high-needs patients and coordinate their care. Most importantly, this member of the staff should continuously provide brief proactive reinforcement of self-management and monitoring of important health concerns by phone, if possible, or at every visit.

Appendix Table 3. Initial actions for abnormal Geriatric CARE Vital Signs responses

Problems from Geriatric CARE Vital Signs	Initial actions*
Not confident	<ol style="list-style-type: none"> 1. Review understanding of confidence 2. Identify what things patients feel least confident about and why 3. Begin “campaign for confidence”
Pain	<ol style="list-style-type: none"> 1. Source and nature of pain 2. Problem-solving strategies 3. Medication management

(continues)

Appendix Table 3. Initial actions for abnormal Geriatric CARE Vital Signs responses (*Continued*)

Problems from Geriatric CARE Vital Signs	Initial actions*
Overall health fair or poor	<ol style="list-style-type: none"> 1. Reconfirm rating with patient 2. Use for “decision making in the gray” 3. Use to trigger reminder for advance care planning 4. For those who have fair or poor health have someone help them complete the special HowsYourHealth.org tool for the “very sick or frail”
Pills perhaps causing illness	<ol style="list-style-type: none"> 1. Which pills? 2. How are they “causing illness”? 3. Impact on patient “compliance” with pill taking 4. Explore possible alternatives
Lacking social support	<ol style="list-style-type: none"> 1. Why the response? 2. What is needed? 3. What is lacking? 4. Problem solving 5. Possible referral
Emotional problems	<ol style="list-style-type: none"> 1. Source and nature of emotional problem 2. Problem-solving strategies. 3. Medication management
Problems thinking	<ol style="list-style-type: none"> 1. Why the response? 2. Mini-Mental State Examination or MiniCog. 3. Review options based on results
Dizzy or falling	<ol style="list-style-type: none"> 1. Explore nature of problem 2. Get up and go 3. Orthostatic blood pressure 4. Evaluate as needed with particular focus on medications
Eating/nutrition problems	<ol style="list-style-type: none"> 1. Explore nature of the problem 2. Weight and body mass index 3. Evaluate as needed

*For more details on these initial generic solutions, refer to “Activation of Patients for Successful Self-management.” Several tools are available at www.howsyourhealth.org.