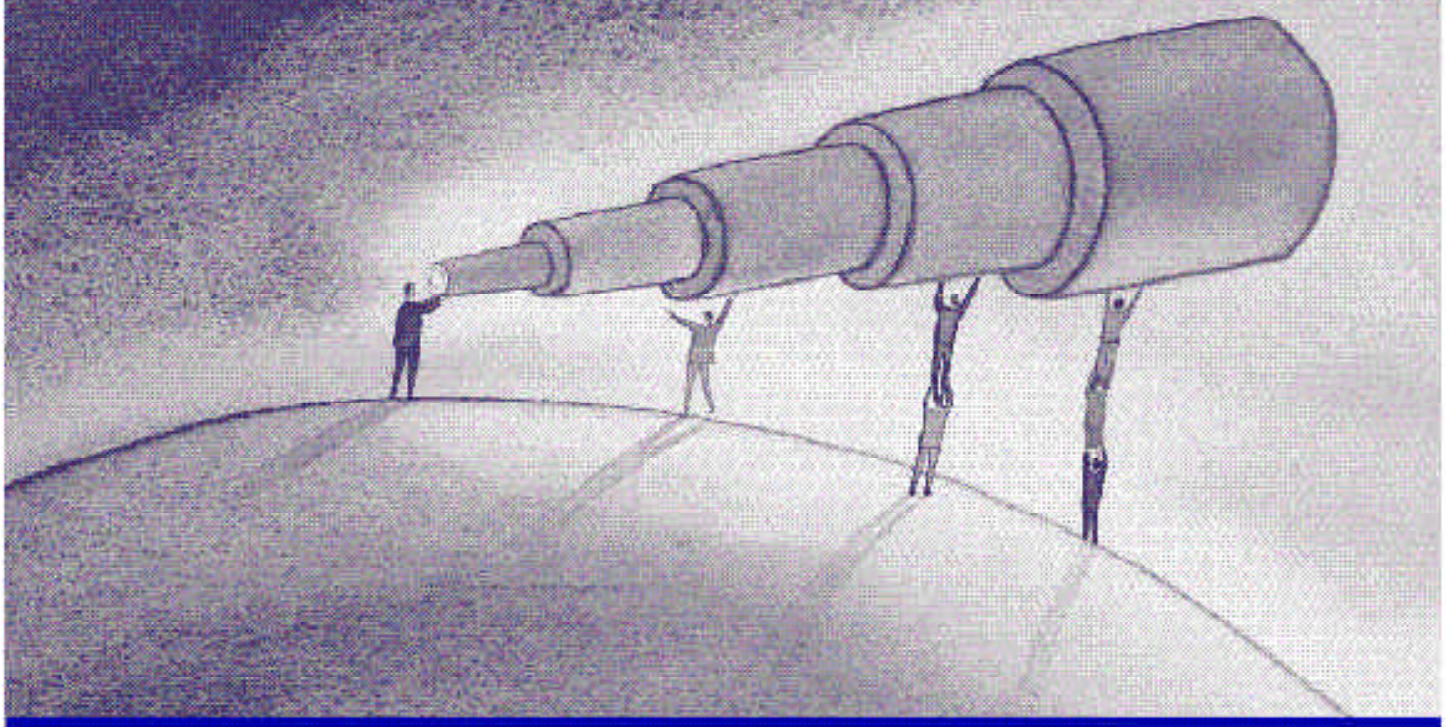
EIGHTH ANNUAL

ASHP LEADERSHIP CONFERENCE ON PHARMACY PRACTICE MANAGEMENT



THE PREMIER CONFERENCE ON TODAY'S KEY PHARMACY PRACTICE MANAGEMENT ISSUES

Looking to the Future: Leading and Managing Change

OCTOBER 27–28, 2003

DALLAS, TEXAS

In cooperation with the ASHP Section of Pharmacy Practice Managers

American Society of Health-System Pharmacists

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Opening Remarks

ASHP President Daniel M. Ashby opened the conference at 8:00 a.m. Monday, bringing greetings from the ASHP officers and Board of Directors. Accepting responsibility for pharmacy leadership, he said, is "important to your staff, important to your health system, and especially important to your patients." Ashby encouraged the attendees to share their conference experiences with colleagues at their practice sites and within their states. Paul W. Bush, chair of the ASHP Section of Pharmacy Practice Managers, welcomed the conference attendees and thanked the sponsors.

Overview

The Eighth Annual ASHP Leadership Conference on Pharmacy Practice Management was held October 27-28, 2003, at the Adolphus Hotel in Dallas, Texas. This year's conference theme was "Looking to the Future: Leading and Managing Change."

James L. Anderson, a retired Army General, kicked off the conference, speaking about "Building a Culture of Leaders." With audience interaction and anecdotes from his personal life and military experience, he demonstrated that character is a vital component of leadership at all levels of an organization.

The new standards and process for health-system accreditation, effective in 2004, were the topic of the second Monday morning plenary session. Robert P. Katzfey of the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) described how the Shared Visions-New Pathways initiative will change the way organizations interact with the Joint Commission.

Five concurrent programs were held on Monday afternoon and repeated on Tuesday morning, allowing each registrant to choose two programs. The topics were "Practical Strategies for Implementing the 2004 JCAHO Medication Management Standards," "The Future of Pharmacy: Building Tomorrow's Leaders," "Managing Change in Today's Health-System Culture: Implementing a Computerized Prescriber Order Entry System," "Strategic Planning: Implementing a Successful Process," and "Justifying the Cost of Medication Safety Programs and Technology."

Three plenary sessions were held on Tuesday afternoon. Mark Neuenschwander spoke on "Applying Automation for a Safer Medication Use Process." Pharmacy director Steven S. Rough and nurse manager Geraldine A. Coyle gave case presentations on "Using Bar Coding Equipment to Improve Medication Safety." Jerry L. Haney, a former pharmaceutical industry executive, wrapped up the conference with "Making Culture Pay: Solving the Puzzle of Organizational Effectiveness."

Building a Culture of Leaders

James L. Anderson

General James Anderson asked first the managers and then the leaders in his audience to raise their hands. "I'm hoping you're both," he said, because it is very difficult to manage if you're not a leader. We manage things (products, inventory, money) but lead people. To manage the things, we need someone helping us, and those are our people—the ones we have to lead.

Influence Leadership

Leadership is about being people-oriented, and leaders need to involve all of their people in building a culture of leadership. Organizations have two types of leaders:

- The assigned, or legitimate, leaders have authority over the people they are leading and responsibility for getting the job done.
- The influence leaders lead people over whom they have no authority.

Having a culture of influence leaders means that all who work in your pharmacy accept some of the responsibility for leading. Consistently good organizations do not have one strong leader or just a few at the top. They have many strong leaders at all levels, and most of them are influence leaders.

Assigned or legitimate leaders are the standard paradigm of leadership, but reliance on authority to get people to do what you want means you are probably not a very good leader. You should be able to lead through influence.

What Makes a Leader?

Being a leader takes commitment and dedication, competence, character, integrity, and trust. Success within the culture of leadership is determined by whether we have these characteristics and if we can earn trust.

As potential leaders, we should ask ourselves how we can show the dedication and commitment that would make others want to follow us. We also need to ask ourselves how we expect the people working for us to show that they have dedication and commitment.

"There's no such thing as a reluctant leader," said Anderson. You lead because you want to, and you have to be thinking about leadership all the time—it has to become a lifelong commitment. An understanding of what it takes to be a leader does not improve your leadership unless you go out and practice it. Not every leadership attempt is successful; you have to keep trying and see what works.

To get your people to become influence leaders, you have to get out front and inspire them. Remind them that the history of the world is a chronicle of the deeds of a small number or ordinary people who had extraordinary levels of commitment and dedication.

Leaders are people who courageously contribute even under the most trying circumstances. They act unselfishly and demand more from themselves than others would expect. A real leader works harder than any of the people he or she leads. A leader defies adversity by doing what he or she believes is right in spite of fear that someone will not like it.

A leader does things to help others, rather than for self-gratification. You become a leader for what you can do other people, not because you think it will make you feel important.

Competence Plus Character

Leadership is a blend of competence and character. Competence is proficiency in required professional knowledge and in judgment and skills. Good judgment comes from intelligence and experience. Good character requires the understanding of what is the right, fair, or good thing to do in a given circumstance and the courage to act accordingly.

We are all taught from childhood what is right, fair, and good. We expect young people to make mistakes of judgment and to learn from the experience. However, when adults do not do what is right, fair, and good, it is because they lack character. People are selected for leadership positions because of their competence, which, unlike their character, can be measured. Failure in leadership is hardly ever a result of lack of competence; almost always, the issue is character.

Character can be changed by practicing doing the right thing. To help people learn to change their character, we need to call a mistake what it is. Making excuses for people does not help them.

Integrity, an important quality of leaders, involves discerning right from wrong; acting on what we have discerned, even at personal cost; and saying openly that we are acting on our understanding of right and wrong.

Earning Trust

Trust is the emotional glue that binds the leader to his or her people. We build trust with our people by what we do: by telling them the truth, by never using them or manipulating them, by including them in decision-making processes that affect their well-being.

There is a strong relationship between the effectiveness of a leader and the extent to which people trust him or her. When trust is present, leaders are able to create

teamwork. If your organization is having leadership problems, you need to look at whether your people trust you.

To build trust, leaders must trust their people, and demonstrate that. With trust comes candor and willingness of people to speak their minds, even when you might not like what they say.

The Servant Leader

Being a leader is not about power or control. Leaders' role is to add value to other people—to help them be their best and inspire them to succeed in their jobs. To add value to others, we must be "servant leaders" and support, direct, empower, encourage, coach, and facilitate others to make the necessary or right choices.

Let your people know how important they are, not through what you say but through what you do. There is power in personal example, even when you don't have authority.

The greatest leaders willingly risk their positions or even their lives in support of their people. Do not be afraid of taking risks or being criticized.

> "**Being a Leader** is not about power or control. Leaders' role is to add value to other people—to help them be their best and inspire them to succeed in their jobs."

An influence leader seeks to be a servant first and a leader second. It takes hard work to gain influence in any organization and earn the right to become the leader. But true leadership cannot be awarded, appointed, or assigned. It comes only from influence, and it must be earned through your vivid, living, personal example. If you do not have influence, regardless of your title, you are not the leader.

Sources of Influence

Influence is the ability to change the attitude or behavior of others. Persuasion is the most important influence strategy. Persuasion can be used when your authority is limited and others have as much power in the situation as you do. An effective persuader has credibility, which comes from both expertise and relationships.

The best relationships are ones in which our caring for each other exceeds our need for each other. We develop the relationship not because we need the person to do something for us but because we care about the person—that has to come across, to start building the trust.

Examining our relationships is an excellent way to assess our ability to lead. First, we need to understand how we project ourselves to other people: What is our basic demeanor and operating style? Are we authentic and honest with others, or do we manipulate people? We cannot get their trust if we manipulate, and we must get their trust in order to persuade them.

Are we caring and respectful to others? In the pharmacy or hospital, do we make patients feel we care that they are there?

Attitude Is Contagious

Research shows that 85% of people's success is due to personality, primarily to attitude. Bad attitude comes from self-centeredness or self-pity that distorts our perception of reality. We think we're the most important person in the equation and do not think about what is best for the organization.

People who would become influence leaders need to understand this: Influence leadership has less to do with position than it does with disposition, or attitude. The right attitude will set the right atmosphere, which enables the right responses from others.

Attitudes are contagious, said Anderson. We should ask ourselves, "Is mine worth catching?" When people project an exemplary attitude, we can tell them, "Attitudes are contagious. Yours is worth catching!"

Shared Visions-New Pathways: The New Joint Commission Survey and Accreditation Process for 2004

Robert P. Katzfey

Starting in 2004, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is using a new survey process intended to provide a "moving picture" of day-to-day operations and to promote continuous compliance with standards. JCAHO wanted to make the standards, the survey process, and the accreditation decision more relevant to the institution, and to increase the emphasis on safety and quality of care of individual patients, said Robert Katzfey, JCAHO Associate Director, Accreditation Operations. The new process was described in a special issue of *Joint Commission Perspectives* (http://jcaho.org/accredited+organizations/svnp/jcp-2004-january.pdf).

Accredited health care organizations (HCOs) are required to conduct a periodic performance review (PPR)—a self-assessment of compliance with JCAHO standards—at the midpoint of their three-year accreditation cycle. HCOs will use an extranet Web site called "Jayco" to conduct PPR and submit the information to JCAHO. Data from the PPR and other sources are used in a "priority focus process" to prepare for the triennial survey.

HCOs will see major changes in their on-site surveys. The surveyors will examine the care of individual "tracer" patients to assess compliance with standards. At the end of the survey, the final report will be left at the institution. It will contain recommendations, but no individual standard scores or overall scores. The new process will reduce the focus on scores and the need to "ramp up" for a survey.

"This is a huge culture change, for you, for our surveyors, for your entire organization," Katzfey said.

New Standards and Elements of Performance

In the past 18 months JCAHO has reviewed and revised the standards for all types of organizations to put safety and quality front and center and achieve greater consistency among programs (e.g., hospital, long-term care, ambulatory care). In the accreditation manual, each standard is followed by the rationale in cases where that might not be evident. Elements of performance (EPs) are included for each standard, for example, "Any time one or more medications are drawn up or prepared for later use, the medication container must be labeled."

The Jayco site, used in PPR, lists each standard and its EPs, which are scored 0 for insufficient, 1 for partial, or 2 for satisfactory. On the basis of these EP scores, the HCO evaluates whether it is compliant or noncompliant with each standard. For standards with which the self-assessment does not indicate compliance, the HCO must develop plans of action and measures of success (quantitative measures for validating that an action was effective and sustained). The extranet tool forces the HCO to complete the PPR process and generates a report that is submitted electronically to JCAHO.

PPR Implementation and Use in Surveys

Since PPR is required 15 to 18 months into the accreditation cycle, JCAHO began sending PPR information in November 2003 to HCOs with triennial surveys due in July 2005; these organizations were to complete PPR by February 2004. JCAHO standards-interpretation staff reviews the information and discusses it by telephone with the HCO, working toward approval of the plan of action; up to four hours of telephone interaction may be required.

PPR gives organizations the ability to come into compliance on all standards before the triennial survey. A surveyor on site cannot overrule an approved plan of action. Surveyors will assess the measures of success for how well the institution is implementing its plan of action. All accredited HCOs will need to demonstrate a 12-month track record of standards compliance at the time of the full survey. Any area of noncompliance discovered at that time will be scored by the surveyors.

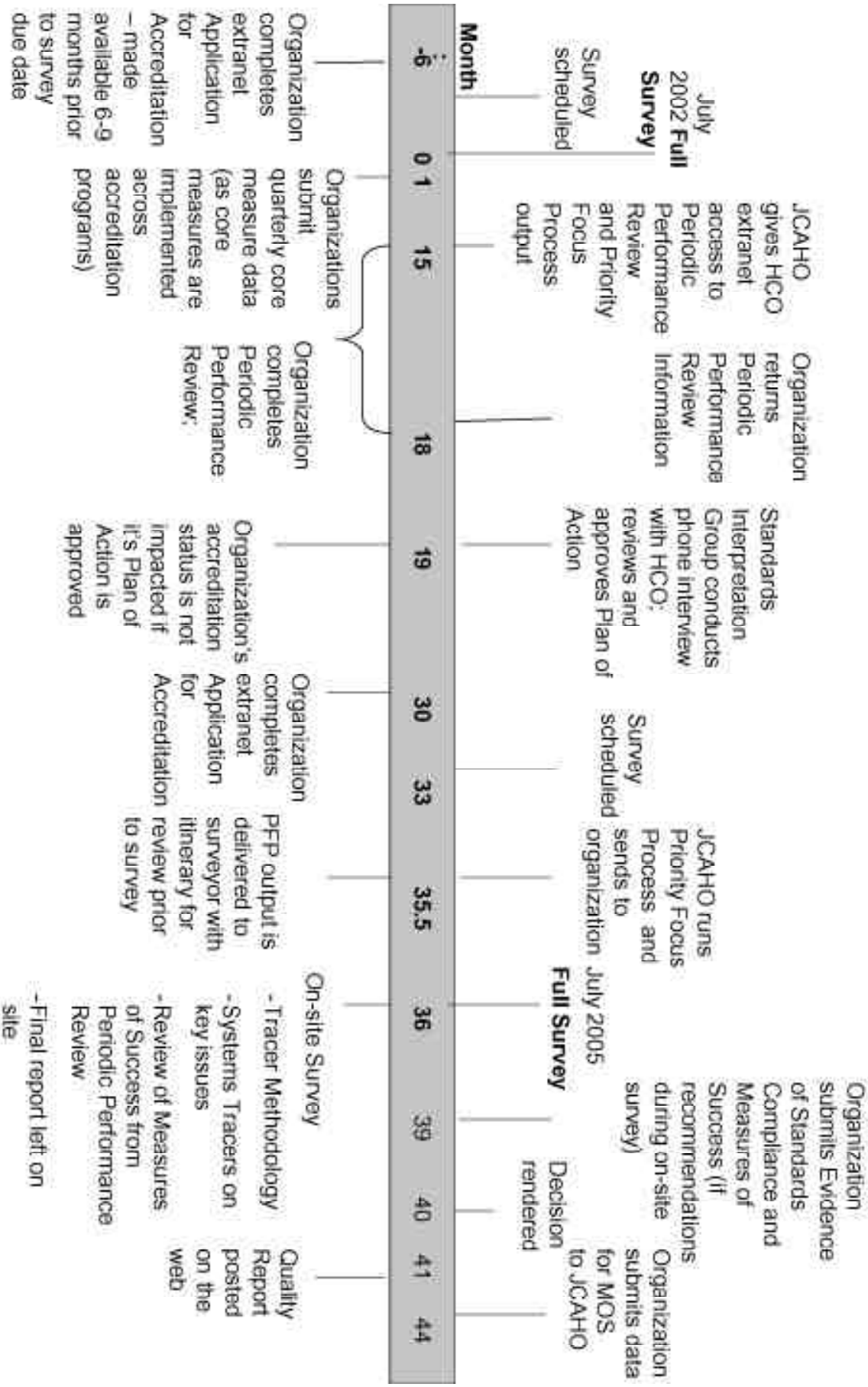
Because of HCOs' concerns about submitting PPR information, JCAHO has two options to full PPR:

Option 1: An organization that has been advised by legal counsel not to participate in full PPR is required to self-assess compliance with standards and develop a plan of action and measures of success as applicable but not submit the information to JCAHO. The organization does not use the extranet tool to score compliance; it can submit standards-related issues for discussion by phone with JCAHO staff, but compliance is not discussed.

Option 2. An organization that has been advised by legal counsel not to participate in PPR can have an on-site survey instead of self-assessment. The organization is charged a fee for the survey, which is about half the length of the triennial survey. For surveyor-identified areas of noncompliance, the organization must submit a plan of action and measures of success; these are reviewed by telephone.

JCAHO believes use of the secure, password-protected Web space (Jayco) makes information exchange efficient and improves the quality and consistency of data. The data appear as submitted by the institution and are not an interpretation of the institution's data by JCAHO.

The Accreditation Cycle: Continuous Process – no ramp-up



Priority Focus Process

"The priority focus process (PFP) is a way of getting at what's important to your organization," Katzfey said. In this process, JCAHO gathers data from sources including previous surveys, complaints, data supplied by the HCO (PPR, application for survey, Oryx), and data from public sources such as states and the Centers for Medicare and Medicaid Services. Before the survey, these data are used to identify clinical service groups from which to select tracer patients, focus areas for the survey of tracer patients, relevant standards, and appropriate survey activities.

The clinical focus areas are based on diagnosis-related groups, not on the health care organization's service areas. For example, dermatology might be selected for an organization that does not have a dermatology service, if many patients were receiving dermatological treatment for bedsores.

Priority focus areas are similar to familiar chapter headings in the accreditation manual, for example, assessment and care, communication, credentialed practitioners, medication management. Usually, four or five priority focus areas are chosen for an organization.

Two weeks before the triennial survey, surveyors and the HCO receive information about the top clinical service groups and priority focus areas. Surveyors use this information to plan survey activity, clinical service groups for focus, tracer focus areas, and potential relevant standards and to select tracer patients.

Changes in the Survey

As in the past, the survey will begin with an opening conference. Then, surveyors will meet without HCO representatives and determine the tracers to use. A leadership conference will be held, where leaders describe the HCO's strategic approach to providing care. (Larger organizations will later have a second leadership conference to identify issues surfacing in the survey.) About 60% of time spent on the survey will be with patient tracers—where JCAHO looks at what the organization is doing, one on one, with patients to evaluate the quality and safety of care.

The survey will also include "systems tracers" that focus on high-priority issues identified by JCAHO; these may vary from year to year and organization to organization. The three systems tracers identified initially are infection control; data use: staffing effectiveness and Oryx; and medication management. HCO staff will discuss with the surveyors the entire system of medication management, for example. Then the surveyors will trace medications, using either an important medication or an individual patient.

Using tracers will enable surveyors to identify performance issues in one or more steps of the health care process, or in the "handoffs"—the interfaces between processes or parts of the HCO. Surveyors will identify issues through seeing the patient or at least the patient's records, talking with the staff, and targeted document review when discrepancies are noted. Instead of asking a pharmacy manager to tell them the process for documenting adverse drug reactions, for example, surveyors will say to a staff pharmacist or a staff nurse, "We see in what we've reviewed that Mrs. Smith had an adverse drug reaction. How is that reported? Can you show me the documentation? What is your process for reporting it?"

The tracer process will incorporate validation that action plans and measures of success identified in the PPR have been implemented. There will be more surveyor team meetings than in the past; surveyors will need to compare notes on what they have seen as they traced patients. As in the past, the survey agenda will include reviews, such as the traditional environment of care, competencies, and credentials; daily briefings will be held; and findings will be discussed in exit conferences. The surveyors will leave the final report on-site; there will no longer be a preliminary report. The report will be posted on the extranet site within one week.

An important change is that surveys of organizations with multiple accreditation programs will be conducted as one survey, with one report (although issues will be identified by program).

Scoring will also change. For standards, the HCO will be either compliant or not compliant, as determined solely by the grouping of EP scores for a standard. All "not compliant" standards will result in "findings," either "Requirements for Improvement" or "Supplemental Findings." The organization will be either accredited or nonaccredited; there will no longer be grid scores (a report card).

And follow-up will change. Within 45 days after the survey (90 days in 2004) the HCO will have to submit "evidence of standards compliance" (ESC) for each finding. This will tell JCAHO that the HCO is in compliance or has a plan for compliance. The HCO will have to submit an indicator or measure of success for each finding to show how it will assess sustained compliance over time. Four months after an approved ESC, the HCO will be asked to submit data on each of the measures of success for the past four months.

Evidence of standards compliance will be of two types:

1. Clarifying: If the HCO believes it was in compliance at the time of the survey, it will submit evidence as specified by JCAHO and will not need to submit measures of success.
2. Corrective: The HCO will tell JCAHO what it is doing to correct the finding and what measures of success it is using.

If no ESC is submitted within 90 days or the ESC is not accepted by JCAHO, the HCO will be moved to provisional accreditation status until the ESC and indicators are accepted. The provisional status is publicly disclosable.

Although there is no longer a category "accredited with requirements for improvement," there are new rules defining conditional accreditation and preliminary denial of accreditation. These are based on the number of standards for which noncompliance was found. JCAHO will disclose to the HCO and the public only compliance or noncompliance with a standard, not a score.

Performance reports will be replaced by quality reports, which contain information on performance on national patient safety goals, national quality goals that are being developed, and Oryx core measures, as well as any special awards or achievements. This information, not a grid score, will distinguish an HCO from others.

Finally, in keeping with the goal of continuous compliance with standards, all surveys in 2006 and after will be unannounced.

Accreditation Questions

Go to **www.jcaho.org/accredited+organizations/svnp/svnp_index.htm.**

Workshop 1

Practical Strategies for Implementing the 2004 JCAHO Medication Management Standards

Patricia C. Kienle

Workshop leader Patricia Kienle discussed implications of new Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards and the new accreditation process outlined by Katzfey. Kienle is Medication Safety Manager for the pharmacy management business of Cardinal Health and a member of the JCAHO Hospital Professional and Technical Advisory Committee (PTAC). Health systems, she said, will need to shift from "ramping up" for surveys to being prepared at all times. Furthermore, surveyors will now want to talk not just to pharmacy directors and administrators but to staff-level practitioners—which means ongoing preparation and training of staff in how to respond to questions that arise during the survey.

Kienle stressed that pharmacy departments should not concentrate solely on the medication management standards in the new accreditation manual but need to look at standards in chapters dealing with patient education, environment of care, continuum of care, and human resources. From her work on the PTAC, Kienle was able to flesh out Katzfey's overview of the new survey process. She discussed national patient safety goals relevant to pharmacy, as well as the medication management standards.

Measuring Compliance with Standards

Pharmacy administrators will need to work with their health system's quality improvement (QI) staff to define how to evaluate performance of the health care organization (HCO) on the medication management standards. HCOs assess their compliance on the basis of elements of performance (EPs). If an HCO scores 90% or better on EPs, it is considered compliant; 80% is considered partially compliant; below 80% indicates noncompliance. EPs for each standard are scored 0, 1, or 2; the HCO is considered noncompliant with the standard if any EP score is 0 (insufficient) or if 35% of the EPs are 1 (partial compliance). The number of "noncompliant" standards is considered in the final accreditation decision.

Use of Tracers in the Onsite Survey

On-site surveyors will look at "tracer" patients. In JCAHO's tests of the tracer method, Kienle reported, it was common for the director of pharmacy to be designated the team leader, responsible for gathering a team from

various areas of the HCO, tracing a patient through the system, and reporting back to the surveyors. The tracer patient might be one who comes through the emergency department, so tracing would start there. Most likely, tracing would next proceed to the pharmacy department because medications would be involved in the patient's care. In a three-day, three-surveyor HCO survey, about 11 tracers would be used. Tracers are selected to focus on processes, systems, or structures that significantly affect the quality and safety of care. For 2004 the areas of concentration will be staffing, infection control, medication management, and the national patient safety goals.

National Patient Safety Goals

Pharmacy departments need to be sure all staff members know JCAHO's national patient safety goals and how they are being implemented in that HCO. Participants discussed each pharmacy-related goal for 2004.

1a. Improve accuracy of patient identification: Use at least two patient identifiers (neither to be the patient's room number) whenever taking blood samples or administering medications or blood products.

The HCO should have a written policy requiring two identifiers that, when taken together, can identify the patient. The medication administration record (MAR) needs to contain the two identifiers. Reasons for deviation from the selected identifiers should be acceptable as long as they are documented. Everyone should know what the policy is and be in compliance; quality improvement staff should be notified if compliance is not feasible. If birth date is one of the identifiers chosen by the HCO and the pharmacy system cannot print birth date, pharmacy should tell the QI staff it does not have the capability to follow the HCO's policy. Medication labels and i.v. labels (and patient medication drawers, if used) should have two approved identifiers, although Kienle acknowledged discrepancies among surveyors as to whether this is required. She advised discussing these identifiers with the health system's risk management and QI staff.

2a. Improve the effectiveness of communication among caregivers. Implement a process for taking verbal or telephone orders or critical test results that require a verification "readback" of the complete order or test result by the person receiving the order or test result.

The key is to minimize verbal and telephone orders. The intent is for the person taking the order to write it on the final document (the patient chart) and read it back, an action that is observable by surveyors. The standard does not require documentation that the

However, many HCOs have an approved abbreviation for documenting this, such as VVO (verbal order verified) or RBV (read back; verified); staff needs to be aware of HCO policy. Pharmacy could do its own internal audit of compliance with HCO policy. Surveyors are likely to ask someone in the HCO to demonstrate how compliance is monitored and how noncompliance is documented.

* JCAHO Unapproved Abbreviations

U for unit
IU for international unit
Q.D.
Q.O.D.
Trailing zero (X.0 mg)
Lack of leading zero (.X mg)
MS
MSO_4
$MgSO_4$

2b. Improve effectiveness of communication among caregivers: Standardize the abbreviations, acronyms, and symbols, used throughout the organization, including a list of abbreviations, acronyms, and symbols not to use.

As of January 2004, HCOs must comply with JCAHO's list of unapproved abbreviations (sidebar), and by April 2004 each HCO must identify at least three additional "do not use" items (JCAHO has a list from which HCOs can choose). For 2004, JCAHO will look only at handwritten abbreviations in patient-specific documentation; in 2005 all print and electronic documents, such as lab results and computerized MARs will be included.

Surveyors will look in charts for the unapproved abbreviations. HCOs will be considered compliant if an item is abbreviated less than 10% of the times it is used, and there is written evidence of clarification if an unapproved item is used (a policy stating what to do if an inappropriate abbreviation is used), and there is a plan in place to be 100% compliant by the end of 2004.

HCOs must have a written, housewide policy on what to do to about unapproved abbreviations (e.g., it might state one action to be taken if the order is clear

and another to be taken if clarification is needed). Pharmacy departments should monitor use of the unapproved abbreviations and take action to reduce their use. Kienle suggested, as a baseline, looking through 100 order sheets to determine which abbreviations need attention. Pharmacy could talk to the medical staff executive committee about the new requirement, using examples of the unacceptable abbreviations from that HCO. At one HCO, pharmacy distributed a list of unapproved abbreviations, then two months later made copies of orders using those abbreviations and set a date after which they would not be accepted by the pharmacy. This approach had been discussed with and was supported by the medical staff.

Participants said JCAHO does not want abbreviations on the "unapproved" list to be used anywhere, no matter what they stand for (e.g., U cannot be used for "unapproved"). JCAHO does not require HCOs to have an approved list, but some states and health systems do.

3a. Improve the safety of using high-alert medications: Remove concentrated electrolytes (including, but not limited to, potassium chloride, potassium phosphate, and sodium chloride in concentrations greater than 0.9%) from patient care units.

These solutions are not be to kept anywhere except the pharmacy unless the HCO has a policy for exceptions. Acceptable alternatives are discussed on the JCAHO Web site; for example, these might relate to potassium chloride used to stop the heart during open heart surgery or concentrated sodium chloride used in dialysis. JCAHO will give surveyors a list of acceptable alternatives.

Safeguards are to be implemented for other solutions: calcium salts and magnesium sulfate. Although HCOs would likely have medical-staff-approved policy for inclusion of these items in code carts, surveyors reportedly have cited HCOs when they found these items outside the pharmacy. Kienle advised pharmacists to look critically at where their HCOs have concentrated electrolytes and whether they are really needed there. For example, the obstetrical area should not need vials of concentrated magnesium sulfate when premixes are available. Also, look at vial sizes and stock the smallest possible size for the specific area. Placing concentrated electrolytes in automated distribution cabinets is not an acceptable safeguard.

Telling stories of local mistakes involving these items will help get buy-in with the policy. As JCAHO develops related standards on plain i.v. solutions and solutions with drugs or electrolytes, pharmacists can keep up-to-date by checking the publication *Joint Commission Perspectives*.

3b. Improve the safety of using high-alert medications: standardize and limit the number of drug concentrations available in the organization.

Pharmacists should identify areas in their HCOs where this is a problem. In critical care areas, drips should be standardized. There should be good reasons for having multiple concentrations, and when multiple concentrations are clinically necessary, there should be safeguards. Some HCOs ask that pharmacy prepare all concentrations that are nonstandard. Some use special order forms to help ensure correct dosing, for example, in neonatal areas where many different concentrations are needed.

Surveyors will want to see standardized, ready-to-use dosage forms. For example, why not have dopamine premixed bags, rather than vials, on crash carts?

5a. Improve the safety of using infusion pumps: Ensure free-flow protection on all general-use and patient-controlled analgesia pump intravenous infusion pumps used in the organization.

This does apply not to syringe pumps and enteral pumps. Nurses need to know they should always use the administration set specified for use with a certain pump. Add-on free-flow prevention devices are not acceptable.

Most HCOs use pumps with free-flow protection, but exceptions can occur when extra pumps have to be rented; on older pumps with a free-flow option, settings need to be checked. Hyperbaric oxygen chambers are likely to have old pumps without free-flow protection; a safer option is pumps designed for hyperbaric chambers. The device-evaluating organization ECRI has a list of free-flow-protected pumps at ECRI.org.

7a. Reduce the risk of health care-acquired infections: Comply with current Centers for Disease Control and Prevention hand hygiene guidelines.

Staff training and competence assessment should be provided. Pharmacy should be sure persons who make i.v. solutions have had this training. Adequate supplies of HCO-approved soaps and alcohol-based hand rubs should be available in pharmacy areas. Infection control staff should know the pharmacy's process for meeting this goal.

7b. Reduce the risk of health care acquired-infections: Manage as sentinel events all identified cases of unanticipated death or major permanent loss of

function associated with a health care-acquired infection.

Kienle said pharmacy is likely to be called into the survey process for this item.

Safe Medication Management Standards

The chapter on safe medication management includes standards on patient-specific information, on six "critical processes" and on high-risk medications and evaluation.

Patient-specific information: "Patient-specific information is readily accessible to those involved in the medication management system."

The required information includes patient name and sex, allergies, current medications, diagnosis and comorbidities, and relevant laboratory values. The following information is to be available when appropriate: height and weight, pregnancy and lactation status, and other information required by the HCO. The standard requires a written policy on who has access to this information. Kienle believed pharmacy would not be cited if lab values were not immediately accessible but pharmacy could show that they can be obtained when needed.

Selection and procurement: The first of the six critical processes is selection and procurement: "Medications available for dispensing or administration are selected, listed, and procured based on criteria."

Evaluation of a medication for the formulary needs to include its propensity for medication errors, abuse potential, and sentinel events. An abbreviated process for approval of nonformulary medications is needed. A plan for medication shortages and outages is required, including a written policy on communicating these to key physicians and staff. Some HCOs record shortages and outages in pharmacy and therapeutics committee minutes. The HCO needs to have approved protocols for substitutions and a method for communicating that information to nursing. A plan for obtaining medications in event of a disaster is also needed.

Storage

Key points of the storage standards include the following:

- Only approved medications are to be routinely stored.
- Only authorized personnel should have access to the medications.
- Medications should be in ready-to-administer form (i.e., ready for the nurse to administer)
- Chemicals should be properly labeled, and labeling should include the expiration date. As to how to determine the expiration date, Kienle suggested a date one year after the chemical container is opened.
- All medication storage areas should be routinely inspected (e.g., monthly). This means anywhere a medication is stored or dispensed, including off-site clinics and physician offices. After training and competence assessment, a nurse manager in an off-site clinic could perform this inspection.
- Emergency medications and supplies need to be secure (locked, sealed, or under constant supervision). Loose supplies on top of crash carts are not acceptable. Pharmacy should ensure that departments that store and stock these supplies (e.g., respiratory, central supply) are aware of the requirement.
- Emergency medications need to be in unit dose, age-specific ready-to-administer form.
- If patients are permitted to use their own medications, the HCO must have a policy on this.
- There must be a process for identifying patients' own medications (including visual evaluation of integrity).
- Prescribers and patients must be informed if patients are not permitted to take a certain medication.

Pharmacies should ensure that all medications are secure, purchase products in ready-to-use forms whenever possible, safely remove unwanted chemicals, develop a method for documenting a check of patients' own medications (assess what really happens on nursing units), and check all medication storage areas (e.g., include the operating rooms, not just patient units).

Ordering and transcribing

"Only medications needed to treat the patient's condition are ordered," and "Medication orders are written clearly and transcribed correctly."

JCAHO wants to know what every medication is being used for and that someone has made a medical judgment that it is appropriate for the patient. The first of these standards has been used for long-term care and is now included in the consolidated pharmacy standards for all settings. In hospitals, the indication has not generally been written with a drug order. Now, somewhere in the patient's chart, there must be a documented diagnosis, condition, or indication for each medication ordered.

Kienle believes these will be the hardest standards for HCOs to meet, particularly with all the unlabeled indications for which medications are used. Further, HCOs do not know how surveyors will implement these standards. Kienle suggested working with medical

records staff on a baseline assessment of whether an indication for each medication can be identified from the chart. Also, HCOs should include indications in any preprinted order sheets they use. These standards reach beyond pharmacy, and pharmacy may need to work with individual physicians or departments in addressing them.

Pharmacists need to read these standards in full. They address what elements are needed for a complete order; use of generic or brand names; special precautions for look-alike or sound-alike medications; and when weight-based dosing for pediatrics is required (there needs to be a policy stating how and when this will be handled).

Pharmacy should ensure that a written policy exists for all types of orders acceptable in the HCO (written policy means one approved by a medical staff committee). For example, if preparations from compounding pharmacies are used in the HCO, a policy is needed on how these preparations are handled and checked; as with patients' own medications, only preparations that can be identified should be given. A written policy needs to state that blanket reinstatement of orders for medications is not acceptable. Also, if the HCO accepts any of a list of 13 types of orders, parameters are needed for the specific order type.

Kienle recommended that pharmacy directors make a flow chart for every medication that comes into the system and how it is distributed—including i.v. solutions, items from compounding pharmacies, and items used as adjuncts to nuclear medicine procedures (e.g., adenosine, theophylline). For example, i.v. solutions may come from the manufacturer and go to materials management for distribution, but the director of pharmacy needs to have a flow chart showing that they were checked monthly during pharmacy inspection of medications on nursing stations.

A policy on range orders is required; range orders need to be interpreted consistently by all personnel. For example, if the patient has a range order for an analgesic and has only mild pain, how do nurses decide how much analgesic to give? JCAHO wants the decision tied to a measure such as a pain scale.

Preparing and dispensing: To comply with the seven standards in this area, HCOs need to ensure pharmacist review of all medication orders (sidebar), check for sterile preparations not made by the pharmacy, ensure a consistent labeling policy, tighten after-hours access to medications, and develop policy for returned medications.

For the first of these standards, "All prescriptions or medication orders are reviewed for appropriateness," an element of performance states that "A pharmacist reviews all prescription or medication orders unless a licensed independent practitioner (LIP) controls the ordering, preparation, dispensing, and administration of the medications; or in urgent situations when the resulting delay would harm the patient, *including situations in which the patient experiences a sudden change in clinical status (for example, new onset of nausea)."* The material in italics is new. Pharmacists need to note that this requirement covers all medications, including contrast media. Antimicrobials ordered in preoperative holding areas are an example of orders that may not undergo pharmacy review and are not emergency orders; orders in recovery rooms also may lack pharmacy review. One suggestion was to look at the stock in those areas; if the medications have to be obtained from pharmacy, they will be reviewed.

The standard on safe preparation requires that only pharmacy compound sterile preparations except in an emergency (e.g., a code or life-threatening situation) or with short-stability drugs. Use of a class 100 environment is required (i.e., a hood must be used) when i.v. solutions are prepared in pharmacy, when any sterile product is made from nonsterile ingredients, and when a sterile product will not be used within 24 hours. In conjunction with this standard, Kienle recommended reading the new *U.S. Pharmacopeia* enforceable chapter on sterile preparations.

Processes for ensuring pharmacy control of unused, expired, and returned medications are required. If a reverse inventory firm is used, a policy should state this and specify how medications are returned after patients are discharged.

Administering: These standards require that medications, including self-administered medications, are safely and accurately administered. The person administering a medication should advise the patient or family of any potentially clinically significant adverse drug reaction (signs or symptoms the patient can identify), and this should be documented. The standard on self-administration implies some assessment of competence of the patient or family member who administers the medication, which should be documented in the nurses' notes. Pharmacy should standardize patient medication information and ensure that nursing is aware of how to obtain it. Pharmacy should ensure control of "bedside" medications and should be sure nursing recognizes this as a problem area that is likely to raise a red flag in the tracer process.

Monitoring: These standards require monitoring of the effects of medications on patients and appropriate response to actual or potential adverse drug events and

medication errors. The HCO needs to have a process for monitoring the first few doses of a medication new to the patient; pharmacy could work with ambulatory care areas such as the emergency department and short-stay surgery to develop a facility wide policy for monitoring.

High-risk medications: These standards require written processes for managing high-risk or high-alert medications and for safe use of investigational drugs. The HCO should publish a list of high-risk drugs (concentrated electrolytes, heparin, insulin, injectable opiates and narcotics) and document safety steps taken in each area of the medication use system (e.g., storage, dispensing, administration). A grid showing these steps for each medication could be prepared and distributed to pharmacy and nursing, so that all departments respond consistently during a survey.

Pharmacy should control the storage, dispensing, labeling, and distribution of investigational agents. Uses of investigational agents outside pharmacy control, such as in physician clinics, should be identified.

Evaluation: The HCO is to evaluate its medication management system. Pharmacists can evaluate risk points and implement safety improvements, evaluate the literature for new technologies or successful practices, review internally generated reports to identify trends or issues (pharmacy often is left out of the loop of risk management), analyze reported medication errors and adverse drug reactions, and ensure pharmacy involvement in performance improvement and patient safety committees.

Other Accreditation Standards

- Pharmacies should realize that new standards in the Human Resources chapter can apply to students and volunteers, as well as to staff; if they perform any of the same functions as staff, they need to have the same competence documentation.
- The chapter Improving Organizational Performance requires performance measures for medication management (such as medication/drug use evaluation). It also requires intensive analysis of all serious adverse drug reactions or events and of all significant medication errors as defined by the HCO; if feasible, this analysis should be interdisciplinary.
- Regarding the Environment of Care chapter, the pharmacy should be sure hazardous substances are being handled properly, and pharmacy staff should be aware of the emergency preparedness plan and the proper handling and maintenance of equipment.

What Is a Medication?

Pharmacists are to review all medication orders. JCAHO's definition of medication includes prescription medications; sample medications; herbal remedies; vitamins; nutraceuticals; nonprescription drugs; vaccines; diagnostic and contrast agents used on or administered to persons to diagnose, treat, or prevent disease or other abnormal conditions; radioactive medications; respiratory therapy treatments; parenteral nutrition; blood derivatives; intravenous solutions (plain, with electrolytes, or with drugs); and any product designated by FDA as a drug.

Pharmacy needs to be able to review orders for contrast media, which may be handled in other departments. Radiology departments usually have protocols for specific procedures; if these have been approved by a medical staff committee, they might be considered orders for the drug involved. In general, intravenous contrast agents are listed in reports of the radiological procedure. However, orally administered contrast agents may not be charted—doses may be administered by radiology technicians and may not even be labeled. Surveyors could ask pharmacy personnel about how contrast agents are diluted, labeled, transported, so pharmacy should look at how these prescription items get into the system and are distributed, controlled, and stored. At a minimum, checking the storage and security of contrast agents should be part of monthly medication inspection. Pharmacy should also look at how these items are ordered and how their administration is charted. Pharmacy needs to know when a patient's medications are being held because of radiology procedures and how this information is communicated.

Pharmacies should be sure their control systems include all medications, even those not distributed by the pharmacy. Even if pharmacy does not distribute nebulized drugs used in respiratory therapy, these must be listed on the patient profile; this is the only way pharmacy can show that it evaluated those orders. A potential problem area is metered-dose inhalers kept at the patient's bedside without an order that they be there.

Kienle believes pharmacy (not, for example, materials management) should be the source of any i.v. solution that contains a drug or concentrated potassium chloride, although it is unclear how surveyors will address this. As part of monthly inspection, pharmacy should check the materials management department for proper storage and security of i.v.'s.

Enteral nutrition solutions and oxygen and other medical gases are excluded from the definition of medication. Enteral products are under the food service standard; pharmacists should read the patient care standards that apply to food service. Commercially available blood products that may not be in pharmacy control are albumin and Rh_o (D) immune globulin.

Workshop 2

The Future of Pharmacy: Building Tomorrow's Leaders

Thomas S. Thielke and Steven S. Rough

Identifying and nurturing leadership skills in staff members at all levels is a challenge faced by pharmacy managers. Thomas Thielke described factors contributing to a pharmacy leadership gap and ways of bridging that gap. He discussed the contributions of mentors, as well as the types of training programs needed. Steven Rough, who was mentored by Thielke and is now Director of Pharmacy at the University of Wisconsin (UW) Hospital and Clinics, discussed how mentees can benefit from the mentoring relationship.

Thielke used a description of his new role as Vice President for Professional and Support Services at UW Hospital and Clinics to illustrate leadership at multiple levels. A new chief executive officer at the health-system brought in new people for most of the top positions. Thielke, then director of pharmacy, accepted, in an interim capacity, a vice presidential position responsible for 13 additional departments and overseeing some of the hiring of nurses. Four months later, he was asked to take the position permanently, in part because people reporting to him appreciated his mentoring. He has used "matrixing" to succeed in the new position: instead of having direct organizational lines, bringing departments together and using their various talents to carry out common goals and projects. He has created matrixes around direct patient care; technology assessment; and utilization of radiology, laboratory, pharmacy, and respiratory resources.

He believes his efforts to get rid of departmental silos and encourage departments to work together have given pharmacy greater prominence in the organization. Since the various patient care departments for which he is responsible account for $650 million of the $950 million hospital budget, Thielke has been an "influence leader," as described by General Anderson, and has helped to develop other influence leaders. "You don't have to be on the eighth [top executive] floor of the building to be a leader; you need to spend time with the troops," is a message he tries to send department heads who report to him. Instead of moving to the eighth floor, Thielke chose to stay near his departments.

As UW pharmacy director for 18 years, Thielke worked to create a culture of leadership. "When I took over 13 new departments, I found out how lucky we were with the wonderful leaders we had in pharmacy," he said. "The chief operating officer said to me, 'Most of your assistant directors have more leadership skills and better vision than any of the department directors we have here at the hospital'—so my goal now is to bring all of those people up to a level we can be proud of."

Bridging the Leadership Gap

Changes in the health care environment have contributed to the leadership gap. Health care leaders need a broad vision of their organizations. "In pharmacy," Thielke said, "I tried to bring to the staff an understanding of what the UW health system is and does and how the pieces work together, plus what the political structure is and what the sacred cows of the organization are." Both the health system and the pharmacy have reorganized and reintegrated some of their pieces. "Moving your talent around to put them in the best positions is a constant process."

Practitioners' changing expectations present another leadership challenge. New pharmacists expect direct patient care involvement, flexible schedules, and part-time or shared positions. "The new generation has ideas, wants to get there faster, and want time to be spent listening to and trying to act on their ideas."

New medication management standards from the Joint Commission on Accreditation of Healthcare Organizations affect many departments and present an opportunity for pharmacy leadership in coordinating the medication use process across the system. Reports on patient safety from the Institute of Medicine have presented another opportunity for pharmacy leadership. Patient safety officers have appeared at institutions across the country. Many are pharmacists, and in this capacity they operate at high levels in their organizations.

Colleges of pharmacy need to add requirements for training in leadership and management, and curricula need to include material on the medication use system. Students need role models in health-system pharmacy administration. Few colleges offer students formal counseling on professional development. Potential leaders could be identified during pharmacy school. The UW pharmacy offers eight-week management clerkships to six students per year; some of these students go on to administrative residencies.

Thielke said standards for pharmacy residency programs, particularly administrative residencies, need to be rewritten to emphasize leadership. "I am personally against the term 'practice management,'" he said. "We're not just managing a practice. We're managing a complex health system in the pharmacy department. All the leadership that goes into that is part of that program. We should be looking at a leadership/management

residency in health-system pharmacy administration." The combination residency-advanced degree program has proven synergy. "We need to be able to attract the best talent into health system pharmacy administration; these are the people who will take us to the next level."

Literature on Leadership

Thielke cited several articles on requirements for leadership and used his administrative experience at UW to illustrate points made in the literature. Some key requirements:

- More cross-functional teamwork and less organizational structure (teamwork, not silos); at UW, Thielke has introduced a cross-functional unit for utilization review in the nonpharmacy departments he oversees.
- Highly developed social and communication skills.
- Capacity to deal with ambiguity; even when they don't have all the facts, leaders need to move ahead, to take chances and risks.
- Ability to change in response to shifting circumstances.
- Ability to build coalitions and influence others without rigid authority.
- Vision for coping with change, and making sure all employees have the same vision.
- Aligning people with the areas in which their talents can best be used.
- Recognizing that people are watching you as a leader; your behavior should match your stated vision.
- Recognizing where the power lies in your organization, and who the informal leaders or influence leaders are; Thielke tells his residents pharmacy has power for two reasons: because administrators depend on it to control drug spending and because physicians depend on its knowledge of drug therapy.
- Managing or mentoring your boss.

Followers want to know they really matter to the leader; they want a feeling of community or unity of purpose; and they want leaders to have charisma and energy and generate excitement.

Aspects of leadership include being a business leader (a strategist and architect and coordinator of plans), a country leader (by getting out and communicating and being customer-service oriented, sensing what is needed to build coalitions), a functional leader (scans the environment for opportunity; tries to excite other people about an idea and finds a champion to lead it; and a corporate leader or leader extraordinaire (identifies potential leaders and develops them).

Qualities that define leaders include the following:

- Leaders create meaning out of events that devastate nonleaders.
- They like to work in an unstructured environment, to be free to develop and create good things for others.
- They have adaptive capacity (can understand situations and use them to make their own organizations stronger).
- They are optimistic; they think they can make a difference, and their positive attitude sustains them.
- They have tenacity and self-confidence (if a plan doesn't work, they will try it again in a year or two).
- They are first-class noticers, who recognize talent and can assess situations.

Thielke cited Bennis's concept of "neoteny" as a quality of leaders: the retention of youthful qualities by mature adults, including curiosity, playfulness, eagerness, fearlessness, energy, hunger for knowledge, courage, and willingness to take risks.

> "**Standards for** pharmacy residency programs, particularly administrative residencies, need to be rewritten to emphasize leadership."

Development of a Pharmacy Leadership Mentoring Program

We need to mentor leaders throughout our health care organizations, on both a formal and an informal basis, said Thielke. In developing a pharmacy mentoring program, the following questions need to be asked:

- How much time will be devoted to the mentorship process?
- What organizational goal will this benefit?
- Who has what role and what responsibility?
- How will progress be measured?
- How will the program be evaluated?
- How will interested people become involved?
- How supportive is the environment for the mentorship process?

The first stage of mentorship is building the relationship. The second is negotiating the agreement: defining roles, determining schedules, establishing measures of success, and clarifying expectations. As a mentor, Thielke talks to mentees about passion for and service to the profession. He presents a historical perspective and an orientation to where pharmacy fits into the big picture and who the informal leaders are. He meets twice weekly with each resident and considers the resident a member of the management team. The process emphasizes teamwork and unity (above personal achievements), humility and respect, caring for the patient and the organization, various leadership styles, and networking with professional colleagues.

Mentors should be trusting and honest in all discussions with the mentee. They should talk about failures (to understand what didn't work and why), real experiences, and imperfections. Through the process, they should help build mentees' confidence and inspire success.

Benefits of Being a Mentee

Steven Rough, as a mentee and a mentor, talked about how to gain the most from the mentoring process. He attributes his career success to sustained mentoring by several mentors.

Rough discussed four core components of successful mentoring from the mentee's perspective.

1. Having someone to help you broaden your responsibilities over time. In first 5 to 10 years of practice, don't worry about moving up the ladder, he said. Become involved in as many aspects of managing pharmacy practice as possible to prepare you to be a director; you'll understand what's involved and what's feasible and practical in managing various aspects of pharmacy services. This is where you learn your vision for practice, your professional philosophy, a lot about communication styles and self-awareness. In choosing your first job and first boss after a residency, remember that mentoring needs to continue. Look for a boss who will let you make real decisions and learn from your mistakes.
2. Having a sincere interest in helping with the mentee's personal development. Look for mentors committed to the mentee as a person. They will help you understand what your weaknesses are and how to minimize them.
3. Allowing the mentee to make important "gray zone" decisions very early in his or her career. In the first job especially, mentees should be able to make financial and personnel decisions they have to live with. Mentors should offer help and advice but not solve problems for the mentee.
4. Demonstrating what it really takes to lead on a day-to-day basis.

To build mentees' self confidence, mentors should offer encouragement, offer challenges, and recognize success. They should encourage professional behavior and trigger self-awareness by providing honest, constructive feedback in a way that doesn't demoralize the mentee. They should teach by example, provide growth opportunities (e.g., involvement in professional organizations), and share important knowledge.

Mentees value mentors who make time for the mentee; allow the mentee to make his or her own mistakes; have progressive standards and aspirations for pharmacy practice; force thinking beyond the confines of normal processes and always challenge assumptions; provide frequent, honest discussion and feedback; clarify complex issues and tie them to a meaningful purpose; introduce a network of colleagues; keep the mentee challenged (the best people don't want easy jobs) and challenge the mentee's assumptions; share lessons learned in past experiences; define success broadly; and prepare for time with the mentee.

To get the most from the relationship, mentees should be open to constructive criticism (and apply it), be willing to change, work hard, be responsible for their own growth and let the mentor know what he or she can do to help; prepare for meetings; respect the mentor's time by setting up meetings in advance; be candid and honest about their own goals and opinions ("if your mentor doesn't want you to disagree with him, seek out someone else"); tell the mentor when they need more from him or her at a particular point); and maintain contact to ensure a sustained relationship after the working relationship is complete.

Rough said mentees can gain the following leadership qualities: strategic and creative thinking; systems thinking; big-picture thinking and attitude (always keeping the patient in mind); results orientation and drive for high performance; influence (more important than control); commitment; persistence; and the ability to develop future leaders.

Master of Science/Residency Programs

Thielke described the value of combined master of science/residency programs in building pharmacy leadership. Such programs began in the 1960s, but only a few remain today.

These programs develop pharmacy administrators who can assume leadership positions in health systems. They provide synergy between academic learning and immediate application of that knowledge. They develop strong leaders with clinical skills and expertise. They

instill broad, comprehensive understanding of pharmacy practice within the health care arena. A benefit of staying at one facility during the entire academic and residency training is that the time for acclimating to a new system is minimized.

These programs offer broad health-system-based exposure because the setting is a major medical center, where pharmacy and other disciplines work together to maximize the delivery of care to the patient and the pharmacy department's goals align with and support the strategic goals of the health system. Residents are exposed to strong and well-trained leaders with similar vision across the entire health system.

Residents gain an understanding of practice in a health-system environment, including a thorough understanding of department policy and procedures, organizational structure, mission, and strategic plan. They work in pharmacy departments that manage progressive practice in multiple patient care settings, both inpatient and outpatient.

They gain exposure to pharmacy leaders through working on projects that enhance practice within the department, and they learn leadership skills that can be immediately applied. Through rotations with senior managers within the system and at nonaffiliated organizations, they learn to view pharmacy's role in the health system from different perspectives.

Their academic training is synergistic with practice. Course work focused on health services/public health is integrated with practice experience in the health system. The coursework includes business management, financial management, human resources management, organizational development, safety/health engineering, epidemiology, and technology assessment. The curriculum changes to reflect the changing practice and interests of the profession. Courses allow interactions with other health care disciplines. Research for the master of science degree involves long-range project development and problem-solving skills.

The success of these programs is measured by the success of residency graduates in their careers, by feedback from residents in surveys and exit interviews, by feedback from employers of the residents, by the demand for pharmacists trained in these programs, and by residents' pride in the programs and involvement in local and national professional organizations. Graduates of these programs give back to the profession by propelling pharmacy practice forward, expanding the role of pharmacists by developing leaders with a broader view of health care, and developing innovative practice. They are leaders who create leaders and mentors who create mentors.

Workshop 3

Managing Change in Today's Health System Culture: Implementing a CPOE System

Alicia S. Miller

Implementing computerized prescriber order entry (CPOE) is a highly complex process that requires years of extensive staff commitment, ongoing leadership, and realistic expectations, said Alicia Miller. Using examples from CPOE implementation at the Ohio State University (OSU) Medical Center, where she is Associate Director, Department of Pharmacy, Miller discussed patient safety features, clinical decision support systems, pharmacy involvement, and decision-making and accountability during CPOE implementation. Selecting a system that encourages physicians to use it is crucial.

Implementation at OSU

The OSU medical center wanted a system that "thinks, works, and processes like a physician." A 50-member multidisciplinary team that included 15 physicians and 12 nurses was established. A physician with great "clinical credibility" emerged as a leader. The team looked at vendors whose CPOE systems had been installed in large hospitals and were truly being used by physicians. Three vendors demonstrated their systems to hundreds of personnel on all shifts. Two finalists gave weeklong demonstrations based on clinical scenarios involving complex patient cases and orders. Physicians at other hospitals using the vendors' systems were interviewed. After an 18-month process, clinicians unanimously chose Siemens as the vendor, and a contract was signed in March 1996. Pilot testing on the transplant unit began in 1998 but was halted during "Y2K" computer upgrades. In 2000 the pilot resumed and CPOE began "going live" on other hospital units. CPOE is now used in most of the medical center except the community hospital and the neuropsychiatric facility.

Because the pharmacy computer system needs to be replaced in the near future, an interface between CPOE and the old pharmacy system was not built. Orders from the CPOE system are printed and entered in the pharmacy system.

CPOE implementation was driven by clinicians. Every clinical department had a liaison with the 15-member physician consulting team. The physicians were paid for this work. As pharmacy liaison, Miller was paired with a cardiologist to look at the pharmacy process: "I learned from him how physicians thought about medication ordering, and he learned about the pharmacy process."

Challenges in Implementation

For pilot testing, the transplant unit was selected because it had protocols that were easy to convert to order sets. A weakness of the process was failure to determine in advance the length and goals of pilot testing. Once basic functionality is achieved, the process should move forward.

A computer-based training module, developed at great expense, was ineffective. Physicians preferred individual, on-the-job training to classroom training, and they wanted trainers with clinical rather than information technology (IT) backgrounds. The pharmacists and some nurses became "superusers" who trained physicians and others. Physicians have only 1.5 hours of training on the overall system, so they contact superusers when they have questions. During the first year of CPOE implementation, clinical applications team members made rounds with physicians to observe how they interacted with the computer system and to help them learn its functions. User support is still available 16 hours per day, with on-call support around the clock.

System downtime presents another challenge. The OSU system has to be taken down for maintenance 1.5 hours per week. This presented an unanticipated need to train people on manual operations; new physicians and nurses may have worked only with CPOE and electronic medication administration records. "Downtime crash carts" on the units supply the necessary papers, forms, policies, and procedures. The electronic system needs to note that downtime occurred, so that gaps in orders are highlighted. Downtime affects orders for new patients in particular; a physician cannot order until the patient is registered in the system.

As hospitals implement CPOE systems, they are adding functionality to vendors' systems. In the OSU medical center's system, the pharmacy pathway is 90% modified from the vendor's model, Miller said, and the modification will prevent easy migration to the vendor's next-generation system. Institutions that have a pharmacy interface to CPOE report that pharmacists still need to "massage" 60% of orders, she said.

Communication is crucial during implementation. It is important to communicate successes, such as decreased medication turnaround time. System enhancements must be communicated; the OSU medical center publicizes enhancements monthly and makes educational resources available.

Changing the Medication Ordering Process: What Safeguards Are Needed in CPOE?

Current CPOE systems fail to detect many unsafe medication orders. Each institution has to identify deficiencies and build its own safety net; this requires resources and extends implementation time. We should establish minimum standards and expect vendors to meet them—we should not have to address whether the system takes an order for potassium chloride by i.v. push, or for intrathecal vincristine. The system should have built-in safeguards against such known hazards. Vendors should design their systems to prevent known erroneous orders. Hospitals should not need to build in single and cumulative dose limits or contraindications for administration route and for patient characteristics such as age, pregnancy, and laboratory values. The OSU team identified the 10 most hazardous order types and put "hard stops" on them.

Systems should allow drug access by trade and generic names and synonyms. The CPOE system at OSU initially would not recognize a physician's order for furosemide, because drugs were identified by national drug code (NDC) numbers and the NDC for Lasix was used. Think about how physicians write orders, said Miller: KCl, MVI, MOM. The OSU team had to build profiles to accommodate such synonyms as well as generic and brand names.

Hospitals need to look at system options for dosage forms. A prescriber may select "the first thing that looks close"; the OSU pharmacy saw an 80% increase in the use of acetaminophen elixir, Miller said, because that was the first "325" prescribers saw. Session participants examined images of screens from the OSU system to identify potential problems and improvements. Color coding or "tall man" letters can be used to distinguish problematic drugs, and therapeutic categories can be displayed with drug names. Inappropriate routes and frequencies appear on some of the OSU screens, but having screens specific to each of the 2800 drugs used at OSU would be prohibitive. Some screens lack patient data, such as weight—but should actual, adjusted, or ideal weight be used?

Inadvertent deletion of drug orders in CPOE systems can occur. For example, when a physician writes an order for a patient to be transferred between units, the system will not accept orders until the patient is actually on the new unit. Any orders written while the patient awaits transfer need to be entered in an "inactive" pathway, or they will be lost. Patient admission, discharge, and transfer systems need to considered in CPOE system design. Also, systems should be able to discontinue linked orders, for example, to discontinue lab orders linked to a drug that is discontinued.

The size of fields in CPOE systems can impede drug ordering and necessitate the use of abbreviations. For

example, if the route field is limited to eight characters, "intrathecal" cannot be spelled out.

Screen displays can affect safety. A condensed view can be dangerous if, for instance, not all components of an i.v. solution with multiple additives can be seen. OSU uses an asterisk to indicate that an ingredient is just the first of several. A CPOE system will not accept an order until certain information is entered, but screens that simply tell the user there is a problem are not helpful. Help screens need to tell the user what the problem is or what to do.

CPOE can introduce other opportunities for error. For example, OSU's system does not provide a good way to enter an order with a dosage range. Because the range is entered in a free-text comment field, errors can be entered. Also, nurses may fail to read the comment field. Loading and maintenance doses must be two separate orders, linked so that the maintenance dose is not started right after the loading dose is given. As institutions implement CPOE, pharmacy staff needs to think through the changes from manual prescribing and minimize the introduction of new errors.

Patient safety successes need to be publicized during the implementation process, to remind everyone why they are undergoing this major change. Pharmacists need to remember that they still have a key role in medication safety; even with CPOE in place, they can still phone prescribers to clarify suspicious orders.

Clinical Decision Support Systems

Clinical decision support rules triggered at different points in the CPOE system can help ensure appropriate prescribing. However, their implications need to be considered carefully. Do they produce the intended effects? Are they based on evidence? What is the personnel cost for rule maintenance? For example, when a new drug is added to the formulary or new strengths are added to the CPOE system, do rules need to be changed? CPOE systems can incorporate several types of decision support. Orders can be reviewed against measures such as changes in laboratory values; a rule could be based on percentages or actual values. Review at the time of ordering can look at factors such as allergies, interactions, and lab values. Orders can be retrospectively reviewed for guideline adherence and for quality improvement and research purposes.

Clinical decision support rules should be designed from the perspective of physicians. Rules need to be appropriately triggered by clinically significant data. Physicians want the ability to take action when a rule is triggered. They should be able to change their order in as few steps as possible, with prompts on what is needed.

Health systems need to decide how many rules will be sufficient to protect against problems with high-risk medications and serious adverse drug reactions, and whether too many rules could make physicians too dependent on the computer to do the checking. In writing rules, they need to decide how far back the system should look for lab values that would trigger a rule. Humans writing the rules need to think through each situation that could occur and tell the computer exactly what to look for. They need to decide if overrides are allowed when rules are triggered, and how overrides are tracked.

Patient- and disease-specific prompts add to the complexity of rules. For example, OSU has been working on a drug-induced thrombocytopenia rule for eight months, trying to decide what drugs, what laboratory values, and what services it should involve. What is thrombocytopenia to a hematologist? To a surgeon? Is thrombocytopenia defined by a 50% drop in platelets, or by a certain platelet count?

Currently, OSU has 10 rules. In addition to the efforts of the clinical decision support team, 1 to 2 full-time equivalent positions (FTEs) in the IT department are working on building rules. Some rules could be included in purchased CPOE systems; vendors could have a library of rules from which a health system could choose.

Prescribing changes at OSU indicate that decision support rules may have physicians thinking more about what they are ordering. The impact of decision support systems on adverse drug events needs to be monitored.

Role of Pharmacy in CPOE

Pharmacists need to be involved at the beginning of CPOE system selection and implementation. Pharmacists are experienced users of clinical decision support systems (e.g., allergy checking) and can help physicians by bridging the gap between clinical knowledge and technical proficiency.

CPOE implementation is likely to require 1 to 3 pharmacy FTEs. OSU also had a programmer dedicated to pharmacy and three consultants working on the pharmacy pathway. At its peak, the pharmacy implementation team, with the consultants, was about 30 FTEs. For two years during system implementation, Miller moved to the IT department; a technician now represents pharmacy in IT.

After CPOE implementation, pharmacy needs to maintain a clinical liaison role and to participate in updating drug files and building profiles (e.g., profiles for i.v. admixtures). Formulary changes are more complex than in manual systems; when a drug is added to the formulary, it has to be added to the pharmacy system, to

automated dispensing cabinets, to the CPOE system, and to a nursing documentation system.

Pharmacists' involvement in development, testing, and outcome analysis of clinical decision support systems should continue. Their role in clinical decision support should include ensuring that nonformulary drugs trigger allergy checks, even though they are not listed as CPOE options. Pharmacists can also help develop and review order sets. OSU has more than 700 order sets and tries to review them annually. In helping to develop order sets, pharmacists need to look not only at the appropriateness of the drugs but at how orders will appear in the CPOE system and how they will print in the pharmacy. One order set under development at OSU had four pages of pharmacy orders, for drugs to be used only if certain patient criteria were met. The order set was revised to include a "nurse will call pharmacy when needed" option, mimicking what would be done with manual ordering. Dispensing all the drugs initially requested could have been dangerous as well as wasteful.

A danger of CPOE is its potential to foster reliance on computers to prevent prescribing errors. Also, the idea that less time and less staff are needed with CPOE is being repudiated. CPOE does not save prescribers time, and it does not eliminate the need for pharmacist verification of orders.

Further, automation could lead to degradation of skills. Pharmacists need to think about how new practitioners are being trained. Should pharmacists make rounds with physicians and enter their orders?

Participants discussed the need for pharmacy technology courses and a specialty area in pharmacy informatics. In addition to technical knowledge, the expensive systems being installed will require people with good communication skills, personality skills, and leadership skills—and, said Miller, "Teflon coating so you don't take criticism personally."

Politics, CPOE, and Decision-makers

Decision-making power changes during the selection and implementation of CPOE. For the design and implementation phases, OSU's physician consultant team was given total autonomy to make decisions about design, standardization of frequencies, drug nomenclature, and online drug checking. Now that the system is "live," the medication safety committee, which reports to the pharmacy and therapeutics committee, has major decision-making authority. Some decisions to be made are whether to tighten the open CPOE design (there is not a separate profile for each drug) and whether to include review of the "comments" field and of reasons for overriding allergy alerts.

CPOE systems affect and are affected by other changes in the health system. OSU chose new, safer i.v. pumps that are programmed with specific units for each drug, and the units in the CPOE system had to be changed. When an anesthesiologist refused to use the chosen dose mode for nitroglycerin, pharmacy had to provide a free-text option. This was a short-term solution, said Miller; the medical director is supportive of pharmacy and intends to bring the medical staff "on board."

OSU spent many hours and dollars translating its manual policy for chemotherapy ordering into a secure means of CPOE. Drugs to be ordered only by an attending physician had to be identified in the system—but this meant residents could not order a drug such as methotrexate for a nonchemotherapy indication. This necessitated separate methotrexate profiles for the oncology hospital and University Hospital. Chemotherapy orders before CPOE implementation were already some of the health system's safest, most closely scrutinized orders. More problems arose with dosing of morphine and heparin, for example, yet resources were first devoted to CPOE for chemotherapy.

Pharmacy needs to identify key decision-makers and processes. At OSU, the medical director is the "go-to guy" who will help resolve conflicts over CPOE.

Also, service level agreements between departments need to be established. Formulary additions and deletions are an example: The IT department has up to one week to get a drug added to the CPOE system but four weeks for deletions. The longer time is needed because deleting a drug deletes any order set that contains it, and approval is needed for substituting another drug in an order set.

Necessary changes in CPOE systems add to the challenges presented by drug shortages. Methylprednisolone is in 52 order sets at OSU. Recommendations for decadron use during shortages of methylprednisolone appear in the CPOE system, but they need to be removed when methylprednisolone becomes available. In the current system, the whole order set needs to be rebuilt; newer systems will not require that.

Participants discussed the extent to which CPOE should be used as a policy enforcer and decided that safety, not policy, is key—and that a CPOE system will not gain acceptance if it presents frequent roadblocks to prescribers.

Workshop 4

Strategic Planning: Implementing a Successful Process

Rhea Blanken

A strategic plan is a public commitment or promise to make your mission real, and strategic planning is an opportunity to define your organization's "elements of success," said Rhea Blanken. Using humor and examples from participants, Blanken focused on the work to be done before and after writing a strategic plan, and how to be a "strategic leader."

Why Do Strategic Planning?

It is better to think of strategic planning as a process than of the plan as an object, she said. Leaders need the ability to respond to failure, as well as to success, and strategic planning—identifying the elements that will make your organization successful—provides an opportunity to think about your responses to failure.

Strategic planning includes aligning resources to accomplish certain goals. Although the overall goals of your organization may not be the goals *you* would choose, you can influence how the overall plan is carried out.

A strategic plan provides a map for getting from point A to point B. But the world is changing, and, like a sailboat in changing winds, you may have to tack en route to point B. Too often, strategic planning fails because people lose enthusiasm and confidence in the plan when they hit the first bump. The process needs to include fine-tuning to allow for the bumps or failures, for learning from mistakes.

The plan is intended to keep the organization focused on point B—but "north changes" over time, so it is not useful to include detailed goals or tactics for a longer period than three years. The plan should be fine-tuned at least every six months. Look at the monthly reports you receive on finances, compliance with quality measures, and so on, and whether these reflect the promises made in the strategic plan.

Look at the promises made for pharmacy in the organization's overall strategic plan. Then, to maximize your influence, find out what other groups' promises are. When you interact with those groups, reinforce the ways in which you are supporting their parts of the strategic plan.

In preparation for strategic planning, think about how to measure the qualities included in your mission statement. What is measured is what is given importance—and resources.

Strategic planning is hard work. Do your research on staffing, your customer base, and customer wants and needs. Think about who your customers are—physicians, patients, patients' families, nurses. How can you determine customer satisfaction? Surveys can be used, but the best surveys involve talking person to person. In addition to surveys, exit interviews with employees are a way to determine what needs to be fixed. Departing employees can be asked how the job has changed, what they did to change it, and how it did not match their competencies.

Ask questions and note what is being said (trend analysis), and decide what you want to shift (game plan). Be clear on who your audiences and customers are and what they value. Workshop participants identified their customers and characterized the relationships with them. Some described relations with physicians, for example, as "open warfare," while others said the relationship was "great." Blanken asked how relations might be improved, and how improvement might be measured. In general, physicians want more input and services from pharmacy, and strategic planning should include identifying resources for this.

Workshop attendees participated in the following exercise: Choose a customer, or audience, and write things that customer says, what you hear the customer saying, what you say, and what the customer hears you saying. When communication is failing, often what is being overlooked is the need for a relationship dominated by the overall goal of providing good patient care—a goal that needs to be reflected in your strategic planning. In other contentious conversations, the underlying issue often is money—the framework of the organizational strategic plan.

Your customers, or audiences, are also your resources, said Blanken. In designing your strategic plan, notice what they are saying, and jot it down. This is your own environmental scan. Identify what you want to shift (more of this, less of this, new this, retire that). If you don't have this kind of information before doing strategic planning, you are working in a vacuum.

The use of communication and relationships as resources is too often overlooked in the strategic planning process. Find out what your patients and their families value. Learn how your customers' environment has changed over the past three to five years. For pharmacy's customers, the changes include more frequent drug shortages because of changes in the supply chain, the availability of more information to patients, shortages of pharmacists and nurses, and sicker patients.

Strategic planning involves looking at what's working, why it is working (what is being valued by your customers), what is not working, and what needs to be given more attention. Your strategic plan should reflect the answers to these questions:

- What is considered valuable by our main customer? By our secondary audience? For example, patients value honesty; being respected; being kept informed; getting well quickly; and their time, money, and privacy. Nurses value having the resources they need to do their jobs, information, and support in their interactions with physicians.
- How do we know we are providing value to our customers?

If your strategic plan is just a "boring box with numbers," said Blanken, implementing and managing it will be difficult. People will not see themselves and the things they value in the plan, so they will not be motivated to carry it out.

Even if you are not involved in the actual writing of the plan, your message can get through. Talk with your customers—physicians and nurses—and let them know what you value, and your message will get into the strategic plan. Also, as a leader, you need to keep people informed about the strategic plan.

Have Your Qualities Be of Value

Most strategic plans talk about qualities such as performance, consistency, reliability, and responsiveness, but the key is how these qualities translate to values—how they are valued, or measured. Your plan needs to use language that shows what you value. It needs goals and specific tactics. Be aware of what you are *not* measuring: Have you overlooked something that can "hit you on the head when you're not looking"?

Blanken talked about the "value proposition"—the promise to provide a benefit consistently or repeatedly at the same or a higher level. A benefit is the desired experience customers derive from services, and each audience's desired experience may be different. We are moving from a knowledge economy into an experience economy. People have learned to expect an "experience," first in entertainment, then in education, then retail. The strategic plan needs to depict experiences that provide the desired benefits, so that the people who are expected to carry out the plan can find in it the experiences they care about. You should be able to find yourself (pharmacy) in the organization's strategic plan—to identify the part for which you are responsible.

More Resources

Even if you don't have boxes under you in the organizational chart, you have resources for conveying your strategic messages: communication vehicles (intranet, external communications by the health system), events (heart walk, staff orientation), programs (credentialing, nursing education), and relationships (with physicians, nurses, patients, and families).

Choose your strategic message. For example, "we're here to help get you well"; "we're a knowledgeable, valuable, expert resource, and we're not getting our job done if you don't use us that way (if you just use me to fill a plastic container with medication, you're missing the best of me; I'm designed for more)." In designing, implementing, and managing a strategic plan, use your resources to convey your message.

You can communicate your core message every time a nurse asks you a question. Respond with a "knowledge nugget" the nurse can act on, rather than just a fact. During rounds with physicians (events), scan the environment. Have an open house for nurses, so they can see your systems and get to know the staff. Consider summer internships for students (a program). Keep pharmacy in front of people, in the conversation. Find out how pharmacy can participate in staff orientation of physicians and nurses, or expand its presence.

The bottom line is to "have your message coming out of their mouths." Know how pharmacy relates to, affects, and is affected by other divisions in your facility. In what department do you have the most direct effect? That is where you start designing your messages.

Strategic Leadership

Successful strategic planning requires strategic leaders—those who have the ability to change in a changing environment. Ask yourself who your leadership role models are, and why. What are the qualities are you emulating? Are they currently relevant? For whom are you a role model? How are you being responsible for that? Look at your communication style. Is it speaking *and* listening (not speaking and waiting to speak more)? How inclusive are you? Communication and relationships are what makes a strategic plan work.

Workshop 5

Justifying the Cost of Medication Safety Programs and Technology

Burnis D. Breland

Justifying the cost of new technology is as much an art as a science, said Burnis Breland. You need to develop your skills over time, and know your setting and what will work there.

Breland is Director of Pharmacy and Clinical Research at Columbus Regional Medical Center, Columbus, Georgia. The health system recently purchased robotic dispensing equipment for the outpatient pharmacy. Breland discussed resources pharmacists can use to justify new automated systems and the process of evaluation, proposal development, financial analysis, and project justification. Participants worked on two case studies in cost justification.

Will New Technology Enhance Your System?

The key question to ask is in evaluating new technology is whether it will enhance the pharmacy program's effectiveness and value. Will it bring more problems than solutions? How will it change or benefit the program? What is its cost benefit? For example, at Breland's hospital the benefits of robotic functionality outweighed the fact that it costs more than having technicians fill cassettes.

Institutions can ride the coattails of the national emphasis on patient safety to justify new technology. Administrators are interested in enhancing the safety of their systems and are willing to invest in new technology to do that. This opens a window of opportunity. That window is slowly closing because of competition for dollars, and pharmacies should take advantage of the opportunity. "We're accustomed to seeing that window with a screen on it. Now it is wide open, and we must be brave enough to step through," Breland said.

Each institution needs to examine its model of practice: how it is set up to care for patients in both inpatient and outpatient settings, and how pharmacists' time is spent (e.g., in decision making, drug therapy planning, drug therapy management, monitoring, ensuring the safety of administration systems, providing resources in the form of information to practitioners) and whether this is truly adding value to patient care. Then it needs to ask whether the elements (equipment, technology, information systems) are present for delivering the best care based on its practice model.

Developing a Strategy

Breland reviewed resources pharmacists can to use to develop a strategy for building or enhancing their programs through technology.

The 1999 Institute of Medicine (IOM) report To Err Is Human started a wave of interest in medical safety, and that report can be used as a cornerstone of justification. A December 1999 quality advisory from the American Hospital Association described process design changes to enhance safety, as well as longer-term changes (systems redesign). Among the latter were computer-generated or electronic medication administration records, use of machine-readable code in drug administration, and computerized prescriber order entry (CPOE) systems. Recently, Breland noted, we have had a reality check, when large, prestigious institutions trying to implement CPOE have had to shelve those efforts. The institutions, the systems, or both were not ready.

IOM issued its Crossing the Quality Chasm report in March 2001. Among its recommendations for enhancing care was a renewal of the nation's commitment to an information infrastructure for health care, with a goal of eliminating most handwritten clinical data by the end of this decade.

Breland also noted the 2000 self-assessment of medication safety initiated by the Institute for Safe Medication Practices (ISMP). One self-assessment item was "practitioners have easy access to up-to-date, computerized drug information systems in all patient care areas and the pharmacy." Breland said his department recently purchased, at substantial cost, the Internet version of Micromedex to give nurses quicker access—and then learned that the information systems department prohibited Internet access on the patient care units. Another self-assessment item was whether pharmacy computer systems automatically screen for allergies; Breland noted the incompatibility of various computer systems used in patient care. Another item was "pharmacy computer system performs dose range checks and gives warnings." But people may disregard the warnings, said Breland; we may have the technology, but we need to use it.

Examples of newer technology that Breland believes are worthwhile and justifiable to purchase for enhancing safety are the medication error tracking programs MedMARx and AU Meds. MedMARx, a national database for hospital error reporting, enables hospitals to focus attention on particular areas of the institution. AU Meds involves on-site observational assessment.

Technology and Automation Options

Applications of technology and automation include pharmacy systems and subsystems and hospitalwide

systems such as point-of-care medication verification and documentation systems and computerized prescriber order entry. Selection of a system with pharmacy integration should be based on the institution's overall needs and the tools pharmacists need to provide patient care. Pharmacies can make better use of purchasing and inventory systems; wholesalers should enhance their systems' reporting capabilities so this information can be used in cost analysis. When considering the financial and clinical benefits of automated dispensing systems, pharmacies should learn about experiences at other institutions.

Planning for Technology

Enhancing the pharmacy program with technology and automation requires strategic planning, said Breland. Review all the systems you have—how you order, receive, store, distribute, and dispense drugs and manage and monitor therapy—and decide what you need. Consider products that complement each other. Consider integration of components or systems (products from the same vendor should, but do not always, work together well). Consider the interfacing of components or systems.

Justification of the technology starts with establishing the need and determining the benefits (e.g., customer service, support for medical or nursing staff, improved patient outcomes, financial improvements) and costs (costs of implementation, lost opportunity costs—implementing a new system is so consuming that you lose other opportunities you might be able to pursue). Understand and believe in the benefits of the proposed technology so you can "sell" them to the institution.

Reasons that can be used to justify the purchase of technology and automation are

- Enhanced safety and improved customer satisfaction
- Accuracy (avoidance of errors; quality)
- Improved efficiencies (speed; quantity)
- Compliance with standards
- Improved communication and availability of information
- Cost reduction or cost avoidance
- Reduced personnel needs
- Documentation, verification
- Competitive edge, marketing

Proposal Development

Your "pro forma," a proposal to implement a new program or project or purchase new equipment, should be concise. Administrators want an executive summary telling them what the project is, what the benefits are, and, especially, what the bottom line is. Technology vendors will supply information you can use. Your summary should be three pages at most, describing the project, its benefits, the financial analysis, and recommendations. You may want to include the costs of other options you've considered.

Know what the approval process is in your institution. Different people need different information; tell them exactly what you think they need to know, and not more. What is important in your justification depends on who the decision-makers are. Important factors to the decision-makers might be

- Return on investment (ROI)
- New revenue (new equipment for pharmacy does not usually bring in new revenue, but it could; robotic technology would enable Breland's outpatient pharmacy to fill more prescriptions)
- Cost savings
- Cost avoidance
- Clinical improvement (will it enhance the ability to care for patients?)
- Safety enhancement
- Competitive advantage

Negotiations

Identify the stakeholders (e.g., materials management, information systems, the chief financial officer, plant operations, clinicians) and involve them in the negotiations. Evaluate the contract, and follow it through, even though this is time consuming. Breland said he made the mistake of letting the vice president for information systems take over a contract; a $160,000 element Breland had negotiated with the vendor was omitted. Negotiate the terms and conditions. Shipping, training, implementation, and installation must be included. Don't forget the software cost for the interface or the renovation costs. With dispensing robotics, add supply costs if the vendor will do the packaging.

Collect and analyze data on the total costs and value of the project. Consider what systems might meet your need and which vendors could supply them. Consider all the costs: the cost of equipment, fees for licensure of the computer equipment involved, the interface costs (if you have two different companies you have two interface costs), upgrades (e.g., if your system interfaces with the laboratory system, is there a cost to upgrade the lab system to talk to yours?).

The Process:

Valuation, Justification, and Implementation

- Identify a need (a needed component for pharmacy program enhancement)
- Evaluate available products (the most obvious solution may not be the best for you)
- Determine the clinical impact
- Determine costs of various options (complicated because there are so many variables; ask vendors for information but recognize that the source may be biased; you can plug in your own numbers)
- Consider reimbursement/ revenue (complicated because of coding and other factors)
- Savings, value, ROI

Financial Analysis

Use your institution's model. Calculate ROI. Determine the acceptable length of time for return or breakeven; what costs to include; what savings to include ("hard" versus "soft" savings); the costs of alternative equipment or systems; and cost avoidance (liability, safety, efficiencies).

Look at cash inflows or new revenue, and cash outflows, or expenses. Determine the contribution margin (the net margin is revenue less expenses), annual cash flow, net present value of the purchase (the finance department can use the cost of capital to calculate this), rate of return, and payback period (time to break even).

Conclusion

Justifying technology costs will not be easy in coming years, Breland said, because hospitals will need to devote resources to aging physical plants, and because federal and state reimbursement and net margins are declining and indigent care is increasing. Justifying new technology will require long-range strategic planning, establishing credibility and conveying competence, communicating a vision (framed with patient safety or clinical enhancement), projecting confidence, seizing opportunities, recruiting advocates, and presenting an organized plan so others can see the value. He urged participants to use the current open window as a growth opportunity.

Case Studies

For the first case, participants divided into groups that each developed a pro forma for purchase of a robotic dispensing system for the outpatient pharmacy of a 417-bed, disproportionate share, community teaching hospital, where the outpatient pharmacy serves the family practice clinics. Many of the patients are indigent. The outpatient pharmacy has two or three dispensing pharmacists and fills 500 to 1000 prescriptions per day. The hospital is considering internalizing its employee prescription benefit. If employee prescriptions are not brought in-house, prescription volume is expected to increase 6% in the next year. Internalizing the employee benefit would add 100 prescriptions per day. When the robot is given the prescription, it counts the medication and puts it into a vial, labels it, and checks it. The robot would fill 125 prescriptions per hour. Eighty percent of the medications could be put into robot; the existing Baker cell equipment would be used for the rest.

Each group discussed the feasibility and potential ROI of this acquisition. Calculators and forms for the financial analysis were provided. Each group was responsible for presenting one part of the proposal to all participants in the workshop. After the presentations, Breland shared a draft spreadsheet for this project from his finance department and another from the vendor. He stressed that developing a pro forma takes weeks or months, not 30 minutes, as in the exercise.

The second case involved a robotic system for preparing small-volume parenterals in syringes. Breland distributed information on the system and briefly discussed a cost analysis provided by the vendor. The manufacturer claims the system can prepare and label 500 syringes in eight hours without operator intervention. Factors an institution would need to consider in evaluating this system include lost revenue (charges for i.v. piggyback or Add-Vantage bags), whether infusion pumps would need to be purchased, and elimination of the need for secondary tubing and other equipment.

Applying Automation for a Safer Medication Use Process

Mark Neuenschwander

Before implementing automated systems for medication ordering, distribution, and administration, health systems need to step back and assess the value of available technologies in terms of patient care and safety, said Mark Neuenschwander. A recognized expert on automated pharmacy systems, Neuenschwander said his aim was to provoke thinking that is too often overlooked in discussions of medication use automation.

The medication use process will never be fully automated; clinicians will always be needed. If our purpose for using automation is to improve safety, we need to be sure that any system we implement is as safe or safer than what it is replacing. A safe medication use process starts with the physician assessing the patient and ordering drug therapy. In a manual process, the order is then transcribed. Pharmacy reviews and approves the order and consults the prescriber when appropriate. The medication is then distributed or dispensed. Nurses administer the drug after verifying the "five rights" and document its administration and the patient's response. The cycle starts over when the physician uses what the nurse documents to again assess the patient.

Too often the medication use process is a series of handoffs between the prescriber, the pharmacist, and the nurse, instead of a well-oiled communication process among them. As medication use experts, pharmacists should be responsible for overseeing the entire process, with a vision of synergy among the various clinicians.

Neuenschwander has worked for the past 10 years on "helping health care get it right when it comes to applying automation for safer medication use—and I don't think we are quite getting it right." Pharmacists need to exert leadership in getting it right. We need to look at where in the process medication errors occur. It is commonly accepted that 39% occur at the ordering stage; 12%, transcribing; 11%, dispensing; and 38%, administration. Half of the ordering, transcribing, and dispensing errors are caught before the medication gets to the patient. Documentation of administration is in error 10% to 20% of the time. In this context, Neuenschwander compared the technologies used to date.

Distribution and Dispensing Systems

In the late 1980s and 1990s we focused on distribution and dispensing with automated dispensing machines (also called automated distribution machines). These include central robotics and decentral automated cabinets. The main benefit has been efficiency. This category of automation is the most mature—and the most costly—of all the technology commonly implemented.

Today's semiautomated storage and retrieval carousels make more sense than fully automated dispensing and will probably eclipse the earlier technology, Neuenschwander believes. A fully automated robot emulates human activity, but the new technology replaces and speeds up human activity; it brings the products to the technician, like the clothing on hangers at a dry cleaner's.

The manufacturers of dispensing and distribution automation promise to provide a safer system than manual picking. But manual picking systems in most hospitals are safe; patient medication cassettes have integrity if the humans who fill them are concentrating on what they are doing. However, "grazing" the carts for missing doses is a common practice on nursing units, and it creates a chain of more missing doses and potential for nurses to replace medications in the wrong patient's cassette.

Decentralized automated dispensing machines help solve the missing dose problem and can prevent the administration of discontinued medications, but they create opportunities for error when access is not adequately controlled. The ability to override controls on access limits the safety advantage of these machines. (We have high standards for safety with these machines but do not use the same standards for carts—carts are "continual unmanaged override." Does this mean carts will disappear and everything will be behind an electronic gate called a patient profile? Neuenschwander asked.)

Problems can also occur when high-risk and high-concentration medications are stored in automated dispensing cabinets. And cabinets may be filled less carefully than carts. (Is the lighting good? Is anyone checking that the right drug is in the right compartment?) Nurses may not question whether they are presented with the right medication. Further, if nurses must wait in line to get their medications from the cabinet, they may find work-arounds; if they remove all the drugs for all their patients at the beginning of the shift, this is less safe than the cart system. Even if automated distribution technologies are used properly and dispense the correct medication, there is a gap between the box (cabinet) and the bedside—and this is technology has the lowest impact in improving safety.

Pharmacy Information Systems

The most common technology applied in medication use process, and the one that has had the greatest impact on safety, is pharmacy information systems¾tools for assisting in pharmacist review. Their cost is no more than half the cost of dispensing automation. Some pharmacy information systems have richer clinical decision support systems than others, and all of them require the writing of decision support rules. Neuenschwander suggested that these systems be enriched and used to their potential.

Computerized Physician Order Entry (CPOE) Systems

The medication use technology receiving the most attention is CPOE. These systems address handwriting and transcription issues. They can force entry of information in all fields during order writing, and they provide accurate, up-to-date patient information for the physician. They are available anywhere, at any time. They have the potential to free clinical pharmacists' time, although the quality of clinical decision support in these systems varies.

Prescribers enter orders directly into the computer, but questions arise about how this is accomplished. Is there a computer in every patient room? A personal digital assistant (PDA) in every pocket? A clipboard at the bedside, and computer entry down the hall at a desktop? None of these is problem free, and physicians have suggested using speech recognition technology—which would certainly be even more error prone than person-to-person verbal orders. Most physicians want their pen and paper, said Neuenschwander; he gave examples of electronic technologies for recognizing handwriting, such as the tablet PC—and their shortcomings.

He discussed problems with CPOE systems as they exist today:

- Some are not interfaced to the pharmacy information system or to an electronic medication administration record (MAR).
- Some decision support systems are weaker than those in pharmacy information systems.
- There is a tendency to override the fields in CPOE systems and enter free-text notes, which may bypass pharmacy review.
- They involve rework by clinicians; for pharmacists, CPOE may be more labor-intensive than entering the orders themselves.
- Physicians may assume they have entered the correct order and not proofread or question.

CPOE has great potential but is the least ready of all the systems, the most expensive, the most challenging to implement, and the most difficult to use. It is difficult to mandate user buy-in. Half of all ordering errors are caught without CPOE. If we don't write the decision support rules that would enable us to use pharmacy information systems to their potential, what's to ensure that we will do so for CPOE? The cost of CPOE is 10 to 20 times that of dispensing automation.

Bedside Scanning Systems

Point-of-administration (POA) medication verification and documentation systems are "off and running," said Neuenschwander. These systems enhance safety in several ways:

- They require verification of the "five rights," including positive identification of the patient and the drug.
- They provide information: what the drug is, and what to do with it (scanning the patient's wristband causes the patient's medication profile to appear on the screen).
- They facilitate documentation; the right documentation should be the sixth "right." (If a nurse's documentation is based on a guess, the physician's assessment and new orders based on this documentation will be guesstimates, said Neuenschwander.)

People with these systems are finding ways to get around bedside scanning, but new radio frequency technology will force the person administering the drug to be proximate to the patient before the system will read the patient's name. Some of these systems offer extra protection, with warnings (drug-drug interaction, maximum dose, look-alike and sound-alike names), tests of reasonableness, drug data, patient information (sex, weight, pregnancy status, allergies, vital signs, lab values, pain status) and near-miss reporting. Some are full nurse charting systems.

"Smart pumps" are another innovation for drug administration. Software (e.g., Guardrails from Alaris Medical Systems) allows rules to be written and programmed into these pumps, which are configurable by care unit. These pumps provide tests of reasonableness and at-the-pump programming, and they alert caregivers when programming is outside best practice guidelines.

As with CPOE, there is dissatisfaction with the "form factors" of POA systems. Are PDAs and COWs (computers on wheels, pushed from room to room) better? Some nurses mention tablet PCs and laptops, or clipboards. In selecting a POA system, affordability, availability,

portability, and readability need to be considered, as well as "ergonality," Neuenschwander's coined term for user-friendliness.

POA technologies are rapidly maturing. Implementation is not simple, but it is much simpler than implementing CPOE. User buy-in is easier to win (it can be mandated). The cost is similar to or less than that for dispensing automation, and a fraction of that for CPOE. In the context of where errors occur, which ones are caught, and which ones are not caught, POA technologies offer much greater potential for error reduction than CPOE.

MAR as the Backbone

As these technologies are implemented, it is important to have a backbone running through the entire system: the electronic MAR (eMAR). At every point in the medication use process, the clinician should be able to read and feed the eMAR: prospectively, what has been ordered; retrospectively, what has been administered.

Pharmacists need to take the lead in ensuring that all the institution's systems are built around the backbone of the eMAR. If they are, the "muscle" will be the information available throughout the system. Ensuring that real-time data are available throughout the system will prevent many adverse drug reactions.

What's Next for Your Institution?

In considering whether the "best next thing" for your institution is CPOE or POA, the choice should not be either or, nor all at once, said Neuenschwander. POR—pharmacists on rounds—may be of greater value than any of these automated systems.

In evaluating and implementing automation, leadership by pharmacists means refusing to rush to judgment; refusing to be driven by vendors, interest groups, or automation trends; weighing carefully all of the options—best practices as well as state-of-the-art technology—and then taking the best next step.

In closing, former clergyman Neuenschwander paraphrased the familiar biblical passage from Ecclesiastes: "There is a time to automate and a time to refrain from automating."

Making Culture Pay: Solving the Puzzle of Organizational Effectiveness

Jerry L. Haney

Jerry Haney, a former Fortune 500 executive and author of the book *Making Culture Pay*, said the effectiveness of an organization owes a lot to culture—informally defined as "how one gets along" in the organization.

According to Haney

- Effective cultures really do pay,
- Cultural leadership can be learned,
- Culture can be measured,
- Every culture can be improved, and
- Cultures must constantly change.

Culture is the norms of behavior and the shared values that drive a particular organization—"the underlying values, beliefs, and principles that serve as a foundation for an organization's management system, as well as the practices and behaviors that both exemplify and reinforce those basic principles" (definition by Dan Denison, University of Michigan).

Outstanding organizational cultures do three things:

1. Consistently produce outstanding results (not just at the top of the organization),
2. Attract, motivate, and retain top talent, and
3. Successfully adapt to changing conditions.

Haney used his experiences at two companies that once led their fields, Xerox and Marion Laboratories, to help make the link between culture and organizational effectiveness. Xerox in the 1960s and early 1970s was "the Cinderella of Wall Street." Its inventions went far beyond the plain-paper copier, but the company's demise was its inability to "effectively commercialize" these inventions. Haney succeeded in turning around a failing sales team at Xerox and was recruited by Marion Laboratories, which became Marion Merrell Dow, then Hoechst Marion Roussel (from which he retired), and is now Aventis. Before Marion was sold in 1989, it had the highest sales and highest earnings per employee on the New York Stock Exchange, Haney said, but it had to be sold because it lacked new products.

As evidence that good cultures pay, Haney pointed to Southwest Airlines, "an organization that is all about change." Southwest, built on efficiency and effectiveness, is the top U.S. airline in profitability, competitiveness, productivity, customer service, safety, stock appreciation,

and employee satisfaction. Each employee has a scorecard listing his or her responsibilities. Every day, employees are measured against their scorecards. They know how those measures relate to the top line and the bottom line for Southwest¾they have a clear line of sight between their jobs and the vision of the airline.

This direct line of sight between the top and bottom of the organization (described in work on the "balanced scorecard") is key, because the organization's values, purpose, and vision need to be understood at the bottom as well as at the top. Top business thinkers have estimated that only 10% of organizations execute their strategies, because of the following barriers:

- Vision barrier: Only 5% of the work force understands the strategy.
- People barrier: Only 25% of the managers have incentives linked to strategy.
- Management barrier: 85% of teams spend less than one hour per month discussing strategy.
- Resource barrier: 60% of organizations don't link budgets to strategy.

Great Cultures (Don't Always) Start at the Top

The best cultures of large organizations have been created with work from the chief executive officer on down. However, it is only when the entire organization is filled with people who understand their responsibility as subculture leaders that the full potential of the organization will be achieved. The key is holding people at all levels responsible for measurable cultural leadership.

"I learned this in my first management assignment," said Haney. At Xerox, he was made district manager of one of the worst sales teams in the company. In six months, the team went from operating at 60% of plan to 200%. He "began to see a pattern of what worked," and soon he was recruited away from Xerox to Marion to turn around a subsidiary.

Need for Cultural Leaders

We don't develop cultural leaders; at best, we train managers, said Haney. He defines managers as the people who open the door in the morning, hire the right people, train the people, work the processes, solve the problems, and fire the people who don't get it. Management is "working *in* the house"—making sure the doors are open and the business gets done.

Leadership, particularly cultural leadership, is distinguished from management in that leaders are responsible for creating change and overcoming the status quo. Their role is to find a vision, whether it's given to them by their boss or by their employees, and get a coalition of people to follow them to that vision. They find the processes, systems, and methods to get there. They put those in place, measure their success, and celebrate that success and become a coalescing team. The pride that develops in this process is what drives great organizations. Cultural leadership is working *on* the house—having a responsibility to build a place, to create an environment in which people are motivated.

Building an Organization

To often we try to build our businesses the same way we would work on solving a Rubik's Cube: try various twists and turns until we get it right. The Rubik's puzzle can be solved in 54 moves, if we know what they are and make them in order. Similarly, it's better to know what each turn is going to do to our organization, when to make those turns, and when to measure their success.

A leader "working *on* the house" can use six cultural elements: core values, products and services, direction, structure, measurements, and rewards. These cluster around the stakeholder in the middle: you as a manager, the patient, the nurse. The choices you make will determine in large measure how good people feel about the organization—and how effective it will be.

Your job as a leader is not to motivate everyone in the organization; your job is to create an environment in which the people who are there deserve to be a part of that organization. "Too often we let the limpers destroy the attitude and the strength" of the organization, said Haney.

You can help create a great organization if you can ensure that everyone has a clear focus on where you're going, has a sense of involvement, receives positive reinforcement, and develops a sense of pride—as an individual, in the team, in the overall organization and its efforts to get where it has chosen to go.

Core Values

In Haney's 27-block Rubik's Cube model for organizations, values account for the greatest number of blocks. Core values are simple statements of how the organization will interact with its stakeholders (customers, associates, suppliers, community, and environment). For example:

- Integrity in all we do
- Treat others with dignity and respect
- Be open and honest
- Be always responsive
- Those who produce share in the rewards
- Be profitable in use of time, energy, and resources, as well as the bottom line

ESTIMATING OUR POTENTIAL FOR CULTURAL EXCELLENCE

1. Values

The associate in my organization could recall each of our core values...

SD D N A SA

The leaders in our organization "walk the talk" concerning our core values...

SD D N A SA

2. Products & Services

Every associate in my organization knows who his or her "customer" is...

SD D N A SA

We learn from our relationships with our customers and share that knowledge with every associate...

SD D N A SA

We use our understanding of customer needs to initiate appropriate changes...

SD D N A SA

3. Direction

There is a direct linkage of our corporate strategies and priorities from the top of our company to every subunit/ure...

SD D N A SA

Every associate has a clear understanding concerning our corporate vision in terms of what we want our organization to become...

SD D N A SA

Every associate in our organization has a current set of priorities that he or she can relate to our vision...

SD D N A SA

4. Structure

Our structure is so clear that every associate understands who is responsible for what as it relates to his or her role...

SD D N A SA

Our associate orientation process is well defined and effectively implemented...

SD D N A SA

Our associates have a clear sense of ownership for the operating processes they use on a daily basis...

SD D N A SA

5. Measurements

Our leaders understand measurements and use them effectively....

SD D N A SA

Associates measurements are clearly related to the organization's vision and strategy...

SD D N A SA

In our organization, every associate is involved in setting his or her own goals and measurements...

SD D N A SA

6. Rewards (What's in it for me)

The compensation plan for our associates is tied directly to performance...

SD D N A SA

We have effective formal and informal processes to recognize associates for individual and team achievement...

SD D N A SA

Our associates feel their positive behaviors and contributions to the organization are effectively recognized...

SD D N A SA

SD – Strongly disagree
D - Disagree
N – Neutral
A – Agree
SA Strongly agree

Usually, some employees are outside the core values that define the organization's behavior. When we let these people stay, we say to them and others in the organization that their behavior is acceptable. We need to be sure everyone knows the core values, and we need to enforce them.

Products and Services

The next element in building an effective organization is products and services. First, identify the customers and their present and future needs, wants, and values. Business books suggest that organizations can choose from three approaches to meeting customers' needs, want, and values: operational excellence (being the Wal-Mart of your field—doing it better than anyone else from an efficiency point of view), product leadership (having the best product and continually putting out new products—the Sony approach), or customer intimacy (knowing customers so well that you can charge them more; they're willing to buy because of the relationship (the Nordstrom approach).

As customers' needs, wants, and values change, your organization will need to change. Leaders communicate the need to change in such a way that people become willing to change and, beyond that, to become change agents. Determine what the appropriate changes for your organization are; don't spread yourself so thin that you don't do anything well.

Direction

It is not enough for the overall organization to have direction. Every part of the organization down through the health system or corporation needs to have its own purpose, and everyone needs to understand that purpose as well as the purpose of the overall organization. Then, we need a clear sense of vision.

Haney said he learned about vision in that first management assignment at Xerox. To his group of 10 sales people, he said, "We can't stay at 60% of plan or we'll lose our jobs; what should we do?" One team member said, "We should become number one in the country." Just that vision started driving the organization, which turned around in less than a year. Vision needs strategies, and the team created strategies: The person who was best at each task (e.g., making cold calls, demonstrating machines, writing proposals) trained all the others. They measured their activities and set goals and objectives, and "within 30 days the orders followed."

The organization understood its purpose, set a vision ("Where's your moon?"), chose strategies for getting there, and identified tactics (team priorities) and goals and objectives (individual priorities). When an organization maintains these elements of direction, its results improve.

Structure

Haney called this "having the right people on the bus"—all well qualified to do their jobs in the appropriate structure, with proper training, appropriate tools, and effective processes for which they feel a sense of ownership. Setting and maintaining priorities is also part of structure.

Measurements

Haney said 80% of the costs in American industry today are "white collar, and only 5% of those people are measured." What would a baseball game be like if no one kept score, he asked. "If we don't measure, we are withholding the ability for that person to know how close they are to their moon." We can measure outcomes, output, impact, and input for a person and job. This provides clarity and linkage with the pharmacy operation and the health care system. Information about what to measure and correct measurement methods is available on the Web site of the General Accounting Office, Haney said.

Rewards

Extrinsic compensation plans are only part of an organization's reward system. People are motivated more by the intrinsic rewards in life. Pharmacy leaders may not have much say in the extrinsic rewards of their team members, but they have everything to say about the intrinsic rewards. Haney suggested the book *1001 Ways to Reward Employees*—ways that cost little or no money and can instill pride in team members.

Cultural Renewal Process

Like each move in solving the Rubik's Cube, every one of these cultural elements in building an effective organization is important, but the real value is their synergy. Instead of trying to excel at one element, see where you are on a continuum that encompasses all six, Haney suggested. He provided an assessment tool (Estimating Our Potential for Cultural Excellence) as a starting point.

A process of cultural renewal begins with engaging the leadership team and taking an assessment. Then the foundation is built; its pieces are your organization's values, purpose, vision, strategy map, and scorecard. Then, in the subcultures, work through understanding priorities and building a foundation. Do a subculture scorecard, and then initiate changes in the organization.