CHAPTER

# 8 CLINICAL SUPPORT SERVICES

## Critical Issues in Clinical Support Services

1. *Supporting evidence-based patient care:*
   - Provide prompt, comprehensive, reliable support for every patient.
   - Reach benchmark for safety and reliability of clinical support services (CSS) activities.
   - Eliminate underuse and overuse of CSS.
   - Keep pace with best practice protocols.
2. *Providing comprehensive service:*
   - Coordinate multiple clinical support needs.
   - Support computerized order entry and results reporting.
   - Provide convenient consultation for physicians and nurses.
   - Manage the complex patient with multiple diseases or conditions.
3. *Recruiting and retaining qualified CSS professionals:*
   - Make the organization the best place to work.
   - Reward performance improvement.
   - Provide continuing education.
4. *Outsourcing and contracting for CSS:*
   - Keep CSS costs and service comparable to those of the competition.
   - Devise relationships that benefit both customer and associate stakeholders.
   - Understand and capture benefits of scale in CSS.

## Questions for Discussion

These questions are about applying the chapter content. It's often helpful to discuss them with classmates or mentors, gaining different perspectives on the issues.

1. Consider a pharmacy that serves a large HCO and is measured by the six dimensions in Exhibit 8.6.
   - How will goals be established for next year?
   - Should some measures have higher priorities?
   - What support should pharmacy expect from senior HCO leadership?
   - Would the HCO offer a bonus for goal achievement?

- Are the answers to these questions different if the pharmacy associates are employed by the hospital or serve on a contract with a national pharmacy vendor?

2. The emergence of service lines has substantially changed the accountability of CSS personnel. Many professionals have dual reporting—to the service line and to the CSS (e.g., respiratory therapists assigned to a cardiovascular service line). How should the organization resolve the following issues?
   - How the HCO establishes functional protocols for the CSS services
   - When the CSS associate feels a specific patient's order is inappropriate
   - When caregiving team members are concerned about the CSS service to a specific patient
   - When caregiving team members are concerned about the CSS service in general
3. Under the dual reporting described in Question 2, how should the organization resolve the following issues?
   - Who reviews the credentials of new CSS associates
   - How a CSS associate assigned to a service line can get promoted
   - When caregiving team members are concerned about the service of a specific CSS associate
   - When CSS associates are concerned that caregiving teams are ordering services inappropriately (i.e., the wrong services, too many, or too few)
   - How the CSS associate's bonus is determined (Is it based on the service line team alone, or on the goals achieved by the CSS as well?)
4. A small HCO in a well-managed healthcare system can consider three ways to obtain a CSS. It can "stand alone," hiring its own professionals. It can "outsource," buying service from a local provider. It can "affiliate," arranging for training, procedures, and supervision through its system. What's the best solution? How should the HCO decide what to do? Who should be involved in the decision? What should the system senior management do to support the best solutions for all the system HCOs?
5. Technology advances rapidly in many CSSs. To keep up, investments must be made in learning, training, and equipment. How does an HCO keep all its CSSs up-to-date? What are the mechanisms that identify investment opportunities? What is the mechanism to evaluate those opportunities?

## Purpose

Twenty-first-century caregiving requires services from dozens of specialized professionals providing important clinical information (diagnostic services) or specific interventions (therapeutic services). Laboratory testing, imaging, endoscopic procedures, cardiac, and other invasive vessel procedures are common diagnostic services. Drug selection and administration, surgery, anesthesia, obstetric delivery, and physical therapy are common therapeutic services. Many patients also require behavioral, spiritual, and psychological services such as social service, pastoral care, and health education. Challenging ethical dilemmas arise in patient care, and HCOs provide resources to deal with them. These clinical support services (CSSs) are provided through centralized support units or by professionals assigned to a service line accountability center. Most, but not all, CSSs are ordered by an attending physician. They are needed at several sites—outpatient offices, the acute care hospital, long-term care facilities, and home. A serious illness may require several hundred diagnostic, therapeutic, and consultative services from the CSSs listed in Exhibit 8.1.

The purpose of any CSS is

> **to provide its specialized services at a level that fully meets patients' and caregivers' needs.**

The purpose of the HCO is to assist each CSS in achieving its purpose and

> **to provide each patient with exactly the set of services needed and integrate those services into an excellent interprofessional plan of care.**

These two purposes are different, but they are both possible under a common mission, vision, and values. The differences establish the relationship between the CSS and the HCO, giving each critical functions. When the functions are understood, there are several alternatives for affiliation between the CSS team and the HCO. Employment is the most common, but contracts, joint ventures, and corporate subsidiaries are also possible.

An HCO's profile of clinical support services must be consistent with its mission and strategic plan. This means that the size and scope of each CSS must be defined by the HCO, and the annual goals must be negotiated with the CSS and ultimately approved by the HCO governing board. At the same time, each CSS professional has multiple options to pursue his or her career. To make that negotiation attractive to the CSS professionals, the HCO must make itself the preferred place to practice—the "best place to give care."

**EXHIBIT 8.1** Clinical Support Services in a Large HCO

| *Diagnostic Services* | *Therapeutic Services* |
|---|---|
| *Audiology* | *Anesthesia* |
| *Cardiopulmonary* | Pain management |
| Electrocardiology | Surgical and obstetric anesthesia |
| Pulmonary function | *Blood bank and transfusion services* |
| Invasive cardiology | *Nursing* |
| *Clinical laboratory* | Birthing suite |
| Chemistry | Surgery and post-anesthesia care |
| Hematology | Wound, ostomy, and continence care |
| Histopathology | *Optometry* |
| Bacteriology and virology | *Orthotics* |
| Autopsy and morgue | *Palliative and hospice care* |
| *Consultative services* | *Pharmacy* |
| Ethics committee | Dispensing and counseling |
| Institutional review board | Intravenous admixture |
| *Diagnostic imaging* | *Radiation oncology* |
| Radiography | *Rehabilitation services* |
| Computerized tomography | Physical therapy |
| Positron emission tomography | Respiratory therapy |
| Radioisotope studies | Speech pathology |
| Magnetic resonance imaging | Occupational therapy |
| Ultrasound | *Social and Counseling Services* |
| *Electroencephalography* | Community support groups |
| *Electromyography* | Grief counseling |
| *Telemedicine* | Pastoral care |
| | Psychological care |
| | Social service |

## Functions

It is obvious from Exhibit 8.1 that CSSs have different characteristics, yet similarities emerge at one level of abstraction above these differences. The managers of social service and radiation oncology, for example, share common functions, which are identified in Exhibit 8.2.

### *Providing Excellent Care*

Both diagnostic and treatment CSSs are integral parts of healthcare. They must individually and collectively meet the Institute of Medicine goal of safe, effective, patient-centered, timely, efficient, and equitable care. They do that with the following processes:

1. *Patient management protocols.* These are adopted by protocol-selection committees on which CSS members participate. They control effectiveness because they

specify when CSSs are required, optional, or not recommended. As a result, they also control the demand for service, placing the sizing of the CSS as an HCO function.

2. *Functional protocols.* Virtually all CSS activities are learned processes that are formalized and scripted as functional protocols. The protocols must be designed to achieve benchmark safety, effectiveness, patient comfort, and efficiency. Each CSS profession designs, tests, and maintains the processes it uses. Many functional protocols must be carefully integrated with other care activities. The CSS identifies and validates performance measures based on the functional protocols. The HCO includes the measures and continuous improvement in its contract.
3. *Scheduling systems.* It is important not only to provide each patient with timely service but also to maintain an orderly workflow within the CSS. Sophisticated scheduling systems achieve this by managing the demand stream. The best scheduling systems integrate all CSSs to minimize the length of the patient care event.
4. *Training.* Each CSS must rely on a mix of professional and nonprofessional associates. Maximizing the contribution of each associate is important to improve safety, patient-centeredness, and costs. It is achieved by careful training and transformational supervision. The HCO shares the training duties, providing training in supervision and continuous improvement, cultural and linguistic competence, and other issues shared by several CSSs. The CSS provides training for its functional protocols, but it often collaborates with human resources management to implement and evaluate the training.

Throughout all the functions, the HCO role can be summarized as providing coordination and support. It maintains the scheduling system (see the Maintaining Patient Relationships section below). It uses process improvement teams (PITs) and planning committees to negotiate protocols and resolve questions that caregivers and CSSs face. These questions range from coordination and availability of services (Will imaging have full service 24/7? What arrangements are made for inpatient meals delayed by testing?) to coverage of uninsured patients (Who pays the rehabilitation costs for a trauma patient without insurance?) to privileges for a specific CSS assigned to various associate groups (Will images taken in outpatient offices be included in the electronic health record, and which ones will be read by the imagist?).

## Maintaining Patient Relationships

All CSSs have both patient and caregiver customers. Caregivers order the services; patients receive them; caregivers receive notice of results. Although the clinical laboratory works principally with specimens and the pharmacy supplies many drugs through nursing, most CSSs require intimate patient contact. Given an excellent care function, the issues in satisfying patients are scheduling, amenities, and identifying unusual needs.

The scheduling issues are demanding. Many patients need prompt attention for both safety and caregiving efficiency. CSS delays often add to

**EXHIBIT 8.2** Functions of the CSS, Showing Service and HCO Contributions

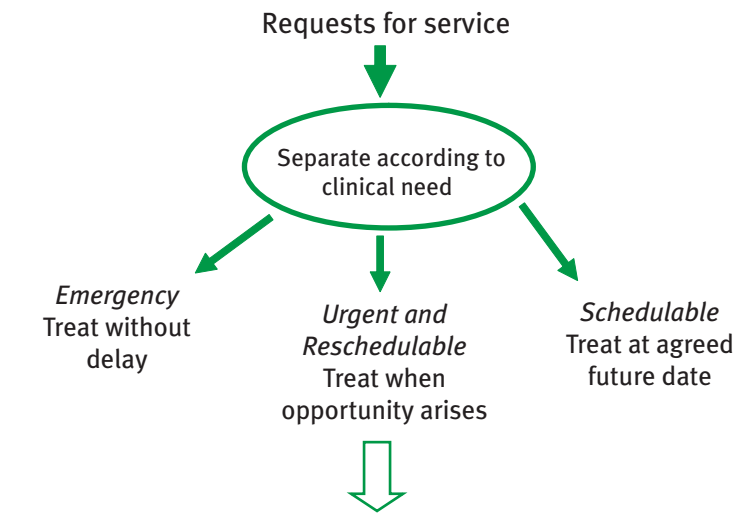
| *Function* | *CSS Role* | *HCO Role* |
|---|---|---|
| Providing excellent care | Provide safe, effective, patient-centered, timely, efficient, and equitable patient services.<br>Select, use, maintain, and teach functional protocols.<br>Participate in patient management protocol selection and development. | Assist in designing work processes and training programs.<br>Ensure appropriate voice in patient management protocol–selection committees. |
| Maintaining patient relationships | Schedule patients effectively.<br>Train associates in identifying patient needs and using techniques to improve acceptability of care.<br>Maintain cultural and linguistic competence.<br>Provide for uninsured patients. | Maintain a central scheduling system.<br>Provide associate sensitivity training.<br>Provide translators and cultural competence training.<br>Recognize burden of un- or underinsured patients and health disparities. |
| Maintaining consultative relationships | Assist caregivers with protocol administration.<br>Consult on questionable cases.<br>Provide training to other professions on advances in their CSSs. | Support CSS involvement in PITs and planning activities.<br>Incorporate consultation and training into contract.<br>Resolve rules for nonprofessional administration of CSS services. |
| Planning and managing operations | Negotiate appropriate long-term relationship.<br>Negotiate goals for operational scorecard dimensions.<br>Maintain regulatory compliance. | Negotiate appropriate long-term relationship.<br>Establish compensation, contribution from HCO's annual strategic goals.<br>Provide resources for regulatory compliance; ensure compliance reporting. |
| Promoting continuous improvement | Benchmark, identify OFIs, establish and participate in PITs. | Negotiate, support, and reward improvement. |

CSS: clinical support service; OFI: opportunity for improvement; PIT: process improvement team

the total length of stay and increase the cost per case. The CSS needs a manageable workflow. Its associates need planned schedules, but they also need to have work to do. Idle time drives up the cost per test and reduces their skills.

Sophisticated scheduling systems allow CSSs to balance workflow to their teams while meeting patient needs, including emergencies. The concept for the scheduling system is shown in Exhibit 8.3. Unless volumes of work are large (the laboratory and pharmacy, for example), a CSS that simply accepts patients as they come will have periodic idle times and overflow demand. The first wastes financial resources, and the second endangers safety and effectiveness. Sophisticated scheduling systems can substantially reduce both problems. The secret is to identify a set of patients who do not have emergency needs and are willing and able to come on call. Nonemergency patients already in the HCO are an example. As Exhibit 8.3 shows, emergency patients get immediate care. On-call patients get a fixed future date, but they also can be called sooner. Scheduled patients get a fixed future date. At a given level of emergency allowance, overall efficiency will increase and overall delays will decrease by calling in patients.

Sophisticated computerized scheduling systems are available for major support services and for admission and occupancy management.[1] These programs keep records, print notices, send telephone or e-mail reminder messages




Results: No emergencies are turned away or delayed.
More urgent and schedulable patients are seen sooner.
Patients who seek a fixed date get a fixed date.
Clinical support service efficiency (cases/associate or cost/test or treatment) is higher.

**EXHIBIT 8.3** Conceptual Model of a Sophisticated Scheduling Process

for appointments, and provide real-time prompts to caregiving associates. They automatically monitor cancellations, overloads, work levels, and efficiency. They are integrated with ordering and reporting systems so that the entire process of obtaining a CSS is automatic from the point of the doctor's decision to order it. Most scheduling systems can also be operated in a simulation mode to analyze the costs and benefits of alternative strategies. Simulation outputs are useful in both short- and long-term planning to evaluate potential improvements in demand categorization, resource availability, and scheduling rules.

The scheduling system requires each CSS to establish available hours. The hours should be based principally on efficiency considerations. CSSs should be open only when sufficient demand is expected to support efficiency and skill in the minimum team. Arrangements must be made to call in associates for life-threatening emergencies.

The HCO provides logistic services for many CSSs. These include knowledge management, training and other human resources management, environmental services, accounting and financial services, and internal consulting. They also include sensitivity training for cultural competence, translators, and assistance with patients who present unusual circumstances. The CSS is the customer and final monitor of these services. It should alert its HCO management contact about any failure and expect prompt response. The HCO's ability to provide reliable, high-quality logistic service should be an attraction for a closer relationship.

### Maintaining Consultative Relationships

CSSs must view caregivers and interprofessional teams as customers and recognize that caregivers often have alternative sources. Although a few CSSs can work directly with patients, most require physician or advanced practice nurse orders. To complete the orders, CSSs must meet several different aspects of caregiving needs.

- *Comprehensive.* The CSS's level of service must match the requirements of the patient management protocols.
- *Accurate and effective.* Errors in diagnostic tests create unnecessary costs and dangers for patients. Caregivers need to be confident in CSS results.
- *Prompt.* Delays in CSS prolong the care process, reducing efficiency. They also erode patient satisfaction.
- *Supportive of patient needs.* The patients' overall response to the care, both clinically and in terms of satisfaction, is often influenced by the CSS.

In addition to patient-related considerations, CSS must support several needs of the caregiving team:

- *Consultative advice.* Each CSS is an expert resource. Caregivers need to rely on CSS expertise when questions arise about individual patients.

- *Protocol development.* Many questions that emerge from adopting guidelines require CSS participation to answer. Most protocols must be agreed to by the CSS involved.
- *Training.* CSS advances can change how care is given. Many procedures originated in CSS but have moved to general usage; caregivers must often be trained to do them. Others have complex implications for other parts of care, and caregivers must be trained to understand those interactions.
- *Assistance with uninsured patients.* The plans must be worked out in advance and specified in the contract with the HCO (see the Planning and Managing Operations section).

The caregiver needs are met by CSS availability, participation in PITs and planning committees, and support of training activities. Those items must be negotiated in the CSS–HCO contract.

Behind several of these issues lies an unfortunate consequence of the payment system. The CSSs have various relationships to payment. Some, such as social service and bereavement counseling, are almost never billed separately. Others, such as outpatient imaging and laboratory, can have dual physician and hospital payments. The physician portions of these payments are not limited by regulation to CSS professionals. Primary care or specialist physicians who use imaging equipment in their office can collect for each image from most insurance plans. Alternatively or in addition, the physician can order an image from the HCO's imaging service. The payment to the HCO is substantially larger, but it goes to the radiologist and the HCO and not to the primary physician. There are three critical patient care questions here:

1. Is the imaging necessary?
2. Is the radiologist's consultation necessary?
3. Which path is better—the one at the office or the one at the HCO?

The patient care questions are confounded by a fourth, which creates serious conflict of interest: Who gets the money? The problem is not limited to imaging. In one form or another it affects any CSS for which there is direct payment, although it has essentially been solved in pharmacy. Technology improvements change the patient care answers. An imaging consultation that was important in 2014 may not be in the patient management protocol in 2016.

Bundled payments, which Medicare and many private insurance companies are adopting, will improve solutions to these questions because they will force all three parties—the referring physician, the CSS, and the HCO—to negotiate a more cost-effective approach. In the meantime, the HCO plays a major role, negotiating the specific solutions in each protocol and service line. The key to the negotiations is commitment to a mission of excellent care and evidence-based medicine. The patient management protocol should specify when tests or treatments are appropriate and allow completion by the

lowest-cost associate who can do the test or treatment safely. That associate must have adequate training and support in case difficulties arise. The principles—evidence-based medicine and commitment to the mission—and the negotiating process must both be included in the contract between the HCO and CSS. The principles must be scrupulously implemented by the HCO, but at the same time, the HCO must assure the CSS associates of a competitive income opportunity. Patient satisfaction, primary caregiver satisfaction, outcomes quality, and process quality measures are all critical in maintaining excellence.

## Planning and Managing Operations

Almost any CSS can be envisioned as a small retail business. In fact, many are operated exactly that way. The HCO's strategy is to bring these businesses under one organization. It will ask for commitment to mission and to evidence-based medicine and management. It will enforce these requests by asking for explicit measures of performance, benchmarking, and continuous improvement. It will make its proposal attractive by offering a large, reliable book of business, a record of capability in meeting operating needs, and a culture that is appealing as a place to work. In addition, the HCO must show that it will offer competitive compensation. This concept is a difficult one, given the healthcare financing. It does not mean "As much as you can earn someplace else," because the HCO will expect care limited to appropriateness standards and assigned to the lowest capable level of worker. It does mean "As much as you could earn someplace else given that you accept our commitment to mission and evidence-based medicine."

Excellent HCOs implement that approach to CSS management using a three-part strategy. First, the CSS must be carefully sized to realistic market needs, and the HCO must control the size. Second, the HCO must implement its transformational culture to make the work attractive to professional and nonprofessional associates. Third, the HCO must implement evidence-based management in all the logistic and strategic services the CSS needs. The contract must be competitive in the CSS associates' eyes.

### Planning and Sizing the CSS

CSS planning is based on the community epidemiologic planning approach described in Chapter 3. For CSSs drawing directly from the community, populations are age-specific community censuses, the incidence rate is the occurrence of disease in the general population, and the market share is the institution's anticipated share of the particular market, as shown in Equation 1.

**Equation 1**

$$\text{Demand for a service} = \left\{\begin{array}{c}\text{Forecast}\\ \text{population}\\ \text{at risk}\end{array}\right\} \times \left\{\begin{array}{c}\text{Incidence}\\ \text{rate}\end{array}\right\} \times \left\{\begin{array}{c}\text{Average}\\ \text{use per}\\ \text{incidence}\end{array}\right\} \times \left\{\begin{array}{c}\text{Market}\\ \text{share}\end{array}\right\}$$

For example, the demand for postoperative physical therapy (POPT):

$$\text{Demand for POPT} = \left\{\begin{matrix}\text{Forecast}\\ \text{procedures}\\ \text{requiring}\\ \text{POPT}\end{matrix}\right\} \times \left\{\begin{matrix}\text{Percent of}\\ \text{patients}\\ \text{referred}\\ \text{for PT}\end{matrix}\right\} \times \left\{\begin{matrix}\text{PT visits}\\ \text{per patient}\\ \text{referred}\end{matrix}\right\} \times \left\{\begin{matrix}\text{HCO's}\\ \text{market}\\ \text{share}\end{matrix}\right\}$$

or for breast examinations, where average use per incident is 1:

$$\left\{\begin{matrix}\text{Demand for}\\ \text{breast}\\ \text{examination}\end{matrix}\right\} = \left\{\begin{matrix}\text{Forecast}\\ \text{age-specific}\\ \text{female}\\ \text{population}\end{matrix}\right\} \times \left\{\begin{matrix}\text{Age-specific}\\ \text{incidence}\\ \text{rate}\end{matrix}\right\} \times 1 \times \left\{\begin{matrix}\text{HCO's}\\ \text{market}\\ \text{share}\end{matrix}\right\}$$

The equation can be specified or aggregated as desired. It might apply to MRI (magnetic resonance imaging) demand by type of procedure, cardiovascular surgeries, births, or any condition for which incidence rates are known.

CSS demand that arises from many different diseases is calculated from general rates of admissions or outpatient visits. Many CSS demands can be estimated from the history of use per patient and forecasts of the number of patients using Equation 2. The equation can be specified or aggregated as needed to obtain reliable results.

**Equation 2**

$$\text{Demand for widely used CSS} = \left\{\begin{matrix}\text{Forecast}\\ \text{patient}\\ \text{encounters}\end{matrix}\right\} \times \left\{\begin{matrix}\text{Number of}\\ \text{services}\\ \text{per encounter}\end{matrix}\right\}$$

For example:

$$\left\{\begin{matrix}\text{Inpatient}\\ \text{pharmacy}\\ \text{demand}\end{matrix}\right\} = \left\{\begin{matrix}\text{Forecast}\\ \text{inpatient}\\ \text{admissions}\end{matrix}\right\} \times \left\{\begin{matrix}\text{Number of}\\ \text{presciptions}\\ \text{per admission}\end{matrix}\right\}$$

The equations must be forecast several years into the future and translated into a business plan for the CSS that projects staff requirements by skill level, supply and facility requirements, expected costs, and unit costs. The unit costs can be compared to benchmarks, competitive data, and income forecasts. Annual volumes can be compared to quality minimums. The business plan is presented to both the CSS associates and referring care teams involved for their comments. The plan is presented to the governing board with management's recommendation and both sets of comments. It is adjusted as needed in the annual goal-setting process.

The planning process implements the HCO's mission for quality and cost-effectiveness. The service will be started, continued, or expanded when

both cost and quality comparisons are favorable. The service should be discontinued, outsourced, or reorganized whenever quality is threatened or cost is not competitive.

### Meeting CSS Support Needs

The HCO's offer to the CSS is that it will thrive under closer affiliation. That requires the HCO to provide a full range of logistic and support services and an attractive work environment. Closer affiliation usually means greater capital investment by the HCO.

The CSS associates work side by side with the caregiving teams, and they share the same logistic support and strategic support. The support must be better than the CSS could acquire elsewhere. CSS associates, like all other associates, must feel that the HCO is "a great place to give care." The transformational culture is sustained by three elements:

1. *Responsive listening by senior management.* Rounds should include CSSs, and CSS associates should feel empowered.
2. *Training for CSS managers.* Just as head nurses and logistic support managers are trained to be responsive listeners and to encourage empowerment, CSS managers should be trained. Because of the small size of many CSSs, coaches and mentors come from other CSSs.
3. *Celebration and rewards.* CSSs should participate in celebration of goals that require collaboration as well as in achievements within their CSS. Their compensation should include bonus opportunities that are comparable to those of other associates.

### Building an Effective Contractual Relationship

The HCO has a number of alternative contractual arrangements that it can tailor to a specific CSS. Alternative structures, generally ordered in terms of increasing HCO control and increasing HCO capital investment, include the following:

- *Long-term contract with a separately owned corporation.* An independent corporation owns facilities, employs associates, and sells services to the HCO. The contract should specify as clearly as possible the obligations and intentions of both parties. Quality, patient satisfaction, and efficiency standards can be included, with agreement on measures and benchmarks. The HCO can control professional privileges. Hours of coverage, requirements for teaching, and participation on PITs should be specified. It is difficult to incorporate standards for effectiveness or to prevent the contractor from competing as an independent organization.
- *Joint venture corporation.* The HCO gains partial strategic control and can include explicit reserved powers or supermajority rules that gain control of size, location, clinical privileges, and management appointments. The corporation can

purchase services from the HCO. The principal advantages relate to capital. The joint venture allows CSS professionals to have equity and income compensation. It also permits a for-profit corporation to provide some of the equity capital, relieving the HCO of debt or lease financing.

- *Joint operations.* The HCO owns and operates the facility, including hiring of nonprofessional associates, and can exercise control of privileges, giving it control of size, amenities, and capital investment. Professional guidance is provided by contract with one or several physician corporations.
- *Unified operations.* The HCO owns and operates the facility and employs all professional and nonprofessional associates. This model gives the HCO maximum control, but it must still attract and retain qualified professionals.

Unified operations are the most common solution, particularly among smaller CSSs, and the trend is clearly toward increased HCO control. Revisions to the insurance payment system may encourage even more HCO control. Given the great importance of fixed costs in efficiency, the sizing function is crucial. Services that are missing or too small pose a threat of lost market share to competitors. Those that are too large draw insufficient demand to meet quality and cost standards.

## Maintaining Regulatory Compliance

In addition to general standards of the Centers for Medicare & Medicaid Services (CMS) and The Joint Commission, CSSs may have additional and more specific regulatory requirements that may be government mandated or voluntary. CSS leadership must be knowledgeable about regulatory requirements and design and implement policies and procedures accordingly. In addition, ongoing education and training for changing standards is expected.

For example, clinical laboratories must comply with the Clinical Laboratory Improvement Amendments (CLIA) regulated by CMS.[2] Moreover, clinical laboratories may elect to participate in accreditation by the College of American Pathologists (CAP), the gold standard for clinical laboratory quality and performance improvement,[3] or receive accreditation from the American Association of Blood Banks (AABB) for blood banking and transfusion services.[4]

Radiation oncology must comply with the federal Nuclear Regulatory Commission; pharmacy must comply with federal regulations of the Drug Enforcement Administration and the Food and Drug Administration; and dietary must comply with state and local health department regulations that govern the proper and safe handling of food and sanitation, to name a few examples. Each CSS also has continuing education requirements for the many professionals who are represented in specialty areas.

The HCO leadership is responsible for providing resources to support regulatory compliance and also to report compliance to the governing board

and other appropriate organizations. Many large HCOs have individual regulatory compliance officers for CSSs.

## *Promoting Continuous Improvement*

The evidence-based model of measures, benchmarks, opportunities for improvement (OFIs), improved goals, and rewards fits well within each CSS. The model, with annual goal setting, should be routine in all CSSs whether the HCO operates the CSS or contracts with a separate corporation. Setting annual operating goals and identifying and justifying new capital investment should be interrelated. Capital is required for improving and expanding facilities, replacing outmoded equipment, and starting new programs. CSSs are a major user of capital. Where capital is supplied by the contractor, the HCO should have the right to approve investments.

### Setting Annual Goals

A unit that has been diligent in the preceding year will be able to formulate next year's budget quickly, drawing in large part on work that has already been done in continuous improvement. Quality, costs, patient satisfaction, and associate satisfaction must be based on benchmarks; the management of a CSS that cannot meet benchmarks can usually be replaced by competitors with proven records.

Well-run organizations have clearly defined budget process roles for the CSS, the budget manager (a technical support person or office attached to finance), and the HCO manager. The CSS manager and team are expected to do the following:

- Review the demand forecasts prepared by the budget manager, extending them to the specific levels required in the department and suggesting modifications based on their knowledge of the local situation.
- Identify changes in the scope of services and the operating budget that arise from changes in demand, patient management protocol development, and continuous improvement. Minor changes are incorporated in the operating budget. Major ones are addressed in the capital and new programs budget (discussed below).
- Propose goals for quality and satisfaction, using benchmark and available competitor data.
- Propose goals for staffing, labor productivity, and supplies consistent with demand forecasts, quality improvements, and other constraints.
- Identify OFIs and initiatives that should be developed during the coming year.

The budget manager (see Chapter 13) is expected to do the following:

- Assemble historical data on achievement of last year's budget.
- Prepare forecasts of major CSS demand measures.

- Prepare benchmark and competitor data.
- Promulgate the budget guidelines for changes in total expenditures, profit, and capital investment approved by the finance committee of the board.
- Circulate wage-increase guidelines from human resources and supplies-price guidelines from materials management.
- Assist in calculations and prepare trial budgets until a satisfactory proposal for the board has been reached.

The HCO manager for the CSS is expected to do the following:

- Ensure that the proposed goals do not impair quality or satisfaction in other units.
- Assist the CSS, and encourage steady but realistic improvement.
- Coordinate interdepartmental issues that arise from the budgeting process.
- Meet the budget guidelines set by the governing board or the senior management team.
- Resolve conflicting needs between CSSs.
- Evaluate the progress of the CSS to assist in the distribution of incentives.
- Assist the CSS in pursuing OFIs and implementing them during the coming year.

### Implementing Improvements

An important part of the HCO manager's job is facilitating PITs and implementing improvements that often involve several different CSSs and patient care teams. These improvements are likely to be the most rewarding opportunities. For example, costs of pharmaceuticals have been rising rapidly. A pharmacy might pursue a number of internal initiatives to keep departmental cost increases at a minimum, but control of demand and much of drug safety rests with the medical and nursing staffs. The pharmacy section of Exhibit 8.4 shows some initiatives a pharmacy might support. The strategy for pharmacy addresses four areas: price and inventory, formulary, protocols, and prescribing habits. Three of the four require collaboration with the medical and nursing staffs. Initiatives in each area might continue for several years. The diagnostic imaging section of Exhibit 8.4 also shows a set of initiatives. Only the first is wholly within the CSS's control. As the exhibit suggests, improvement initiatives take a number of different forms, leading to PITs with different charges, memberships, and timetables.

### Negotiating Goals

CSS operational goals must contribute to the HCO's annual strategic goals and maintain competitive excellence. In addition, they must respond to longer-term changes. Shifts in patient management, driven by evidence-based medicine and changes in technology, will force many CSSs to make major

**EXHIBIT 8.4** Improvement Initiatives in Two CSSs

| *Issue* | *Initiative* | *Measures* | *Approach* |
|---|---|---|---|
| *Pharmacy* | | | |
| Price and inventory management | Purchasing agreement<br>Inventory management system | Unit cost versus wholesale<br>Inventory turns/year | PIT within pharmacy |
| Formulary management | Generic drug program<br>Automatic stop orders on common drugs<br>Extra controls for very expensive drugs | Ratio of generic to proprietary<br>Drug cost per case<br>Average costs per dose for specific drugs | PITs working with service lines |
| Patient management protocols | Alternative therapies and prevention<br>Avoid unnecessary drug use and cost | Drug cost per specific treatment episodes | Protocol review committees |
| Prescribing habits | Protocol compliance<br>Physician education, counseling | Drug costs per capita<br>Drug cost per specific treatment groups | Counseling with service lines |
| *Diagnostic Imaging* | | | |
| Reduce retakes | Improve functional protocols and associate training | Count of retakes | PIT within imaging |
| Improve patient scheduling and results reporting delays | Evaluate and install departmental information system | Patient delays for service<br>Hours from exam to report | PIT with service lines and other CSSs |
| Inappropriate exams | Final product protocols, physician education | Disease-specific exams per patient | Protocol review committees and service line counseling |

CSS: clinical support service; PIT: process improvement team

revisions. Even the well-managed CSS that invests heavily in improvement initiatives may encounter difficulty as medical care changes. The demand for cancer therapies may shift radically if effective new drugs are discovered. The balance between heart surgery and heart catheterization has shifted more than

once, as new catheter-oriented stents evolved simultaneously with minimally invasive cardiac surgery. The HCO manager's role includes negotiation of both annual goals and long-term forecasts. The negotiation process has several important characteristics:

- The goal of the negotiations is the optimization of patient needs as a whole, as reflected in competitive needs and external benchmarks. Actions that endanger the HCO's competitive position must be avoided at any cost.
- Competitive financial goals must be met for all parties. HCOs or CSSs that cannot meet those goals must be restructured by consolidation or revision of the mission.
- Each CSS must maximize its own opportunities and defend its own needs, emphasizing quality, patient satisfaction, caregiver satisfaction, and associate satisfaction.
- The negotiating team should include physicians and CSS personnel who can implement agreed-on improvements.
- Negotiations:
  - Examine solutions between related CSSs and with outsourcing and external collaboration.
  - Assure the CSS of a fair hearing.
  - Include rewards for CSS managers and associates who contribute to an effective solution.

A strong strategic plan is essential. If the strategic plan and the facilities, information, and recruitment plans derived from that plan are inadequate, it becomes impossible for the CSS to reach competitive levels on all dimensions. Thus, if a CSS falls short of its constraints, the first questions address the effectiveness of CSS operation, and the second questions address the size and scope of the CSS itself, including issues of outsourcing or eliminating the service. Finally, attention turns to the strategy of the organization as a whole. Repeated and widespread failures in meeting CSS constraints are evidence of an organization or facility that is undersized or underfinanced for market needs. Affiliation with another organization or closure must be considered.

## Preparing New Program and Capital Budget Requests

CSS managers are responsible for identifying opportunities and developing **programmatic proposals**—specific proposals for new or replacement capital equipment or major revisions to service—as well as for the annual budget. Technological improvements, aging equipment, changing demand, and revisions in the scope of service can require capital investment and result in major shifts in performance. These must be justified in terms of the HCO's mission. The best investments are those that contribute most to the HCO's mission and stakeholders' expectations. All capital

***Programmatic proposals***
Proposals for new or replacement capital equipment or major revisions of service.

requests are subject to a competitive review process that places them in rank order and to board action on the basis of the rank order. The review process and board actions are discussed further in Chapter 14.

For example, an imaging department may encounter declining demand for inpatient radiographs, increasing demand for convenient ambulatory radiographs and ultrasound, and increasing demand for magnetic and emission tomography. Substantial capital is required to remove equipment no longer needed, purchase new equipment, and recruit and train staff for the expanded operations. The imaging department and the HCO manager prepare detailed business plans for these changes, documenting both the capital and operating cost changes as well as changes in other performance measures, such as quality of care, patient satisfaction, and referring physician satisfaction. Internal consulting helps develop the factual basis for the proposal; marketing provides advice on location, hours, and other issues; human resources assists with the training; and finance assists with calculations of cost and return on investment. The benefits—contributions to mission—are identified by imaging, with assistance from the performance improvement council (PIC), clinical customers, internal consulting, and marketing.

The proposal, which might suggest changes that cost several million dollars, advances to competitive review when the imaging department is ready. Competitive review compares the proposal against similar requests from other units, ending with a rank-ordered list submitted to the governing board. The criterion for ranking is long-run mission achievement: What is best for the HCO's stakeholders? The benefits the CSS claims in the proposal are related to its operational performance measures. If the proposal is accepted, imaging is expected to adopt and achieve those goals. Many benefits occur outside the CSS, making the collaborative approach to proposal development essential. The proposal is both strengthened and validated in the process, reducing challenges during competitive review.

### *Quality-Related Benefits*

All benefits, including quality benefits, must be compared to the treatment alternative that would prevail if the proposal were not adopted.[5] Although many technological advances are described as improvements in outcomes quality or contribution to patients' health and well-being, the reality is that most proposals involve only convenience and competitive advantage. A service that supplements another one that is available ten minutes away has a quality value equal to ten minutes of travel, even if the service is lifesaving. (It may have a much higher patient satisfaction value.)

If, in fact, the proposal changes the number of people in the community who will achieve a more favorable outcome, its contribution can be analyzed using the epidemiologic planning model.

$$\text{Contribution} = \left\{\begin{matrix}\text{Demand}\\ \text{for a}\\ \text{service}\end{matrix}\right\} \times \left\{\begin{matrix}\text{Probability that}\\ \text{service will}\\ \text{improve outcome}\end{matrix}\right\} \times \left\{\begin{matrix}\text{Value of}\\ \text{improvement}\end{matrix}\right\}$$

The demand term is estimated by the epidemiologic planning model. The probability of improved outcome comes from clinical literature and is a foundation of evidence-based medicine. Quality benefits can theoretically be scaled by a variety of techniques, including forced-choice surveys and Delphi analysis. Most situations will not be difficult to rank. If a new clinical approach substantially prolongs life, and many competitors are adopting it, it will score well and be adopted. Scales exist for the value of human life, ability to work, ability to care for self, added years of healthy life, and similar major contributions.[6] Review committees should use a consistent scale for valuing clinical contribution and recognize the limitations of the scale.

***Cost-Related Benefits***

If a process improvement reduces the need for care, dollar estimates are not challenging. For example, if a new diagnostic process with a demand of 1,000 tests per year will reduce length of stay by one day for one-third of those on whom it is used, and a day of stay is worth a marginal cost of $400, the contribution of the process is about $133,000 per year:

$$\text{Contribution} = 1{,}000 \times .333 \times \$400 = \$133{,}200$$

A case can be made for higher values. From an insurer's perspective, the cost per day is the paid price, probably twice the marginal cost. Patients and society might place an even higher price, adding earnings from earlier return to work.

Because of fixed costs and marketing implications, cost and demand are interrelated. First, CSS costs after adoption of the proposal must be competitive with other sources of equivalent services. If they are not, the proposal is inadequate to ensure long-run survival. The CSS must find a way to deliver services competitively. If they are, a benefit is return on investment—the savings a proposal generates expressed as a return on its capital investment over the years of the life of the project or the capital equipment.

Return-on-investment calculations are usually prepared with the assistance of internal consulting and finance. The focus is on changes in cash flows. The contribution can be expressed as return on investment:

$$\left\{\begin{matrix}\text{Return on} \\ \text{investment}\end{matrix}\right\} = \{\text{Contribution}\} \div \{\text{Invested capital}\}$$

The value of cash in future years is less than the value of immediate cash. Return on investment can be calculated for multiyear cash flow streams, allowing comparison of diverse projects. It is also possible to discount cash flow in future years with an assumed rate of interest, creating a net present value of cash flows. Care must be taken to estimate all costs and demands accurately, including hidden ones, and to be sure the claims for savings can truly be met. The proposed costs will be incorporated as an operating budget

reduction if the project is implemented. Some cost improvements occur outside the CSS, in which case another unit must agree to them. For example, an improved diagnostic test may reduce drug costs or length of stay. In this case, the cost savings must be traced to the unit where they will occur, and that unit must agree to actual goal changes.

***Market Share Improvements***

Many proposals improve market share or forestall a loss of market share. A claim that a specific capability will attract or protect market share is a justification for capital investment. The value depends on the magnitude of the shift and the fixed cost involved. Replacing equipment that is critical to continued operations is an obvious, high-priority example. If a modern laboratory must have an automated, multichannel blood chemistry analyzer, and the existing one is no longer reliable, the proposal to replace it will not generate much debate. In less obvious cases, the justification is based on the return on investment. Applications are often complicated. Under global and capitation payments, change in cash flow must be calculated at the level of payment involved. The proposal may be a service that has become generally accepted as part of the protocol for a specific disease or procedure.

The justification must be based on service for the care episode, rather than the operation of the CSS. The budget for the patient management protocol or the service line becomes the critical document, rather than that of the CSS. If it reflects competitive cost and quality, the proposal is worth further consideration. For example, a special laboratory for in vitro fertilization is a CSS for a women's service line. It can be justified only as a complete service, including evidence of sufficient actual demand, medical staff recruitment, all costs for couples seeking the service, payments allowed by various insurers, and evidence of competitive rates of successful fertilization. As a result, these kinds of proposals are usually considered strategic, and ad hoc teams are established to evaluate them.

### Defending Capital Proposals

The HCO manager of the CSS and the internal consulting representative are proper advocates of the proposal in the evaluation process. Their job is to prepare the analysis and the justification in the most favorable light. As advocates, they should be prepared to answer questions and make modifications as the proposal progresses. They must also be prepared to accept rejection. By the same token, it is senior management's obligation to see that they do not overstep the bounds of honesty, that others accept their role as advocate, that all projects get a fair and judicious hearing, and that the benefits claimed are translated to actual performance when the project is complete.

The feedback to the CSS comes in two ways—through evaluation of its proposals and through participation in the evaluation of others' proposals. Over time, the CSS learns to identify winning proposals earlier, making the process less onerous.

## People

### Team Members

Many CSS professionals have extensive formal education, licensure, and requirements for continuing education. The education includes mastery of relevant theory and supervised practice so that the student learns the processes, patient indications and contraindications for them, expected outcomes, and the rules governing process design. Although they are in various stages of implementation, the professions of pharmacy,[7] physical therapy,[8] occupational therapy,[9] and nurse anesthesia[10] have adopted practice doctorate degrees as the first professional "entry to practice" credential. To reduce costs, unlicensed aides or technicians perform many of the actual CSS procedures under supervision. The staffing of most CSS units consists of one or two levels of formally educated professionals and one or more levels of technical personnel, allowing each professional to serve a larger volume of patients. Three managerial issues arise:

1. Maintenance of clinical competence and skill for qualified professionals
2. Education and supervision of nonprofessional personnel
3. Resolution of work assignments between professional and nonprofessional personnel

The first is met by a credentialing process that verifies entry and continuing formal education and a continued record of effective practice, as for medicine and nursing. The process is usually assigned to human resources management. The second is addressed in the HCO's educational programs. The training is usually designed and conducted by the CSS professionals and human resources. The third, resolution of interprofessional and intraprofessional work assignments, must bring in advice from customer stakeholders. It is the responsibility of the HCO manager and is discussed in the Managerial Issues section below.

### CSS Management

The manager of each support service is usually an experienced leader in the healthcare profession associated with the service. Many larger CSSs have nonphysician managers along with designated medical directors. Some services—operating rooms and delivery rooms—use specialized nurse managers. These managers collaborate closely with their physician counterparts. Pharmacists, respiratory therapists, and medical social workers have less direct medical involvement, probably because they serve a broad array of specialties.

Beyond their professional training, CSS managers need supervisory skills, including skills in personnel selection, management of committees, continuous improvement concepts, knowledge management, and servant

leadership. Managers of the larger CSSs often have master's degrees in healthcare management or in their specialty. Learning effective leadership styles requires more than coursework. Well-managed organizations reinforce good practice with ongoing training, exposure to best practices, coaching, and assistance from internal consulting.

### The HCO Manager

Each CSS must be accountable to the HCO governing board. That accountability is through the *HCO manager* (actual titles vary), who is usually a member of the senior management team or someone who reports to a senior manager. The HCO manager has several duties, many of which are described under the CSS functions section above:

1. Responsive listening—rounding frequently, talking with associates in the CSS at all levels and addressing their needs, talking with caregivers who use the CSS
2. Communicating—explaining strategic guidelines, other relevant board decisions, OFIs and matters of interest that arise from various surveillance activities, PIC actions, and the work of PITs that potentially affect the CSS
3. Supporting PITs that need to understand and interact with the CSS processes, and ensuring representation on all PITs that directly affect the CSS
4. Negotiating the annual operational goals—relating the CSS's improvement possibilities to the needs of other units, and identifying and resolving issues of coordinating services and improvement activities
5. Supporting and coordinating capital and new program requests with clinical units and other CSSs
6. Maintaining the succession plan for the CSS
7. Arranging the resolution of interprofessional and intraprofessional work requirements
8. Maintaining the agenda for contract renewal or restructuring of the relationship between the CSS and the HCO

The agenda for contract renewal recognizes that there are alternative opportunities to provide many CSSs. Even fully employed CSSs should be reviewed periodically, and contractual relationships should have explicit revision or renewal dates. The HCO manager should monitor both the array of alternatives and the improvement opportunities offered. Although the normal expectation is to continue the relationship, the HCO's stakeholders are entitled to the best available arrangement. Review of alternatives may lead to a new supplier for the CSS; more commonly it identifies OFIs that can and should be addressed under the existing relationship.

### Organization

The organization shown in Exhibit 8.5 is built around CSS teams of professional and nonprofessional associates focused by location or function. As the

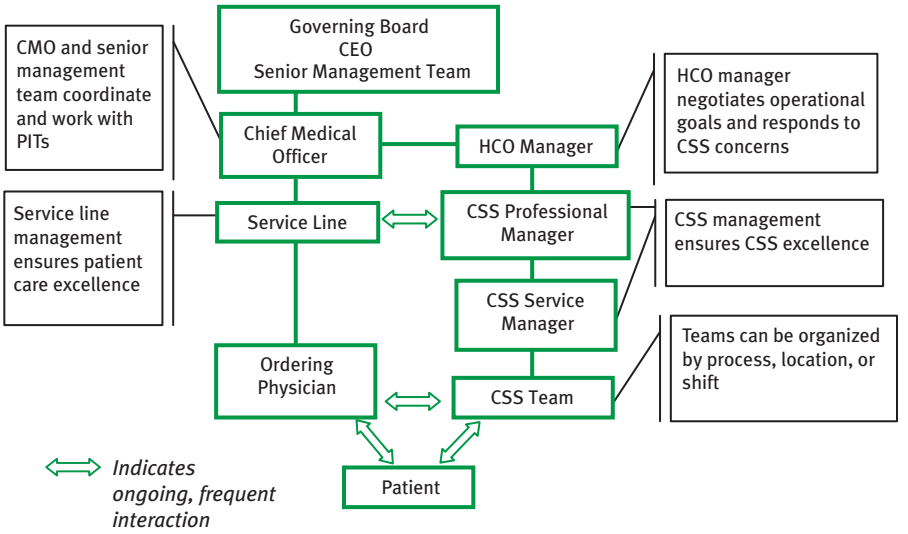



**EXHIBIT 8.5** Core Organization of the CSS

CMO: chief medical officer; CSS: clinical support service; PIT: process improvement team

exhibit shows, each CSS team has multiple accountability—to its patients, its customers (i.e., the care teams depending on its services), and the HCO. Both CSS and service line associates have operational goals. Frequent and open interchange occurs among the CSS team, the patient, and the physician and also between the CSS managers and the service line managers. HCO managers and senior management are accountable for both goal sets. They work to achieve the goals and improvements by responsive listening, monitoring performance, and using PITs to address all issues of integration and coordination.

CSSs vary widely in size and activity. Most CSSs provide care in both outpatient and inpatient settings. The smallest have only one or two professionals. In some situations, the CSS may be a single person or a single team. The larger CSSs, such as the clinical laboratory, imaging, and pharmacy, can have more than 100 associates working in a dozen or more teams with several subspecialties at several sites. This volume and diversity provide the HCO with a competitive advantage: the ability to meet a superior set of operational goals.

## *HCO–CSS Relationships*

Most small CSSs are employed by the HCO. The larger CSSs with physician leadership often form local medical groups and contract or joint venture with the HCO. Several moderate-sized companies provide imaging and pathology services, contracting with several HCOs in a geographic region. At least one company provides extensive pharmacy support. Contracts generally identify the scope of services to be offered and whether those services are exclusive, commitments for space and equipment, and the management of patient-related information. In addition, they should address the operational

scorecard measures to be used, the sources of benchmarks, the goal-setting process, the duties for education and continuous improvement, and the incentive arrangements.

## Measures

Exhibit 8.6 summarizes the measures for each of the six operational dimensions: demand, cost, human resources, productivity, quality, and customer satisfaction. With rare exceptions, these measures are appropriate for any CSS. Many of the measures are retrievable from ongoing data collection efforts, such as patient and associate surveys, accounting, and electronic medical records. Very small CSSs have sample size problems. Monthly reporting may not be reliable, but even the smallest CSS should have measures, benchmarks, OFIs, and annual improvement goals. Qualitative data—impressions, examples, and evidence from competitors or best practices—are also important.

Large, complex CSSs have a substantial measurement set, befitting their status as multimillion-dollar enterprises. The HCO manager's focus should be on the aggregate performance, which should be routinely compared with benchmark and competitor values. CSS managers normally operate an internal performance improvement program, and they are rewarded financially for their success. Part of the HCO's support can include educational programs, PITs to address problems of coordination, and the knowledge management system.

Demand and output measures are increasingly available from electronic order systems and patient records. Cost accounting is supported by the transaction accounting system, which is described in Chapter 13. Equipment records are useful for major items; they typically record uses, load factors (time operated divided by time available), service times, and failures. These records are useful in managing maintenance and determining replacement.

Patient, physician, and associate satisfaction data are determined from HCO-wide surveys. Care must be taken to avoid incorrect inferences from small samples. Internal consulting provides statistical analysis (see Chapter 14).

Patient outcomes quality measures are important but limited. Most CSSs contribute to outcomes successes but cannot be accountable for them because too many other activities are required. For the patient to thrive, all the care activities must be correct. CSS outcomes failures can often be tracked and systematically reduced. Anesthesia, for example, can cause fatalities. Over decades, the anesthesiology profession has studied its failures, improved its processes, and reduced its mortality by several orders of magnitude. It contributes to all successful surgeries but cannot make the surgery a success. Most CSS quality measures are intermediate outcome or process compliance measures. In intermediate outcomes, follow-up inspection or a similar assessment reveals if the CSS activity was or was not correctly performed and did or did

**EXHIBIT 8.6**
Performance Measures for the CSS

| *Dimension* | *Measures* | *Applications* |
|---|---|---|
| Demand | Requests for service | Used to forecast staff and other resource needs<br>Specified by time, location, kind of service, and urgency of demand |
| | Market share | Used to track competitive success<br>Specify by competitor and service, if available |
| Costs | Fixed/variable, direct and indirect costs<br>Physical units of resources<br>Age and repair records of equipment | Used to analyze and improve work processes<br>Resource use is specified by time, location, and kind of service<br>Equipment records trigger maintenance and replacement |
| Human resources | Retention, absenteeism, injuries, satisfaction, recruitment, and training statistics | Used to ensure "a great place to give care"<br>Specified by worker group |
| Output and productivity | Units of demand met and not met<br>Cost per unit of output<br>Physical units consumed per unit of output | Used to identify service failures<br>Used to benchmark efficiency<br>Specified by time, location, and kind of service |
| Quality | Process compliance scores<br>Unexpected event counts | Used to ensure compliance with functional protocols<br>Specified by time, location, and kind of service<br>Unexpected events are investigated 100 percent |
| Patient satisfaction | Overall satisfaction and specifics of service | Used to ensure favorable patient reaction<br>Specified by time, location, and kind of service |
| Physician satisfaction | Overall satisfaction and specifics of service | Used to ensure favorable referring physician satisfaction<br>Physician, patient group categories |

not yield the right information for further treatment. In process compliance, the inspection shows that the functional protocol was or was not followed. The two approaches provide in-depth understanding that identifies root causes of OFIs and facilitates their correction. Pathology laboratories have pursued these measures successfully, allowing them to ensure the accuracy of

their diagnostic reports. CAP maintains libraries of measures, values, and education programs[11] and insists on statistically controlled intermediate outcomes for accreditation.[12]

## Managerial Issues

Clinical excellence depends on the caregiving team of physicians, nurses, and their associates and on the information and treatment provided by the CSS. The several dozen CSSs reflect the breadth of patient need. An HCO with an excellence in care mission must ensure that each of these services is effectively delivered. Its senior management team does that by systematically pursuing eight questions for each CSS:

1. Do we offer the service, or do we refer patients who need it?
2. How big should our service be?
3. What are the standards of performance and benchmarks our service must meet?
4. What is the form of affiliation that best meets our needs?
5. Does the CSS have the coordination it needs with other HCO units?
6. Are CSS activities correctly assigned to professional and nonprofessional associates?
7. What are the continuous improvement goals the affiliates should meet?
8. What are the longer-term trends and implications for our affiliates?

These questions view the CSS as a semiautonomous unit. They extend the concepts of evidence-based management and transformational management to support an array of relationships from wholly owned to strategic partnership with the CSS.

### *Should the HCO Offer the Service?*

An HCO should offer every CSS that its patients need and that can be provided safely and economically. Safety and economy depend on patient volume. When volume is too low, associates cannot maintain their skills and unit costs mount. The expected volume should be assessed by the epidemiologic planning model. In general, an HCO would refer patients needing CSSs that it cannot offer at acceptable quality and cost. Shared CSS arrangements, even with competing HCOs, may be appropriate. Networks within healthcare systems also help meet the safety and cost thresholds. The experience of similar HCOs is a useful guide.

### *How Big Should the CSS Be?*

The forecast of CSS demand from the epidemiologic planning model indicates the necessary size of the CSS. That forecast must be monitored annually. Shifts in technology, health insurance coverage, and population demographics

change the forecast. It is quite possible that a given CSS must be expanded, repositioned, downsized, or closed. The HCO's commitment to excellence in care mandates that it, not the CSS, determines the size and affiliation.

### What Are the Standards of Performance?

The standards of performance are determined by benchmarks and minimums for the operational performance measures, particularly those for quality, customer satisfaction, and associate satisfaction. Many CSSs have accreditation standards, either within The Joint Commission standards or through an independent organization. These are minimum standards that should, in general, be fully met. While exceptions may be appropriate, they should receive detailed review and in most cases a plan for correction. (Some accreditation standards may be for the benefit of the service provider, rather than the patient. The clearest challenge to these standards is convincing evidence that patient safety and satisfaction can be met without them.)

Benchmark remains the goal for CSSs, as for all activities. A multiyear plan to reach benchmark may be appropriate. Continued operation below benchmark raises a serious question: If an alternative provider offers service at benchmark, why should the alternative be denied the HCO's customer and physician stakeholders? In other words, if this CSS team cannot make benchmark but another supplier can, the HCO is obligated to transfer to the successful supplier.

The ethical principles of nonmaleficence and beneficence suggest a strong obligation. The ethical principle of justice suggests the current supplier deserves a chance to correct the situation. Among other considerations, changing suppliers has a cost in itself. Abruptly terminating a relationship may cause other associates to question the HCO's trustworthiness, eroding a critical component of the transformational culture. At least one analyst places patient concerns uppermost. Davenport insists that every patient's right must prevail over associate concerns.[13]

### What Form of Affiliation Best Meets the HCO's Needs?

The major possibilities for formal CSS affiliation are described in the Building an Effective Contractual Relationship section above. The best possibility is the one that offers long-term performance closest to benchmark. The criterion is easy to identify but difficult to meet. The preferred solution is probably ownership; the HCO has ultimate control of employment, privileging, capital, protocol selection, training, location, and operating performance measures. Alternatives might be selected to facilitate associate incentives, to reduce capital costs, or to take advantage of skills developed through horizontal integration.

A small number of commercial companies have offered CSS management services. Unlike the record in environmental services, where outsourcing

is the rule (see Chapter 12), it appears that few have captured substantial market share. Successful models include pharmacy services, some imaging services, and long-term acute care provision.

A growing option for extending the CSS function to distant affiliates is **telemedicine,** or telehealth.[14] This type of affiliation may best meet the needs of patients and communities at a distance from tertiary or quaternary care. The diagnostic service or remote monitoring function is conducted at the affiliate location and transmitted to the HCO to be interpreted by a specialist, thus improving timeliness, access to specialty care, and clinical outcomes.[15]

***Telemedicine***
The use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status.

## Does the CSS Have the Coordination It Needs?

CSSs are, by definition, *part* of excellent care. Integrating their services into an excellent whole is sometimes a challenge. Patients' needs and various CSSs interact. Certain drugs affect laboratory values; certain procedures require fasting; patient allergies and sensitivities require procedure modification. Changes in a patient management protocol must be incorporated into CSS procedures. CSS performance can be improved with access to parts of the patient record. An affiliation agreement may call for services, such as training, information exchange, and environmental services from the HCO. Failures in meeting these needs impair the CSS's ability to meet its goals and can be catastrophic.

The management role is clear and independent of the contractual model. The HCO manager is expected to round frequently, be available for issues that arise, and provide a constructive response to all requests. The CSS can rely on its HCO manager to understand and represent its interests. It can expect to be invited to any committee or PIT that is addressing an issue of concern. These integrating and coordinating activities are essential for the CSS to achieve its goals and thus must be completed regardless of structure.

CSS associates work side by side with other HCO associates. The HCO's culture of empowerment should extend to the CSS associates. Thus, part of an affiliated CSS's operating scorecard is its associate satisfaction. The HCO manager should be alert and responsive to potential tensions. CSS managers should be trained in supervision, provided with coaches, and included in multi-rater or 360-degree evaluations to assist them in implementing a transformational culture.

## Are CSS Activities Correctly Assigned to Professional and Nonprofessional Associates?

Medical technology tends to begin with specialized professionals; as it ages, it moves to less specialized and nonprofessional caregivers. Images, once solely

interpreted by radiologists; electrocardiograms, once solely under cardiologists' purview; and "conscious sedation," once undertaken solely by anesthesiologists, are examples where a specific CSS has moved to much broader use. The transition to broader use is not always smooth, and the payment structure, which tends to lag the technology, complicates the transition. The criterion for the level of skill and training necessary to provide a given test or treatment is straightforward: It should normally be assigned to the lowest-cost associate who is capable of maintaining quality and patient satisfaction standards.

Applying the criteria is sometimes challenging. Should the treating specialists be allowed to read images in their specialty, or must the interpretations be validated by a radiologist? With new forms of anesthesia such as conscious sedation, must an anesthesiologist be present? Can a nurse interpret an EKG (electrocardiogram)? Definitive studies are rare.[16] Standards of practice, a less rigorous level of evidence, are acceptable. If orthopedists and cardiologists elsewhere are privileged to act on their own interpretation of images, they should be allowed to do that in our HCO. Transfers to nonprofessionals must be interpreted with care. If a technician can prepare an echocardiogram at the Johns Hopkins Hospital, the task can be assigned to technicians at other HCOs if they are trained and monitored as the Hopkins technician is trained and monitored.

The process to resolve these issues should be assigned to medical staff protocol committees and PITs that can assemble evidence and recommend the safe but cost-effective solution. The committees and PITs must be guided to work from evidence rather than authority. Often, the solution is to permit lower-skilled associates to proceed in uncomplicated cases, review the evidence emerging, and broaden their assignment as their record of success grows.

### *What Are the Continuous Improvement Goals?*

One of the contributions of continuous improvement is its ability to adjust to changing conditions over time, avoiding a major disruption caused by falling behind the rest of the world. Negotiating annual goals ties each unit to the larger economy and supports a review of the relation of the unit to its environment, including technology, regulation, customers, competitors, and associates. Problems that could become disabling can be identified and corrected well before catastrophe strikes. The annual strategic goals, benchmarks, and deliberate review of best practices and competitor practices stimulate and sustain this process. As a result, the HCO keeps control of CSS activities. It has assurance that the CSS is operating in the best interests of the HCO stakeholders. Even where a CSS operates almost autonomously, the HCO manager maintains comparative performance data and the contract calls for negotiated goals. Knowing that contract renewal is likely but not automatic makes negotiation realistic.

### What Are the Long-Term Trends?

Similarly, the HCO is in control of much of the potential demand for any CSS and is charged with identifying long-term trends. It has the obligation to pursue promptly the implications of these trends. Most problems are easier to solve with advance warning; surprises in the business world are rarely good news.

Many of the most valuable goals require collaboration among several CSSs and service lines. The OFIs are likely to appear in the annual strategic review process or in the deliberations of the PIC, where multiple perspectives can be integrated and overall performance benchmarked. Identifying and pursuing these goals is an important part of the jobs of senior management and the HCO manager. Pursuit usually means extensive discussion with the units likely to be involved, seeking the most effective, least disruptive path to change. In some cases, it can mean extensive revision or termination of relationships with a CSS. The rule for managing those events returns to the ethical balance between rights of patients and rights of associates. Patients must come first, but contractual rights should be upheld. Thus, any contract needs termination clauses, and they set the stage for effective negotiation. Termination should be rare; negotiation should be continual.

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