

The Anatomy of an Effective HMO Cost Management System



Group Health Cooperative of Puget Sound.

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This is the story of how an aging, underperforming cost management system at a health service organization was redesigned and rejuvenated through an injection of total quality principles.

Group Health Cooperative of Puget Sound (GHC) is a staff and network model HMO headquartered in Seattle. It serves 480,000 enrollees in the state of Washington. Typical of traditional approaches used by healthcare organizations, the old cost management system of GHC originally was created to meet the financial reporting needs of a less-competitive era.

Cost was managed along organiza-

tional lines—divisions and departments—and other expense classifications and accounts. Cost of service information was available only at the aggregate level for the total cost. Cost and service utilization information was location-specific with no organization-wide information available for any patient or group of patients.

Multiple information systems served the operating needs of GHC clinics, hospitals, and administrative functions. Detailed data were available by each system, but integrating information across systems was almost impossible. Factors such as unit cost, utilization, enrollee status, mix of services, acuity, and benefit design were all regarded as having significant influence on total costs, but no systematic links among those data existed.

The lack of systematic links among

Group Health Cooperative's old cost structure required major surgery.

data from multiple information systems compelled management to make decisions based on less than complete information. In 1989 an extensive cost management database was developed to capture data at the lowest level of detail possible that could be retrieved for many different decision-making needs.

NEW COST MANAGEMENT SYSTEM

The new cost management system was developed to identify the full costs of operating the delivery system, both direct delivery system costs and the relevant costs of administrative overhead services that support the delivery system, and to determine the costs of generating services for each service unit at a specific service location.

There was an essential need for system flexibility in order to identify costs at the level of each service unit according to the specific information needs for decision making. This flexibility would enable management accountants

to have a better understanding of service cost behavior and to analyze costs from a variety of perspectives.

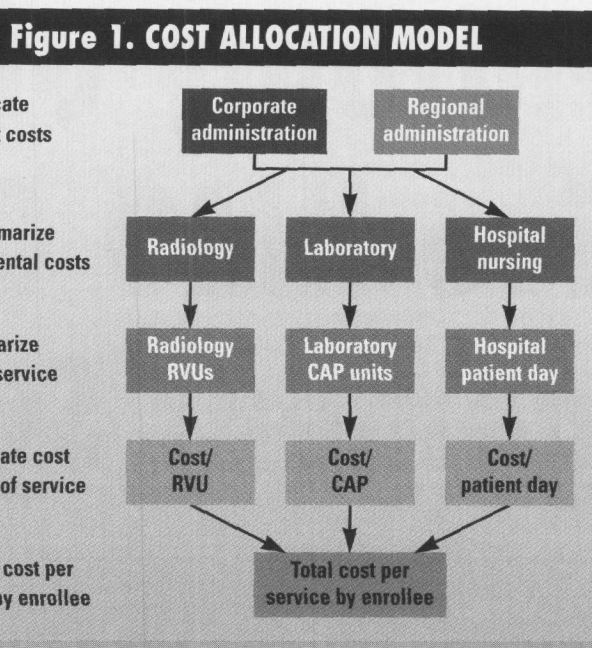
For example, management accountants can analyze costs by:

- Treatment patterns such as ancillary service utilization,
- Treatment modalities such as inpatient vs. hospital outpatient,
- Patient diagnosis,
- Market segment (Medicare or specific group affiliation), and
- Service location.

THE TOTAL QUALITY JOURNEY

The application of total quality principles to the development of a new cost management system involved a TQ journey from quality planning to continuous quality improvement.

Management's first task was to define user requirements, system and report design, and data quality enhancements and to implement the system and initial management reports. Using an integrated team approach, the total quality planning effort focused during this phase on gaining



the project team formulated a new set of strategies in which the company would:

- Develop cost management strategies and training programs to integrate and monitor strategies.
- Design menu-driven programs to facilitate data access.
- Reorganize data in formats such as exception management reports.
- Provide health care purchasers with cost and utilization patterns for their members.
- Expand the database to include service and care quality measures.
- Emphasize outcome-related study that directly

organizational acceptance of the reliability and accuracy of the information generated from the new system and on implementing the system within an agreed-upon time frame. This phase lasted for three years.

The process of continuous quality improvement started from the date the system was implemented. By tracking all information requests, the company has learned what information was most valuable to the customers or information users. After two years of experience with internal customers,

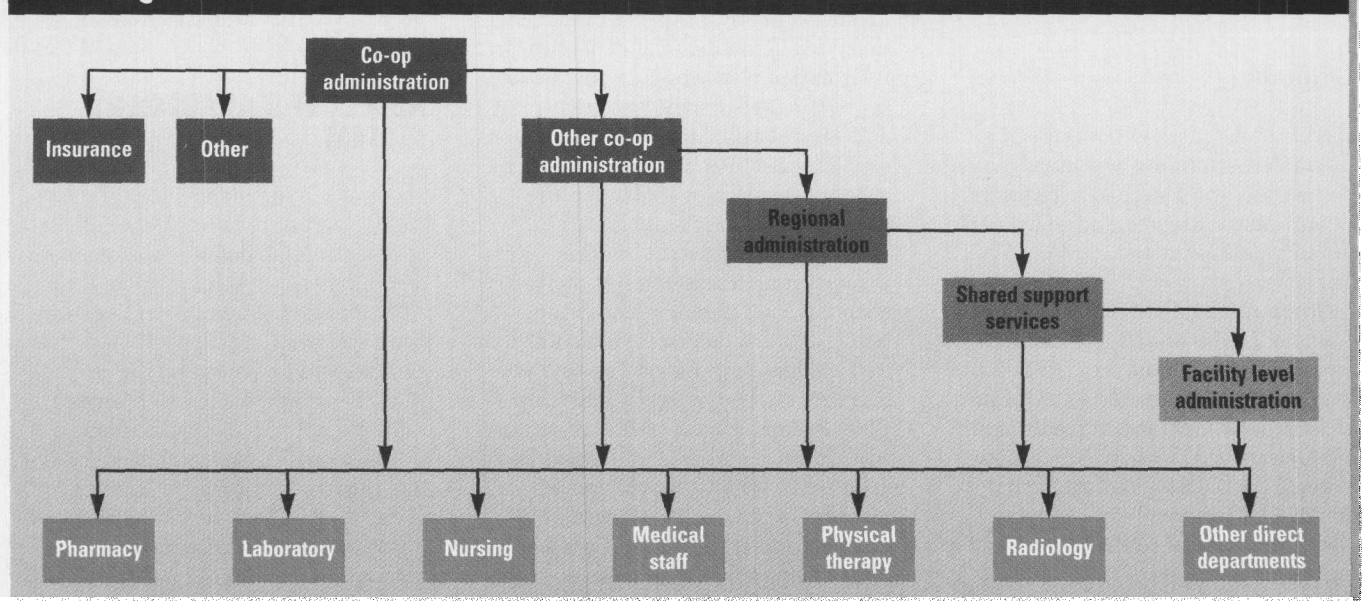
supports effective clinical decision making.

DEVELOPMENT OF THE COST METHODOLOGY

The cost methodology was an integral part of the overall management information system development effort. Costs are identified at the unit of service level and summarized for individual enrollees. Figure 1 illustrates the cost allocation process.

Actual costs from the general ledger

Figure 2. ALLOCATION OF ADMINISTRATIVE EXPENSES TO DIRECT CARE DEPARTMENTS



are reported. Approximately 70% of total delivery system costs are direct patient care department costs. These costs are assigned directly to the units of service produced by that department. The remaining 30% represents overhead costs. These costs first are allocated to patient care departments and then assigned to units of service in each department.

Overhead costs are allocated using a single step-down allocation method. The order of allocation was established so that departments receiving the most services absorb the most costs. Figure 2 illustrates a simplified step-down cost allocation methodology.

The methodology involved 26 layers of allocations, 180 actual step-down allocations, and 500 service delivery departments. A statistic appropriate to the overhead cost based on the cause-effect relationship was used as the allocation basis. An extensive process was followed to determine each allocation statistic.

In order to make GHC cost data comparable to other health care providers, overhead costs—such as the cost of insurance administration—that are unique to GHC have been excluded and are not allocated to patient care departments.

Total delivery system costs are reduced to the unit of service level. Each department uses one statistic (unit of service) that explains cost behavior in that department. This statistic is the basis of allocating the general ledger departmental costs. Several departments have gone through an extensive detail costing process to develop their own relative value unit (RVU) standards that reflect their costs more accurately.

Initially, industry standards were agreed upon for RVUs, for example, College of American Pathologists' values for laboratory standards. Some industry standards, however, turned out to be less than desirable as proper measures and other measures had to be found. For example, Laboratory and Radiology are in the process of developing their own RVU systems to reflect the relative cost of their various activities.

The cost allocation module develops cost/unit at the lowest level of detail. These costs are aggregated to a department, to a clinic, to a region, then to the organization as a whole. Because

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these costs are maintained at the lowest common denominator, the costs and associated units can be summarized by consumers, by diagnostic groupings, by employer groups, and by specific populations, such as Medicare, Medicaid, AIDS, Heart Care, and so on. These few examples show how the data can be "sliced and diced." Previously, the information on costs and units was available only for each individual department.

CRITICAL STEPS IN SERVICE COST MANAGEMENT

The total cost per unit of service is linked through the system database to the enrollee and is the lowest level of cost identified. It is the building block of the system and allows for costs to be summarized in a variety of ways.

All costs are recorded in the general ledger by department. Each department represents a discrete business function for which costs are budgeted and incurred. The departments are divided into: Direct Patient Care Departments, Overhead Departments, Insurance Departments, and Excluded Departments.

Each direct patient care department is associated with a unit of measure that is used to allocate departmental costs. This unit of measure serves as an indicator of cost behavior in that department. A unit of measure also is used in each overhead department to allocate costs to direct departments or other overhead departments. For example, Human Resources, an overhead department, uses the number of employees as a unit of measure.

Some overhead departments use the same unit of measure for allocating costs. In order to simplify the allocation process, these departments have been grouped into cost pools. Each cost pool's costs are allocated as if they were a single overhead department. For example, all Information Systems departments use the number of terminals in other departments as their statistical basis. These departments are grouped into a cost pool, and their costs are allocated together.

The new service cost management system uses data from 15 separate feeder systems including clinical information, units of service, and costs from the general ledger. When the allocation

process is complete, all overhead department costs have been allocated down to direct patient care departments. Then they are added to direct departmental costs to get the full absorption cost for each department. The full absorption costs are divided by the units of service for that department to yield the cost per unit of service. For example, a radiology department measures the amount of its services in RVUs. If the full absorption cost of that department for a given month is \$200,000 and it produces 50,000 RVUs, the cost per RVU equals \$4.

Indirect cost/unit and direct cost/unit are maintained separately on this system. Although the organization has decided to report total direct and indirect costs using the new series of

mer, the organization could use existing resources to implement the new system. Most of the work was completed by project teams staffed by existing managers and analysts. Major issues being resolved and reports being developed concerned these groups directly, which has induced the groups to incorporate the teamwork into their existing workloads.

Because of the explosive growth in the demand for the new data, information, and analysis that the newly installed system could deliver, the organization developed the Decision and Information Support Center. The Center operates on a budget of about \$500,000. The use of existing software products minimized the cost of system design, which is supported by an archi-

Table 1. MAJOR TYPES OF DIRECT PATIENT CARE

Department Type	Unit of Measure
Ancillary Depts (PT, OT, and RT)	Relative value units (RVUs)
Community health services	Visits
Dialysis	Hours of dialysis
Hospital inpatient departments	Inpatient days
IV therapy	Personal care units (PCUs)
Labor and delivery	Number of births
Laboratory	College of anatomical pathology (CAP) units
Outpatient medical staff	Weighted visits
Outpatient mental health	Weighted visits
Pharmacy	RVUs and direct drug supply costs
External delivery system claims	Claims as % of direct G/L costs
Radiology	Technical RVUs
Surgery, anesthesia and PAR	Minutes of care and direct supply charges

reports, the system is capable of reporting direct and indirect costs separately. The system produces numerous reports and analyses only of direct costs, and it also can break indirect costs down further to different areas, such as information systems, human resources, facilities, and so forth. The types of decisions required would dictate whether direct, indirect, or combined costs should be reported. There are many different types of direct patient care departments, and a different unit of measure is used for each (see Table 1).

IMPLEMENTATION COSTS AND THEIR RECOVERY

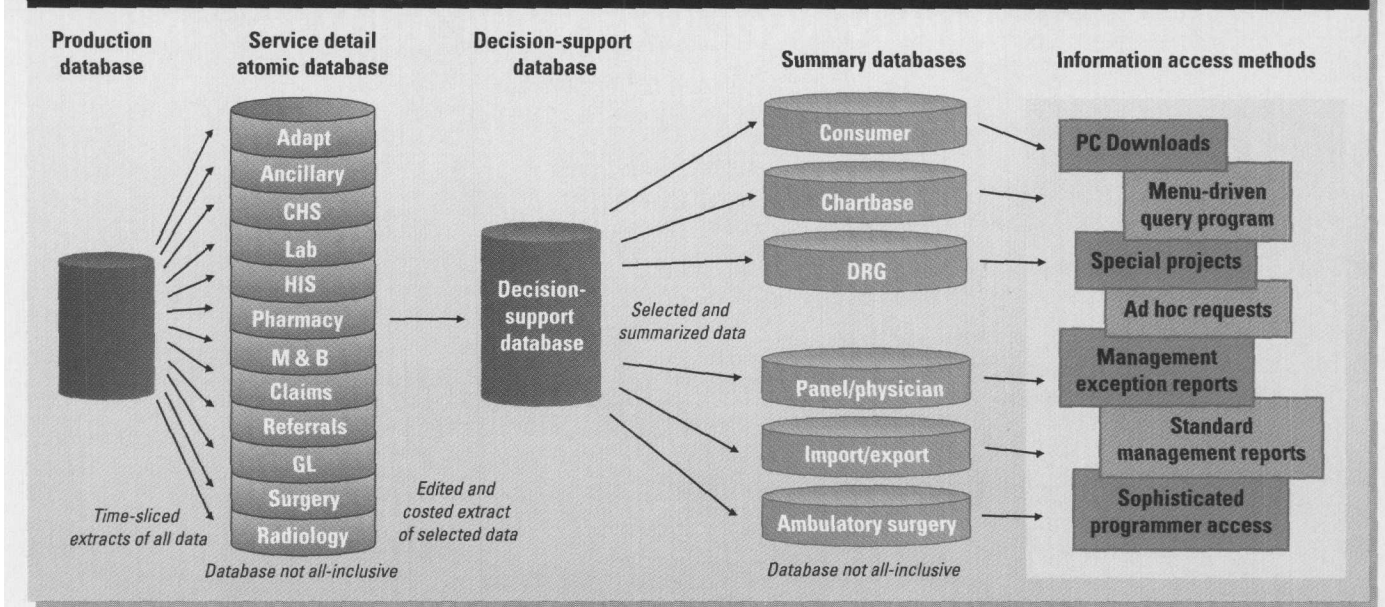
With the addition of one manager and one-and-a-half analyst/program-

mer, the organization could use existing resources to implement the new system. These files are organized to create a data repository similar to a relational database in that all records are related by distinct identifiers, such as consumer numbers, DRG, and so forth.

THE POWER—DECISION-SUPPORT SYSTEM

The power of the new service cost management system comes from the decision-support system. It integrates data from 15 transaction systems and maintains the resulting cost and utilization information in the new single database. Every month, data from the transaction systems are retrieved into the concentrated database. Figure 3 presents the current decision-support system.

Figure 3. CURRENT DECISION-SUPPORT SYSTEM



This concentrated database contains all patient service level detail. Selected and edited sets of descriptive data elements then are costed and retrieved to the system database. The costing methodology involves a 26-step allocation process down to the unit of service level, and the resulting data are stored with service-level detail. The database size is huge, with two million records stored on a monthly basis; therefore, summary databases are created to be used for specific reporting purposes and to enhance the database flexibility.

INGREDIENTS FOR SUCCESS

Success of the new service cost management system was defined as reaching the following goals:

- Development of a technical design for and implementation of the desired system is accomplished on a timely basis.
- The data and information answer long-standing questions and destroy long-standing myths.
- The data quality and credibility are enhanced.
- The data and information shift the management discussion from arguing about whose data are correct toward making data-driven decisions based on one repository of data.

Management continues to initiate

new and innovative uses of data for decision making throughout the organization.

Under these criteria, the new system has been an unqualified success. Other accomplishments included:

- The teams have developed 70 standardized reports.
- System planners took great care to document the views of more than 150 key managers (customers) regarding their needs for cost and utilization information.
- The system responded to 580 ad hoc requests for information and enabled more than 800 customers to use data, information, or reports in the first year of implementation.
- The goals of the project were set clearly and used in planning.

For each transaction system used, a group of key analysts, users, and programmers was organized into a quality team—an approach that was very essential in recruiting support within the company.

The workgroups were organized around quality improvement projects for key design components—cost accounting, hospital information, visit definition, lines of business, etc.

The major customers of the system are senior management, physician management, managers (clinics, districts and regions), provider relations (contracting) specialists, and

company analysts.

The value of ensuring a broad representation of management on each group and of using a disciplined, scientific approach to identify issues and develop objectives, although time-consuming, became very clear. It was valuable not only for the benefits of technical expertise but for implementing recommendations within each quality improvement process.

In conclusion, the new system has made better, timely decision making possible. For example, senior management has used high-level, key-indicator reports to monitor the organization's overall performance on a quarterly basis. Managers who contract with outside providers have been able to take advantage of the system-generated information routinely to assess the practice patterns and costs of their counterparts. This advantage has improved the organization's contracting capabilities and negotiating position. Marketing personnel have used information broken out by market groups to assess cost factors related to employer/benefit characteristics and to develop competitive rates. ■

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