Special Health Care Issue

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Editorial: National Priorities

The public and industry face a bewildering array of social, economic, and political initiatives under the label of national priorities. The list of titles is almost endless: Health Reform; Welfare Reform; Crime in the Street; North American Free Trade Agreement; Deficit Reduction; Tax Reform; Defense Reinvestment; Information Superhighway; and so forth. Beyond a doubt, the greatest concern is for health care reform -- the rationale for this Special Health Care Issue.

In this country, the press is akin to the British institution of Her Majesty's Loyal Opposition in its reaction to government initiatives. There is doubt in some quarters about the validity of the national priorities as well as the implications of the Clinton administration's proposed solutions. Here is a sampling from reactions of the loyal opposition.

An article in The New Republic avers the administration's health care bill will make it difficult for patients to stay with their own doctors; that medical care will be rationed; and that the quality of medical care will decline. Consumer Reports laments that proposed reforms leave decisions about medical treatment to insurance companies, the very businesses with the incentive to deny treatment.

An article in Commentary challenges the existence of a health care crisis, questioning the administration's statistics on cost and the number of people who are uninsured. Financial World claims the bill as constituted pits big business against small business. Two thirds of the nation's medical bills are paid in the form of insurance premiums mostly by big businesses. Much of the burden could be shifted to smaller businesses, depending on the outcome of the legislation.

With regard to defense reinvestment, or the peace dividend, an article in Technology Review requires the administration's reinvestment program to convert 'defense technology to civilian usage -- astute politics but bad economics. The defense-industry establishment was created for a different purpose, and the elephant cannot dance gracefully.

An editorial in Computer Design says the administration's proposed approach to subsidizing the information superhighway will lead to a subsidized vast waste lands similar to those created in previous initiatives of the federal government. Proponents claim that the superhighway will open the reservoir of knowledge to everyone, avoiding creation of information "haves and have-nots". Sober advocates realize the primary market will be pay-per-view movies, sporting events, interactive games, and home shopping.

Along this line, an article in Reader's Digest points out that the number of public libraries in the nation has decreased to about 15,000. The survivors are suffering from financial distress and continue to reduce service to the reading public. Our colleague at Computer Design adds: "I'd vote to spend a lot more dollars there before I'd spend an extra penny to provide universal service for someone to have a choice of Grumpy Old Men or Naked Gun, play a game of Super Mario, or place an order for diamonique."

This issue has an array of articles related to health care. VE Helps Resuscitate Underfunded Hospital Clinic Project by Jill Woller and John F. McEnroe, the EDI News industry survey, Electronic Data Interchange in the Health Care Industry, and several Value Briefs are success stories. Jerry Kaufman's, Value Management Program for the Health Care Industry; Steve Kirk's, Modeling Health Care Facilities Quality, Program, and Cost; Don Godfrey's Function Cost Models for Estimating Health Care Product Cost Baselines; and Fred Fifeld's Work Value Improvement: A Rational Way for Hospitals to Improve Value show how you can be equally successful in the health care arena. TQM is very important than in health care. Gary Fuerstenberg's Comparison of VE and TQM is timely reading.

Ginger Willingham's, Marketing VE in Health Care, is a call-to-arms. Health and Medical Services, from the Department of Commerce's U.S. Industrial Outlook 1994, reveals the size of the arena. Expenditures in the U.S. are expected to rise by more than 12 percent in 1994 exceeding $1 trillion for the first time in history.

Louis DeRose's book, Value Network, was selected for review because of its applicability to health care providers. John Hoving's essay, The Value Engineering Congressional Paradox, is an appeal to reason. This issue closes with Tom King's Thunder: Trigger Thumb and Lemmings, dealing with people's sensitivities.

Del Younker was Managing Editor for this issue. The January 1995 Value World will be a special energy issue. To paraphrase the Marines, we have room for a few good articles.

Thank you for the contributions of Value Briefs. Keep them coming.

Goodnight and 30.
VE HELPS RESUSCITATE UNDERFUNDED HOSPITAL CLINIC PROJECT

Jill Wolfer, CVS, with John F. McEnrue

BACKGROUND

The New York City Office of Management and Budget (OMB), in cooperation with the Health and Hospitals Corporation (HHC), conducts Value Engineering (VE) studies on city-funded hospital facilities for the purposes of controlling capital expenditures and optimizing project functions and life-cycle costs. VE studies have become critical in a time when the City of New York has severe budget constraints. The recent study of the Harlem Hospital Ambulatory Care Facility (HACF) is an example of how VE works for health care facility projects.

The purpose of this capital project was to establish a new ambulatory care facility on the Harlem Hospital Center Campus (HHCC). The Hospital, a major provider of ambulatory-care services, experienced over 270,000 on-site outpatient visits and 69,000 emergency room visits in fiscal year 1990. The Hospital’s ambulatory-care facilities, however, are fragmented and housed in various locations throughout the campus. The age, design, and location of these buildings in relation to the main hospital make them unsuitable for direct patient care functions. Most of these buildings are over 50 years old and lack adequate electrical, plumbing, and air conditioning services.

At the time of the VE study, the project cost was 50 percent over the amount budgeted. The VE study reviewed the scope/schematic stage of design of the project (approximately 50 percent completion of the schematic level). The project consisted of the construction of a new 112,000 square foot Ambulatory Care Facility on the Harlem Hospital Center Campus on the site of an existing parking lot. The new HACF will serve as the primary care center for the community residents. Existing ambulatory care services on the HHCC will be relocated from their current locations and consolidated into the new facility. It will provide 60 outpatient clinic functions including general medicine, pediatrics, obstetrics/gynecology, and speech/hearing clinics.

The new facility is intended to emphasize comprehensive primary care, including preventive, curative, maintenance and rehabilitative care.

RECOMMENDATIONS

The VE team recommended an alternative design approach to the original layout. The alternative design suggested constructing a rectangular building in lieu of the designer’s offset rectangular layout. The simplified configuration reduces the quantity of interior and exterior walls and allows for easier flow among the centralized building functions. The revised plan also improved patient orientation, maximizing the likelihood that people requiring follow-up care or consultations in more than one clinical area would obtain it. The increased open area allows the clinics to be arranged in a modular and flexible manner that maximizes operating efficiencies for staff at a lower capital cost.

The VE team recommended the basement be eliminated from the design. In the original layout, the basement was not programmed. The team felt the New York State Health Department would not approve the Certificate of Need for a facility with unassigned space. The recommendation has an associated capital cost reduction of $1,089,000.
After a detailed space-by-space program review, HHC and the designers agreed to a space reduction of 3251 program gross square feet. Any oversized, duplicative, or unnecessary functions were removed. This adjustment resulted in a space program of 108,073 gross square feet, which still meets all required functions and State of New York hospital standards. The capital cost reduction associated with this recommendation is $705,000.

Another recommendation would reduce the cost of construction during the initial make-ready stage and reduce renovation and relocation costs associated with the demolition of the Old Nurse’s Residence (ONR) Building. The original layout called for demolition of the ONR. As a result, there was relocation of the oxygen plant and extensive underpinning and sheathing to protect the existing facilities during construction. The VE team proposed locating the new facility further away from the ONR foundations. By accepting this recommendation in a modified form, the costs associated with the renovation and relocation of the departments forced to vacate the ONR will be dramatically cut. Capital cost reductions associated with this recommendation total $4,086,000.

The proposal, recommending installation of a flat curtain wall with floor to ceiling glazing in lieu of an open glass atrium, reduces long term maintenance costs in addition to an initial savings of $405,000.

The recommendation to utilize standard bricks in lieu of pre-cast, pre-insulated concrete panels reduces initial costs, including labor. The project cost associated with the installation of brick is reduced by $474,000.

Mechanical recommendations for the facility included using an electric motor-driven chiller in lieu of steam-absorption chillers and called for the elimination of an unnecessary standby chiller. Reduction in cost associated with these parameters totals $227,000.

The VE team advised use of asphaltic concrete paving in lieu of the originally planned concrete-unit pavers. This suggestion allows for a more efficient installation and a reduction in labor costs. Additionally, asphalt reduces the safety problems associated with the potential tripping hazard inherent in uneven pavers. The cost reduction for this alternative is $449,000.

CONCLUSION

These cost savings exemplify how VE works to optimize New York City’s health facility projects. At the time of the VE study, an independent cost estimate indicated the base construction cost to be $29,700,000 and the project cost to be $63,389,000. While improving function, the Value Engineering study on the new facility scope/schematic design resulted in $12,775,000 worth of accepted project cost reductions and brought the estimated total project cost to $50,615,000, closer to the funding level of $42,000,000, budgeted for this project.

Ambulatory Care Building Cost Breakdown

Largely due to the cooperative spirit of the Hospital Corporation staff and the project designers during the VE study, evidenced by the high level of acceptance of the VE proposed changes, OMB agreed to permit HHC to fund the remaining gap and the project has proceeded.

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost Reduction</th>
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<tbody>
<tr>
<td>HVAC</td>
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<tr>
<td>Doors &amp; Windows</td>
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<tr>
<td>Design Cond. 10%</td>
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<tr>
<td>Masonry</td>
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<tr>
<td>Concrete</td>
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<tr>
<td>Plumbing</td>
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<tr>
<td>GenCond.CHAP 12%</td>
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<tr>
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<td>Design Cont. 10%</td>
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</table>

Jill Woller, CVS, and John F. McEnrue are with the New York City Office of Management and Budget (OMB). Ms. Woller is the Deputy Chief Engineer at OMB and manages the NYC VE program.
Value Management for the Health Care Industry

J. Jerry Kaufman, CVS, FSAVE

BACKGROUND

Competition, cost regulatory environment, and other factors are making it necessary for health care providers to develop new strategies, diverse programs, and innovative services in order to survive and prosper. Overall success depends on the aggressive utilization of existing resources, which only Value Management (VM) can provide.

WHAT VALUE MANAGEMENT IS

VM is a proven system of analysis designed to capitalize on existing resources to solve problems and maximize opportunities. VM focuses on eliminating road blocks and identifying strengths within Health Care organizations. The quantifiable results of VM are measured through one or more of the following attributes:

- Lower Operating Costs.
- Increased Occupancy and Market Share.
- Immediate Gains in Productivity.
- Improve Profits and Capital Strength.
- Maintain or Improve Quality of Service.

Because VM uses a well established and structured team-approach to problem solving, it is equally effective within virtually every type of Health Care enterprise. The VM teams should include representatives of the following organizational elements:

- Marketing and Planning.
- Finance and Accounting.
- Medical Staff.
- Clinical Staff.
- Medical Records.
- Information Systems.
- Procurement.

The plans and recommendations which result from a VM session are economically sound, functionally organized, and implementable. In addition, the VM methodology can be learned by client personnel and applied to numerous internal applications.

By using VM techniques, the team produces a "Blueprint For Implementation" including a business case, ensuring they are working the right problems, pursuing opportunities for the right reasons, with the right priority. VM requires one-tenth of the time and a fraction of the investment in traditional interviewing techniques.

WHERE TO USE VM

VM can be used to evaluate the overall performance of an organization or used to focus in on a specific organizational elements. Here are some typical health care applications.

Administration and Marketing

- Analyzing external and internal environmental changes to define new revenue opportunities and to leverage off existing organizational strength.

- Creating specific business plans to accelerate the attainment of pay-back for new health care products and services.

- Streamlining daily operations and increasing patient volume in high-revenue producing areas (i.e., ambulatory care, operating room, and emergency room).

- Assessing each hospital's scope of service from the perspective of affordability, profitability, and community need.

- Conducting capital expansion feasibility studies.

- Planning Certificate of Need applications.

- Creating or revising long range strategic plans.

Medical and Clinical Staff

- Evaluating physician practice patterns and establishing guidelines for consumption of new resources.

- Designing medical and clinical Staff incentive compensation plans.

- Improving physician and administration communication on financial practices, including prioritizing future capital acquisitions.
Planning and Organization

• Developing overall Prospective Payment System (PPS) strategies.

• Assessing the feasibility of moving selected functions and activities to department units outside the PPS umbrella.

• Conducting a broad organizational review, involving all principle functions of the hospital, to identify duplicate and/or unnecessary activities, and to analyze the relative strengths and weakness of each organizational unit.

• Determining which functions, departments, hospitals, regions can be consolidated, merged, centralized or eliminated.

Productivity and Information Management

• Analyzing techniques for maximizing reimbursement.

• Creating an overall effectiveness improvement plan by identifying causes for cost variances and prioritizing opportunities for productivity improvement.

• Reviewing the Medical Records function for both information flow and day-to-day operations.

• Assessing information systems capacity to meet medical and clerical reporting requirements.

• Analyzing new computer applications to ensure their compatibility with organizational goals and objectives.

• Defining overall requirements for decision support systems and corporate information system.

• Developing separate productivity initiatives through technology plan for prioritizing and integrating office automation, personal computing, and distributed processing capabilities over time.

• Examining ability to integrate future needs into current computer systems.

Diversification

• Analyzing acquisition, merger, and affiliation strategies; as well as vertical expansion opportunities such as: Home Health Care; Alcohol Abuse Treatment; Outpatient Surgery Centers; Psychological Counseling; Emergency Clinics; Rehabilitation Centers; Nursing Homes; Therapeutic Services; Retirement Living Centers Management Consulting; Adult Day Care Centers; Management Contracts; Home Care Products; Financial and Billing Services; Emergency Transport (ground and air); and Computer Services.

WHY THE TEAM APPROACH IS USED

Working independently, people lose sight of higher order objectives, failing see the "Big Picture". Little attention is given to how our decisions can effect other functions or how actions impact performance. The resolution of one discipline often becomes the problem of another discipline.

Working as a responsive, interdisciplinary team, following the VM approach, each discipline uses technical filters to surface problems. Then the dynamics of team discussion produces a resolution through group consensus.

Having all key participants working together as a group, in a structured and controlled manner, reveals "Information Gaps" almost impossible to uncover using traditional one-on-one techniques. The involvement of key disciplines has a synergistic raising the total quality of the end product. A team approach also permits an orderly transition of responsibility from one discipline to another during the "Planning Through Implementation Evolution" cycle, that typifies VM studies.

There is an excitement, momentum, and esprit-de-corps the team develops and carries forward into the Implementation Phase. The Client Team Leader is in an ideal position to ensure that the team remains focused and coordinated throughout the effort. Participants are usually astonished to learn that each discipline can have radically different views of how the plan should be accomplished.

This is normal, however, and provides a tremendous opportunity for cross training and job enrichment for the client's most skilled and experienced personnel. The probability of successful implementation increases significantly.
because it was the team's solution, not some outsider who "doesn't understand our problem".

OTHER BENEFITS OF VM

The VM team methodology will:

• Force participants to isolate and focus on real problems and opportunities, rather than the normal myriad of symptoms and emotional concerns. Function analysis separates symptoms from problems, focusing on the root cause. This breaks the cycle of continually masking symptoms, only to have the problem emerge in another location as a new symptom.

• Teach individuals how to communicate through the use of non-judgmental, objective language.

• Ensure that participants function as a team, removing territorial concerns and broadening perspectives to see the total organization impact.

• Establish mutual respect and appropriate interdependencies between disciplines.

• Encourage an objective analysis of the best organizational assignments to perform important functions.

• Support the use of both creative problem solving techniques and practical decision making skills.

• Ensure that all participants "Buy Into" and commit to, the end product. A "Signature Approval" page is included in the final report.

HOW VM WORKS

First, an executive level presentation is given to senior management to explain the VM process and its benefits, and to elicit their support and commitment; including, the assignment of key personnel and adequate resources.

A problem or opportunity is identified, in general terms, by top management to qualify for VM analysis. A Value Project Coordinator is appointed who will oversee the programs, plans, and preparations, and report to management.

Personnel are selected from within the client organization to form one or more teams. Each team member should be directly involved with project and the contributing elements which make up the problem or opportunity.

For one or two days, the Value Project Coordinator visits with the team members who are selected to become personally acquainted with each other and learn about the environment, the perceived problems, and opportunities. The Manager develops lists of materials/information that will be used to define the problem and enhance the productivity of the VM team session.

Depending on the problem, its priority, and available resources, the team usually meets a total of five continuous days -- or meetings are divided into two separate work sessions. The VM Manager acts as the session facilitator employing a series of analytical methods, solution generating approaches, and acceleration techniques throughout each of the following six processes, referred to as phases in the VM job plan.

Information Gathering

The problem or opportunity is redefined by the team, assuring all members understand and agree to all its dimensions. This is accomplished by gathering and analyzing all pertinent data, creating a FAST (Functional Analysis System Technique) diagram showing the functional aspects of the area being studied, and most importantly, utilizing common vocabulary familiar to all team members.

Speculation

Brainstorming techniques are used to elicit non-judgmental ideas from all team members. At this point justification is not allowed, and the number of free-flowing ideas is encouraged.

Planning

The ideas captured in the previous process are sifted, passing through a number of filters, to evaluate each idea for its potential. Cost and profit contribution as well as benefit and risk are analyzed wherever applicable to help prioritize alternatives.

Execution

The team develops "ways and means" for implementing the most promising ideas. The feasibility and risks associated with each alternative are discussed and documented.
Reporting

Recommendations and alternatives are presented to the management. All cost and performance benefits are highlighted.

Implementation

Management then gives authorization to execute the team's recommendations. An implementation timetable, responsibilities, and an on-going reporting mechanism are established.

Follow Up

During the six months following the completion of the process, VM Manager makes a minimum of three visits and is available by telephone for additional support and problem solving assistance to the implementing task teams. The Manager shares observations with the management group concerning implementation.

COMMENTS FROM HEALTH CARE PROVIDERS

"The first three VM studies conducted by the Hospital Council of Western Pennsylvania resulted in a cost reduction potential of $11 million annually for its 98 members hospitals. The subjects of the Council's program were; "Urinary Catheter Care", "Peripheral L.V. Starts", and "Personal Care Items"." T. Robert Sankey, Director, Research & Development.

"One of our first VM studies saved St. Joseph's Hospital over $225,000 annually by reducing the number of X-Ray retakes. The VM discipline not only surfaced the underlying problem but also provided the direction for an effective solution." Dona J. Rogers, Director-Staff Development & Education.

"To change things in a group or organization, you often need to build a critical mass of people who agree with you and each other that the change is vital and positive. One way to get that critical mass quickly and easily is to start with a small, clearly identified group, whose members already look to one another as people of sound, wise views."

Paul Watzlawick, Principles of Problem Resolution

Mr. J. Jerry Kaufman, CVS, FSAVE, is President of J. J. Kaufman Associates, Inc. in Houston, Texas.

Value Brief

Hospital Council of Western Pennsylvania

The Hospital Council of Western Pennsylvania assists member hospitals by sharing the results of its value analysis efforts, thus dispelling myths about the concept. The Council presents facts, reinforces decisions to implement quality care with savings, and provides various quality and cost saving techniques to its member hospitals. This activity is supported by discussion and use of the systematic VE job plan and each of its specific phases.

The Council has compiled a large number of case histories including: frequency of change in filtration; antibiotic additive systems; drug packaging systems; and Heparin locks. Individual hospitals have achieved savings $30,000 per year on intravenous administration sets, $82,300 per year on pressure relief devices, $19,000 per year on hospital bed underparts, and $35,000 per year on Heparin locks.

Contributed by William Poutous of Hospital Shared Services in Warrendale Pennsylvania.
Modeling Healthcare Facilities Quality, Program, and Cost

Stephen J. Kirk, Ph.D., AIA, CVS

BACKGROUND

Invite a few facilities people to come together and candidly share their experiences in managing construction projects, and chances are they will relate horror story after horror story of how projects exceeded budgets, short-changed project scope, or both.

How do you balance everyone’s wants and needs while controlling limited project resources?

The answers may be as complex as the projects themselves. Invariably, however, the origin of significant problems can be traced to an imbalance between hospital resources and user group expectations. Facility managers know the importance of delivering a project that meets the image and performance expectations of administrators, medical staff, and user groups. They are, however, also keenly aware of the importance of achieving these goals within a marketplace where declining reimbursements mean an even greater need for control of limited project resources.

EARLY PROJECT SIMULATION TOOL

Defining projects accurately in terms of size, complexity, quality, and cost (when the project is not yet designed) is one of the most difficult and risky responsibilities of facility managers. In response to this need we developed a project simulation tool called PRECISE, acronym for preliminary cost and size estimates.

PRECISE focuses on the interdependent effect of quality, program, and cost in defining project scope. All three components are interactive and can be simulated in a real-time workshop balancing expectations and resources before detailed design.

Figure 1 shows the four components of PRECISE. The illustration depicts their interactive and iterative nature.

The Quality Model is the first component of PRECISE in Figure 1. It defines the overall expectations of the hospital’s project representatives regarding project goals, image concerns, design criteria, and performance standards.

Figure 1 Organization of PRECISE

The information is established at an interactive workshop where representatives of the Hospital are polled for their concerns and opinions regarding twelve major planning elements.

The number of participants can be as limited or as inclusive as deemed appropriate to the effort. The objective is to determine and document through group dynamics a consensus directive that guides all subsequent decision-making in the development of the Program Model and the Cost Model. These models are used in the Workshop.

The resulting document from the workshop is the Quality Model Diagram, which together with a narrative, records the relative choices of importance between the twelve major planning elements. As shown in Figure 2, those items of greater concern are indicated on the outer edges of the diagram. Those of lesser concern are toward the center, and a neutral opinion between the extremes. Each of the twelve major elements consists of 20 to 50 subcategories, depending upon the complexity of the project.
PROGRAM MODEL

The Program Model defines space types and needs. It first identifies function objectives of the selected services or departments included in the project, and then establishes organizational concepts and specific space needs to achieve those objectives. Demographic trends, strategic planning objectives, utilization factors, and reimbursement issues are areas that have significant input in creating the Program Model.

![Diagram](image)

Figure 2 Value Choices.

Recognizing there are two distinct user groups for each service (those who are receiving care and those who are the providers of care), it is essential to understand their unique and interrelated needs. Patients, because of their circumstance, are already in a heightened state of anxiety. Acoustic and visual privacy, ventilation and environmental comfort, and other factors relating to the design of the healthcare facility not only will establish the types and sizes of spaces required, but also may influence the patient’s choice of healthcare provider in the future.

The Functional Program statement must successfully address the issues and generate solutions to accommodate concerns of patient dignity and operational efficiency in accordance with value choices established by the Quality Model. The resulting document identifies functional adjacencies, interactions, and qualitative policy decisions related to the department roles within the hospital.

The Space Program statement identifies specific space needs for the selected services based upon a combination of quantitative information generated from an analysis of past and projected utilization and qualitative criteria generated by the Functional Program and Quality Model.

Organizational concepts, with regard to siting of buildings or building massing studies, may be performed as appropriate to the scope of the project. These concepts, which may be depicted by use of architectural study models or computer graphics, are extremely beneficial in envisioning potential planning and design directions. This is particularly useful when the site places restrictions on the range of options that may be realized. Each concept has significant impact upon the development of the Cost Model.

COST MODEL

A draft Cost Model, based on historical construction cost data for similar health care facilities, is developed in response to the factors identified in the Quality and Program Models. This includes various components which comprise the total project cost, including construction (site and building), design, and agency review (fees), interim construction costs, management and inspection, contingencies, equipment, furnishings, accessories, and other costs appropriate to the level of decision making required by the project. Maintenance, energy, and other life cycle cost can also be identified.

The Cost Model is an integrated computerized document that automatically links the effect of specific decisions to the interaction of various building systems and components. After the Cost Model has been reviewed for completeness in response to the directives of the Quality and Program Model, it becomes the base document for brainstorming. "What If?" scenarios, which may be required to bring the expectations (represented by the Quality and Program Models) into balance with the available resources. Figure 3 shows the cost breakdown for a hospital project. Costs are given in per unit of gross square feet (GSF).

WORKSHOP

The workshop balances expectations with resources. The data that was collected and compiled in each of the three models is organized in a computer format that allows interaction between the models. The models allow the effect scenarios to simulated in the workshop.

CONCLUSION

The project budget derived from PRECISE is not a "bid to construct", but the end result of the value...
choices selected by the workshop team. A higher or lower budget can be obtained for the project by varying the choices with respect to quality and quantity.

As shown in Figure 4, PRECISE can estimate risk exposure in projects at various combinations of cost at completion and completion time.

![Figure 4 Risk exposure as a function of time and cost](image)

Stephen J. Kirk, Ph.D., AIA, CVS is Vice President and Director of Facility Economics (Value Engineering and Cost Estimating) at Smith, Hinchman & Grylls Associates, Inc. in Detroit, Michigan.

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**Value Brief**

**Linear Programming Continued**

This is the way to solve the problem in the previous issue of *Value World* as a linear programming problem.

Let:  
X = Number of cubic yards from Pit A  
Y = Number of cubic yards from Pit B

Minimize objective function:

Cost = ($8.00)X + ($16.00)Y

Subject to the constraints:

\[
\begin{align*}
0.20X + 0.30Y & \leq 20,000 \text{ cubic yards} \\
0.14X + 0.50Y & \leq 9,000 \text{ cubic yards} \\
0.25X + 0.20Y & \leq 20,000 \text{ cubic yards}
\end{align*}
\]

You can solve the problem algebraically, graphically, or with the Simplex Method of linear programming.

Give it a try. The next issue of *Value World* will contain the solution.

Reprinted from *Linear Programming: Reduce Cost and Increase Profit* by permission of the copyright owner Management Science.
Function Cost Models for Estimating Health Care Product Cost Baselines

Donald Godfrey, CVS

INTRODUCTION

Value Analysis (VA) is the science of studying designs and processes from the perspective of functions. By analyzing functions it can be determined what an object of study is actually supposed to do. If done properly, this procedure will reveal misconceptions and increase the understanding of the subject under study.

VA has historically served two primary purposes: 1) to conduct workshops while promoting VA methodology; and 2) to identify and maintain accurate costs related to the producibility of products and their subsequent components.

Businesses, particularly those producing military products, must downsize during the 1990's to become or remain competitive. Many corporations, which at one time produced strictly military products, are redirecting their business product line toward the more competitive commercial market. The health care arena is a particularly attractive marketplace to high technology companies. This redirection of strategies forces companies to be more cost conscious and requires them to meet or exceed predetermined cost goals. This new competitive marketplace has improved the benefits of applying VA to regular corporation engineering activities.

Corporations can not, however, allow VA activity to become an excessive cost burden, especially as a result of conducting workshops on designs similar to previously studied products. A method of accomplishing this task is by using historical function cost data to serve as guidelines for design activity. Function cost modeling provides such a capability.

FUNCTION COST MODELING

Function cost modeling uses three data bases. Because these data bases contain thousands of parts with several elements of data related to each part, the data bases must be managed via computer. Any personal computer equipped with dBASE IV software will perform this task.

The process begins with obtaining an indented Bill Of Material (BOM) containing all detail parts of an assembly. The information is stored in different data bases: 1) Function Data Base; 2) Indented Data Base; and 3) Master Data Base.

Figure 1 illustrates the contents of the Function Data Base. The function descriptions consist only of active verbs and measurable nouns.

![Figure 1 Function data base](image)

The Indented Data Base is linked with the Function Data base by functions. This is shown in Figure 2. Note that a part number and a percentage of the total cost is entered for each function in Figure 2. Figure 3 shows the Function Data Base linked to the Indented Data Base.

PROCUREMENT INFORMATION

It is necessary to append procurement information related to each part number into the Master Data Base. This information will reflect accurate purchasing documentation. All of the quotations must show the data of effectivity and the date the information was entered into the MDB. The Indented Data base and the Master Data base are linked by part numbers. See Figure 4.
LABOR ESTIMATES

Standard hours for parts produced in-house should be maintained by an Industrial Engineering Department. Labor hours from production product lines should be appended to the MDB.

MATERIAL ESTIMATES

As the developments of exotic materials mature, it will be more common to see materials originally designed for aero-space applications to appear in more common industrial products. The selection of materials will play an important role in the design of components. Information concerning each component's material is stored in the MDB.

DETERMINING FUNCTIONS

One of the more formidable tasks of this process is assigning functions to components and assemblies. This is best done in the Indented Data Base (IDB), which is then later uploaded into the MDB.

The determination of functions is subjective and may take an excessive period of time to complete. To take advantage of time, past VA workshops should be reviewed to determine the functions of parts already studied. Several workshops completed on an existing product can provide numerous functions that could be assigned to part numbers in the data base.

There are hundreds of functions that can be applied to products and their components. Therefore, a data base must be created specifically for identifying and listing functions. This information is kept separate from the other data bases, and each function is identified by its placement in the data base.

The VA specialist must assign a numerical value to one of the available ten functions in the Indexed Data Base and a percentage of the total costs that particular function would use. The computer then has enough information to calculate the cost per function.

The Indexed Data Base allows up to ten functions to be assigned to each part, along with a percentage of cost assigned to each function listed. Not all ten have to be used, but 100 percent of the cost must be allocated to the part being studied. To accomplish this procedure, two dBASE programs are used. The first dBASE program sums the procured dollars and labor dollars per component and carries the cost to the next higher

Figure 3 Function Data Base and Indented Data Base linked by function.

Figure 4 Indented Data Base and Master Data Base linked by function.

NET PRESENT VALUE

To perform an accurate comparative analysis, all of the cost values must be shown in the same fiscal year. Some quotations stored in the data base could be dated by as much as one or two years. Therefore, the net present value of each quotation must be adjusted to current year dollars. (The database program calculates new values based on the date of the quotation).
level in the bill of material (BOM). The program begins with the lowest level component in the IDB. The second dBASE program then takes these values and determines the function costs per component and per assembly.

FUNCTION COST ALLOCATION

The following example will clarify how this procedure works. A "catheter" will be used as an example.

Table I shows three functions are assigned to the Part Number 123456-789 Catheter. Those functions are the third, sixth, and tenth functions listed in the Function Data Base.

Table 1 EXAMPLE OF FUNCTION COST ALLOCATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Cost $</th>
<th>F1</th>
<th>F1 %</th>
<th>F1 $</th>
<th>F2</th>
<th>F2 %</th>
<th>F2 $</th>
<th>F3</th>
<th>F3 %</th>
<th>F3 $</th>
</tr>
</thead>
<tbody>
<tr>
<td>123456-789</td>
<td>Catheter</td>
<td>250.00</td>
<td>3</td>
<td>60</td>
<td>150.00</td>
<td>6</td>
<td>30</td>
<td>75.00</td>
<td>10</td>
<td>10</td>
<td>25.00</td>
</tr>
</tbody>
</table>

COMPARATIVE ANALYSIS

It is difficult to simultaneously compare the functions and costs of similar components between a multiple listing of products or components; however, the Master Data Base contains components and their respective costs and functions. As stated, the Master Data Base and Indexed Data Bases are linked by part number. Once indexed, design engineers can compare similar parts by function and function costs.

Table 2 COMPARATIVE ANALYSIS EXAMPLE OF FUNCTION COST ALLOCATION

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Cost $</th>
<th>F1</th>
<th>F1 %</th>
<th>F1 $</th>
<th>F2</th>
<th>F2 %</th>
<th>F2 $</th>
<th>F3</th>
<th>F3 %</th>
<th>F3 $</th>
</tr>
</thead>
<tbody>
<tr>
<td>123456-789</td>
<td>Catheter</td>
<td>250.00</td>
<td>3</td>
<td>60</td>
<td>150.00</td>
<td>6</td>
<td>30</td>
<td>75.00</td>
<td>10</td>
<td>10</td>
<td>25.00</td>
</tr>
<tr>
<td>123456-790</td>
<td>Catheter</td>
<td>300.00</td>
<td>3</td>
<td>50</td>
<td>150.00</td>
<td>6</td>
<td>25</td>
<td>75.00</td>
<td>8</td>
<td>25</td>
<td>75.00</td>
</tr>
<tr>
<td>123456-791</td>
<td>Catheter</td>
<td>240.00</td>
<td>3</td>
<td>70</td>
<td>168.00</td>
<td>6</td>
<td>20</td>
<td>48.00</td>
<td>8</td>
<td>10</td>
<td>24.00</td>
</tr>
</tbody>
</table>

As shown in the example, the functions listed in column F3 are different. The variations indicate the determination of functions might have been done by different groups of people or new insights were available on one or two of the VA workshops. The design engineer can use tabular information like that presented in Table 2 to design component features and estimate overall costs before the design of a new strut is completed.

Comparing function costs is an excellent tool for cost control, but should not be the only tool. Material analysis should be used in making decisions about component designs and their costs.
If the three catheters were made from different material, their cost would be different even though the catheters provide essentially the same functions. Function cost modeling software examines both component functions and material.

CONCLUSION

Function Cost Modeling is the process of assigning function cost to components and examining similar components to determine design cost advantages.

Function cost modeling allows design engineers to conduct trade studies before the design is complete or provide direction for design refinements. In addition, cost mismatch of functions can be attacked before components are produced.

BIBLIOGRAPHY


CONCLUSION

Function Cost Modeling is the process of assigning function cost to components and examining similar components to determine design cost advantages.

Function cost modeling allows design engineers to conduct trade studies before the design is complete or provide direction for design refinements. In addition, cost mismatch of functions can be attacked before components are produced.

Value Brief

Patient Medical Records

More than 2,500 patients a day use a hospital in the mid-east requiring a volume of 300,000 records be located, pulled and distributed for the staff's use. The records are returned daily for file storage. In addition, literally thousands of pieces of paper must be filed daily in individual records. The patient records are stored in file folders on shelving at three different locations.

Function analysis revealed that the "find record" function cost nine times than its functional worth. This caused the cost of the "admit patient" function to be nearly three times more than its functional worth. All record-keeping functions could be accomplished with a higher degree of accuracy, availability and usefulness through a computer data base system.

The VE study team recommended the provision of an on-line medical records system through a computer network resulting in a fully-automated patient medical record system over a five year period. The proposed system would lead to the eventual possibility of elimination of all stored paper records. The recommendations enabled a staff reduction of 69 positions and 26 percent productivity improvement.

The estimated annual saving to the hospital is $1.6 million for a period of 20 years. The implementation cost was $110 thousand.

Contributed by Donald Parker of the Lawrence D. Miles Value Foundation
Comparison of VE and TQM

Gary J. Fuerstenberg, EIT

INTRODUCTION

We live in an ever-changing world. As our surroundings change, so must we. We must adapt to changes or suffer severe consequences. One change to which we must adapt is the global economy.

Global economies did not evolve overnight. Trade barriers, tariffs and quotas continue to fall throughout the world. As free markets expanded, global economies took over the world. Global economies are possible because of increased global security due to increasing stability within governments and the information age.

What do global markets mean for business? 1) expanding and changing markets, 2) "techniques and technologies of yesterday are no longer good enough" (Frank, 1988), and 3) success in international commerce cannot be accomplished by maintaining the status quo. Therefore, continuous change is required of managers and workers. This change can be accomplished through the use of management strategies such as Total Quality Management (TQM) and Value Engineering (VE).

TQM is "a long-term business strategy that is propelled through continuous improvement" of product quality (Bergman, 1991). VE is "a problem solving system implemented by the use of a specific set of techniques, a body of knowledge and a group of learned skills" (Miles, 1972). TQM and VE are two different systems whose basic techniques are similar. Policy development of TQM and Function Analysis System Technique (FAST) of VE share similar objectives and methods.

VE OVERVIEW

VE is a system approach to identify and eliminate high cost and poor performance using functions. VE provides a communication language and requires multidisciplinary teams, detailed data, an organized plan, and top management participation. It consists of five phases: information, creativity, evaluation, planning and implementation.

The single most important tool of VE is function analysis. Function analysis examines what function the component performs. A function is a two-word performance description using an active verb and a measurable noun without identifying a specific method of performing the function. Examples of functions are minimize vibration and resist corrosion. Functions are classified depending on the appropriate FAST diagrams (Technical FAST, Customer FAST, or Classical FAST). A FAST diagram is a picture of all the functions showing their relationship to each other. Function analysis serves several purposes. It defines the scope of the problem by testing function completeness and validity; this identifies, defines, simplifies and clarifies other problems. Finally, function analysis assists the group with communication, creativity, and cost visibility.

TQM SUMMARY

TQM is a strategy of cultural change, resulting in new attitudes and new management philosophies. Its basic principles are customer-oriented to the extreme where the "Customer is King" and quality for the customer is its top priority. It is a never-ending journey of continuous improvement. The organization is always striving for a higher level of quality. It is process-oriented, involving and affecting all facets of the organization: customer and suppliers; top management; middle management; and floor workers.

TQM can be summarized by Demming's well-known 14 points. It involves policy development based on new managerial responsibilities and a consistent purpose for continuously improving the organization, reducing costs and doing a better job. Trust, loyalty, removing communication barriers and the transformation are everybody's job. TQM values the employees and offers on-the-job training, self-improvement and education. This allows management to end dependency on inspections and eliminate mass inspections. TQM increases pride in workmanship and efficiency by eliminating quotas, slogans and annual ratings or merit systems, thus creating a better working environment.

TQM uses several tools to accomplish continuous improvement. Benchmarking, Pareto analysis, flow charts, check sheets, scatter diagrams, histograms and control charts are data-based tools, and cause-and-effect diagrams (fishboning). Teamwork through multidisciplinary teams and
employee empowerment are used to improve quality, the process and the organization. Efficiency and savings can be accomplished through on-the-job training and just-in-time manufacturing which requires communication throughout the organization, involving everyone from suppliers to customers.

**COMPARISON**

VE and TQM have similar cycles of implementing change. TQM uses the Demming Cycle of plan-do-check-act to develop new or modify existing policies. Planning is quite extensive, requiring about 45 percent of the cycle’s time. It involves evaluating the current situation and deriving a hypothesis. "Do" uses only 10 percent of the cycle’s time and consists of implementing a pilot project and gathering data. Careful "checking" requires about 30 percent of the cycle’s time and includes evaluating the data from the pilot project for expected and unexpected results. "Act" uses about 15 percent of the cycle’s time and involves acting on the data. The action taken may be to continue or to discontinue the project, or to start over, or to implement the hypothesis organization-wide. The VE cycle of implementing change uses FAST and the five phases of the VE job plan.

Both TQM and VE use data to make decisions. Data is important because it can identify problems and solutions. The data can range from customer’s or owner’s attitudes to a bill of materials or an estimate. Data in an organized form (graphics or Pareto analysis) is a visual aid and a communication tool. Data is also used to evaluate and re-evaluate changes and improvements. The appropriate use of data is important in the decision-making process because it supports the team’s decisions.

Both cycles are adaptable to a variety of applications. TQM has a proven record of success in private manufacturing and public service. VE has also demonstrated success in a variety of applications ranging from the federal government, to construction and design, to manufacturing, to industry and services.

Multidisciplinary teams are involved in policy development of both TQM and VE. Teams should comprise a wide variety of people from all levels of the organization. Some should have a direct interest in the project while others should be outsiders to the specific project. Team members could include machine operators, floor workers, accountants, estimators, researchers, designers, executives, suppliers, and customers.

Employees participating in VE need training in its techniques. Team members need to understand their role in the VE process so they can effectively participate. Without effective participation by all involved, project success and effect are significantly reduced.

Likewise, organizations that implement TQM need to train all people in the process of TQM philosophies. Employees in TQM environments need to understand their role in the process, which is continuously improving and always changing. Without training, the employees cannot effectively participate in the TQM process. The transformation to a TQM organization is everybody’s job and responsibility.

TQM and VE are communication tools for team members. In VE, the team is the problem-solving body. One of the main purposes of FAST is to aid communication. FAST diagrams are visual aids that assist communication and allow for a better understanding of the problem between group members, from the mission statement to the solution.

The team for TQM is the entire organization, from customers to top management. One of Demming’s points is to break down and remove communication barriers throughout the process. This improves communication networks between individual departments, suppliers, customers, employees, and management. Improving communication allows TQM organizations to be more effective and productive.

Teamwork and group dynamics are very important to both TQM and VE. Everyone must actively participate and work together. This does not mean that some conflict and frustration among team members is bad. Constructive conflict among team members is good, often resulting in improving the process or finding solutions to problems. Destructive conflict, on the other hand, divides the team, resulting in a second-rate solution. When everyone works together and actively participates, TQM and VE are effective and efficient methods to improve the process and solve problems.

In addition, members of both TQM and VE teams need patience and discipline for obvious and not-so-obvious reasons. The obvious reason is that patience and discipline will reduce or eliminate destructive conflict. The not-so-obvious reason is that a significant amount of time elapses from when recommendations are implemented to when significant results can be seen. Depending on the size of the organization or project, significant
improvements in efficiency, quality and cost savings may not be seen until the second or third year after implementation. TQM and VE cannot be rushed.

The time lapse between the decision to implement TQM or VE and significant results leads to skepticism among team members. Every organization has doubters. Skeptics cause destructive conflict, resulting in an ineffective process. Skepticism must be turned into trust and loyalty. TQM and VE require group dynamics, teamwork, patience, and discipline.

Top management’s objective must remain constant. Management cannot change its goals while the team is in the middle of the Demming cycle or the VE cycle. To work effectively and efficiently, the team needs constant and consistent direction from management.

In addition to constant objectives, TQM and VE require a total commitment from top management. Managers must prove this by what they say and how they act. Without total commitment, the team cannot operate effectively, resulting in a second-rate solution. Second-rate solutions are not desired and are not as beneficial as first-rate solutions. Once it has been decided that one or both of these systems will be implemented, top management must remain totally committed.

The organization’s decision makers must commit enough resources for teams to function properly. The key resources are people, time, funding, and authority—with top management’s commitment. The teams need the commitment of enough human resources to form multidisciplinary teams, time to complete a cycle of the system, money for its requirements, and authority to make changes and implement improvements. Enough team members are needed to form a team with a wide range of backgrounds. Time is required to properly initiate the cycles and use the methodologies. Money is needed for meetings, supplies, data collection, travel, surveys, salaries, to fund recommended changes and improvements, and to train team members for their roles. Authority is the most important ingredient. An organization is not practicing TQM if employee empowerment is missing. A VE team is not functioning if the team has no authority to recommend changes and follow through on them. Team members need the commitment of resources from management.

TQM and VE are effective when properly implemented. Teams should work with projects appropriate to their experience. The team defines the scope of the project, depending on the size of the organization and management’s goals and allotment of resources (time, training, funding and authority). Typically, when TQM and VE are tried in an organization for the first time, the project is usually small and limited in scope so the team can efficiently and effectively manage the project. When a team unknowingly selects a project that is too big and involved, the team probably does not have enough resources to adequately perform a cycle of the process and see significant results.

TQM and VE are customer-oriented. This is necessary because the consumer is the source of funding and income for the organization. TQM and VE concentrate on both the internal and external customer. The internal customer is part of the design, construction, assembly and production process (or owner). The external customer is the end customer that purchases the product or uses the service. Often there are several; therefore, customer orientation is essential to both processes.

TQM focuses on both the internal and external customers during the entire process. It even includes suppliers in the process. Suppliers are treated as customers because they are an outside entity that the organization depends on. Only the VE, Technical FAST process focuses on the internal customer. Customer FAST process concentrates on the external customer. Thus the entire process is covered like TQM. The Customer FAST process involves customer attitudes about the product, focusing on its features and faults. The Technical FAST process uses the owners' attitudes and concerns. Both TQM and VE must include the customer, both internal and external, in order to reduce costs and improve quality and value for users and customers.

Many organizations claim to be doing TQM or VE even though they are not completing the process and cycle. Some of these organizations do not involve suppliers and customers or skip steps in the processes.

**ESSENTIAL DIFFERENCES**

The most important difference is that TQM improves quality; whereas, VE improves value (Wales, 1989). The procedures are similar, but approaches are different, producing different results. However, both result in improved quality and value. A product's value is a function of quality, cost and market supply and demand. TQM improves overall quality during the entire process, resulting in significant savings. VE improves quality and reduces costs. VE improves
quality in one of three ways: "maintaining the quality and reducing costs, improving quality at the same cost or by improving quality and reducing cost" (Miles, 1972). TQM and VE take different approaches and produce different but desirable results.

TQM is an ingrained working attitude applicable to the entire process or organization. VE addresses specific products or portions of the entire process. TQM is a state of mind involving cultural change. VE is a discipline to identify unnecessary costs (Miles, 1972). By using VE in the "plan" stage of the Demming Cycle, value can be improved.

TQM involves more people than VE and affects everyone in the organization. VE involves fewer people but its recommendations may affect the entire organization.

CONCLUSION

FAST adds significant value to TQM and policy development (Eckstein, 1992). VE and FAST are essential tools of the TQM process. This unique relationship results in many similarities in the application of TQM and VE.

VE and FAST allow teams to understand problems and develop solutions. Implementation of the TQM philosophy results in cultural change and policy development that creates an efficient working environment (Paley, 1991). Effectively used together, the two can allow an organization to become more competitive by reducing costs and improving quality, thus satisfying the customer.

It is wise to start using TQM and VE before problems arise (inefficiency, loss of market share, etc.). Therefore, management needs the foresight to see ahead and plan the implementation of both before they are needed or go out of business.

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Work Value Improvement
A Rational Way for Hospitals to Improve Value

Fred F. Fifield

BACKGROUND

Medical development and breakthroughs continue at an ever-increasing pace. The two factors causing reimbursement concern by health care providers are the increase in the number of elderly and AIDS. Health care cost is now more than 16 percent of the Gross Domestic Product and still climbing to where it is double the cost of ten years ago. Many approaches and techniques to control the cost of healthcare have been attempted but cost increases still surpass those in other sectors of the economy. Opportunities abound for improving the quality of patient services and goodwill. Hospitals are attempting to capitalize on these opportunities, which will further increase cost.

INTRODUCTION

What can health care management do to halt this trend? A big step is to start making better value decisions relative to health care organizations. In simple words, what is the least amount of human resources required to accomplish the necessary organization functions in a quality way?

Work value improvement is the practice of utilizing function-worth analysis for making improvement decisions relative to a product, a procedure or an organization. It is an approach which forces consideration of what should be accomplished as well as what should the cost be. It is not just cost reduction, or a formula to improve quality; it is both at the same time. It has been used by the Department of Defense (DoD) to save millions of dollars over the past 30 years. There is a value improvement clause in every major DoD contract. The firepower and instrumentation in Operation Desert Storm would have been cost prohibitive without it.

Work value improvement can be applied to healthcare as well as defense. It can be applied to the blueprint of every healthcare organization. It is time to "zero-in" on function versus cost of human resources, the majority of hospital cost.

APPROACH

Work value improvement is a management systems technique that relates organization functions to cost. This information is then analyzed with the objective of improving the effectiveness of the particular organization. In health care, this application is particularly timely, with ever-growing cost and ever-tightening reimbursement. Much progress has been made in the value improvement of hospital supplies, with buying groups and vendors providing the impetus. However, 50 to 60 percent of hospital cost relates to employee salaries and related benefits. It is time to reduce this cost without jeopardizing services. Work value improvement is the tool to accomplish this objective.

Work value improvement is a task force approach and typically includes department heads, supervisors, a resource-facilitator person, and one or two people selected by the others. There are often opportunities to vary the approach somewhat, however, I have learned that the following guidelines lead to success:

1. Do not impose new information control systems if possible, but utilize systems already in place such as budgeting, productivity reporting, cost accounting, labor distribution, and nurse scheduling.

2. Attempt to secure some results from many departments, but do not spend too much time on any one department, unless there appears to be worthwhile potential.

3. Involve first-line and middle management in the process from start to finish for their background, knowledge, creative potential, and commitment to the project results.

4. After the analysis is completed, tie into the
change implementation philosophy of the organization. For example, do not impose a layoff strategy on a hospital that has already adopted a non-layoff philosophy.

5. The basic problem-solving phases of the job plan (Information, Speculation, Evaluation, Development, and Implementation) should be followed in order to attain the full potential of the work value improvement program.

There is no perfect healthcare department. In other words, department value (function versus cost) always has potential for improvement. These are the steps to take advantage of these department improvement opportunities.

1. Prioritize departments according to quality and cost-saving potential.

2. Utilize an effective value improvement process.

3. Manage the process including the follow-up.

RESULTS

Table 1 is the quality critique conducted at Mercy Health Center. Table 2 is the productivity critique. Table 3 gives the projected cost savings from the work value improvement program.

In addition to cost savings, quality of service has improved as indicated in Table 4. In this case, the number of care giver hours were increased.

<table>
<thead>
<tr>
<th>Table 1 Quality Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FROM THOSE PERFORMING THE SERVICE</strong></td>
</tr>
<tr>
<td>Nursing management feels that the department is working at a stressful pace to give quality care. They feel that the area with the most potential for problems is Oncology. Certain physicians would be happier if more time were spent with patients by care givers. There is some concern about nurses not being available to complete charting on regular shift time.</td>
</tr>
<tr>
<td><strong>FROM THOSE RECEIVING THE SERVICE</strong></td>
</tr>
<tr>
<td>A three-month survey showed that a more than typical number of patients felt response to their light could be quicker on the day shift.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2 Productivity Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXISTING PERFORMANCE</strong></td>
</tr>
<tr>
<td>Department is having difficulty maintaining a favorable performance level. Actual hours are 3 percent higher than standard hours for the year to date. Overtime is high, with an average of 190 hours per pay period.</td>
</tr>
<tr>
<td><strong>EXTERNAL COMPARISON</strong></td>
</tr>
<tr>
<td>Salary expense per adjusted patient day is average with respect to comparative groupings. Average length of stay is average with respect to comparative groupings. Outpatient revenue percentage is substantially higher than the average of the comparative groupings due to oncology patients. Average hourly salary is lower than the average of the comparative groupings. Paid hours per adjusted patient day are higher than the average of the comparative groupings due somewhat to the amount of time spent with oncology patients.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3 Projected Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 47.65 relative pay units (RPU) in 1991 - 46.41 RPU in 1992 = 1.24 RPU.</td>
</tr>
<tr>
<td>• 1.24 RPU x 2,080 paid hours/year = 2,579 paid hours.</td>
</tr>
<tr>
<td>• 2,579 x $11.48 average hourly salary = $29,607.</td>
</tr>
<tr>
<td>• $29,607 x 1.20 benefit factor = $35,528 salary and benefit saving.</td>
</tr>
<tr>
<td>• 190 overtime hours/pay period x 0.60 reduction = 114 hours.</td>
</tr>
<tr>
<td>• 114 overtime hours x $6.50 per hour average = $741 per pay period.</td>
</tr>
<tr>
<td>• $741 x 26 pay periods = $19,266 overtime saving.</td>
</tr>
<tr>
<td>• $35,528 + $19,266 = $54,794 total annual saving.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4 Summary of Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Added 0.79 care giver hours per patient day for an average of 353.4 more hours per pay period.</td>
</tr>
<tr>
<td>• Quicker response to patients lights and needs.</td>
</tr>
<tr>
<td>• Less after shift charting for more timely inputs.</td>
</tr>
</tbody>
</table>

Figures 1 and 2 show the only two form-type tools used in the work value Improvement program. Figure I, Organization Clarification, illustrates the key facts and figures relating to why and how human resources are used in a particular department. Figure 2, Improvement Idea Chart, facilitates the identification and evaluation of opportunity areas and improvement ideas.
<table>
<thead>
<tr>
<th>RANK</th>
<th>FUNCTIONS</th>
<th>% OF TOTAL HOURS</th>
<th>THIS F. Y. BUDGET</th>
<th>PROPOSED BUDGET</th>
<th>MAJOR WORKLOAD INDICATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;Currently Is&quot;</td>
<td></td>
<td>Job</td>
<td>FTE</td>
<td>FTE</td>
</tr>
<tr>
<td>1</td>
<td>Provide patient care</td>
<td>33%</td>
<td>DIR</td>
<td>1.00</td>
<td>1.60</td>
</tr>
<tr>
<td>2</td>
<td>Coordinate patient information/supplies/documentation</td>
<td>39%</td>
<td>ANN</td>
<td>1.80</td>
<td>1.25</td>
</tr>
<tr>
<td>3</td>
<td>Provide clerical support</td>
<td>6%</td>
<td>DC</td>
<td>3.06</td>
<td>0.59</td>
</tr>
<tr>
<td>4</td>
<td>Manage and develop department</td>
<td>11%</td>
<td>RN</td>
<td>21.76</td>
<td>1.15</td>
</tr>
<tr>
<td>5</td>
<td>Provide PTO</td>
<td>11%</td>
<td>CNA</td>
<td>10.03</td>
<td>0.54</td>
</tr>
</tbody>
</table>

"Should Be"

1. (See above) 36%
2. (See above) 38%
3. (See above) 5%
4. (See above) 10%
5. (See above) 11%

TOTAL 100%

FYTD ACTUAL FTE: 48.59 THIS FY BUDGETED FTE: 47.65 TARGETED FTE: 53.0

EXTERNAL COMPARISON STATISTIC

Work Hrs/PP ÷ Volume/PP of Primary Workload Ind. = Work Hrs/PP*  
3,540 1,290 Patient Shifts 2.74

Signature: J. N. Date: 6-4-91

B. S. 6-4-91

J. D. 6-7-91
**CHECKLIST** | **IMPROVEMENT IDEAS**
--- | ---
ELIMINATE THE PURPOSE |  
ADD A PURPOSE |  
COMBINE PURPOSES |  
BREAK DOWN THE PURPOSE |  
MODIFY THE PURPOSE |  
REQUANTIFY THE PURPOSE | Increase FTE and decrease RPU. (Relative Pay Units).  
REQUALIFY THE PURPOSE | Cause a higher level of patient and physician satisfaction.  
ELIMINATE A FUNCTION |  
ADD A FUNCTION |  
COMBINE FUNCTIONS |  
BREAK DOWN A FUNCTION |  
MODIFY A FUNCTION |  
REQUANTIFY A FUNCTION | Increase time for providing patient care.  
REQUALIFY A FUNCTION | Faster response to pt. lights and more caregiver time per pt.  
ELIMINATE A JOB | Eliminate some RN positions.  
ADD A JOB | Add CNA positions.  
COMBINE JOBS |  
BREAK DOWN A JOB |  
MODIFY A JOB | Use RNs as both caregiver and patient coordinator.  
REQUANTIFY A JOB | Decrease overtime by RNs for documentation.  
REQUALIFY A JOB | Prepare CNAs for additional duties.

MAJOR OPPORTUNITY AREAS: • • Decrease cost  
• • Increase quality  
OPPORTUNITY SUB-AREAS:  
• Skill-mix savings  
• Increased patient satisfaction  
• Increased physician satisfaction

**Figure 2 Improvement Idea Chart**

**PROCESS SUMMARY**

1. Gather and develop information in accordance with Figure 1 and Tables 1 and 2.
2. Identify opportunity areas in accordance with Figures 1 and 2 and Tables 1 and 2.
3. Evaluate improvement ideas in accordance with Figure 2 and Table 3.
4. Propose changes in accordance with Figure 1 and Table 4.
5. Plan implementation, obtain approval, and implement changes.

Mr. Fred F. Fifield is the Director of Internal Consulting at **Mercy Health Center** in Dubuque, Iowa.
Marketng VE in Health Care
Ginger Willingham, CVS

BACKGROUND

On becoming the President of SAVE, I announced my intention to focus on marketing our Society’s name and methodology. As value practitioners, we harbor one of the best kept secrets of the decade, the cost saving power of VE. We, the members of SAVE, are the only ones who can reveal this secret to industry, government, and the public at large.

However, we need to provide you with the marketing tool kit to do the job effectively. I asked the SAVE Board of Directors to review our Long-Range Plan and focus on one or two key items in the plan which will achieve two functions: gain publicity and generate revenue for the Society.

INITIATIVES

One of the initiatives approved by the Board is a series of specialized VE brochures, the first of which was unveiled at the conference in New Orleans. Thanks to the effort of Steve Kirk, SAVE Vice President of Marketing, and several other individuals, we now have a marketing brochure that focuses on the health care industry. Here is one of the messages conveyed by the brochure.

The value management process for health care capital projects has saved New York City hundreds of millions of dollars. The process has enabled the City to reduce the cost of major health care projects by 24 percent over the past six years. I count on value management findings to implement the most cost-effective use of the City’s resources.

Helen Rosenthal, Assistant Director
Health Task Force

The Board also directed that future issues of Value World be focused on specialty areas in need of the benefits of VE. The previous issue was centered on construction.

This Special Health Care Issue and the Health Care Brochure comprise a powerful marketing tool kit.

The next brochure will focus on the environmental sector and should be ready by the time of next year’s conference in Phoenix, Arizona. The Value World companion to this brochure is the environmental issue to be published in May 1995.

The Board established the following schedule for future issues of Value World:

October 1995: Education.
February 1996: Manufacturing-Annual Index.
June 1996: Transportation.
October 1996: Construction.

I encourage each of you to take the same posture. Schedule programs and activities in your Chapters that will gain publicity for the Society and educate the public about the benefits of VE. Contribute papers to Value World for each of the specialty issues.

If we all work together to achieve these goals, our membership will continue to grow, and we will become a driving force in our nation and the world. We need your ideas, your opinions, and your success stories.

We must communicate among ourselves to build upon our strengths and overcome our weaknesses, so as we communicate to the public, we are well armed with facts. Let’s work together to develop a strong foundation on which we can build individually and collectively.
AN UPDATE

The health care industry has entered a new era of electronic commerce that is already changing the business relationships and internal operations of many providers and their trading partners.

For example, within the next two years, healthcare providers will be required to use standardized electronic data interchange (EDI) for their business communications with the federal government. Insurance carriers, physicians, home health agencies and suppliers will also be required to standardize and automate all business communications with government hospitals and agencies.

In addition to these new government mandates, there is greater public demand to rein in the skyrocketing healthcare costs, and to bring increased pressure on providers and their trading partners to standardize automation in purchasing, claims, accounting, funds transfer, etc., as a means of reducing the enormous administrative cost of healthcare.

TAMING A $700 BILLION BEAST

According to Garren Hagemeier, executive director of Healthcare EDI Corp., the healthcare industry is a $700 billion industry that is growing at an unsustainable rate. The New England Journal of Medicine states that almost one quarter of U.S. healthcare spending is used to cover administrative expenses alone. This contrasts with Canada, which spends only 8 percent to 11 percent on administrative costs.

While some experts dispute these figures, all agree that administrative costs are too high, exacerbated by the complicated and cumbersome administrative processes required for purchasing and claims in healthcare.

EDI IMPLEMENTATION COULD SAVE BILLIONS

Many experts believe that the ideal way to slash administrative costs is through automation and reengineering of these processes. A recent study conducted by the Tiber Group indicates that using standard EDI in the nation’s healthcare claims process could save from $4 billion to $10 billion annually in administrative costs.

Coupled with the potential savings of using EDI for purchasing in the U.S. healthcare system, the minimum potential savings could jump from $7 billion to $18 billion a year.

According to Hagemeier, the cost saving potential of EDI for the healthcare industry is the primary reason for the formation of HEDIC, a non-profit association of multi-hospital groups that promotes and facilitates the use of EDI throughout the healthcare industry. Since its inception in 1991, HEDIC membership has swelled from its 20 original founders to more than 200 member organizations today.

"We believe that by using EDI to reengineer the business processes in healthcare we can achieve far greater savings than those projected for automation alone," Hagemeier said.

"Our mission is to build an industry-wide system for electronic commerce that will replace our outmoded paper-based system, enable us to fully automate and reengineer our business processes, and greatly reduce the administrative costs."

NO PIE IN THE SKY

The good news about EDI in healthcare is that it is not a future concept or pie in the sky. A recent survey of HEDI members illustrates that the EDI revolution is already taking place, with EDI capability among members quadrupling within the last two years.

This year many players in the healthcare industry have made EDI a key business strategy for reengineering their business processes and reducing costs.

For example, American Medical International said it plans to double the number of suppliers on EDI, implement receipt of EDI invoice, remittance advice and electronic funds transfer, and initiate a design review for adding
Survey of EDI Growth in Health Care

<table>
<thead>
<tr>
<th></th>
<th>1992</th>
<th>1994</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers to Medical and Surgical Manufacturers</td>
<td>62</td>
<td>320</td>
</tr>
<tr>
<td>Pharmaceutical Manufacturers</td>
<td>50</td>
<td>150</td>
</tr>
<tr>
<td>Manufacturers and Distributors</td>
<td>18</td>
<td>61</td>
</tr>
<tr>
<td>Provider Group Buyers</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Providers</td>
<td>13</td>
<td>115</td>
</tr>
<tr>
<td>Payers</td>
<td>4</td>
<td>52</td>
</tr>
</tbody>
</table>

Survey does not include trading partners who use proprietary electronic formats and communication links to exchange business information.

capabilities for using EDI in contract bid, award, and administration.

**Baxter Healthcare**, which doubled its EDI transaction volume in 1993, said its goal this year is to have a seamless flow of information from the manufacturer, through Baxter, to the customer.

What's more, Baxter plans to implement EDI transaction sets with all its customers during this year. Hagemeier said several healthcare trading partners are multiplying the benefits of EDI by reengineering their business processes.

For example, Becton Dickinson is eliminating the rebate cycle with one trading partner through EDI. **Duke University Hospital** is automating payments for products sans invoices, while St. Alexius Hospital is integrating barcode and EDI technologies.

**HUGS FOR EVERYONE**

According to Hagemeier, a great deal of EDI interest and activity is occurring at the "grass roots" level of healthcare, and this is precisely where the action has to take place if EDI is going to spread throughout the industry. Last year, a group of healthcare providers and trading partners formed the first Healthcare-specific EDI users group in Minnesota, called MEHUG (Minnesota EDI Healthcare Users Group).

With MEHUG's permission, HEDIC took this idea and expanded it to create the Healthcare EDI Users Group (HUG) program to proliferate local healthcare users groups across the country. A HUG was formed two months ago in Florida while additional HUGS are presently in the process of being formed in Chicago, Houston, Los Angeles and St. Louis. "Local participation of health care trading partners in EDI education and implementation issues is the key to making EDI cost savings a reality in our industry," Hagemeier said.

**HEDIC**'s primary objectives for 1995 include the expansion of its seminar program to include more locations and the formation of at least 10 more HUGS.

In addition, HEDIC will seek the cooperation of translation software and application software vendors to develop preprogrammed integration solutions for EDI implementation, to complete and publish its EDI-EZ Implementation Guide Book, and develop additional ANSI document templates for simplified EDI purchasing and claims.

Health and Medical Services

U.S. Industrial Outlook 1994

BACKGROUND

Expenditures on health care in the United States are expected to rise by more than 12 percent in 1994 to exceed $1 trillion for the first time. Continued growth is envisioned for home health are as well as managed care organizations for the balance of the decade. The reduction of consistent double-digit rates of increase in health care expenditures will require a sustained national commitment and accommodation by health care providers and consumers.

The health care industry consists of public, private, and non-profit institutions. These institutions are hospitals; offices and clinics of medical doctors; nursing homes; other specialized health care facilities; managed care consisting of prepaid plans such as health maintenance organizations (HMO), preferred provider organizations (PPO), and independent practice associations (IPA). The health care industry generated more than $942.5 billion in expenditures in 1993. It employed more than 10 million people including 2 million nurses, more than 650,000 doctors, and 150,000 dentists. The industry supports 126 medical schools and approximately 6,600 hospitals; 1,100 health insurance companies; and 25,600 nursing care facilities.

The nation’s health care services industry includes thousands of independent medical practices and partnerships, as well as public and non-profit institutions, and major private corporations. America’s complex health care system is a leader in the use of sophisticated and expensive technology.

DYNAMICS OF THE HEALTH CARE INDUSTRY

The dynamism of this industry is reflected in part by its contribution to the national output as well as the social well-being of the population. Since Federally sponsored health care began in 1965, the nation’s health care expenditures have risen from $41.6 billion, or about 6 percent of the gross domestic product (GDP), to an estimated $942.5 billion in 1993, representing more than 14 percent of GDP. Table 1 gives trends and forecasts for health and medical services.

Table 1 Trends and Forecasts for Health and Medical Services in Billions of Dollars

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>National health expenditures</td>
<td>459.2</td>
<td>547.2</td>
<td>685.6</td>
<td>679.3</td>
<td>753.1</td>
<td>840.4</td>
<td>942.5</td>
<td>1,060.5</td>
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<tr>
<td>Health services and supplies</td>
<td>476.9</td>
<td>520.5</td>
<td>583.6</td>
<td>602.4</td>
<td>729.8</td>
<td>813.9</td>
<td>914.0</td>
<td>1,029.6</td>
<td>10.3 10.9 11.8 11.7 11.7 12.3 12.6</td>
</tr>
<tr>
<td>Personal healthcare</td>
<td>453.9</td>
<td>482.6</td>
<td>530.9</td>
<td>591.5</td>
<td>660.2</td>
<td>739.0</td>
<td>830.2</td>
<td>934.8</td>
<td>9.9 10.0 11.4 11.5 11.9 12.3 12.6</td>
</tr>
<tr>
<td>Hospital</td>
<td>194.2</td>
<td>212.0</td>
<td>225.4</td>
<td>268.1</td>
<td>326.2</td>
<td>353.4</td>
<td>408.8</td>
<td>476.9</td>
<td>10.3 10.9 11.8 12.0 12.4 12.5</td>
</tr>
<tr>
<td>Physicians' services</td>
<td>53.0</td>
<td>105.1</td>
<td>116.1</td>
<td>138.8</td>
<td>192.9</td>
<td>202.1</td>
<td>222.0</td>
<td>258.1</td>
<td>11.6 12.0 12.4 12.8 12.8 12.6</td>
</tr>
<tr>
<td>Dentists services</td>
<td>27.1</td>
<td>28.4</td>
<td>31.6</td>
<td>34.1</td>
<td>37.1</td>
<td>40.4</td>
<td>44.2</td>
<td>47.5</td>
<td>7.9 8.9 9.4 9.7 9.4 9.7 7.5</td>
</tr>
<tr>
<td>Other professional services</td>
<td>21.1</td>
<td>23.8</td>
<td>27.1</td>
<td>30.7</td>
<td>35.5</td>
<td>41.7</td>
<td>47.4</td>
<td>54.0</td>
<td>13.9 16.5 18.5 16.3 15.7 13.9</td>
</tr>
<tr>
<td>Home health</td>
<td>4.1</td>
<td>4.5</td>
<td>5.6</td>
<td>7.6</td>
<td>9.6</td>
<td>12.2</td>
<td>15.5</td>
<td>18.9</td>
<td>9.6 11.6 12.4 11.7 12.5 12.5</td>
</tr>
<tr>
<td>Nursing home care</td>
<td>39.7</td>
<td>42.8</td>
<td>47.7</td>
<td>53.3</td>
<td>59.8</td>
<td>67.3</td>
<td>76.9</td>
<td>85.5</td>
<td>7.8 11.4 11.7 12.2 12.5 12.5</td>
</tr>
<tr>
<td>Durable medical equipment</td>
<td>9.1</td>
<td>10.1</td>
<td>10.4</td>
<td>11.7</td>
<td>12.4</td>
<td>13.2</td>
<td>14.2</td>
<td>15.5</td>
<td>13.0 12.5 12.4 12.5 12.5 12.5</td>
</tr>
<tr>
<td>Other personal health care</td>
<td>7.8</td>
<td>9.7</td>
<td>9.8</td>
<td>11.5</td>
<td>14.0</td>
<td>17.0</td>
<td>20.7</td>
<td>25.2</td>
<td>13.2 15.6 14.6 11.7 11.7 11.7</td>
</tr>
<tr>
<td>Administration</td>
<td>23.0</td>
<td>26.9</td>
<td>33.8</td>
<td>38.9</td>
<td>43.9</td>
<td>48.6</td>
<td>54.3</td>
<td>61.9</td>
<td>25.7 15.1 12.9 10.7 11.7 14.0</td>
</tr>
<tr>
<td>Government public health .</td>
<td>14.6</td>
<td>16.0</td>
<td>16.9</td>
<td>22.0</td>
<td>24.5</td>
<td>28.3</td>
<td>25.4</td>
<td>32.9</td>
<td>13.7 13.9 16.4 11.4 7.3 11.8 11.9</td>
</tr>
<tr>
<td>Research and construction</td>
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<td>21.0</td>
<td>21.8</td>
<td>23.9</td>
<td>24.5</td>
<td>28.5</td>
<td>28.5</td>
<td>30.8</td>
<td>15.4 3.8 9.6 2.5 8.2 5.9 6.0 6.4</td>
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<td>Research .</td>
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<td>11.9</td>
<td>11.9</td>
<td>12.8</td>
<td>13.3</td>
<td>14.1</td>
<td>15.0</td>
<td>14.4 6.6 8.2 5.9 5.6 7.0 6.4</td>
</tr>
<tr>
<td>Construction .</td>
<td>9.2</td>
<td>10.7</td>
<td>10.8</td>
<td>12.3</td>
<td>11.4</td>
<td>13.2</td>
<td>14.4</td>
<td>15.8</td>
<td>18.3 0.9 11.1 9.5 10.9 9.1 9.7</td>
</tr>
</tbody>
</table>

1Preliminary.  2Estimate.  3Forecast.  4Research and development expenditures of drug companies and other manufacturers and providers of medical equipment and supplies are included from research expenditures, but they are included in the expenditure class in which the product falls.

NOTE: Numbers may not add to totals because of rounding. SOURCE: U.S. Department of Health and Human Services: Health Care Financing Administration (HCFA), Office of the Actuary; U.S. Department of Commerce: International Trade Administration (ITA). Estimates and forecasts by ITA.

Modem technologies have contributed significantly to the worldwide delivery of high-quality health care. Besides developing new medical technologies, the United States probes the mysteries of disease through basic and clinical research.

Through the development of new diagnostic tools and treatments, the United States increases the effectiveness of medical care worldwide. In 1991, total health research and development spending amounted to an estimated $25.6 billion with the Federal Government contributing more than half.
Many foreign students come to the United States to pursue their medical education. Upon completion, they return home to apply their knowledge and skills. In addition, many affluent foreign patients come to the United States for health care treatment. Education of foreign students and treatment of foreign patients contributes to a services surplus in the U.S. balance of payments.

Some aspects of the health care industry contribute to rising costs for consumers, businesses, states, and the Federal Government. There are also areas that most observers agree receive too few resources, such as immunizations against disease and other preventive procedures.

In regard to costs, the health care market is unique among industries. For most products and services, the purchaser knows the price, quantity, and quality of the goods before consumption. However, in the health care market price information is not generally available. To further complicate the cost issue, the health care industry is dominated by third-party providers in the form of private insurers and publicly funded Medicare and Medicaid that insulate patients from assessing price.

The persistent rise in health care costs has absorbed much of the growth of employees' real compensation in the past two decades. Increasing health care costs discourage worker mobility, particularly among older workers who are concerned about losing insurance coverage. Approximately half the estimated 37 million uninsured Americans are in the 16-to-34 age group that is entering the work force or generally undergoing the most frequent job changing. In the 1980's and 1990's, increasing health care costs have put pressures on budgets of Federal, state, and local governments. Both workers and governments have less to spend on other priorities.

Health Care Services Revenue

Despite the 1.2 percent decline in the U.S. economy from 1990 to 1991, the Census Bureau estimated health care services revenue rose 9.5 percent from an estimated $521.7 billion to $571.3 billion. The highest revenue growth areas occurred in home health care services (19.2 percent), kidney dialysis centers (18 percent), specialty outpatient facilities (17.4 percent), and nursing and personal care facilities (15.7 percent).

Hospitals realized a 10.8 percent increase, while offices and clinics of doctors of medicine grew 7.2 percent during that period. Hospitals accounted for 53 percent of all revenues for the health services industries in 1991. Hospital revenues rose by $29.7 billion to reach an estimated $305.9 billion in 1991.

According to the Census Bureau, these estimates are obtained from a sample of health care businesses and do not include income that self-employed individuals received for delivering health care services. From the estimated $521.7 billion in revenues, annual receipts for taxable firms in health services amounted to $245.7 billion. In 1990, hospital taxable receipts were estimated at $25.2 billion out of their $276.2 billion in revenue representing about 9.1 percent of total revenue.

Health Care Industry Employment

Health care is a leading employment sector in the economy. Employment rose steadily from 9.1 million in June 1990 to 10.2 million in June 1993, an average annual increase of 3.8 percent despite the 1990-91 recession and the weak economic recovery. Health care employment surpasses that of transportation and public utilities (5.7 million); wholesale trade (6.1 million); and finance, insurance, and real estate (6.6 million).

Employment has grown in all health care sectors, especially in home care, nursing, and personal care facilities, offices and clinics of medical doctors and dentists, and hospitals (Table 2). The highest growth rate occurred in home health care services where employment rose an average annual pace of 17.6 percent from 290,900 in June 1990 to 473,100 in June 1993. Hospitals have the lowest rate of growth, but accounted for more than half of the total employment in the industry.
Percent Change 1988-91

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Number of recipients</td>
<td>22.9</td>
<td>23.5</td>
<td>25.3</td>
<td>28.3</td>
<td>2.6</td>
<td>7.7</td>
<td>11.9</td>
</tr>
<tr>
<td>Expenditures per recipient</td>
<td>2,274</td>
<td>2,516</td>
<td>2,837</td>
<td>3,412</td>
<td>10.6</td>
<td>12.8</td>
<td>20.3</td>
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</table>

Fiscal year ending Sept. 30 as reported on Health Care Financing Administration Form 2082. Calendar year expenditures in dollars. SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary, Office of National Health Statistics.

Table 2 International Health Care Spending

<table>
<thead>
<tr>
<th>Country</th>
<th>Income per capita1</th>
<th>Spending per capita2</th>
<th>Health care expenditures as a percent of 1990 GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Public</td>
</tr>
<tr>
<td>Mozambique</td>
<td>80</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>220</td>
<td>7</td>
<td>1.8</td>
</tr>
<tr>
<td>Egypt</td>
<td>610</td>
<td>18</td>
<td>1.0</td>
</tr>
<tr>
<td>India</td>
<td>330</td>
<td>21</td>
<td>1.3</td>
</tr>
<tr>
<td>Bolivia</td>
<td>650</td>
<td>25</td>
<td>2.4</td>
</tr>
<tr>
<td>Poland</td>
<td>1,790</td>
<td>83</td>
<td>4.1</td>
</tr>
<tr>
<td>Mexico</td>
<td>3,030</td>
<td>89</td>
<td>1.6</td>
</tr>
<tr>
<td>Brazil</td>
<td>2,940</td>
<td>132</td>
<td>2.8</td>
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<tr>
<td>South Africa</td>
<td>2,580</td>
<td>158</td>
<td>3.2</td>
</tr>
<tr>
<td>South Korea</td>
<td>6,340</td>
<td>377</td>
<td>2.7</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>16,550</td>
<td>1,039</td>
<td>5.2</td>
</tr>
<tr>
<td>France</td>
<td>20,380</td>
<td>1,669</td>
<td>6.6</td>
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<tr>
<td>Canada</td>
<td>26,440</td>
<td>1,945</td>
<td>6.8</td>
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<tr>
<td>Sweden</td>
<td>25,110</td>
<td>2,343</td>
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<tr>
<td>United States</td>
<td>22,200</td>
<td>2,763</td>
<td>5.6</td>
</tr>
</tbody>
</table>


Medicare and Medicaid

Medicare and Medicaid programs are subject to statutory and regulatory charges; administrative rulings, interpretations, and determinations; and governmental restrictions. All such charges may materially increase or decrease payments to hospitals, physicians, and other medical providers. During the 1980’s, as Medicare and Medicaid programs became costlier, their financing was reduced. Consequently, Federal and state governments tightened regulations on publicly financed medical programs.

Medicare and Medicaid pay hospitals, physicians, and other medical providers for services to qualified patients. In 1992, Medicare payments under its hospital insurance provision increased an estimated 8.5 percent to approximately $84 billion. Of the payout, nearly $82 million was collected in the form of payroll taxes on employers and their workers.

Medicare payments under the supplementary Medicare Insurance program for physicians, outpatient hospital care, and other health services totaled nearly $51 billion in 1992. Enrollees paid premiums that covered less than 30 percent of the outlays. Government subsidies made up the difference.

Medicaid program expenditures grew by 33.2 percent to $100 billion in 1991, surpassing its 21.3 percent increase in 1990. This growth in expenditures was the result of 3 million additional people who qualified under the program due to the recession. Federal mandates to expand the program, and an increase in Federal payments to hospitals and nursing homes. In addition to the growth in the number of recipients, the growth in payment per recipient accelerated from $2,516 in 1989 to $3,412 in 1991 (Table 3).

Many states that administer the Medicaid program opted for donated funds and imposed provider-specific taxes to finance it. As states received more taxes and donations (T&D), the Federal matching fund share for T&D automatically increased. These T&D programs increased both the Federal share to be paid for Medicaid and the Federal matching rate.

Home Health Care

Home-delivered health and medical services are being increasingly recognized as vital components of comprehensive health care and local health-planning activities. High hospital and nursing home care costs have underlined the need for alternative, less expensive ways to deliver care to the elderly who are not critically sick.

Table 3 Health Care Services Employment

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</thead>
<tbody>
<tr>
<td>Number of recipients</td>
<td>22.9</td>
<td>23.5</td>
<td>25.3</td>
<td>28.3</td>
<td>2.6</td>
<td>7.7</td>
<td>11.9</td>
</tr>
<tr>
<td>Expenditures per recipient</td>
<td>2,274</td>
<td>2,516</td>
<td>2,837</td>
<td>3,412</td>
<td>10.6</td>
<td>12.8</td>
<td>20.3</td>
</tr>
</tbody>
</table>

1Fiscal year ending Sept. 30 as reported on Health Care Financing Administration Form 2082. 2Calendar year expenditures in dollars. SOURCE: U.S. Department of Health and Human Services, Health Care Financing Administration, Office of the Actuary, Office of National Health Statistics.

VALUE WORLD, Volume XVII, Number 3, October 1994
Table 4 Medicaid Recipients and Health Care Expenditures

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</thead>
<tbody>
<tr>
<td>Number of Plans</td>
<td>662</td>
<td>814</td>
<td>591</td>
<td>569</td>
<td>559</td>
<td>544</td>
<td>—</td>
</tr>
<tr>
<td>Enrollment</td>
<td>29.3</td>
<td>32.7</td>
<td>34.7</td>
<td>36.5</td>
<td>36.6</td>
<td>41.4</td>
<td>45.0</td>
</tr>
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</table>

Percent Change (1987-93)

<table>
<thead>
<tr>
<th>Year</th>
<th>87-88</th>
<th>88-89</th>
<th>89-90</th>
<th>90-91</th>
<th>91-92</th>
<th>92-93</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-7.3</td>
<td>-3.7</td>
<td>-3.3</td>
<td>-1.1</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

2 In millions of enrollees.

SOURCE: Group Health Association of America, Inc.

Many people with chronic illnesses can be adequately cared for in a home setting if some type of nursing care and supportive services are available. Home care agencies are filling this void. There were an estimated 12,500 home care agencies in the United States in 1992, including 6,129 Medicare-certified home health agencies, and 1,100 certified hospices. The remaining 5,258 were home health agencies, home care aid organizations, and hospices that do not participate in the Medicare program.

The number of Medicare-certified home health agencies increased nearly 6 percent from 5,785 in 1987 to 6,129 in 1992. During the same period, the number of proprietary home health agencies also increased nearly 6 percent from 1,846 to 1,953.

The latest National Medical Expenditure Survey indicates that a variety of health care providers administered home care services to 5.9 million Americans in 1987.

Demographics, technology, cost-effectiveness, and consumer choice should provide added momentum for the expansion of the home care sector. President Clinton’s proposal for health care reform includes a significant initiative to expand home and community care for elderly and disabled Americans. Under health care reform, the nationally guaranteed benefit package also covers home-based care following an acute illness.

Continuing Care Retirement Communities

An estimated 900 continuing care retirement communities (CCRC) in the United States provide continuing care for more than 270,000 residents who are still ambulatory. CCRCs provide coordinated housing and health-related services to older individuals under an agreement which may last as little as one year or as long as the life of the individual. CCRCs provide campus-style living with convenient services such as housekeeping, meals, and health care. The most significant of these is long-term nursing, which is often very expensive and usually not covered by Medicare.

Typically, a healthy, active elderly person moves into residential accommodations. Many activities and levels of care are available, such as assisted living and skilled nursing care. There is usually a resident health clinic that coordinates preventive health care and medical services.

Health care services are at the heart of the continuing care concept. These services include emergency response system, resident health clinic, wellness programs, health education, hospice services, nursing advice, physician services (primary and specialty), podiatry services, dental services, pharmacy services, therapies, assisted living, and nursing care.

Managed Health Care

Managed health care, a system of prepaid plans providing comprehensive coverage to voluntarily enrolled members, continues as the growth leader in the health care industry.

Providers of managed care include health maintenance organizations (HMO) and preferred provider organizations (PPO), as well as traditional indemnity insurance companies.

Prepaid managed care is designed to control the use of health care services so that these services are provided cost effectively. Because traditional indemnity plans or programs do not control health care costs effectively, employers, including the U.S. Government, are offering their employees the opportunity to join HMOs and PPOs. Currently, HMOs and PPOs service more than 25 percent of the U.S. population, up from 3 percent in the 1970’s.

The number of HMO plans decreased from 662 in 1987 to 544 in 1992, but the number of enrollees increased from 29.3 million to 41.4 million due to greater efforts by employers who prefer these plans. In 1993, HMO enrollment reached an estimated 45 million. The decline in the number of HMO plans is due to mergers and acquisitions and consolidations and terminations (Table 4).
Every measure of HMO median rates of return was positive for 1990. Rates of return are measures of the ability of an HMO to generate funds. HMOs reported a median net rate of return on assets of 8.8 percent, a median net rate return on revenues of 2.5 percent, and a median net return on equity of 33 percent. Industry earnings in 1990 were $1.39 billion before taxes on revenue of $45.61 billion. Eighty percent of HMOs reported positive gross income in 1990.

For the first quarter of 1993, industry data indicated HMOs had the highest overall profit gains for the 50 largest public traded U.S. health care companies. According to the Jenks Health Care Business Report, first-quarter earnings showed that seven HMOs listed among the Jenks Top 50 posted higher profits in the first quarter of 1993 than in the first quarter of 1992. The average gain was more than 40 percent.

PPOs, a modified version of HMOs, increased from 692 in 1987 to 978 in 1991. The number of eligible family members of those employees has increased from 28.0 million in 1987 to 85.0 million in 1991, a threefold increase.

PPOs have a weaker incentive to control utilization than do HMOs. PPOs permit enrollees to use non-plan providers (hospital and physicians), but cover less of non-plan provider costs. PPOs use various management programs such as recertification, concurrent review, and discharge planning to reduce patient use of unnecessary services.

The rapid growth of HMOs and other managed care organizations has somewhat restrained the expansion in hospital services, including the number of inpatient admissions. Some health care critics have expressed concern about the quality of care provided by managed health care organizations, although there is no real evidence that the trend toward managed care has had a negative effect on quality. Others maintain that managed care may have more of a positive effect on quality care than the traditional fee-for-service indemnity insurance system. Moreover, managed care plans offer more coverage than indemnity plans, especially in the area of preventive medical expenses where HMOs have ongoing wellness programs including programs for smoking cessation, prenatal care, diet, and nutrition counseling.

Industry experts, health care administrators, legislators and various health care interest groups, realizing that managed care is rapidly expanding, are beginning to ask whether managed care companies can assure patients that the quality of care they receive will be protected. As a result, Congress has mandated peer review of HMOs and other competitive medical plans by professional review organizations. The indications are that with a few adjustments these managed care organizations will continue to play a leading role in providing health care to the nation.

Managed competition lies at the heart of the President’s proposal to reduce health care costs and to provide care for the uninsured. Reform or not, managed care through HMOs and PPOs is already dominating the market.

**Health Care Reform**

The President’s Task Force on Health Care Reform completed its work in late summer 1993. The President’s proposal for national health care reform initiated a major national debate that is playing a commanding role on the agenda of the current session of Congress.

The inclusion of the uninsured (while various interest groups scramble to maintain, increase or gain their market share of the industry), probably will increase health care expenditures, but not at the rate that occurred during the 26 years since the 1965 enactment of *Medicare* and *Medicaid*. The focus of the reform is to provide cost-effective health care for all Americans. Currently there are 37 million Americans who are uninsured or underinsured and more than 14 percent of the GDP is spent on health care services, the highest among all nations.

The concept of managed competition is focused on market establishment of a health services purchasing strategy. It is designed to promote competition and reward providers and insurers for efficient health care delivery in terms of cost, access, quality, and consumer satisfaction.

This system would establish health purchasing alliances to organize purchasers of health care within a region or state. Within a national framework and to implement a nationally guaranteed, comprehensive health benefit package, states would set standards for competing health plans offered through alliances.

Consumers would have information on health care prices and quality and would be able to make choices on an annual basis as to which plan to purchase. This system would be non-discriminatory so that high-risk clients would obtain health care coverage at a reasonable price. The plan provides a safeguard called *budget target* in case
competitive-market forces fail to control rising costs. This plan is proposed to be affordable for small businesses that would provide coverage for employees who otherwise would have been uninsured.

Major national corporations may organize their own corporate health alliances and continue covering their employees through them, although they must comply with national guarantees related to providing the comprehensive benefit package, quality, and other critical factors.

INTERNATIONAL COMPETITIVENESS

Without reform, the annual cost of health care for a family in the United States may reach $14,000 by the end of the decade. In 1992, average per capita spending for health care in United States totaled $3,160 a year, up from $1,000 in 1980. The United States spends twice as much on health care as the average spent by the 24 industrialized countries in Europe and North America. The economic drain on U.S. society represented by higher and rising health care costs threatens to jeopardize the United State’s competitive position in international trade.

Although the United States spends more on health care than any other industrialized nation, a lower proportion of U.S. citizens have health insurance coverage and a typical insurance policy provides less coverage than in any other industrialized nation.

According to industry studies, the greater amount of spending for health care in the United States goes to support:

- Inappropriate care and inefficient systems—some estimates put the level of unnecessary tests and procedures at $130 billion per year.

- Regulation and administration—estimates of insurance overhead account for nearly 25 percent of total spending. By contrast, administrative costs in other industrialized countries total 1 percent or less.

Over the past 20 years, the wages of U.S. workers have fallen in real terms while health care costs have climbed 10 to 15 percent each year. For small businesses, premiums have risen by as much as 50 percent annually. Skyrocketing health care costs make it harder for U.S. companies to compete in the global marketplace. Health care costs add more than $1,100 to the price of every car manufactured in the United States—Japan spends half of this amount. In 1990, General Motors spent $3.2 billion in medical coverage for its 1.9 million employees and retirees. That is more than the company spent on steel.

Without health care reform, it is projected that the cost of health care will rise from 14 percent of GDP today to 18 percent in the year 2000. In order words, without reform, in less than 10 years, almost one dollar out of every five dollars earned by people living in the United States will go to cover the cost of health care.

If the United States were able through health reform to achieve a level of spending comparable to other countries, the United States could save about 4 percent of GDP. Those savings could be reallocated to investments in other areas such as training and production, thus enhancing the U.S. competitive position.

OUTLOOK FOR 1994

The probability is good that health care reform in the United States will be enacted into law following intensive discussion and debate. More small businesses and uninsured individuals will begin to gain greater access to health care services. However, even with reform, if one were to apply the theory of rational expectation, then health care revenues would not be dampened, but continue to rise. Providers would find alternative means to increase health care prices, shift prices, hoard inventories, and incur capital costs to be passed on to consumers.

Health care expenditures in 1994 are expected to increase 12.5 percent to $1,060 billion, or 15 percent of GDP. Outlays for hospital care are expected to increase 12.5 percent to $409 billion.
Expenditures for physicians' services are expected to increase 1 percent to an estimated $195 billion while those for nursing home care will rise 12.5 percent to $85.5 billion. Home care, the fastest growing health care sector, is expected to top 35 percent to reach $22 billion.

**LONG-TERM PROSPECTS**

The health care system will likely be reformed based on managed competition to provide health care access to the uninsured and accomplish cost efficiency. Comprehensive health care reform will take many years and its success will depend on controlling costs and maintaining quality. Increases in funding will most likely be directed at home nursing to accommodate long-term care needs. Consequently, home care will continue to gain market share. More medical technology will be developed to be used in the home care sector.

It is difficult to accurately project health care costs for the next five years without knowing the outcome of health care reform. However, without reform, health care expenditures are projected to rise by an average annual rate of growth of 13.5 percent during the next five years.

Adapted from *U.S. Industrial Outlook 1994-Health and Medical Services* by courtesy of the U.S. Department of Commerce.

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**Value Brief**

**Reasons for Rising Health Care Expenditures**

Numerous factors contribute to the rising costs of health care. They include the following:

- Use of sophisticated, expensive technologies.
- Duplication of tests and duplication of technologies which yield similar results.
- Increases in variety and frequency of treatments including arguably unnecessary tests.
- Increasing number and longevity of the elderly.
- Regulations that result in cost shifting rather than cost reduction.
- Increasing number of accidents and crimes that require emergency medical services.
- Limited competition and restrictive work rules in the health care delivery system.
- Labor intensiveness and rapid average earnings growth for health care professionals and executives.
- Built-in inflation in the health care delivery system.
- Fraud, administrative waste, malpractice insurance, excessive surgical procedures, a wide range of prices for similar services, and double health coverage including Medigap.

Adapted from *U.S. Industrial Outlook 1994-Health and Medical Services*, by courtesy of the U.S. Department of Commerce.
BOOK REVIEW

The Value Network

Louis J. DeRose

AMACOM (Division of the American Management Association), 1994

The subtitle of the book is *Integrating the Five Critical Processes That Create Customer Satisfaction*. The book defines *value* as the satisfaction of customer requirements at the lowest total cost of acquisition, ownership, and use. Nowhere is the need to create customer satisfaction greater than in the healthcare industry.

The essential message of the book is *supply value to your customers*. Supplying value means: Satisfy customer demands for quality, quantity, time, and service performance, reliably and consistently. Satisfy these demands cost-effectively, which means it reduces cost to the customer, avoids cost to the customer, and offsets cost by increasing customer revenue or improving customer cash flow.

The author describes a five-element value network that will ensure customer satisfaction. These are: 1) understanding value as perceived by customers; 2) management of resources for value; 3) use of cross-functional teams as microcosms of the value network; 4) implementation of value costing, also known as activity-based costing; and 5) establishing alliances with customers and suppliers for added value.

Alfred Battaglia, Group President of the healthcare company *Becton Dickinson* said the book hits the target with pragmatic, hard-hitting, experience-proven idea that every general manager should take time to contemplate. For example, the author makes frequent references to the *Walmart* experience.

The author comments that *Walmart* is in a clearly definable market, namely the retail market for nationally advertised consumer goods. It sells directly to that market through its own company managed stores. Its sense of value as customer satisfaction at everyday low price is a strong yet credible objective. Under the leadership of Sam Walton, *Walmart* created more jobs than any other company in America.

The book contains many other examples of both successful and unsuccessful entrepreneurs. Ray Kroc, the late founder of *MacDonald’s*, built a small hamburger outlet into a $7.5 billion international fast-food chain. Consider also Herb Kellerher, CEO of *Southwest Airlines*. Kellerher has been described as a "zany character" who shows up in an airplane dressed in an Easter bunny suit. Nonetheless, he has made *Southwest* into a profitable, no-frills operation with the fewest number of customer complaints of all airlines.

On the other hand, *Apple*’s initial marketing failure with the Macintosh computer reflected a failure of the company to work as an effective value network. Its marketing process was not customer oriented; it was company oriented.

Managing for value, defined as creating customer satisfaction at the lowest total cost, is a rationale that is continuing and constant, according to the author. It provides purpose and objective regardless of changes in the technical, economic, and competitive environment.

The author views marketing as the process that gives direction and focus to all other processes. It is the process that guides all functions and activities to satisfying customer requirements cost effectively. In essence, marketing is a value-creating process that: 1) Identifies and defines customer requirements; 2) translates product, service, technology, and resource capabilities into customer-satisfying offerings; 3) negotiates prices providing value in exchange commensurate with value supplied; 4) establishes and administers channels of distribution to targeted market segments; and 5) provides before-sale and after-sale service and support to ensure customer satisfactions.

Another work by the same author, *Value Selling* (1989) builds from the same concept of the value network. His convictions evolved over many years of working in value analysis, beginning with his service as a consultant to *General Electric* where he worked with Miles on value analysis projects for the company.

We recommend *Value Network* to product-line managers as well as practitioners of value engineering. The author speaks with considerable authority.
THE VALUE ENGINEERING CONGRESSIONAL PARADOX

John Hoving

EDITOR'S NOTE

This report was presented to the Forum on VE Legislation at the 1994 SAVE International Conference but was not printed in the Proceedings.

How a proven, effective answer to many of the problems of business and government in the United States can still be practically a secret, unknown to many who make the key decisions.

It is important to keep in mind always that the Members of the Congress--these Americans who work hard to make the laws and adopt rules, regulations and the budget for the Federal Government--are like most people in the United States: They deal effectively and energetically with things they know and understand.

To a significant extent, they reflect the interests, attitudes and knowledge of the citizens back home, their constituents.

You persuade anyone best when you involve his or her perceived self-interest. So, the self-interest of the member, generally speaking, reflects the perceived self-interest of the constituents. You, if you would persuade, must make the linkage.

This fundamental fact is often forgotten in Washington, where much of the discussion is conducted in a kind of shorthand professional jargon. Communication to make the self-interest clear is neglected. I'm sure that you have noticed this in reports of Washington discussions of foreign policy and international trade.

This problem is compounded because business and other organizations tend to make use of their own jargon. All sides grow impatient with each other, but there is minimal communication and therefore no teaching. It should be remembered that teaching is a two-way process: You have to listen as well as talk.

So why isn't Washington "listening" to Value Engineers? Value Engineers can certainly stand on a proven record of performance. So why isn't VE employed more widely?

To a great extent, this is because many important people in the Congress, and in the home constituencies, do not understand or appreciate the benefits of VE. Why is VE such a secret to these important people?

I have heard it said that there has been a conspiracy to keep VE a secret. I reject this, because I really don't believe in conspiracies.

There are those who say engineers mumble, and that's the problem. Well, maybe.

It has been suggested that engineers try to keep lay people in the dark, like some doctors do, by maintaining a so-called "professional threshold." Possibly.

I think that the basic problem is that engineers have been busily solving problems for the government and business without tooting their horn. Admirable perhaps, but this reticence produces some problems.

If we want to get positive legislation and develop the increased acceptance and application that VE deserves and the country needs, we must do a great deal of teaching and persuading of a more influential Americans.

You might contrast VE's stealth quality with the official acceptance of TQM, or Total Quality Management. TQM is popular, easy to understand, and sold vigorously. I think it frequently is more top-level rhetoric and slogans than actual performance. Everybody feels good, and you appear a popular, successful administrator by installing TQM and talking about it. That seems to be enough.

Actually you need VE whenever you use TQM to make it truly effective, but that is not as widely understood as it should be. So what should we do?

Here are some simple, easy things we can all do that would have a significant impact. Most important, keep in mind that these are goals and objectives that serve humankind. In truth we are
engaged in a noble cause.

Members of SAVE should write letters to their Congressional Representative and both Senators urging support of H.R. 133. The Systematic Application of Value Engineering Act, introduced by Cardiss Collins and John Conyers; and H.R. 2014. The Value Engineering Better Transportation Act of 1993, introduced by Leslie Byrne. The letter should set forth reasons why the legislation would help the nation and why Value Engineering is good. It should also be emphasized that the benefits of government use of VE help taxpayers, and the benefits can be set forth. Ask for the name of a staff person for follow-up.

Similar letters should be sent to the governors and appropriate state legislators asking for action and the use of VE. Send letters to mayors and members of the city councils telling the same success stories.

Let me interject here that intelligent and sincere letters from constituents get thoughtful attention from elected officials in spite of the journalistic folklore that the only people who are listened to are lobbyists with big checkbooks. Not so. Don't believe it.

Letters urging the use of VE and support of the pending legislation should be sent to the editors of local newspapers. Don't neglect radio and television talk shows and news editors. They need letters as well.

Sending letters to the heads of local corporations and business organizations that set forth the virtues of VE, as proposed in the two pieces of legislation, to help increase efficiency in the government and save money for taxpayers, is a nice way of educating them.

What is important to note is that the value engineer can write to influential people who might generate publicity or arrange a professional assignment without sounding plaintive or selfish because the substance of the message is what's good for the United States.

All this allows a value engineer, for the price of postage, to do a lot of vital teaching and motivating. Find every forum, wherever two or three gather, to spark the Value Engineering story. Get up on your soap box and preach. This should be a continuing effort as events and opportunities occur. We have to make up for a lot of relative silence, so I urge you to get going.

Most important, be sure to send copies of your letters and responses to the President of SAVE, because there are ways to make each and every letter like these have a multiple effect. The radiating exploitation, if well directed, is very important in communication and legislation. I want to reiterate that you must emphasize the benefits so that those you are seeking to persuade to act will recognize, coldly and clearly, their self-interest.

Many years ago, a wise political operator told me: "The trick in politics is to pick a fight and win it." In this case, we are trying to attract the attention of important people in order to make something happen that will be good for the United States. We should not be afraid to make noise. We have to make noise and, if necessary, pick a fight. If you, who have the most experience with VE as well as the most to gain from its wider acceptance and federal mandate, aren't willing to make a fuss, toot the VE horn, and shout from the rooftops, how do you expect others to do it?

Now there's one lady in Congress, Representative Cardiss Collins, the author of H.R. 133, who is full of fight. She's had the guts to throw down the gauntlet and say: "I first introduced value engineering (VE) legislation several years ago because I was certain that VE could be used more often and with more success by the federal agencies. The Government Operations March hearing confirmed my view once again. It was crystal clear that many of the agencies are not using VE to the extent that they could and that taxpayers are losing out as a result. In my view, the testimony by Mr. Steve Kelman, Administrator for Federal Procurement Policy at the OMB, indicated that OMB and many agencies do not take Circular A-131 seriously and they're not likely to anytime soon. This makes me more committed than ever to passing VE legislation as soon as possible. In the upcoming months, I will continue to work with Government Operations Chairman John Conyers in an effort to pass VE legislation. At this point, I am willing to explore all options for passing VE this year."

With such bold and dynamic legislators as Cardiss Collins and Leslie Byrne willing to go to bat for Value Engineering, we can do no less. The opportunity is here. We must grasp it.

John Hoving is SAVE Legislative Representative, Miles Value Foundation Counsel, and President of The Hoving Group in Washington, DC.
TRIGGER THUMBS AND LEMMINGS

Thomas R. King, CVS, FSAVE

Not long ago I developed what is commonly termed a trigger thumb on my right hand. Instead of a fluid movement when gripping, the thumb went through a series of jerky clicks not unlike that of a ratchet wrench.

A friend of mine experienced a similar condition only more severe and had undergone the scalpel several times. In fact his wrists were so marred it appeared he was moonlighting as a Pit Bull instructor. Dropping by, my friend acting as a Jay doctor, diagnosed my problem and declared confidently, "Carpal Tunnel Syndrome." Smilingly, as I remember it.

To my delight, however, a couple of months and two hearty doses of Cortisone later, the thumb returned to normal functioning. Voila!

My friend, subsequently stopped by and cheerfully inquired-"How's the old trigger thumb, Buddy?" "It's great Buddy," I said. "Look it, no clicks." His smile abruptly disappeared and, in fact, he seemed almost disappointed at the favorable news.

A similar scenario occurred recently when I rather unaccustomedly bagged the only buck taken in camp. Seems the only mirth was mine. Perhaps I overdramatized the situation by drinking far too much wine and dancing with impunity on the dinner table. Reflecting on these happenings I'm pondering that the old adage, Misery Loves Company, is not without a grain of truth.

The only point that I wish to make here is that we need to be constantly aware of people's sensitivities when dealing with business issues.

For example, a professional acquaintance of mine lost patience with several fellow team members on a company reengineering project. Upon dialogue, he conceded that an expected outcome of the project was downsizing of the work force, some of whom likely were the team members.

Given that likelihood, my response was to wonder why the colleague thought that the employees would summarily march like Lemmings merrily off the cliffs of Dover singing to the tune Stout Hearted Men. It's asking a lot.

Two of the brightest engineering managers I ever knew majored not in the engineering disciplines, but, of all things, Philosophy. I'm thinking that the exposure to the softer side of male and female psyche, combined with good mechanical skills, made them such good people persons.

Value engineers are not loners. Seldom do they work independently as inventors, scientists, or farmers might. Much of the time, value engineers work in teams; consequently the ones that develop good interpersonal skills are a leg up on success.

I've often thought that if I could but emulate the traits of my Yorkshire dog, Ollie, my pal of thirteen years now, I would be a much better performer in interpersonal settings. Falling short, I'll keep trying.

Thomas R. King, CVS, FSAVE, is a SAVE Past President and with Joy Technology, Inc. in Franklin, Pennsylvania.

Value Brief

Electronic Data Interchange Improves Medicare Cash Flow

According to the 1993 Statistical Abstract of the United States (Table No. 156), Medicare insurance payments averaging about $457 million on each working day of the year. In the past, turn-around time for claim payments was a minimum of six to seven weeks. Errors in preparing the form would double or triple the payment time.

Electronic data interchange (EDI) between Medicare and health care providers has improved the process significantly. Medicare routinely makes payments on claims submitted by EDI within seven working days. Within the next two years, Medicare will require all health care providers to use of EDI on business transactions.

Provided by Ms. Betty L. Michaels, a former ophthalmology office manager in Orlando, Florida.
Errata

Value Engineering as a Budgeting Tool (May 1994)

Words were juxtaposed in Paragraphs 3 through 6 on Page 5. The correct paragraphs read as follows:

3. The BEST conclusions and program decisions were often made hastily with minimal data and consultation, pitted the OFM expert against the institution’s expert, and often led to OFM prevailing even though the institution’s expert may have been equivalent or greater.

4. While the BEST budget reviews produced some beneficial results, they are a duplication of the programming and cost estimating efforts completed during the predesign stage by the University and do not recognize the significant technical expertise at the University.

FUTURE OF BEST

"The BEST process is one step in a series of measures to reform the state's budget system and holds promise for substantially reducing capital budget costs while at the same it produces a better product", says State Representative Helen Sommers, the Chair of the House Appropriations Committee and Past Chair of the House Capital Budget Committee.

John Fricke, Senior Budget Assistant for Capital and Transportation states, "We consider the BEST process very successful for two reasons. First, conducting these studies has let the design and construction industry know that there may be an independent review of their work product, which serves as an incentive to perform higher quality predesign studies for all state projects. This benefits both the state and the industry. Second, the BEST process is a model that has received overwhelming support from the design industry and most of the participants. It a process that should be instituted by many governments across the nation, and we have been communicating with them to spread the word."

The 1994 Washington State Legislature will be asked to address proposed legislation (ESHB2237) that will codify the BEST process. This proposed legislation states in part, "The Office of Financial Management shall adopt a procedure for reviewing major construction projects at the predesign stage that will reduce long-term costs and increase facility efficiency. The procedures shall include, but not be limited to, the following elements: An identification of facility program, building quality and standards, and consistency with long-range facility plans; a system of cost standards to compare major capital construction projects; and a construction schedule that includes value engineering analysis and constructability review process.

We regret the juxtaposition.

Perspective: And Now the Rest of the Story (May 1994)

The number 15 was omitted in the last sentence on Page 41. The correct sentence reads: "It should be mentioned that, when restoring antique, aircraft, the FAA requires that at least 15 percent of the original aircraft must be used for it to be able to keep its original license number; otherwise it would be designated a replica, with greatly diminished monetary value."

We regret the omission.