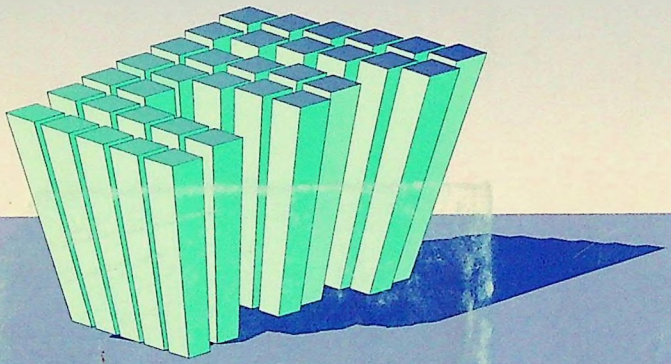
HEALTH ECONOMICS

A PARTICIPATORY APPROACH FOR REDUCING COSTS IN THE PUBLIC HOSPITALS OF THE CANTON DE VAUD



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HEALTH ECONOMICS

A participatory approach for reducing costs in the Public Hospitals of the Canton de Vaud (Switzerland)

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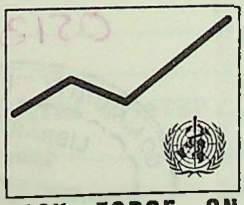

TASK FORCE ON HEALTH ECONOMICS

November 1995

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FOREWORD

Building upon activities already undertaken in the area of health economics, the Director-General created a Task Force on Health Economics in November 1993 in order to enhance WHO's support to Member States.* Its goal is to further the use of health economics in the formulation and implementation of health policies, giving priority to countries in greatest need.

The Task Force aims not only to strengthen the technical content of WHO programmes so that they can better adapt the tools of health economics to country needs, but also to foster cooperation among development agencies in applying health economics at country level.

A series of documents in English and French is being produced to help meet the information needs of both those involved in the organization, planning and financing of the health sector and health professionals whose expertise may lie in other areas. The documents currently available, distributed free of charge, are listed on page ii.

* Members of the Task Force are: F. Antezana (Chairman), M. Jancloes (Vice-Chairman), G. Carrin (Secretary), O. Adams, S. Bertozzi, A.L. Creese, D.B. Evans, K. Janovsky, J.M. Kasonde, C.M. Kinnon, E. Lambo, P. Lowry, B. Sabri, C. Sakellarides, Than Sein, J.H. Perrot, L. Tillfors, G. Velasquez, C. Vieira, A.E. Wasunna.

PREFACE

Hospitals consume a substantial share of the human, material and financial resources available to the health sector; consequently, their performance greatly affects that of the entire sector. Yet our understanding of hospital performance and efficiency is limited. Because of this, study of the economics of hospitals is an important part of the work of the WHO Task Force on Health Economics.

To address issues facing hospitals in developing countries requires an examination not only of actual hospital expenditures and their trends but of the policies and management practices that underlie and affect these trends. Analysis of the production and costs of hospital services can address the issues of resource allocation, efficiency of hospital operations, and the design of revenue generation policies for hospitals. Economics provides a framework for such explorations and can facilitate understanding of the efficiency, equity, utilization and revenue implications of policy options. However, generalizable conclusions about hospital expenditure and resource use may be difficult to derive because of the diversity of experience among countries. Thus, there is need for detailed country level economic analysis of hospital resource allocations and costs to make short- and long-term policy, planning and management decisions about hospitals.

Although this paper reviews an experience with hospitals in an industrialized country, the issues addressed have widespread relevance. Hospitals in both developing and industrialized countries face economic losses due to waste and technical inefficiencies that result from poor management practices and perverse financial incentives. Given the resource constraints facing most countries, minimizing these losses while maintaining or improving the quality of hospital services is of vital importance. Therefore, it is hoped that some of the lessons to be learned from this paper have widespread relevance.

J. Kutzin

SUMMARY

Hospitals are often considered by the authorities to be a good target for reducing government expenditure.

The hospital is a complex organization. Any reduction in hospital costs must be based on an analysis of activities and on the integration of strategic changes into the network of hospital care.

The professional staff of a hospital must be fully involved in the process of cost reduction, in order to:

- develop management skills and
- guarantee the quality of services.

Faced with the necessity of lowering costs, the Public Hospitals of the Canton de Vaud (in Switzerland) developed a methodology for reducing hospital costs. This method indicated a potential saving of 13.7% in the running costs, which are about 700 million Swiss francs (about US$ 480 million).

The method is based on two principles:

- using the skills of hospital personnel by involving them as fully as possible, and
- critically analyzing the activities that consume most resources.

The potential savings identified will be made over a period of three years.

Some of the savings achieved may be allocated to other projects.

INTRODUCTION

In a world of limited resources, those that are allocated to the health sector cannot be allocated to other public services, such as education, transport and environmental protection. Reducing health costs and improving the health of the population by setting up a more effective health network are strategic moves for a country that wishes to develop and to increase its competitiveness (Brailer & van Horn, 1993).

Economic analyses of the health system are complex as they relate indicators that are difficult to measure, such as the quality of care and health status, to financial data that are often imprecise and of limited comparability.

Health administrators can act by:

- reorganizing the health network;
- changing the system whereby units are financed; and
- reducing the running costs of the main units.

This document principally addresses the last solution.

The hospital in the health system

Hospital financing represents 50–80% of public spending on the running of health systems. The proportion is very large in many developing countries where underdeveloped systems of care result in a concentration of resources in the hospital sector (Kutzin & Barnum, 1993).

The authorities focus narrowly on reducing hospital costs because hospitals appear to account for too large a proportion of the health network. Hospitals are, however, complex organizations which have usually met with little competition, and hospital management has not evolved with the management reforms seen since the 1960s.

Costs could be reduced in hospitals. The efficiency of most health systems could thus be improved, as some of the saved resources could be reallocated to other care sectors, such as prevention, urban medicine and home care.

The hospital: a complex organization

Large organizations accumulate functional deficiencies over the years which hinder their production processes considerably. Hospitals, which operate in a market where there is little competition, are no exception

to this rule. With the development of market mechanisms in the health sector and strong budgetary pressure from supervisory organizations, reducing costs has become an essential move for hospitals (Townsend et al., 1988; Mullaney, 1989).

How far can cost-cutting go without jeopardizing the quality of care? What is the optimal size of a hospital unit? How can hidden costs be identified?

Faced with the necessity of lowering running costs, the Public Hospitals of the Canton de Vaud (in Switzerland) initiated in 1993 an approach based on the fullest possible involvement of its personnel[1] (Absi et al., 1994). The system that we present here is an intra-hospital approach; it takes little account of, for instance, the global cohesion of the health network or the role of urban doctors, home care or rehabilitation centres. The aim of the approach is to improve the operation of public hospitals and to reduce their running costs.

THE FINANCING OF THE HEALTH SYSTEM IN SWITZERLAND

This brief description is not intended to provide a complete picture of the Swiss health system. The main characteristics are given in order to put the approach used in the Canton of Vaud[2] for lowering hospital costs[1] into context.

Health costs in Switzerland

In 1991, health spending in Switzerland amounted to about 29.6 billion francs[3] (8.9% of the gross domestic product), which corresponds to an annual expenditure of 4300 CHF (US$ 2950) per inhabitant per year.

More than half of the expenditure (51.4%) is generated by health establishments, including hospitals, long-stay establishments and institutions for the handicapped. Out-patient ser-

1 *"Une démarche participative de réduction des coûts, bilan de l'opération orCHidées menée aux Hospices cantonaux vaudois"*: présentation aux journées scientifiques de l'Association latine pour l'Analyse des Systèmes de Santé, Bruxelles, juin 1994 (Absi et al.)

2 For an evaluation of the costs of the Swiss health system, see Sommer & Gutzwiller, 1986. For a presentation of financing mechanisms, see Frei & Hill, 1992, and Gilland, 1990.

3 Federal Statistics Office, Bern, 1994.

vices (doctors, chemists and others) represent 41% of the expenditure, administrative charges (social insurance and the State), 6% and prevention, only 1.6%.

In 1991, Switzerland had 616.4 beds for general care and 171 psychiatric and psycho-geriatric beds per 100 000 inhabitants.

Financial structure of the Swiss health system

The out-patient sector is regulated at the national level, while the hospital sector is controlled by cantonal laws. There are therefore as many systems of hospital financing in Switzerland as there are cantons (26).

The authorities (the Confederation, cantons and communes) finance about 31% of the total cost of the health system. The distribution of financing is as follows:

- public sector (Confederation, cantons and communes), 31%;
- health insurances[4], 38%;
- private insurance and patients who pay for themselves, 29%;
- social security[5], 2%.

More than 60% of health costs in Switzerland are financed directly by households through health insurance and by direct payment of services by the patient.

Reimbursement of in-patient and out-patient services

Several regulations that are common to all of the cantons apply to the reimbursement of services by health insurances. There are two networks of hospitals: private (profit-making) and public or partially public (subsidized). The financing of the public hospital network differs greatly from one canton to another. The commonest tendency is still to undertake 'deficit financing' of hospitals, with varying mechanisms for supervision and control of spending.

Stays in private hospitals are financed on the basis of fee-for-service. The hospital or the clinic invoices the stay, treatments, medical interventions, drugs and medical fees. Some private hospitals have negotiated with the health insurances to obtain preferential rates according to the disease, but this practice is still rare.

[4] Health insurance is provided by private, non-profit-making associations which receive subsidies from the State. They negotiate agreements with professional associations, which must be approved by the authorities.

[5] Disability insurance and occupational accident insurance.

Minimal coverage

Medical insurance is not obligatory in Switzerland; nevertheless, 97% of the population is insured. The health insurances negotiate agreements with professional associations, which must be approved by the authorities, that allow for basic coverage:

- 100% for the costs of hospitalization in a ward in a public hospital, and
- 90% for out-patient costs (dental costs are often excluded).

According to the new law health insurance is obligatory. The new law on health insurance has been voted in December 94, and will be applied in January 96.

It is possible to change from one insurance to another; thus, health insurers can no longer choose good risks. An inter-insurance compensation system for basic coverage encourages harmonization of the basic premiums within cantons. Premiums can differ among cantons, since organization of the health system is the responsibility of the canton.

The health insurances will therefore be able to compete with each other only with regard to the supplementary benefits they offer their clients. Private supplementary benefits generally allow the patient:

- to choose a doctor at the hospital;
- to have access to the network of private hospitals; and
- to make use of supplementary services (e.g. dental and preventive care and thermal baths).

Because of the reduction in public financing, health insurance premiums, and especially supplementary payments for private coverage, have increased markedly over the last few years. The number of private insurance contracts is diminishing. Despite the general cut in hospital use since the beginning of the economic crisis, however, the public hospitals are expecting that the fall in the number of privately insured people will lead to an increase in the number of patients hospitalized in wards.

The health network in the Canton de Vaud

Since 1980, the health establishments of the Canton de Vaud have been financed by global budgeting. This reform of the financing system relates only to the network of health establishments that are public or partially public (private hospitals and foundations that receive a subsidy from the Canton). The State does not control the out-patient activities of doctors or the activities of clinics and private hospitals.

In 1992, the Canton of Vaud[6] had:

- 2880 beds for public and partially public general care,
- 970 beds for private general care (estimate),
- 420 beds for psychiatry and
- 255 beds for psycho-geriatric patients.

The population of the Canton of Vaud was 593 000 inhabitants as of 31 December 1992.

The Public Hospitals of the Canton de Vaud

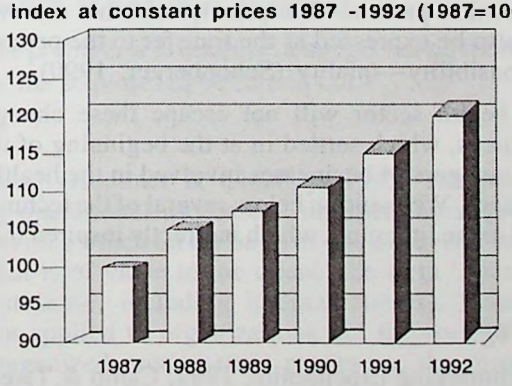
The Public Hospitals of the Canton de Vaud, created in 1991, are a group of public health establishments in the Canton de Vaud, comprising:

- a university hospital with about 1000 beds;
- three psychiatric and psycho-geriatric hospitals;
- a group of university research institutes;
- six schools for teaching medical and paramedical professions;
- and a spa.

The annual budget is about 700 million Swiss francs for 6000 employees.

The Public Hospitals of the Canton de Vaud were set up in order to reduce the running costs of previously independent institutions, by rationalizing their management and by improving coordination of the health network. The running costs of the Public Hospitals of the Canton de Vaud, at constant prices, had increased by 16.1% between 1987 and 1992.

Evolution of costs of the public hospitals of the Canton de Vaud; index at constant prices 1987 -1992 (1987=100)



6 Yearbook of health statistics of the Canton de Vaud, 1992.

The State and the health insurances pressured the Public Hospitals of the Canton de Vaud to reduce their running costs. The targets for savings were established on the following basis: The executive board of the Public Hospitals of the Canton de Vaud analyzed the main functional deficiencies of its establishments and compared the costs and mean length of hospital stay with those of other hospitals in Switzerland and abroad. This diagnosis provided the basis for an estimate of potential savings of about 11%, which could be made while maintaining the same level of quality and activities.

An objective of saving 7% over three years was negotiated with the public authorities. In order to allow room for development, the Public Hospitals of the Canton de Vaud's management set itself the objective of an 11% reduction, so that they could keep the additional 4% and reallocate it to new projects.

METHODOLOGICAL SOURCES

The 1980s saw several upheavals in management practices, which have repercussions today in all business concerns, be they private or public. Business enterprises are taking stock of themselves, and upheavals are occurring both in industry and in services. In order to maintain the competitiveness of business concerns, the new managers must undertake profound restructuring of their organizations, usually within a few months.

Methods of cost reduction have been the subject of a large number of publications in management journals over the past 10 years. All of the methods involve increased participation of personnel and heightened awareness of their responsibilities at every stage of the production process. The principle of this new view of management can also be expressed as the transfer to the personnel of an important responsibility—quality (Schonberger, 1990).

The health sector will not escape these changes. The scarcity of resources, which settled in at the beginning of the 1990s, is inciting the managers of businesses involved in the health system to find new solutions. We mention below several of the techniques most frequently cited in the literature, which indirectly inspired the approach presented here.

Benchmarking

Benchmarking (Spendolini, 1992; Camp & Tweet, 1994) consists of comparing the processes of a business concern with those of its

closest competitors on the market. Three kinds of bench-marking can be envisaged:

- "Competitive bench-marking" involves comparing processes in two competing enterprises, for example, the organization of the operating theatre suite in two hospitals.
- "Functional bench-marking" involves comparing two similar processes in enterprises that are active in different economic areas. In this case, the comparison is made for one function, for example, performance of the acquisitions function in a hospital and in an industrial concern.
- "Internal bench-marking" involves identifying the best practices within an organization, for example, comparing the organization of on-the-job training in two medical units.

The zero base budget

The zero base budget (Phelan, 1989), developed at the beginning of the 1960s by the US administration, was subsequently adopted by many US companies in drawing up their annual budgets.

The zero base budget is derived by asking everyone whose decisions affect the use of resources to justify the expenses included in their budget, starting from zero. The steps are as follows:

- division of the organization into modules with homogeneous activities;
- evaluation of provisional expenses for each module, separating routine activities from new ones; and
- negotiation of budgetary proposals.

In hospitals, the problem is to establish a budget not on the basis of type of expense but of the activities to be carried out.

Re-engineering

Re-engineering (Hammer & Champy, 1993) can be described as 'reinventing operational processes', an operational process being a series of activities which on the basis of one or several inputs produces an output that is of value to the client (the term 'client' being used in its widest sense, including internal clients). Re-engineering is therefore not applied to organizations but to processes. Enterprises are rarely organized around their processes, the responsibility for which is divided up along the internal lines of the organization. Re-

engineering consists in identifying the processes of the enterprise (of which there are rarely more than six) and constructing a project by which to analyze them, with the aim of simplifying and improving them.

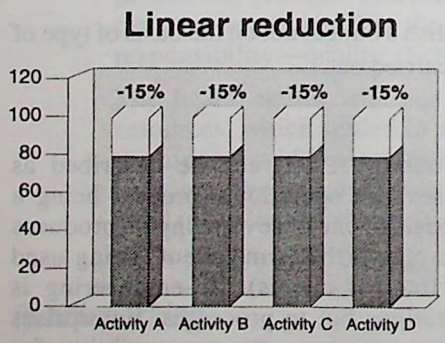
H.J. Harrington (1993) describes the steps of re-engineering as follows:

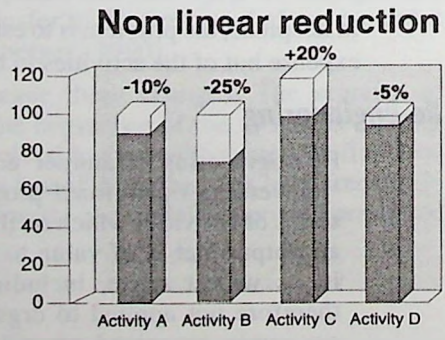
- preparation and training for the approach;
- identification and understanding of the processes to be analyzed;
- analysis of the processes;
- planning for implementation of the decisions;
- implementation, monitoring and improvement of the processes.

WHICH METHOD FOR COST CONTAINMENT?

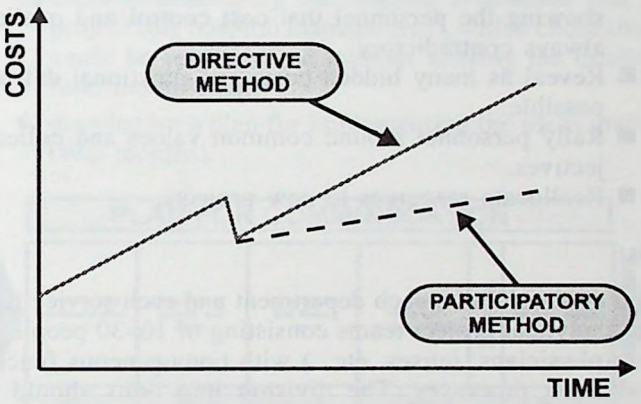
In order to reduce its costs, a business can use either a 'top-down', directive approach or a 'bottom-up' approach that involves more participation. The first ensures a certain coherence in the decisions that are taken and rapid decision-making and implementation. The second more clearly identifies the hidden costs and functional deficiencies; it leads to participatory experience, which perpetuates the savings, but it takes a long time to implement.

The risk in using an approach that does not involve the personnel adequately is that costs will be reduced in an overly linear manner, without elimination or simplification of the activities (Vollmann & Brazas, 1992). T. Vollmann distinguishes between 'down-sizing' and 'right-sizing': 'Down-sizing' is reducing fixed costs; 'right-sizing' is identifying the right number of people to conduct the right activities.





Whether costs are reduced by a directive or participatory approach, a significant reduction is seen after the first few months of implementation. The extent of the decrease depends on the objectives that were set initially and on the freedom the management has to implement the changes rapidly. In the medium term, whatever method is used, costs will begin to increase again; but when a participatory method is used, this growth is usually slower. The repercussions on costs of the directive and the participatory methods in the longer term are shown in the figure.



One of the conditions for successful implementation of solutions for reducing costs is that they be supported by the personnel. Ideally, only superfluous activities are eliminated and the processes are improved. The best way to do this is to involve professionals as much as possible in finding solutions, since people who do a job daily are in the best position to identify badly organized activities and superfluous tasks.

In order to succeed in the long run, a cost reduction operation involving any analytical technique should be based on the following two principles:

- use the skills of in-house personnel, and
- critically analyze the activities, because activities consume most resources (Johnson & Kaplan, 1988).

OBJECTIVES AND PRINCIPLES OF THE APPROACH

The objectives of the approach used in the Canton de Vaud can be summarized in the points listed below.

Objectives

- Reduce costs in the short and medium term.
- Change the habits of all personnel with regard to expenditure.
- Develop participatory experience.
- Develop the habit of a continuous search for quality, showing the personnel that cost control and quality are not always contradictory.
- Reveal as many hidden costs and functional deficiencies as possible.
- Rally personnel around common values and collective objectives.
- Reallocate resources to new projects.

Main steps

Each establishment, each department and each service is divided up into analytical project teams consisting of 10–30 people in different jobs (physicians, nurses, etc...) with homogeneous functions in the production processes. The division into units should follow the organizational structure of the enterprise as closely as possible.

On the basis of a well-defined methodology, the groups so constituted and their managers analyze their activities and calculate the costs of those activities. They then suggest ideas for cost cuttings that will allow them to achieve the working target established at the beginning of the approach.

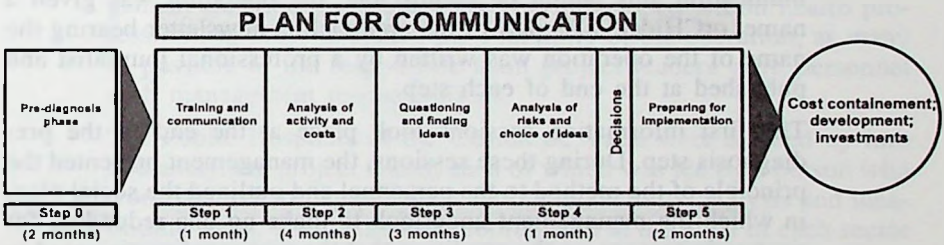
The working target must be set above 20% in order to:

- stimulate enough ideas to avoid linear reductions, and
- incite the analytical project teams to examine their activities critically.

In the Public Hospitals of the Canton de Vaud, the target set in the idea-finding step was 22%, which was twice the objective of 11% set by the hospital management.

The operation lasted slightly more than a year and can be separated into six stages:

1. pre-diagnosis and adaptation of the method to the Public Hospitals of the Canton de Vaud, during which time the target was set and the main sources of savings were identified (two months);
2. information and communication (one month);
3. an analytical step, during which the personnel described their activities and calculated their costs (four months);
4. an idea generating step, in which the personnel analyzed their activities critically and suggested ways of reducing expenses (three months);
5. decision-making by the steering committee that directed the project (the hospital management), which chose those ideas that could be implemented without altering the quality of service (one month); and
6. drawing up a plan for implementing the ideas that were chosen (two months).



THE APPROACH STEP BY STEP

Step 0: Pre-diagnosis

This step, lasting about two months, allowed the executive board to adapt the method to the context of the Public Hospitals of the Canton de Vaud:

- by finalizing the division into analytical project teams;
- by designating people responsible for the structure of the project;
- by preparing a social plan laying down the rules that would be used with respect to human resources after the operation had been accomplished; and
- deciding on the means of communication that would be used throughout the operation.

The potential savings were estimated on the basis of:

- a comparative analysis of the costs and lengths of stay in several hospitals in Switzerland and abroad, and
- an analysis of the main functional deficiencies in the organization of the Public Hospitals of the Canton de Vaud.

After the pre-diagnosis, the target for reduction was negotiated with the Government.

Step 1: Training in the method and communication

The training phase had two objectives:

- to inform each establishment about the initiation of the operation, and
- to model the structure of the project to fit the method.

Informing each area about the initiation of the operation

The approach included many information sessions. So that the communication aids would be identifiable, the operation was given a name, orCHidée[7]. As part of the approach, a newsletter bearing the name of the operation was written by a professional journalist and published at the end of each step.

The first information sessions took place at the end of the pre-diagnosis step. During these sessions, the management presented the principle of the method to the personnel and outlined the social plan, in which the management undertook to make no one redundant for economic reasons on the condition that the personnel participated in finding ways to make savings.

This undertaking was presented to the personnel in the form of two contracts: a social contract and an economic contract.

The social contract included undertakings:

- to make no one redundant for economic reasons: positions would be eliminated by natural wastage;
- on the part of all concerned to participate actively in the project and to adapt to the proposed changes;
- on the part of the hierarchy to take into consideration all suggestions for savings; and
- to maintain or improve the quality of services.

The economic contract included undertakings:

[7] The first syllable is worth its weight in savings; the second syllable represents a hospital centre (centre hospitalier) in Switzerland; the third syllable is full of imagination; and the whole is a noble flower of quality, which reflects the objective of the project.

- on the part of the Public Hospitals of the Canton de Vaud to economize 11% over three years;
- on the part of the Government of the Canton to redistribute 4% for development; and
- on the part of the Government of the Canton to release the Public Hospitals of the Canton de Vaud from all budgetary pressure for three years and to apply the decisions taken about the indexing of salaries to Government employees and Hospital employees as well.

Modelling the structure of the project to fit the method

In order to carry through successfully an operation that involves more than 6000 people, training has to be extremely rigorous. The project had therefore to be given a structure that fits both the method and the organization.

Bases for management and leading team techniques had to be taught to every person having a team responsibility in the project. Management techniques are often not very developed within health professions. In order to ensure the continuity of the operation, as many as possible of the responsible team project leaders were personnel with management responsibilities.

The Public Hospitals of the Canton de Vaud were divided up into 260 analytical project teams, each of which was led by a person who worked one-half day per week during the activity analysis and idea-finding steps. The teams were coordinated at the level of each sector (such as medicine, laboratories and surgery) by 19 organizers working 30% of the time.

Four project heads were nominated: a doctor working full-time for the general university hospital, a doctor working half-time and one nursing manager working half-time for the three psychiatric sectors and one administration manager working half-time for the other institutions (schools, establishments, the spa and the Public Hospitals of the Canton de Vaud management).

Nearly 300 people were trained in the approach during step 1.

Step 2: Analysis of activities and costs

In the step for analysis of activities and costs, the activity, organization and expenditure of each analytical unit was identified. This provided the working basis for the idea-finding step. In four months, the units:

- redrew their organizational charts;
- defined their main missions;
- drew up a list of the activities associated with each mission;
- estimated the time spent for each activity;
- drew up a list of their equipment;
- listed other expenditures associated with each activity; and
- totaled the costs per activity.

Each of the hospital sectors diagnosed their expenditures by an exhaustive economic analysis of each activity. Few hospitals in the world today have such a complete database on their running costs; the Public Hospitals of the Canton de Vaud have information on, for example:

- the costs of out-patient activities;
- the proportion of the budget allocated for research;
- the time spent on direct and on indirect care;
- the number of hours spent at symposia; and
- the cost of drawing up the annual budget.

Step 3: Analysis of the activity and search for improvements

The analytical step (step 2) provided support to identify cost containment projects. It also indicated which activities were the most expensive and facilitated the job of analytical project teams.

Step 3 was very closely structured. Each analytical unit had to:

- classify its activities in terms of resources used;
- identify all of the tasks and/or activities that could be reduced or eliminated without affecting quality;
- make a list of possible ideas for improvements;
- extend the ideas beyond the target (22% v.s. 11% fixed by the hospital management); and
- valorize the savings, by referring to the documents emanating from step 2.

Each analytical unit had to examine its activities and its organization closely, asking two kinds of questions:

- Can we change the needs? Is there a task or an activity that could be eliminated, varied or simplified?
- Can we change the processes? Can this activity be carried out differently, for instance by automating, changing or subcontracting it?

Each idea had to be described clearly, commented upon and evaluated. For each idea, the analytical project team calculated the amount of savings that could be made in:

- personnel hours by professional category;
- consumption of medical and non-medical goods; and
- the necessary investments, counted as depreciation.

This systematic evaluation of ideas for savings provided 'on line' information about the results of the cost containements. It also provided some management training for the personnel.

Step 4: Analysis of risks and choice of ideas

The steering committees in each institution then set about choosing the ideas. The committees comprised the management of the institution and the physicians, heads of each department.

The procedure for choosing ideas was organized so as to facilitate the work of the steering committees, which had to meet for many hours in order to consider each of the ideas. At the university hospital, about 50 hours of meetings were needed to judge all of the ideas proposed. Some of them posed no problem, but others had to be discussed at great length with regard to the maintenance of quality or to their feasibility.

Each idea formulated by the analytical project teams was documented so that it could be commented upon by those responsible for it, the group leaders, the heads of the project and the unit chiefs. All of these people had to give a favorable or unfavorable opinion, followed by a brief commentary.

We consider that maintenance of quality was ensured by this 'filtering' of ideas in a systematic process of opinion gathering by professionals involved in the establishments and the management.

In order to prepare themselves for the decision-making sessions, members of the steering committees received several days before the meeting a list of the ideas to be considered. If a conflict arose during a discussion about an idea, the director of the institution made the final decision.

Step 5: Implementation and conduct of projects

Once the decisions had been taken by the steering committees, a calendar for implementation was drawn up by the project management, in collaboration with the management. In particular, the management of human resources had to estimate how many natural wastages there would be, in order to adjust the implementation plan to savings in personnel.

Each service had to approve the plan for implementation of the

proposed savings. A management accounting unit was created at the Public Hospitals of the Canton de Vaud to evaluate the budgetary situation and the overall realization of savings. Each director had a plan on which he could follow changes made in his sector. The plan contained:

- the usual budgetary information,
- changes in personnel, and
- indicators of the level of activity.

RESULTS OBTAINED

Results obtained in the Public Hospitals of the Canton de Vaud

The decision-making step ended in January 1994. The implementation plans were approved by the management between May and June 1994. A consensus was reached with regard to the objective (11% savings over three years), which may be exceeded.

Apart from the ideas that were proposed, which will allow the Public Hospitals of the Canton de Vaud to decrease their running costs by 11% over three years, the project had certain other effects, which reflect a new awareness of costs. For the same activity, the main direct costs linked to the patient stay decreased significantly within six months. These were mainly requests for laboratory tests and use of linen, medical goods and drugs.

The total savings proposed represent 19.7% of the annual running costs of the Public Hospitals of the Canton de Vaud. Of the proposals, 11.5% were accepted by the steering committees, 2.2% were accepted in principle but considered to require supplementary studies (mostly widespread restructuring of services), and 6% were refused. The potential savings are thus 13.7%.

The total amount of savings accepted differs widely from one service to another, for two reasons:

- the ideas proposed by the analytical project teams were not of the same degree of feasibility, and
- the steering committees made a non-linear choice in order to respect the criterion that the quality of services be maintained.

The table below gives an overview of the results obtained in each sector, in percent savings with respect to the cost of the sector. The distribution of savings that were accepted by type of cost is similar to the structure of the budget. At the university hospital in particular,

the personnel represent 73.2% of costs and the proposed cost containments linked to personnel reduction represent 73.7% of total savings.

Recapitulation of results by sector

SECTEUR	Budgetary weight (1)	No of ideas proposed (2)	Proposed savings (3)	Accepted savings (4)	Savings under study (5)	Potential savings (6)=(4)+(5)	Refused savings (7)=(3)-(6)
Medicine	17.20%	195	14.80%	9.90%	1.10%	11.00%	3.80%
Mother-child*	9.50%	161	20.10%	11.60%	0.10%	11.70%	8.40%
Surgery	11.80%	107	19.70%	12.70%	3.90%	16.60%	3.10%
Ancillary**	17.40%	242	17.60%	8.70%	5.90%	14.60%	2.90%
Other***	16.70%	330	21.50%	17.10%	0.50%	17.60%	3.90%
University Hospital	72.60%	1035	18.50%	11.90%	2.50%	14.40%	4.10%
Schools	3.10%	85	18.10%	4.70%	11.50%	16.20%	1.90%
Research institutes	3.80%	142	25.60%	10.70%	0.10%	10.80%	14.90%
Spa	2.70%	66	22.50%	12.50%	0.00%	12.50%	9.90%
Psychiatric sectors	16.50%	354	23.40%	10.20%	0.30%	10.50%	12.90%
Administratin of the board	1.30%	70	23.50%	19.00%	0.00%	19.00%	4.40%
HOSPICES	100%	1752	19.70%	11.50%	2.20%	13.70%	6.00%

* Gynecology, obstetrics and pediatrics
** Radiology, laboratories, medical support, polyclinics and operating theatre unit
*** Hotels, administration, logistics, technical sectors

An example from Sweden

About two years before the operation was undertaken at the Public Hospitals of the Canton de Vaud, a similar approach was used in Sweden, in the health institutions of Nacka District, near Stockholm. The management of the Public Hospitals of the Canton de Vaud analyzed the results obtained there before deciding to use this method for their own aims.

The health network in Nacka comprises a general hospital, a psychiatric hospital, three geriatric hospitals and 14 primary health centres, with a total of 1045 beds and 4000 employees and a budget of 600 million Swedish crowns.

During the examination step, 4000 ideas were proposed and 1200 were accepted. The savings were about 9%, some of which was reallocated to new projects.

SEVERAL EXAMPLES OF IDEAS USED

A list of ideas is not really useful, as they are often linked to the organization of work in an establishment. The 1752 ideas proposed by the analytical project teams had widely different dimensions and aims, ranging from small savings on goods to widespread restructuring of processes.

The three types of production efficiency described by Newbrander, Barnum and Kutzin in (Newbrander et al. (1992)) are present in the ideas for savings that were proposed:

- technical efficiency,
- economic efficiency, and
- efficiency of scale.

The ideas related principally to the following areas:

- organization of daily work;
- transfer of responsibility to other occupational categories;
- automation of tasks;
- widespread restructuring of services or activities;
- reductions in medical prescriptions (e.g. radiology, laboratories, drugs and physiotherapy);
- reduction in length of stay and transfer to out-patient status;
- improved handling of patients and reductions in waiting time;
- improved cooperation with other care structures; and
- small savings on goods
- others.

PROBLEMS ENCOUNTERED

Poor participation of the medical profession

It is difficult to obtain cooperation from the medical profession. The poor participation of doctors in certain services appeared to be associated with a fear of speaking in front of the medical hierarchy.

Making personnel understand the approach

We found it difficult to persuade the personnel that the operation was not an audit and that the results had not been decided in advance. We had constantly to remind them of the stipulations of the social

plan, in order to overcome their fear of being made redundant. Some services, such as the logistics and technical services, were worried that they would be eliminated and their activities taken over by subcontractors.

The personnel found it difficult to understand that activities and costs had to be analyzed to provide a solid basis for undertaking the idea-finding step. The analytical project teams found this step very tedious and had difficulty in understanding its objective. Nevertheless, they filled in the forms given them for calculating costs by activity very conscientiously, sometimes even in too much detail.

Applying benchmarking methods in the hospital

Comparing hospitals by bench-marking techniques is very difficult. Even within one country, data on activities and finances are often based on different definitions. The various methods that we encountered of counting items as elementary as the number of patients or the number of days led to differences of two days in the mean length of stay for similar case-mixes. Often, some of the costs of public hospitals are accounted for by another State service; these include, for example, depreciation of buildings and equipment, financial costs and insurance.

Benchmarking should be applied with caution in the hospital setting; however, it helps in identifying areas for improvement and facilitates critical examination[8].

Health information systems are still inadequate for making precise comparisons. In a sector of the economy in which 'yardstick competition' appears to be an efficient means for improving performance, however, it is important that this kind of technique be developed, particularly in hospitals (Schleifer, 1985).

Having a good information system

The lack of a good information system is a handicap in implementing a cost reduction operation. In order to calculate costs by analytical project team, one must be able to calculate costs by cost centre. Like many hospitals, the Public Hospitals of the Canton de Vaud have incomplete management accounting, and it is difficult to attribute certain expenses to a particular service. An information system that

[8] Benchmarking in the area of health is the subject of a special issue of the *Journal of Quality Improvement*, May 1994 "Benchmarking in health care: models for improvement"

provides a case-mix index would be a useful tool for tracking changes in certain clinical expenditures, for categorizing ideas that challenge treatments and for measuring activities precisely during the three years in which the economic measures are to be implemented.

The gaps in the information system were often used by the personnel of the Public Hospitals of the Canton de Vaud to contest the validity of the results obtained, even though the highly structured work carried out by the analytical project teams made it possible to calculate costs by activity fairly precisely. Once the work had been done, some heads of services admitted that the effort had helped them to understand the structure of their costs better. This shows that in the absence of a completely computerized information system an occasional study of the structure of expenditures can be very useful for hospital administrators.

The development of an information system centred around the patient is a useful strategy for hospitals which are under pressure from supervisory institutions to manage their expenditures more and more closely. Patient-targeted hospital information systems are being developed everywhere, although they are still deficient in many hospitals. The work done by the analytical project teams was found to be an excellent working basis for streamlining the system of resource allocation and management reporting.

Looking for cost containment was slower than expected

The step in which questions were asked and ideas sought went much more slowly than had been predicted, since the analytical project teams systematically sought a consensus on the ideas that were brought up. This step delayed the planning of the project by about one month; at the end of November, the Public Hospitals of the Canton de Vaud had achieved only 19.7% savings, whereas the working target had been fixed at 22%. It is interesting to note that consensus was not sought at the hospital in Nacka, Sweden, where this step resulted in a large number of ideas. A cultural phenomenon may be involved. The choice of ideas was, however, facilitated in Switzerland, as most of them were highly feasible.

CONDITIONS FOR SUCCESS

On the basis of the experiments carried out in the two countries, we consider that the principal conditions for the success of a cost reduction operation in the hospital are the following:

The support of the hospital management

The support of the hospital management throughout the operation is essential. A study carried out by McKinsey (All et al., 1993) on 100 US companies that had undertaken to reduce costs shows that achieving the stated objectives is strongly linked to the commitment of the management during and after the operation.

The organizers of such a project will find it difficult to maintain pressure on the analytical project teams without the support of the management. The general management should help the project heads to accomplish their mission by making the hierarchy, and particularly unit chiefs, aware of their responsibilities with regard to reducing costs.

The organization of the project

The approach must be organized meticulously: the more participatory the project is, that is, the more people are involved, the more rigorous must be the methodological tools and the organization (Harrington, 1993).

The choice of project heads

The management of the project must be well chosen. Those responsible for running the project often have to deal with difficult situations and spend a great deal of time in persuasion (Carr, 1993). They must therefore be capable of leading a team, ensuring that such a large project advances and be prepared to involve themselves in the cost reduction project.

Training

The management of the project must know how to use the methodological tools perfectly and must be trained to lead meetings and have an overall view of the approach. Training sessions should provide all of the tools necessary for the mission to succeed.

Communication

A communication plan should cover the entire operation. The personnel should be informed progressively of the progress of the project. Many information sessions should be organized and written information distributed regularly. Unions, especially in countries where they are powerful, should be kept informed from the very beginning of

the operation. Information is essential in a project of this size; misleading information can favor the propagation of rumours, which can rapidly become destabilizing.

A newsletter entitled *Or*CH*idée*, written by a professional journalist, was published in Lausanne and distributed to all of the personnel at the end of each step. Weekly meetings at all levels of the management of the project facilitated the dissemination of information and decision-making.

Involvement of the hierarchy

The hierarchy must be involved from the beginning. In the hospital, participation of unit chiefs is essential. Especially during the step in which ideas are sought for savings, they should facilitate teamwork and overcome the fear of speaking in front of the medical hierarchy.

Clear directives from the management

The personnel must be made to understand why cost reduction is necessary. A social plan that clearly lays down the rules that will be adopted with regard to the downsizing must be presented to the personnel at the beginning.

In the orCHidée approach, the State gave the Public Hospitals of the Canton de Vaud three years to make the necessary reductions. This time allowed the management of the Public Hospitals of the Canton de Vaud to commit themselves vis-à-vis the personnel to make no one redundant for economic reasons and to eliminate only those posts that became vacant owing to natural wastages. This solution facilitated the step of finding ideas for savings, by partially eliminating the fear of proposing ideas that might result in loss of their own job.

PROSPECTS FOR USE

To what extent could similar methods be developed elsewhere? The experience in Lausanne shows that cost reduction can be achieved in a large hospital. In developed countries, many public hospitals are probably the source of large potential savings.

Newbrander et al. (1992), who cite various studies carried out by WHO, report that many developing countries have realized that one of their most pressing needs is better management of hospital resources.

We consider that, in the hospital, an approach based on an analysis of activities, calculation of costs by activity and critical examination

of processes by professionals will identify the principal functional deficiencies. The success of an approach like that used in the Canton de Vaud depends on the ability of the authorities to put ideas into practice. Measures to achieve savings in hospitals are unpopular, and administrative regulations do not always give management the necessary leeway to take decisions.

CONCLUSION

Bad hospital management leads to waste of resources that could be better used in improving the primary care network, either by improving the quality of care given at hospital or by allocating the resources to other sectors of the economy.

"By reducing or eliminating numerous functional deficiencies, by making savings wherever possible and by then investing part of the sums saved in new projects, the institutions of the Public Hospitals of the Canton de Vaud will have demonstrated their vitality."[9]

Operation orCHidée is a continuous process. It is a timely search for quality and efficiency and has already changed certain behavioral patterns.

Use of this participatory method meant that the personnel did not suddenly find themselves in a situation in which they had to apply measures for savings that were imposed from outside. This solution is particularly well adapted to the world of health, where a gap can rapidly be created between qualified professionals, who know their area and how it is changing, and an administration that focuses on management and must face the problems involved in allocating resources.

Not all of the ideas will be implemented immediately. As agreed with the Government, they will be instituted over three years. The most complex ideas have until the end of 1996 to become fact.

Most of the ideas that were accepted are still to be put into practice. In view of the fact that many jobs will be superseded and profound changes are to be made in working methods, their introduction will not be easy. We consider, however, that the approach has been successful and that the principal objectives set at the beginning have been attained or even exceeded.

[9] Charles Kleiber, Director-General of the Public Hospitals, in his introduction to the final report of operation orCHidée submitted to the personnel of the Public Hospitals of the Canton de Vaud.

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