An Evaluation Model for Medical System Change

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An evaluation model was developed and used to monitor the impact of a new mode for entering patients into an existing health care delivery system, and it compared the new mode to two alternate entry methods. In accordance with specified eligibility criteria, 6285 patients were selected and then randomly assigned to the three entry modes. The model employed a health status classification which divided patients into four groups depending upon the concurrence of medical care provider and patient as to whether the patient was well or sick. It then measured the utilization of care resources for each patient health status group. All data were then age-sex-adjusted and analyzed for each of the three entry modes for a standard mix of health status groups.

INTRODUCTION

The evaluation model described in this paper developed from the need for continuous monitoring of change in an existing health care system. The model was designed and implemented to measure the impact of an innovative system change. The new system was an ambulatory Medical Care Delivery System (MCDS) designed to improve services for new or infrequent users of service within the Kaiser-Permanente Medical Center in Oakland, California. This Center serves about 150,000 Health Plan members.

The evaluation model incorporated the interests of the following:

1. Patient (user of service).
2. Provider (direct deliverer of service).
3. Designer (planner and implementer of the service system).
4. Decision maker (manager of service).

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Although this paper is written from the points of view of the designer and decision maker, the core concept of the evaluation model — concurrence on health status between the direct provider and the user of service — is the prime criterion for assessing system outcome.

The test system to be evaluated, the new medical care delivery system (MCDS), was a third-generation health care surveillance system designed to improve user access to ambulatory entry services and to conserve physician resources. MCDS was preceded in the Kaiser-Permanente Medical Care Program by two earlier systems. The first-generation system, the Traditional Medical Department (TMD), developed in 1942, allowed new patients to see physicians in a traditional manner in the medical department for history, examination, and workup. The second-generation system, the Multiphasic Health Checkup (MHC), begun in 1964, directed new patients to obtain first a workup in an automated multiphasic health testing laboratory, followed by a physical examination by a physician in an office visit.

The new, third-generation MCDS system, started in 1970, was designed to continue to enter patients through the multiphasic laboratory. The multiphasic testing was followed by a physical examination provided by a nurse practitioner (physician-supervised). Multiphasic laboratory and physical examinations occurred within the same visit and resulted in triage and referral of patient to appropriate health, preventive maintenance, and sick care services.11

The evaluation model took into account that the first- and second-generation systems continued to operate during the development of the new system. Also, evaluation model design allowed for the effects of the new system on existing clinical services. Evaluation results were used to guide changes in clinical services; such changes were: (1) to be consistent with the MCDS concept of total health care delivery (health examination, health care, preventive maintenance, and sick care services), and (2) to support ongoing clinic care operations. It should be noted that this presentation has primarily a methodologic focus. Results generated from application of the evaluation model have been published elsewhere.5-4

It was the function of this evaluation model to generate information which ensures that the effects of change on the performance of the system are reliably monitored. The results then became bases for decisions concerning adjustments that were needed to achieve and maintain targeted performance levels for the system. Also, results suggested modifications that were needed to adjust interrelated operating components. The operating system was reevaluated periodically, which began a new evaluation-interpretation-modification cycle representing monitored growth by design.

The process of growth by design should be evolutionary. It permits control over the effects of change in terms of progressing toward goals, maintaining goal relevancy, and identifying adverse, unanticipated effects that could retard goal achievement.

OBJECTIVES OF THE EVALUATION MODEL

The principal objectives of the evaluation model were:

1. To assess and control the effects of operational modifications to an ongoing