TABLE 1—Weight Loss in Kilograms of 26 Respondents

Measures of Central Tendency	At Graduation	One Year after Graduation
Mean	10.9	11.4
SD	6.0	7.6
Median	10.0	7.7
Range	25.5	30.5

Discussion

Similar courses, re-designed after this initial course, have since been given to a second group of Boston Police Officers and two groups of Boston Firefighters. Because participants in this first group were 50 per cent less responsible in attending the last five classes than the first seven, a positive skewed distribution, the length of the course was shortened to eight weeks. Also due to outcome of this study, exercise classes have been made participatory; a small initial fee is charged to encourage regular attendance; and three-month follow-up classes are given. Classes are also planned to meet the health-job related needs of each group in addition to the core program of dietary treatment pursued as a long-term life-style change for the participating individuals.

Data collected by Blackburn[2] for individual weight loss from diet alone and from diet and medication compare favorably with this group's 12-month follow-up data. Initial and subsequent weight loss for patients receiving nutrition education or behavior modification therapy through TOPS (Take Off Pounds Sensibly)[3] is less than weight lost from our small sample, both initially and in follow-up. It is hoped that through the use of data from this initial trial, and later studies, we can significantly increase initial and sustained weight loss for obese individuals through co-worker group nutrition education.

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Self Care for Colds: A Cost-Effective Alternative To Upper Respiratory Infection Management

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Abstract: A Cold Self-Care (CSC) Center was established in a prepaid ambulatory care setting serving 21,500 subscribers and their dependents. After CSC establishment, a decrease in visits to practitioners for common colds was demonstrated. The operating cost ratio of an outpatient visit as compared to a CSC visit was 14.7/1. Savings over a two-year period are estimated at over $46,000, representing an average estimated ratio of $.09 cost per dollar saved per member per year. (*Am J Public Health* 69:814–816, 1979.)

One definition of self-care is the performance by consumers of activities traditionally carried out by health care providers.[1] Although self-care has its roots outside the traditional medical system, the concept is increasingly considered for integration within established health programs.[2, 3] This trend needs to be carefully evaluated with respect to educational effectiveness, patient behavior variables, medical result, patient/provider acceptance, as well as cost benefit.[4–9]

This paper reports one aspect of an evaluation, the cost analysis component of a Cold Self-Care (CSC) Center, a systematic, integrated approach to the care of common upper respiratory infections (URI) in a large prepaid ambulatory care program.

Service Setting and Study Population

The University Health Services (UHS) provides a comprehensive prepaid health plan for 20,500 students and their dependents as well as 1,000 faculty, staff and their dependents enrolled through the Valley Health Plan (VHP), an independent, federally qualified health maintenance organiza-

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tion (HMO). The outpatient department operates by appointment, as well as maintaining a walk-in service through which 500–600 patients pass daily.

The development of the Cold Self-Care Center was prompted by multiple circumstances. Large numbers of patients were visiting the Health Center for relatively minor upper respiratory diseases, all variations of the common cold, as shown by UHS utilization data as well as by other prepaid practices.[10–13] Thus, there was interest in developing a mechanism to reduce inappropriate utilization of staff resources for minor, self-limited problems which could be effectively treated by patients themselves. Secondly, the UHS philosophy stresses promotion of activities which increase patient involvement, responsibility, and initiative. Finally, there were staff physician vacancies which reduced accessibility, and gave added incentive to reducing the number of minor problems being seen.

The Health Center leadership preferred an approach to decreasing utilization which promoted self-reliance, to one which created barriers to a status-quo system (e.g., charge a copayment for practitioner visits or allow extended waiting times). The organization-sponsored self-care model fulfilled basic criteria of: a) low cost; b) easy access; c) flexibility (a patient could still see a practitioner); and d) an educational component.

The Cold Self-Care Center helps the consumer answer two basic questions: 1) is what I have really a common cold or do I need professional care?; and 2) if I don't need professional care, what can I do to help myself feel better? The process takes about five minutes. Symptoms are assessed by the member on the basis of a checklist or modified algorithm.* If serious symptoms do exist, the member is directed to sign in to see a nurse practitioner. If no serious symptoms are present, he or she proceeds to information about specific home remedies (rest, fluids, salt gargle) and possible medications for symptoms. Printed handouts are available to expand and reinforce the information presented and a "take care of yourself" theme is emphasized, as are the limitations of medicine. For the motivated person, several references are provided. If an over-the-counter product is desired, a self-prescription blank is filled out and presented at the pharmacy. The system preserves, or promotes, the individual's decision-making power. He or she makes the assessment and maintains the option to receive professional care.

General Evaluation

The list of possible benefits of CSC includes increased patient knowledge of cold etiology, care, medications, and prevention; appropriate utilization of personnel; reductions in costs and waiting time; increased staff and patient satisfaction; reallocation of practitioner and patient time to other responsibilities and development of provider and consumer support for other self-care/patient education strategies.

From these possibilities, evaluation perspectives selected were provider and patient satisfaction, patient knowledge and behavior, and cost. Members who used the Cold Self-Care Center demonstrated higher levels of knowledge about cold care than did non-users, appeared to feel more dependent on professional resources, and seemed to report different health-related attitudes and cold care behavior. General satisfaction was quite high, with speed and ease of use cited most often as reasons for satisfaction. Use of the center appeared to have little impact on attitudes or self-medication behavior, but it did affect care-seeking behavior. Of users, 20 percent referred themselves immediately to professional care, and 6 percent anticipated seeking professional care for any subsequent cold.[14] A survey of clinicians' opinions found that there were no significant adverse effects of self treatment noted, and that the CSC Center had reduced clinic visits for uncomplicated URIs.

Cost Analysis

The cost per URI encounter was investigated and subsequent financial implications were estimated for two years, including one developmental year. During 1975–76, the development costs for the Cold Self-Care Center totaled approximately $2,029, including a 40 percent overhead over direct costs. The human resources ($1,217) used during the development process included time of the health educator (who coordinated program development), the Directors of Nursing, Medicine, Health Education, Executive Director, and Pharmacist (who assisted with development and reviewed materials) and secretarial and graphic artist time. Materials and equipment ($812) included signs, center construction (lumber, paint, etc.), copyright fees, printing costs, and miscellaneous supplies. The estimated cost per Cold Self-Care Center user was $.65 for the first development year.

Table 1 compares the costs of managing an upper respiratory problem when the patient is seen in the outpatient clinic[15] with those incurred by going through the CSC process. During the 1975–76 development year, the costs were $9.03 and $1.37 respectively, an outpatient to CSC start-up cost ratio of 6.6/1. During the subsequent year, the costs were $11.02 and $.75 respectively, a ratio of 14.7/1. This cost approximation does not consider other "ripple" effects on the outpatient system. For instance, nurse practitioners, seeing fewer URIs, are in turn seeing other problems formerly seen by physicians.

In assessing impact, visits to clinicians for three years prior to, and two years following CSC institution, were monitored. Comparisons were made for the diagnoses: nasopharyngitis, pharyngitis, hayfever, and sinusitis. Because data represent diagnoses which reflect disease incidence and determine treatment and management of the patient, they undoubtedly include both errors of commission and omission. Nevertheless, they provide a reasonable overview of trends.

Figure 1 demonstrates reported visits to physicians and nurse practitioners per 1,000 members between 1972–77. A decrease in visits for common URI categories after the CSC

*Available on request to author.

TABLE 1—Comparisons: Cold Self-Care and Clinician Visit by Year

Cost per Visit Comparison 1975-76 Development Outpatient[1]		Cold Self-Care	
Direct Cost[2]	6.45	Development Costs/User	.65
Overhead (40%)[3]	2.58	Direct Cost[5]	.05
Medication[4]	.66	Overhead (25%)[6]	.01
		Medication[4]	.66
	9.03		1.37
OPD/CSC cost ratio	6.6/1		
Cost per Visit Comparison 1976-1977 Outpatient		**Cold Self-Care**	
Direct Cost	7.40	Direct Cost	.07
Overhead (40%)	2.96	Overhead (25%)	.02
Medication	.66	Medication	.66
	11.02		.75
OPD/CSC cost ratio	14.7/1		

[1]Average direct cost figures were obtained from the Uniform Reporting Program for College & University Health Centers sponsored by the American College Health Association in cooperation with the Hospital Administrative Services Division of the American Hospital Association.

[2]Average direct cost of a clinic visit (12 month average January-December 1975), staff salaries (MD, RN, Aide), consumed medical and surgical supplies.

[3]Heat, light, building equipment amortization, maintenance, housekeeping, administrative salaries, computer use, malpractice insurance, telephone, appointment system, medical records, proportion of University overhead. Allocated to departments by "stepdown" method of cost accounting.

[4]Average cost of medication .29; cost of packaging per medication .54; average two medications/patient; credited $1 copayment ($.50 per medication).

[5]Printed materials.

[6]Heat, light, amortization, maintenance, housekeeping, administrative salaries, university overhead.

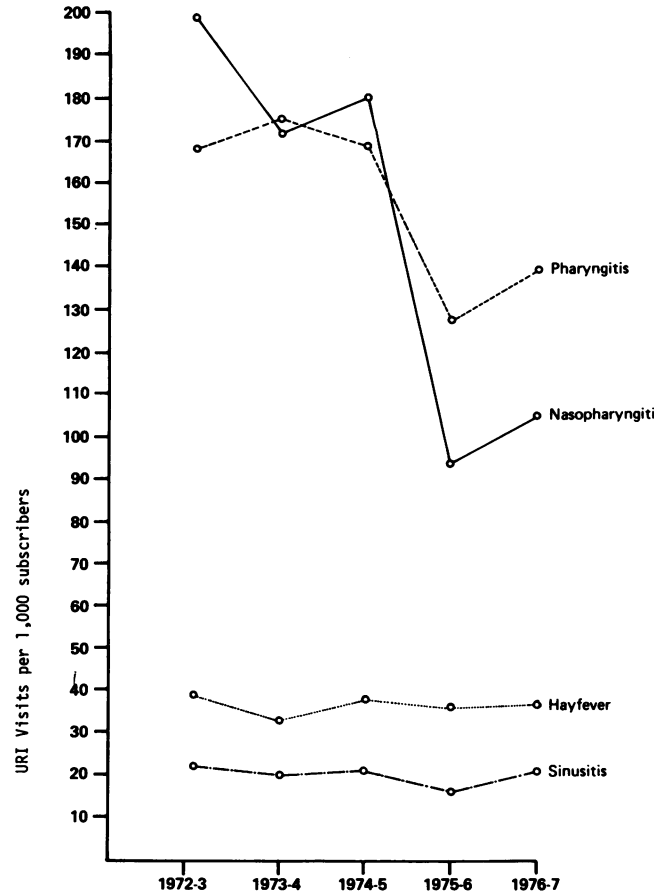

FIGURE 1—URI Visits to Clinicians per 1,000 Members, 1972–1977

Center was established was demonstrated.* The two reported categories of hayfever and sinusitis (indicators of upper respiratory problems requiring clinician care) were apparently effectively triaged and seen at the same level by practitioners before and after the installation of the CSC Center.

An estimate of Nasopharyngitis and Pharyngitis OPD visits saved was calculated (1975-76: 2,638, 1976-77: 2,518). Applying the respective costs for an OPD visit versus a Cold Self-Care visit from Table 1, the differences indicate an estimated savings of $20,260 for the 1975-76 development year and $25,860 for 1976-77. Thus in two years, estimated savings to the clinic was $46,120, representing an average estimated ratio of $0.09 cost per dollar saved per member per year.

*Nasopharyngitis: $\chi_1^2 = 30.4$, p-value $> .001$; Pharyngitis: $\chi_1^2 = 5.30$, p-value $< .05 < .02$.

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