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If routine problems can be effectively managed in cooperation with other health care providers, this may also lead to the more complex case mix these physicians ideally want.

Abstracts

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Effect of a Copayment on Use of the Emergency Department in a Health Maintenance Organization

Joe V. Selby, MD, MPH; Bruce H. Fireman, MA; Bix E. Swain, MS. *N Engl J Med* 1996;334:635-41.

Background

Use of the emergency department for nonemergency care is frequent and costly. We studied the effect of a copayment on emergency department use in a group-model health maintenance organization (HMO).

Methods

We examined the use of the emergency department in 1992 and 1993 by 30,276 subjects who ranged in age from 1 to 63 years at the start of the study and belonged to the Kaiser Permanente HMO in Northern California. We assessed their use of various HMO services and their clinical outcomes before and after the introduction of a copayment of \$25 to \$35 for using the emergency department. This copayment group was compared with two randomly selected control groups not affected by the copayment. One control group, with 60,408 members, was matched for age, sex, and area of residence to the copayment group. The second, with 37,539 members, was matched for these factors and also for the type of employer.

Results

After adjustment for age, sex, socioeconomic status, and use of the emergency department in 1992, the decline in the number of visits in 1993 was 14.6 percentage points greater in the copayment group than in either control group ($P < 0.001$ for each comparison). Visits for urgent care did not increase among subjects in any stratum defined by age and sex, and neither did the number of outpatient visits by adults and children. The decline in emergency visits for presenting conditions classified as "always an emergency" was small and not significant. For conditions classified as "often an emergency," "sometimes not an emergency," or "often not an emergency," the declines in the emergency department were larger and statistically significant, and they increased with decreasing severity of the presenting condition. Although our ability to detect any adverse effects of the copayment was limited, there was no suggestion of excess adverse events in the copayment group, such as increases in mortality or in the number of potentially avoidable hospitalizations.

Conclusions

Among members of an HMO, the introduction of a small copayment for the use of the emergency department was associated with a decline of about 15 percent in the use of that department, mostly among patients with conditions considered likely not to present an emergency.

Dermatologists in Kaiser Permanente-Northern California Satisfaction, Perceived Constraints, and Policy Options

David A. J. Weinberg, PhD; Patricia G. Engasser, MD. *Arch Dermatol* 1996;132:1057-63.

Background and Design

A survey was conducted in a large closed-panel health maintenance organization to identify and understand influences on dermatologists' job satisfaction and preferences for policies affecting management of routine dermatologic care. Of the population of 98 dermatologists, 91 (93%) responded. The main variables of interest were current and ideal practice characteristics (time allocations and case mix) and (dis)agreement with 4 statements: (1) I am satisfied with my job; (2) I favor a direct access model over a gatekeeper model for patients seeking dermatologic care; (3) I favor training primary care physicians to evaluate and treat routine dermatologic problems; and (4) I welcome incorporating nurse practitioners and physician extenders into my practice.

Results

The dermatologists currently spend 86% of their work time providing patient care. On average, 70% of their case load involves routine problems; 56% would ideally increase the complexity mix of their patients. The survey reveals gender differences in perceptions of time constraints and opportunities for professional development. Most dermatologists (88%) report they are satisfied with their jobs. Satisfaction correlates strongly with their perceived ability to deliver excellent care, use their skills, and develop new skills (correlations, 0.53-0.59). Although 78% favor retaining direct patient access, at least 60% endorse more cooperative work with primary care physicians and nurse practitioners. These views are related to their satisfaction, interest in challenging cases, development and use of new skills, and perceived relationships with colleagues and support staff.

Conclusions

Understanding the factors that affect physician preferences can help to identify policies that potentially improve efficiency without compromising quality of care or physician satisfaction. If routine problems can be effectively managed in cooperation with other health care providers, this may also lead to the more complex case mix these dermatologists ideally want. Further study might focus on the scheduling and referral processes that influence both cost-effectiveness and continuity in coverage for dermatologic problems.



Prevalence and Incidence of Adult Pertussis in an Urban Population

Mary E. Nennig, BSN, CIC; Henry R. Shinefield, MD; Kathryn M. Edwards, MD; Steven B. Black, MD; Bruce H. Fireman. *JAMA* 1996;275:1672-1674.

Objectives

To determine the prevalence of *Bordetella pertussis* infection among adults who have prolonged cough for 2 weeks or longer and to estimate the incidence of B pertussis infection in adults in a defined urban population.

Design

A prospective clinical study.

Setting

Kaiser Permanente, San Francisco Medical Center.

Participants

One hundred fifty-three referred and participating health plan members 18 years old or older with the complaint of cough persisting for 2 weeks or longer and 154 health plan members 18 years old or older with no cough for the past 3 months (controls) were enrolled. Medical records for an additional 100 patients randomly sampled from 676 patients 18 years old or older with an ambulatory diagnosis of cough (60 with prolonged cough) were also reviewed.

Main Outcome Measures

Prevalence of adult pertussis as determined by enzyme-linked immunosorbent assay IgG antibody levels of pertussis toxin in individuals with prolonged cough for 2 weeks or longer and the incidence of adult pertussis in San Francisco Kaiser health plan members.

Results

The prevalence of adult pertussis was 12.4% of the participating referrals. The incidence of adult pertussis was estimated to be 176 cases per 100,000 person-years (95% confidence interval, 97-255 cases).

Conclusions

Adult pertussis is a significantly greater public health threat than previously suspected. Booster doses of acellular pertussis vaccine after 7 years of age may be an effective approach to minimize transmission and infection.

Enrollment Duration, Service Use, and Costs of Care for Severely Mentally Ill Members of a Health Maintenance Organization

Bentson H. McFarland, MD, PhD; Richard E. Johnson, PhD; Mark C. Hornbrook, PhD. *Arch Gen Psychiatry* 1996;53:938-944.

Background

The rapid growth of prepaid health care and the increasing enrollment of Medicaid clients in health maintenance organizations (HMOs) raise concerns about the

adequacy of services for persons with severe mental illness in capitated health plans. Uncontrolled studies have suggested that enrollment of HMO members with mental illness may be prematurely terminated.

Methods

We identified 250 adult Kaiser Permanente Northwest Region (Portland, OR) members who were enrolled during 1986 or 1987 and had chart diagnoses of schizophrenia or bipolar disorder. Severely mentally ill subjects were matched by age and sex with control HMO members with and without diabetes mellitus. Records of the HMO and the state mental health agency were reviewed to determine HMO enrollment duration, private and public service utilization, and HMO costs of care during the 4-year follow-up period.

Results

The severely mentally ill subjects had 42 months of HMO enrollment during the follow-up period compared with 37 months for the controls without diabetes mellitus and 47 months for the patients with diabetes mellitus ($P < .001$). When HMO enrollment prior to the study was taken into account, the severely mentally ill subjects and those with diabetes mellitus had similar membership duration. Among the severely mentally ill subjects, community mental health service use was related to longer duration of HMO enrollment ($P < .05$) but HMO costs of care per member per month were not related to retention. The severely mentally ill subjects were high users of mental health services but their use of general medical care was similar to that of the controls without diabetes mellitus.

Conclusions

This controlled study found no evidence for early termination of HMO members with costly mental illness. Use of community mental health care was associated with longer duration of HMO enrollment.

Stroke in Users of Low-Dose Oral Contraceptives

Diana B. Petitti, MD; Stephen Sidney, MD; Allan Bernstein, MD; Sheldon Wolf, MD; Charles Quesenberry, PhD; Harry K. Ziel, MD. *N Engl J Med* 1996;335:8-15.

Background

Previous studies have linked the use of oral contraceptive agents to an increased risk of stroke, but those studies have been limited to oral contraceptives containing more estrogen than is now generally used.

Methods

In a population-based, case-control study, we identified fatal and nonfatal strokes in female members of the California Kaiser Permanente Medical Care Program who were 15 through 44 years of age. Matched controls were randomly selected from fe-

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male members who had not had strokes. Information about the use of oral contraceptives (essentially limited to low-estrogen preparations) was obtained in interviews.

Results

A total of 408 confirmed strokes occurred in a total of 1.1 million women during 3.6 million woman-years of observation. The incidence of stroke was thus 11.3 per 100,000 woman-years. On the basis of data from 295 women with stroke who were interviewed and their controls, the odds ratio for ischemic stroke among current users of oral contraceptives, as compared with former users and women who had never used such drugs, was 1.18 (95 percent confidence interval, 0.60 to 2.16). With respect to the risk of hemorrhagic stroke, there was a positive interaction between the current use of oral contraceptives and smoking (odds ratio for women with both these factors, 3.64; 95 percent confidence interval, 0.95 to 13.87).

Conclusions

Stroke is rare among women of childbearing age. Low-estrogen oral-contraceptive preparations do not appear to increase the risk of stroke.

Genetic and Environmental Influences on Insulin Levels and the Insulin Resistance Syndrome: An Analysis of Women Twins

Elizabeth J. Mayer; Beth Newman; Melissa A. Austin; Danya Zhang; Charles P. Quesenberry, Jr; Karen Edwards; Joseph V. Selby. Am J Epidemiol 1996;143:323-32.

Multiple factors may determine insulin resistance and the insulin resistance syndrome. The contributions of genes and environment to the distribution of fasting insulin levels and to the associations of fasting insulin with elements of the syndrome were evaluated in the second examination of the Kaiser Permanente Women Twins Study (Oakland, California, 1989-1990). Subjects included 556 white women (165 monozygous twin pairs, 113 dizygous pairs; 455 women with normal glucose tolerance, 75 with impaired glucose tolerance, and 26 with non-insulin-dependent diabetes by World Health Organization criteria). The intraclass correlation coefficients for log fasting insulin for monozygous and dizygous twin pairs were 0.64 and 0.40, respectively. After adjustment for age, behavioral factors, and body mass index, the estimated classic heritability was 0.53 ($p = 0.003$). Commingling analysis of fasting insulin indicated the presence of four distributions ($p < 0.001$), consistent with at least one, and perhaps two, genes influencing this trait. In an unmatched multiple regression model among women from monozygous twin pairs only, log fasting insulin was independently associated with body mass index ($p < 0.0001$), waist/

hip ratio ($p = 0.02$), and glucose intolerance ($P = 0.02$), and glucose intolerance ($p = 0.04$), but not with triglycerides, high density lipoprotein cholesterol, or hypertension. After removal of genetic influences by analysis of monozygous intrapair differences, only body mass index ($p < 0.0001$) remained independently related to fasting insulin. The authors conclude that, in addition to significant genetic influences on fasting insulin, environmental or behavioral factors (particularly nongenetic variation in obesity) are important determinants of fasting insulin and the insulin resistance syndrome.

Patients with Amyotrophic Lateral Sclerosis Receiving Long-Term Mechanical Ventilation

Alvin H. Moss, Edward Anthony Oppenheimer, Patricia Casey, Pamela A. Cazzolli, Raymond P. Roos, Carol B. Stocking, Mark Siegler. Chest 1996; 110:249-55.

Objective

To examine advance care planning and outcomes of patients with amyotrophic lateral sclerosis (ALS) receiving long-term mechanical ventilation (LTMV).

Design: Case series.

Setting

Population-based study in homes and chronic care facilities in four states, and Home Ventilator Program of California Kaiser Permanente.

Patients

Seventy-five ALS patients receiving LTMV were identified; 11 died prior to interview, and 6 were totally locked in; 50 of 58 (86%) who were able to communicate consented to structured interviews, of whom 36 lived at home and 14 in an institution.

Results

Thirty-eight patients (76%) had completed advance directives, and 96% wanted them. Thirty-eight patients wished to stop LTMV in certain circumstances, of whom 30 had completed advance directives. Those who had completed advance directives were more likely to have communicated their preference to stop LTMV to family and physician than those who had not (76 vs 29%; $p = 0.05$). Patients living at home rated their quality of life on a 10-point scale better than those in an institution (7.2 vs 5.6; $p = 0.0052$), and their yearly expenses were less (\$136,650 vs \$366,852; $p = 0.0018$).

Conclusions

Most ALS patients receiving LTMV would want to stop it under certain circumstances, and the process of advance care planning enhances communication of patient preferences to family and physicians. Home-based LTMV is less costly and associated with greater patient satisfaction.