Abstracts of Articles Authored or Coauthored by Permanente Clinicians

Selected by Louise Williams, PhD, Center for Health Research

From the Northwest:

Computerized health information and the demand for medical care

Wagner TH, Jimison HB. Value Health 2003; 6(1):29-39.

OBJECTIVE: Consumer health information, once the domain of books and booklets, has become increasingly digitized and available on the Internet. This study assessed the effect of using computerized health information on consumers' demand for medical care.

METHODS: The dependent variable was self-reported number of visits to the doctor in the past year. The key independent variable was the use of computerized health information, which was treated as endogenous. We tested the effect of using computerized health information on physician visits using ordinary least squares, instrumental variables, fixed effects, and fixed-effects instrumental variables models. The instrumental variables included exposure to the Healthwise Communities Project, a community-wide health information intervention; computer ownership; and Internet access. Random households in three cities were mailed questionnaires before and after the Healthwise Communities Project. In total, 5909 surveys were collected for a response rate of 54%.

RESULTS: In both the bivariate and the multivariate analyses, the use of computerized health information was not associated with self-reported entry into care or number of visits. The instrumental variables models also found no differences, with the exception that the probability of entering care was significantly greater with the two-stage conditional logit model ($p < .05$).

CONCLUSIONS: Although providing people with health information is intuitively appealing, we found little evidence of an association between using a computer for health information and self-reported medical visits in the past year. This study used overall self-reported utilizations as the dependent variable, and more research is needed to determine whether health information affects the health production function in other important ways, such as the location of care, the timing of getting care, or the intensity of treatment.

From Northern California:

Safety and efficacy of the seven-valent pneumococcal conjugate vaccine: evidence from Northern California

Black S, Shinefield H. Eur J Pediatr 2002; 161 Suppl 2:S127-31.

Pneumococcal disease remains a significant cause of morbidity among young children. A large-scale efficacy trial in the Northern California Kaiser Permanente system (the KP trial) demonstrated that a seven-valent conjugate vaccine (PCV) is safe and immunogenic in young children and effective in preventing both invasive pneumococcal disease caused by vaccine serotypes (97.4% efficacy) and episodes of otitis media (7.0% efficacy). Since the publication of the results of the KP trial in 2000, we have performed an additional analysis on the safety, immunogenicity, and efficacy of the vaccine in low birth weight (LBW) and preterm (PT) infants, and have examined the efficacy of the vaccine during one year of wide-scale post-licensure use. The vaccine was at least as immunogenic in LBW and PT infants as in normal-weight, full-term infants and was 100% effective, although the LBW and PT infants had higher rates of adverse events such as redness and swelling. LBW and PT infants receiving pneumococcal vaccine also had higher rates of adverse events, such as hives, than those receiving control meningococcal vaccine, but these reactions were not severe. When the PCV was used in the general population, the efficacy remained high and there was no corresponding increase in disease caused by nonvaccine serotypes. There was also evidence that vaccine administration led to herd immunity. Febrile illness was the only adverse event seen more frequently after vaccine administration than during a control period.

CONCLUSION: The seven-valent conjugate vaccine is safe and effective for use in the general population.

From Southern California:

Acute diverticulitis in the young adult is not "virulent"

Schweitzer J, Casillas RA, Collins JC. Am Surg 2002; 68(12):1044-7.

Acute diverticulitis historically has been considered rare before the age of 40 but "virulent" when it does occur and frequently requiring emergency operation. Recent experience suggests that the demographics and management of this disease are changing. Outcomes at Kaiser Permanente Los Angeles Medical Center were reviewed. Between January 1997 and July 2001, 261 patients were discharged with the diagnosis of acute diverticulitis; 46 or 18% of these were aged ≤ 40. Patients' mean age was 35, 76% were men, 65% were Latino, and 72% were obese (body mass index ≥ 30 kg/m2). An operation at initial presentation was performed on 35% (16/46) patients. Only 19% of these (3/16) had a correct preoperative diagnosis. The 30 patients who were treated nonoperatively all were managed successfully; one required a percutaneous drain. Given the apparent increasing frequency of acute diverticulitis in young adults and the high success rate of initial

nonoperative management, surgeons should consider this diagnosis in selected patients who present with abdominal symptoms. Knowledge of typical clinical features and judicious use of computed tomography may decrease the number of unnecessary emergency operations in young adults with acute diverticulitis. Our data do not support a "virulent" label for this disease in the young.

From Southern California:

Fate of the anterior cruciate ligament-injured knee

Fithian DC, Paxton LW, Goltz DH. Orthop Clin North Am 2002; 33(4):621-36, v.

Most patients with anterior cruciate ligament (ACL) injuries do well with activities of daily living even after follow-up in the range of five to 15 years. Most can participate in some sports activity if they are inclined to do so, but most will have some limitations in vigorous sports, and only a few will be entirely asymptomatic. The challenge to the clinician is to understand and predict how ACL deficiency in a given patient will affect that patients' life and activities. In counseling patients about treatment after an ACL injury, the clinician can use knee ligament arthrometry measurements and pre-injury sports activity to estimate the risk of injury over the next five to ten years. Meniscus, chondral, and sub-chondral injuries are not uncommon, but rarely require surgical intervention in the early phase of ACL deficiency. The prevalence of clinically significant meniscal damage increases with time, and is associated with increasing disability, surgery, and arthrosis in high-risk patients. Ligament reconstruction has not been shown to prevent arthrosis, but in prospective studies it appears to reduce the risk of subsequent meniscal injury, improve passive anteroposterior knee motion limits, and facilitate return to high-level sporting activities.

CLINICAL IMPLICATION: ACL injury results in knee instability that can lead to recurrent injury, surgery, and potentially, arthritis. It is important for first-line care providers to consider the possibility of ACL injury when a patient presents with a knee injury. Pathologic anterior knee laxity can be documented with a careful examination by an experienced knee specialist. In counseling patients about treatment after an ACL injury, the clinician can use knee ligament arthrometry measurements and pre-injury sports activity to estimate the risk of injury over the next five to ten years. –DF

From the Northwest:

Understanding changes in primary care clinicians' satisfaction from depression care activities during adoption of selective serotonin reuptake inhibitors

Shye D, Brown JB, Mullooly JP, Nichols GA. Am J Manag Care 2002; 8(11):963-74.

OBJECTIVES: To describe how primary care clinicians' perceptions about depression care as a clinical activity changed during the adoption of selective serotonin reuptake inhibitors (SSRIs) in their health maintenance organization (HMO).

STUDY DESIGN: Prospective study of change in primary care clinicians' level of satisfaction from depression care activities from Time 1 (mid-1993) to Time 2 (early 1995).

METHODS: Study subjects were internal medicine and family practice physicians, physician assistants, and nurse practitioners (n = 196) in a large, not-for-profit group-model HMO. We modeled level of satisfaction from depression care activities at Time 2 as a function of changes in depression-care-related attitudes and perceptions over the study period, controlling for Time 1 level of satisfaction and personal and professional characteristics.

RESULTS: Overall satisfaction showed a small, statistically significant improvement over the study period. Time 2 satisfaction was a function of improved perceptions about the feasibility of primary care treatment of depression, which in turn were related to improved perceptions about the effectiveness of drug treatment. The relevance of clinicians' perceptions about their own depression care skills declined concomitantly.

CONCLUSIONS: The adoption of SSRIs in the HMO was associated with improvement in primary care clinicians' perceptions about their ability to successfully treat depression (especially using pharmacology) and in their overall satisfaction from depression care activities. Future research should address whether reliance on SSRIs replaces the use of other depression treatment modalities, and if so, how this reliance affects patient outcomes and satisfaction and overall health care costs.

From Ohio:

The impact of a health education program targeting patients with high visit rates in a managed care organization

Dally DL, Dahar W, Scott A, Roblin D, Khoury AT. Am J Health Promot 2002; 17(2):101-11.

PURPOSE: To determine if a mailed health promotion program reduced outpatient visits while improving health status.

DESIGN: Randomized controlled trial.

SETTING: A midsized, group practice model, managed care organization in Ohio.

SUBJECTS: Members invited (n = 3214) were high utilizers, 18 to 64 years old, with hypertension, diabetes, or arthritis (or all). A total of 886 members agreed to participate, and 593 members returned the initial questionnaires. The 593 members were randomized to the following groups: 99 into arthritis treatment and 100 into arthritis control, 94 into blood pressure treatment and 92 into blood pressure control, and 104 into diabetes treatment and 104 into diabetes control.

MEASURES: Outpatient utilization, health status, and self-efficacy were followed over 30 months.

INTERVENTIONS: Health risk appraisal questionnaires were mailed to treatment and control groups before randomization and at one year. The treatment group received three additional condition-specific (arthritis, diabetes, or hypertension) questionnaires and a health information handbook. The treatment group also received written health education materials and an individualized feedback letter after each returned questionnaire. The control group received condition-specific written health education materials and reimbursement for exercise equipment or fitness club mem-

bership after returning the one-year end of the study questionnaire.

RESULTS: Changes in visit rates were disease specific. Parameter estimates were calculated from a Poisson regression model. For intervention vs controls, the arthritis group decreased visits 4.84 per 30 months ($p < 0.00$), the diabetes group had no significant change, and the hypertension group increased visits 2.89 per 30 months ($p < 0.05$), the overall health status improved significantly (-6.5 vs 2.3, $p < 0.01$) for the arthritis group but showed no significant change for the other two groups, and coronary artery disease and cancer risk scores did not change significantly for any group individually. Overall self-efficacy for intervention group completers improved by -8.6 points ($p < 0.03$) for the arthritis group, and the other groups showed no significant change.

CONCLUSIONS: This study demonstrated that in a population of 18 to 64 years with chronic conditions, mailed health promotion programs might only benefit people with certain conditions.

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CLINICAL IMPLICATION: This study indicates that health promotion programs mailed to 18-64-year-old members of Medical Care Organizations reduces visit rates while improving functionality and health status of high-utilizing persons with only certain diagnoses. Further research is needed to determine the effect of mailed health promotion programs on additional medical outcomes, such as hospitalizations and emergency departments, or in determining which conditions benefit from these mailings. –DD

From Northern California/Northwest:

Bone loss predicts subsequent cognitive decline in older women: the study of osteoporotic fractures

Lui LY, Stone K, Cauley JA, Hillier T, Yaffe K. J Am Geriatr Soc 2003; 51(1):38-43.

OBJECTIVES: To determine whether the rate of bone loss predicts subsequent cognitive decline independently of baseline bone mass and whether apolipoprotein E (ApoE) genotype explains the association.

DESIGN: A prospective cohort study.

SETTING: Clinical centers in Baltimore, MD; Minneapolis, MN; Pittsburgh, PA; and Portland, OR.

PARTICIPANTS: Four thousand four hundred sixty-two women aged 70 and older (mean = 75.8) participating in the Study of Osteoporotic Fractures.

MEASUREMENTS: Total hipbone mineral density (BMD) was measured two and six years after enrollment (mean follow-up = 3.5 years), and expressed as annualized percentage rate of bone change. A modified Mini-Mental State Examination (mMMSE) was administered at six and ten years (mean follow-up = 4.5 years) and defined cognitive decline as a decline of three or more points on repeat mMMSE score. ApoE genotype information was available on 883 women.

RESULTS: Cognitive decline occurred in 12% of the women with the least bone loss (by quartile), 14% in the second, 16% in the third, and 20% in those with the greatest bone loss. After adjustment for age, education, stroke, functional status, estrogen use, body mass index, and smoking, the results were similar. Those who lost the most BMD were almost 40% more likely than women in the lowest quartile to develop cognitive decline in the multivariate model (odds ratio (OR) = 1.4, 95% confidence interval (CI) = 1.1-1.8). A similar association between hipbone loss and cognitive decline was observed in the multivariate model further adjusting for ApoE e4 (OR = 1.5, 95% CI = 0.8-2.7).

CONCLUSIONS: Women with more rapid hipbone loss were more likely to develop cognitive decline than those who had lower rate of loss (or who gained bone mass). Differences in functional status, estrogen use, and ApoE did not explain this association. Further investigation is needed to determine the mechanisms that link osteoporosis and cognitive decline.

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From Northern California:

Prevalence of and reasons for preoperative tobacco use

Shannon-Cain J, Webster SF, Cain BS. AANA J 2002 Feb; 70(1):33-40.

Smoking cigarettes has an impact on all aspects of the perioperative anesthetic. It is not known whether patients are typically educated regarding these effects. Eighty-one patients completed a questionnaire concerning smoking behavior in the 24 hours before surgery. Variables measured were smoking history, tobacco addiction, and preoperative education. Chi-square analysis was used. Of 81 participants, 66 (81%) smoked tobacco within 24 hours of surgery. Thirty-seven patients received no instructions to stop smoking, and only two patients abstained on their own. Of the 44 patients counseled not to smoke, 12 abstained from tobacco before operation. Thus, with counseling, the cessation rate was approximately five times greater (chi 2 = 7.0, p = .008). A second correlation was seen when the patients were informed about tobacco's risks related to anesthesia. The smoking rate decreased from 15% to 4%, a four-fold decrease (chi 2 = 15.3, p = .0001). The results indicate patients who smoke are not routinely informed of the risks of tobacco use or the benefits of abstinence before surgery. Counseling has a positive impact on the patient's smoking behavior in the 24 hours preceding surgery. Anesthesia providers and surgeons have a renewed obligation to instruct patients not to smoke before surgery.

CLINICAL IMPLICATION: The most important practical lesson in the article for the Primary Care Provider is that your patient's risk of anesthetic complications is significantly affected if he or she continues to smoke into the preoperative period. We should strongly advise them to abstain from smoking especially in that time range. This recommendation can statistically reduce patients' perioperative tobacco abuse. –SW