Abstracts of Articles Authored or Coauthored by Permanente Clinicians

Selected by Louise Williams, PhD, Center for Health Research

From Northern California:
Ethnic and racial differences in diabetes care: the insulin resistance atherosclerosis study
Bonds DE, Zaccaro DJ, Karter AJ, Selby JV, Saad M, Goff DC Jr. Diabetes Care 2003 Apr;26(4):1040-6.

OBJECTIVE: Diabetes and its complications disproportionately affect African Americans and Hispanics. Complications could be prevented with appropriate medical care. We compared five processes of care and three outcomes of care among African Americans, Hispanics, and non-Hispanic whites.

RESEARCH AND DESIGN METHODS: We used data from the Insulin Resistance Atherosclerosis Study (1993-1998) of participants with known diabetes. African Americans and Hispanics were compared with non-Hispanic whites from the same region. Five process measures (treatment of diabetes, hypertension, hyperlipidemia, albuminuria, and coronary artery disease) and three outcome measures (control of diabetes, hypertension, and hyperlipidemia) were evaluated.

RESULTS: Comparison groups were similar in baseline characteristics. African Americans and Hispanics were equally likely as their non-Hispanic white comparison group to receive treatment for diabetes, hypertension, hyperlipidemia, albuminuria, and coronary artery disease, although treatment rates for hyperlipidemia and albuminuria were poor for all groups. African Americans were more likely to have poorly controlled diabetes (HbA$_{1c}$ >8.0%: OR 2.23, 95% CI 1.26-3.94). Both African Americans and Hispanics were significantly more likely to have borderline or poorly controlled hypertension than non-Hispanic whites (blood pressure >130-140/85-90 or >140/90 mmHg: African American/non-Hispanic white OR 3.22, 95% CI 1.57-6.59; Hispanic/non-Hispanic white 3.14, 1.35-7.3).

CONCLUSIONS: The rates of treatment for diabetes and associated comorbidities are similar across all three ethnic groups. Few individuals in any ethnic group received treatment for hyperlipidemia and albuminuria. Ethnic disparities exist in control of diabetes and hypertension. Programs should be tested to improve overall quality of care and eliminate these disparities.

From the Northwest:
Slow response to loss of glycemic control in type 2 diabetes mellitus
Brown JB, Nichols GA. Am J Manag Care 2003 Mar;9(3):213-7.

BACKGROUND: To achieve glycemic control in type 2 diabetes mellitus, the American Diabetes Association (ADA) recommends intensification of glucose-lowering therapy when the glycosylated hemoglobin (HbA$_{1c}$) level exceeds 8.0%.

OBJECTIVE: To study glycemic control before and after initiation of secondary antihyperglycemic therapy to better understand the pace and patterns of therapeutic failure and clinical responses to failure.

STUDY DESIGN: A retrospective, population-based observational study.

PATIENTS AND METHODS: From a 12-year-old diabetes registry of members of Kaiser Permanente Northwest, a large group-model HMO, we tracked the glycemic control histories of all 570 registrants who, in 1998, added metformin therapy to sulphonylurea monotherapy.

RESULTS: The last HbA$_{1c}$ level before metformin use averaged 9.4%. Metabolic decompensation accelerated over time. Patients typically spent numerous months at and had several measurements of HbA$_{1c}$ >8.0% before a final glycemic spike to >9.0%. Persons experiencing more gradual failure accumulated greater glycemic burdens before changing therapy.

CONCLUSIONS: The level of HbA$_{1c}$ that seemed to trigger glucose-lowering action was 9.0% or higher, not 8.0% as recommended by the ADA. A substantial hyperglycemic peak preceded change in therapy even in this relatively tightly controlled population with type 2 diabetes mellitus. Earlier therapeutic changes, but not more frequent testing, would prevent the glycemic excursions we observed. Low mean HbA$_{1c}$ levels in populations do not necessarily indicate that loss of glycemic control is being rapidly addressed for most patients. More research is needed to estimate the impact of these peaks on current well-being and future complications.

CLINICAL IMPLICATION: KP and KPNW have some of the highest HEDIS scores in the nation for quality of diabetes care. We were therefore surprised to discover that, looking backward from new metformin prescriptions, most members reached HbA$_{1c}$ levels well above 9.0% before starting the drug. Sizable glycemic burden can accumulate when we do not react quickly to failures of antihyperglycemic therapies. Now that our members with diabetes are living longer—thanks to aggressive cardiovascular disease prevention and treatment—glycemic excursions have more time to cause harm in the form of serious renal, retinal, and neuropathic disease. Just measuring the HbA$_{1c}$ is not enough. –JB

From Northern California:
Evaluation of a nurse-care management system to improve outcomes in patients with complicated diabetes
Taylor CB, Miller NH, Reilly KR, et al. Diabetes Care 2003 Apr;26(4):1058-63.

OBJECTIVE: This study evaluated the efficacy of a nurse-care management system designed to improve outcomes in patients with complicated diabetes.

RESEARCH AND DESIGN METHODS: In this randomized controlled trial that took place at Kaiser Permanente Medical Center in Santa Clara, CA, 169 patients with longstanding diabetes, one or more major medical comorbid conditions, and HbA_{1c} >10% received a special intervention (n = 84) or usual medical care (n = 85) for one year. Patients met with a nurse-care manager to establish individual outcome goals, attended group sessions once a week for up to four weeks, and received telephone calls to manage medications and self-care activities. HbA_{1c}, LDL, HDL, and total cholesterol, triglycerides, fasting glucose, systolic and diastolic blood pressure, BMI, and psychosocial factors were measured at baseline and one year later. Annualized physician visits were determined for the year before and during the study.

RESULTS: At one year, the mean reductions in HbA_{1c}, total cholesterol, and LDL cholesterol were significantly greater for the intervention group compared with the usual care group. Significantly more patients in the intervention group met the goals for HbA_{1c} (<7.5%) than patients in usual care (42.6 vs 24.6%, P < 0.03, chi(2)). There were no significant differences in any of the psychosocial variables or in physician visits.

CONCLUSIONS: A nurse-care management program can significantly improve some medical outcomes in patients with complicated diabetes without increasing physician visits.

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From Southern California:
Inhaled corticosteroids and allergy specialty care reduce emergency hospital use for asthma
Schatz M, Cook EF, Nakahiro R, Petitti D. J Allergy Clin Immunol 2003 Mar;111(3):503-8.

BACKGROUND: The interrelationships between optimal inhaled corticosteroid (IC) therapy, allergy specialist care, and reduced emergency hospital care for asthma have not been well defined.

OBJECTIVE: We sought to evaluate the independent effectiveness of various levels of IC dispensing and allergy specialist care in reducing subsequent emergency asthma hospital use.

METHODS: Asthmatic patients (n = 9608) aged three to 64 years were identified from an electronic database of a large health maintenance organization. The outcome was any year 2000 asthma hospitalization or emergency department visit. The main predictors were at least one allergy department visit and the number of IC canisters dispensed in 1999. Analyses were adjusted for age, sex, insurance type, and asthma severity (1999 emergency asthma hospital use, beta-agonist use, and oral corticosteroid use).

RESULTS: Dispensing of seven or more canisters of ICs (odds ratio [OR], 0.64; 95% CI, 0.43-0.94) and allergy care (OR, 0.73; 95% CI, 0.55-0.97) were associated with reduced subsequent emergency asthma hospital use. More patients with allergy specialist care than those without such care received seven or more dispensations of ICs (24.7% vs 8.3%, P < .001). When seven or more dispensations of ICs and allergy specialist care were simultaneously included in an adjusted model, both ICs (OR, 0.68; 95% CI, 0.46-1.00) and allergy care (OR, 0.77; 95% CI, 0.58-1.02) were independently associated with a lower risk of year 2000 emergency asthma hospital care, although significance was borderline.

CONCLUSION: Allergy care reduces emergency hospital use for asthma by increasing use of ICs but probably also has an independent effect.

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CLINICAL IMPLICATION: I believe there are two important practical lessons in this article. The first is that inhaled steroids can be shown to reduce emergency hospital care requirements for asthma, but only if patients take them regularly. The second is that referral of patients with more severe asthma to allergists can improve their outcomes, probably above and beyond the effects of optimal inhaled steroid therapy. –MS

From Southern California:
Irritable bowel syndrome, health care use, and costs: a US managed care perspective
Longstreth GF, Wilson A, Knight K, et al. Am J Gastroenterol 2003 Mar;98(3):600-7.

OBJECTIVE: We performed an evaluation of patient symptoms, health care use, and costs to define the burden of illness of irritable bowel syndrome (IBS) and the relation to the severity of abdominal pain/discomfort in a large health maintenance organization.

METHODS: All 6500 adult health maintenance organization members who had undergone flexible sigmoidoscopy in the year 2000 were mailed a questionnaire that elicited Rome I symptom criteria and severity ratings for abdominal pain/discomfort. Multiple health care use measures were obtained from various administrative databases. IBS patients were compared with a control group of non-IBS subjects, and analyses were adjusted for age and sex.

RESULTS: We received 2613 (40.2%) responses. Compared with non-IBS subjects over two years, IBS patients had more outpatient visits (medical, surgery, and emergency, p < 0.05), were hospitalized more often (p < 0.05), and had more total outpatient prescriptions (p < 0.05) and IBS-related prescriptions (p < 0.05). Over one year, total costs were 51% higher in IBS patients, who also had higher costs for outpatient visits, drugs, and radiology and laboratory tests (p < 0.05). Total costs were increased by 35%, 52%, and 59% in IBS patients with mild, moderate, and severe symptoms of abdominal pain/discomfort compared with non-IBS subjects (p < 0.05).

CONCLUSIONS: Using Rome I symptom criteria, we found that IBS is associated with a broad pattern of increased health care use and costs. The severity of abdominal pain/discomfort is a significant predictor of health care use and costs for patients with IBS compared with non-IBS subjects.

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CLINICAL IMPLICATION: Although IBS has long been regarded by many physicians as unimportant, recent research has revealed it causes an adverse effect on quality of life as great as that of common organic diseases. This study emphasizes the high direct medical costs attributable to this chronic disorder. These "high utilizers" may have contributing psychosocial issues, and they seek care for multiple functional somatic syndromes. They are even predisposed to undergo surgery, including cholecystectomy and hysterectomy. Therefore, minimizing costs while satisfying patients demands a lot from practitioners. Management of IBS in most patients should comprise a symptom-based diagnosis, limited testing, explanation, reassurance, attention to psychosocial issues and symptom-directed treatment. –GL

From Colorado:
Evaluation of the clinical and economic impact of a brand name-to-generic warfarin sodium conversion program

Witt DM, Tillman DJ, Evans CM, Plotkin TV, Sadler MA. Pharmacotherapy 2003 Mar;23(3):360-8.

BACKGROUND: Substitution of generic warfarin initially was discouraged because of concerns regarding therapeutic failure or toxicity. Although subsequent research with AB-rated (ie, bioequivalent) warfarin did not confirm initial concerns, the issue is not settled for all clinicians.

OBJECTIVES: We sought to provide additional information regarding the clinical and economic impact of warfarin conversion by analyzing a real-life sample of patients receiving long-term anticoagulation therapy who were switched from brand name to generic warfarin.

METHODS: Patients who had been taking warfarin for at least 180 days and had received uninterrupted oral anticoagulation 90 days before and 90 days after switching to generic warfarin were included. The switch date was based on the first time generic warfarin was dispensed from our pharmacies. The primary end point was the calculated amount of time each patient's international normalized ratio (INR) values were within the patient-specific target INR range in the 90 days before and after the switch. Data regarding adverse events and medical resource utilization were also collected. Pharmacoeconomic analyses were performed.

RESULTS: The analysis included 2299 patients. The overall difference in calculated time INR values were below (22.6% before vs 26.1% after switch, p < 0.0001) and within (65.9% before vs 63.3% after switch, p = 0.0002) the therapeutic INR range was statistically but not clinically significant. Only 28.0% of patients experienced a change in therapeutic INR control of 10% or less, 33.1% experienced INR control that improved by greater than 10%, and 38.9% experienced INR control that worsened by more than 10%. The difference in total treatment costs associated with brand name and generic warfarin was 3128 dollars/100 patient-years in favor of the generic product. Sensitivity analyses revealed that cost savings associated with warfarin conversion in this health care system were highly dependent on the difference between warfarin costs and cost of treating anticoagulation-related adverse events.

CONCLUSIONS: Most of these patients were successfully switched from brand name to generic warfarin. However, supplemental INR monitoring is warranted when one warfarin product is substituted for another to allow timely detection of those patients who experience significant changes in anticoagulation response.

CLINICAL IMPLICATION: Our study demonstrates that even though global measures of anticoagulant control (eg, mean INR) show minimal differences, a substantial number (72.0%) of patients will experience greater than a 10% change in therapeutic INR control following the switch to generic warfarin. Accordingly, we recommend that patients should utilize a single warfarin product whenever possible. Furthermore, clinicians should err on the side of caution and additional INR monitoring should occur in the days and weeks following substitution of one warfarin product for another to allow timely detection of those patients who experience significant changes in anticoagulant response. –DW

From Colorado:
A survey of herbal use in children with attention-deficit-hyperactivity disorder or depression

Cala S, Crismon ML, Baumgartner J. Pharmacotherapy 2003 Feb;23(2):222-30.

OBJECTIVE: To examine whether herbal medicines were given to children or adolescents receiving care for attention-deficit-hyperactivity disorder or depression.

METHODS: Between October 2000 and July 2001, a 23-item questionnaire was administered in five community mental health centers in Texas. Parents or primary caregivers of children who received a psychiatric assessment were sought for participation. One hundred seventeen caregivers completed a questionnaire. The main outcome measure was primary caregivers' self-report of the use of herbal therapy in their children.

RESULTS: The lifetime prevalence of herbal therapy in patients was 20% (23 patients). Eighteen patients (15%) had taken herbal medicines during the past year. Recommendations from a friend or relative resulted in the administration of herbal medicines by 61% of 23 caregivers. Herbal medicines were given most frequently for a behavioral condition, with ginkgo biloba, echinacea, and St John's wort most prevalent. Almost 83% of caregivers gave herbal medicines alone, whereas 13% gave herbal medicines with prescription drugs. Most caregivers (78%) supervised the administration of herbal therapy in their children; the children's psychiatrists (70%), pediatricians (56%), or pharmacists (74%) typically were not aware of the use.

CONCLUSIONS: Most caregivers supervised herbal therapy in their children, without communication with a health professional. A need exists for better communication between health professionals and caregivers regarding the use of herbal therapy.

CLINICAL IMPLICATION: Important practice lesson: Parents of children with psychiatric disorders may be administering herbal remedies to their children without supervision of a physician or pharmacist. It is important for health care providers to inquire about the use of herbals in their patients. –SC

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From the Northwest:
Tobacco use patterns and attitudes among teens being seen for routine primary care

PURPOSE: To describe the tobacco-related attitudes, behaviors, and needs of smoking and nonsmoking teens being seen for routine pediatric care and to identify predictors of tobacco use.

DESIGN: Cross-sectional survey of adolescent primary care patients who completed self-administered questionnaires in medical office waiting rooms while waiting for routine care visits.

SETTING: A group-practice HMO in the Pacific Northwest.

SUBJECTS: A sample of 2526 teenagers, ages 14 to 17, who consented to receive health promotion interventions as a part of a randomized trial in seven pediatric and family practice offices.

MEASURES: A 38-item questionnaire assessed tobacco use history, attitudes, quit attempts, and stage of acquisition or cessation along with gender, age, race/ethnicity, body mass index, educational plans, frequency of exercise, attempts to lose weight, and depressed mood.

RESULTS: Sixty-seven percent of teens approached (2526 of 3747) consented to complete a questionnaire and receive tobacco- or diet-related interventions as a part of their medical visit. About 23% of teen patients reported smoking at least one cigarette in the last month, although only 14% described themselves as current "smokers." Most current smokers (84%) smoked at least 20 days in the last month. Logistic regression predictors of smoking included older age, Native American ethnicity, lower educational aspirations, lower body mass index, smoking among half or more friends, smokers at home, and a positive depression screen. Among ever-regular smokers, most were in the action (28%), preparation (21%), or contemplation (22%) readiness to quit smoking stages, and 77% of current smokers had made one or more serious quit attempts in the last year.

CONCLUSIONS: Most teens in these medical facilities consented to receive tobacco and diet interventions, and most self-described current smokers were contemplating or preparing to quit. Medical visits provide attractive opportunities for tobacco intervention, but messages should be tailored based on the patient's tobacco status and stage of acquisition or cessation.

> CLINICAL IMPLICATION: One in four teens smokes, but few report receiving prevention or cessation assistance from clinicians. Most teens in this study were open to brief counseling during visits, and 71% of those who smoked were interested in quitting. Almost half were either trying to quit or preparing to quit within a month. Teens were more likely to admit they smoked (23% vs 14%) if asked "Have you smoked a cigarette within the last 30 days?" than if asked "Do you currently smoke?" Clinicians should attempt to determine how likely teens are to start or quit smoking, and tailor their messages accordingly. –JH ❖

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For the combination of teaching, clinical practice, the ability to do clinical research if you want to work hard and spend extra time, and the fact that you don't have to worry about the business aspects—those four things made TPMG a perfect fit for me. That's why I'm 75 years old and I'm still hanging in there.

Edgar Schoen, MD, on why he spent his entire career with TPMG and remains on staff today. (2001)