

## Permanente Abstracts

*Abstracts of articles authored or coauthored by Permanente clinicians*

*From Northern California:*

### **Integrating primary medical care with addiction treatment: a randomized controlled trial**

Weisner C, Mertens J, Parthasarathy S, Moore C, Lu Y. *JAMA* 2001 Oct 10;286(14):1715-23

**CONTEXT:** The prevalence of medical disorders is high among substance abuse patients, yet medical services are seldom provided in coordination with substance abuse treatment.

**OBJECTIVE:** To examine differences in treatment outcomes and costs between integrated and independent models of medical and substance abuse care as well as the effect of integrated care in a subgroup of patients with substance abuse-related medical conditions (SAMCs).

**DESIGN:** Randomized controlled trial conducted between April 1997 and December 1998.

**SETTING AND PATIENTS:** Adult men and women (n = 592) who were admitted to a large health maintenance organization chemical dependency program in Sacramento, CA.

**INTERVENTIONS:** Patients were randomly assigned to receive treatment through an integrated model, in which primary health care was included within the addiction treatment program (n = 285), or an independent treatment-as-usual model, in which primary care and substance abuse treatment were provided separately (n = 307). Both programs were group based and lasted eight weeks, with ten months of aftercare available.

**MAIN OUTCOME MEASURES:** Abstinence outcomes, treatment utilization, and costs six months after randomization.

**RESULTS:** Both groups showed improvement on all drug and alcohol measures. Overall, there were no differences in total abstinence rates between the integrated care and independent care groups (68% vs 63%, p = .18). For patients without SAMCs, there were also no differences in abstinence rates (integrated care, 66% vs independent care, 73%; p = .23) and there was a slight but nonsignificant trend of higher costs for the integrated care group (\$367.96 vs \$324.09, p = .19). However, patients with SAMCs (n = 341) were more likely to be abstinent

in the integrated care group than the independent care group (69% vs 55%, p = .006; odds ratio [OR], 1.90; 95% confidence interval [CI], 1.22-2.97). This was true for both those with medical (OR, 3.38; 95% CI, 1.68-6.80) and psychiatric (OR, 2.10; 95% CI, 1.04-4.25) SAMCs. Patients with SAMCs had a slight but nonsignificant trend of higher costs in the integrated care group (\$470.81 vs \$427.95, p = .14). The incremental cost-effectiveness ratio per additional abstinent patient with an SAMC in the integrated care group was \$1581.

**CONCLUSIONS:** Individuals with SAMCs benefit from integrated medical and substance abuse treatment, and such an approach can be cost-effective. These findings are relevant given the high prevalence and cost of medical conditions among substance abuse patients, new developments in medications for addiction, and recent legislation on parity of substance abuse with other medical benefits.

*Copyright 2001, American Medical Association.*

**CLINICAL IMPLICATION:** It is important that practice patterns address the very common combination of substance abuse and medical conditions. Treatment outcomes can thus be improved. If a primary care provider suspects that a patient's medical or psychiatric problem is related to substance use, it may be beneficial to refer such individuals to a practitioner trained in addiction medicine. Such integrated practices are possible in a health plan like Kaiser Permanente, where behavioral health care services are "carved-in" rather than provided by a separate entity. —CW

*From Southern California:*

### **Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the lifespan: findings from the Adverse Childhood Experiences Study**

Dube SR, Anda RF, Felitti VJ, Chapman DP, Williamson DF, Giles WH. *JAMA* 2001 Dec 26;286(24):3089-96

**CONTEXT:** Suicide is a leading cause of death in the United States, but identifying persons at risk is difficult. Thus, the US Sur-

geon General has made suicide prevention a national priority. An expanding body of research suggests that childhood trauma and adverse experiences can lead to a variety of negative health outcomes, including attempted suicide among adolescents and adults.

**OBJECTIVE:** To examine the relationship between the risk of suicide attempts and adverse childhood experiences and the number of such experiences (adverse childhood experiences [ACE] score).

**DESIGN, SETTING, AND PARTICIPANTS:** A retrospective cohort study of 17,337 adult health maintenance organization members (54% female; mean [SD] age, 57 [15.3] years) who attended a primary care clinic in San Diego, CA, within a three-year period (1995-1997) and completed a survey about childhood abuse and household dysfunction, suicide attempts (including age at first attempt), and multiple other health-related issues.

**MAIN OUTCOME MEASURE:** Self-reported suicide attempts, compared by number of adverse childhood experiences, including emotional, physical, and sexual abuse; household substance abuse, mental illness, and incarceration; and parental domestic violence, separation, or divorce.

**RESULTS:** The lifetime prevalence of having at least one suicide attempt was 3.8%. Adverse childhood experiences in any category increased the risk of attempted suicide two- to five-fold. The ACE score had a strong, graded relationship to attempted suicide during childhood/adolescence and adulthood (p < .001). Compared with persons with no such experiences (prevalence of attempted suicide, 1.1%), the adjusted odds ratio of ever-attempting suicide among persons with seven or more experiences (35.2%) was 31.1 (95% confidence interval, 20.6-47.1). Adjustment for illicit drug use, depressed affect, and self-reported alcoholism reduced the strength of the relationship between the ACE score and suicide attempts, suggesting partial mediation of the adverse childhood experience-suicide attempt relationship by these factors. The population-attributable risk fractions for one



or more experiences were 67%, 64%, and 80% for lifetime, adult, and childhood/adolescent suicide attempts, respectively.

**CONCLUSIONS:** A powerful graded relationship exists between adverse childhood experiences and risk of attempted suicide throughout the lifespan. Alcoholism, depressed affect, and illicit drug use, which are strongly associated with such experiences, appear to partially mediate this relationship. Because estimates of the attributable risk fraction caused by these experiences were large, prevention of these experiences and the treatment of persons affected by them may lead to progress in suicide prevention.

**CLINICAL IMPLICATION:** Care in primary care health clinics should routinely include inquiry about common adverse childhood experiences. Such practice would help alert health care providers to individuals who may be at risk for numerous health behaviors and outcomes, including suicide attempts. —SD

*From the Northwest:*  
**The health and health behaviors of people who do not drink alcohol**

Green CA, Polen MR. *Am J Prev Med* 2001 Nov;21(4):298-305

**BACKGROUND:** Compared to abstention, moderate drinking has been linked to better health, and heavy and hazardous drinking to increased morbidity and mortality. Many studies have failed to account for heterogeneity in health and drinking history among nondrinkers, however. If former drinkers quit in response to ill health, this could increase the risk in the nondrinker category and underestimate the effects of alcohol if illnesses leading to abstention are alcohol-related. In addition, health behaviors may vary with drinking status, affecting health outcomes often attributed to drinking.

**METHODS:** Survey data were collected from a probability sample of a large health maintenance organization's membership. Regression analyses assess the relationship between drinking status (adjusting for covariates), mental and physical health and functioning, and health behaviors.

**RESULTS:** Former drinkers and lifelong abstainers had worse health and functioning than current drinkers and, comparatively, former drinkers had worse health than lifelong abstainers. Former drinkers did not differ from light-to-moderate drinkers in regard to health behaviors (except for smoking), although lifelong abstainers and heavier drinkers were less likely to use preventive care or try to improve their health behaviors.

**CONCLUSIONS:** Consistent with hypotheses that former drinkers may stop drinking because of poor health, former drinkers were less healthy than current drinkers and had slightly worse health than lifelong abstainers, compared to light-to-moderate drinkers. Former drinkers did not appear to be at risk because of poorer health behaviors (except smoking), but lifelong abstainers and heavier drinkers might benefit from outreach designed to increase use of preventive care and improve health behaviors.

*Reprinted by permission of Elsevier Science from "The health and health behaviors of people who do not drink alcohol," Green CA, Polen MR, American Journal of Preventive Medicine, Vol 21, No. 4, p 298-305, Copyright 2001 by American Journal of Preventive Medicine.*

**CLINICAL IMPLICATION:** Drinking status may be an important indicator of both health and health-related behaviors. Lifelong abstainers and heavier drinkers had worse health habits, poorer functional status, and less likelihood of advantageous use of preventive care services than light-to-moderate drinkers. Also, former drinkers were at significantly greater risk for poor health than light-to-moderate drinkers. Clinicians may want to pay particular attention to lifelong abstainers, who are at greater risk for poor health and health-related behaviors than previously thought. —CG

*From Colorado:*  
**Assessment of vulvovaginal complaints: accuracy of telephone triage and in-office diagnosis**

Allen-Davis JT, Beck A, Parker R, Ellis JL, Polley D. *Obstet Gynecol* 2002 Jan;99(1):18-22

**OBJECTIVE:** To examine the agreement between telephone and office management of vulvovaginal complaints and

to assess the accuracy of diagnosis of vulvovaginitis.

**METHODS:** Prospective structured telephone nurse interviews of all patients with vulvovaginal complaints who called the Kaiser Permanente Telephone Call Center were conducted. Patients were appointed to a physician, nurse midwife, or physician's assistant for office evaluation. Both groups (nurses and practitioners) made independent diagnosis and treatment decisions. Kappa coefficients were used to evaluate the interexaminer agreement between telephone nurses and practitioners, and practitioners and traditional diagnostic tests.

**RESULTS:** A total of 485 patients underwent telephone interviews, and 253 (52%) completed the study protocol. Kappa values showed poor agreement between nurses and practitioners for bacterial vaginosis (0.12), candidiasis (0.22), and trichomoniasis (-0.05). Practitioners failed to accurately diagnose vaginitis when kappa values were analyzed. There was also poor agreement between telephone nurses and practitioners regarding the necessity of an office visit (0.14).

**CONCLUSION:** This prospective study challenges the notion that the telephone is an effective tool to diagnose and treat vulvovaginal complaints. Moreover, given the poor agreement between practitioners' diagnoses and microbiologic and microscopic data, further study into optimal diagnosis of vulvovaginitis is needed.

*Reprinted with permission from the American College of Obstetricians and Gynecologists (Obstetrics Gynecology 2002 Jan;99(1):18-22).*

*From the Southeast:*  
**The relation of markers of inflammation to the development of glucose disorders in the elderly: the Cardiovascular Health Study**

Barzilay JI, Abraham L, Heckbert SR, et al. *Diabetes* 2001 Oct;50(10):2384-9

Several studies suggest that inflammation plays a role in the pathogenesis of some glucose disorders in adults. We tested this hypothesis in a longitudinal cohort study of older individuals who had normal fast-



ing glucose (FG) values at baseline. We compared the baseline levels of six inflammatory markers in participants who had developed glucose disorders at follow-up with those of participants whose FG remained normal at follow-up. Participants were members of the Cardiovascular Health Study, a prospective study of risk factors for cardiovascular disease in adults  $\geq 65$  years. All 5888 participants had baseline testing, including FG and markers of inflammation: white blood cell and platelet counts and albumin, fibrinogen, C-reactive protein (CRP), and factor VIIIc levels. At three to four years of follow-up, 4481 (84.5%) of those who were alive had FG levels retested. Participants who developed diabetes ( $n = 45$ ) had higher median levels of CRP at baseline than those who remained normoglycemic. On multivariate analysis, those with elevated CRP levels (75th percentile [2.86 mg/L] vs 25th percentile [0.82 mg/L]) were 2.03 times (95% confidence intervals, 1.44-2.86) more likely to have diabetes on follow-up. Adjustment for confounders and other inflammatory markers did not appreciably change this finding. There was no relationship between the development of diabetes and other markers of inflammation. Inflammation, as measured by CRP levels, is associated with the development of diabetes in the elderly. Understanding the role of inflammation in the pathogenesis of glucose disorders in this age-group may lead to better classification and treatment of glucose disorders among them.

*Reprinted with permission from Diabetes, Vol 50, October 2001:2384-9. Copyright 2001 American Diabetes Association.*

**CLINICAL IMPLICATION:** This study plus others suggest that inflammation may play a role in the pathogenesis of diabetes mellitus. One hypothetical mechanism is that inflammatory products interfere with the function of the insulin receptor (signaling). While this is not yet of practical importance for clinicians, they should be aware that newer mechanisms are being found for the etiology of diabetes mellitus. —JB

*From Southern California:*  
**Survey of voiding dysfunction and urinary retention after anti-incontinence procedures**

*Nguyen JK, Glowacki CA, Bhatia NN. Obstet Gynecol 2001 Dec;98(6):1011-7*

**OBJECTIVE:** To describe trends in the management of prolonged voiding dysfunction and urinary retention after anti-incontinence procedures.

**METHODS:** Physician members of the American Urogynecologic Society were queried by means of a two-page questionnaire regarding the management of prolonged voiding dysfunction and urinary retention after anti-incontinence procedures.

**RESULTS:** A total of 344 (42%) of 825 questionnaires were completed and returned. Of the 344 respondents, 61% identified themselves as urogynecologists, 50% worked in a university-affiliated practice, and 26% had been in practice for 11-20 years. Respondents rarely encountered prolonged urinary retention after anti-incontinence procedures. Among the respondents, 30% allowed three to six months for resumption of spontaneous voiding before performing surgical revision, and 90% performed multichannel urodynamic studies before surgical revision. However, 66% performed surgical revision transabdominally when urinary retention occurred after retropubic urethropexy, and 61-81% of respondents performed surgical revision transvaginally when urinary retention followed needle suspension, pubovaginal sling, or tension-free vaginal tape procedures. A total of 90-96% did not perform an anti-incontinence procedure concomitantly with surgical revision. The majority of respondents reported spontaneous voiding in greater than 80% of patients, and recurrent stress urinary incontinence in less than 10% of patients after surgical revision.

**CONCLUSION:** Although certain trends in the management of prolonged urinary retention after anti-incontinence procedures were identified, there was no clear consensus on the method of surgical revision used, nor the management of recurrent stress urinary incontinence after surgical revision. Ran-

domized clinical trials are required to determine the optimal management of prolonged urinary retention after anti-incontinence procedures.

*Reprinted with permission from the American College of Obstetricians and Gynecologists (Obstetrics and Gynecology, 2001 Dec;98(6):1011-7).*

*From Northern California:*  
**The prevalence of clinically recognized obsessive-compulsive disorder in a large health maintenance organization**

*Fireman B, Koran LM, Leventhal JL, Jacobson A. Am J Psychiatry 2001 Nov;158(11):1904-10*

**OBJECTIVE:** Little is known about the prevalence of obsessive-compulsive disorder (OCD) as recognized in clinical settings. The authors report data on the prevalence of clinically recognized OCD in a large, integrated, group practice health maintenance organization (HMO).

**METHOD:** The authors examined the database of outpatient diagnoses for the 1.7 million people (age  $\geq 6$ ) in the San Francisco Bay Area and Sacramento who were continuously enrolled in Kaiser Permanente from May 1995 through April 1996. OCD diagnoses were confirmed by chart review.

**RESULTS:** The one-year prevalence of clinically recognized OCD was 84/100,000 (95% confidence interval: 80-89/100,000), or 0.084%. It varied among the 19 clinics within the HMO but was nowhere higher than 150/100,000. Prevalence was higher among women than among men but was higher among boys than among girls. Above age 65, OCD prevalence decreased markedly in both genders. Period prevalence rates increased by 60% as the length of the study period doubled from one to two years, more than would be expected for a chronic disease requiring regular care. About three-quarters of both children and adults with OCD had comorbid psychiatric diagnoses; major depression was common in both groups.

**CONCLUSIONS:** Although previously reported prevalences of 1%-3% from community studies may have included many transient or misclassified cases of OCD not requiring treatment, the very low prevalence of clinically



recognized OCD in this population suggests that many individuals suffering from OCD are not receiving the benefits of effective treatment.

**CLINICAL IMPLICATION:** We found that most patients with clinically recognized obsessive-compulsive disorder (OCD) receive sporadic treatment. However, it is believed that OCD is usually chronic and that most patients would benefit from sustained treatment, (usually with a selective serotonin reuptake inhibitor). When a primary care physician becomes aware that a patient has discontinued OCD treatment, s/he might ask about OCD symptoms (eg, excessive washing, checking, hoarding) and, if there seems to be an important problem, consider suggesting resumption of treatment. —BF

*From Colorado:*

### **The Colorado newborn hearing screening project, 1992-1999: on the threshold of effective population-based universal newborn hearing screening**

*Mehl AL, Thomson V. Pediatrics 2002*

*Jan; 109(1):E7. Available at:*

*[www.pediatrics.org/cgi/content/full/109/1/e7](http://www.pediatrics.org/cgi/content/full/109/1/e7)*

**OBJECTIVE:** Although previous studies have documented the feasibility and benefits of universal newborn hearing screening in selected hospitals, none have reviewed the effectiveness of regionally mandated participation of large numbers of hospitals with variable levels of motivation to succeed. The purpose of this study was to measure hospital participation and overall screening success in a statewide program for universal newborn hearing screening and to track improvements in program establishment and outpatient follow-up over time.

**METHODS:** Four Colorado hospitals began voluntarily performing hearing screening before hospital discharge on all newborns in 1992. By 1996, 26 Colorado hospitals were participating in universal newborn hearing screening. The publication of screening results from these early years served as a catalyst for legislation requiring increased hospital participation in establishing universal screening programs. Data systems were subsequently developed to improve statistical tracking and fol-

low-up. Eight years' worth of cumulative study data as well as the results from calendar year 1999 (the year of greatest hospital participation) were reviewed for collective measures of successful screening and follow-up. Three hospitals did not initiate newborn hearing screening programs until after the study period ended in 1999. Of the 57 hospitals that were screening newborns in 1999, the chosen method of screening at 52 hospitals was automated auditory brainstem response testing; three hospitals used otacoustic emission testing, and the remaining two hospitals used two-stage screening. Hearing loss was defined as a threshold of 35 decibels or greater in one or both ears at the time of confirmatory testing.

**RESULTS:** During the full eight-year study period, 1992 to 1999, 148,240 newborns were screened. A total of 291 infants who were born during the study period received a diagnosis of congenital hearing loss. In this cohort of 291 children, the cumulative frequency of bilateral hearing loss was 71% (range: 48%-94% by calendar year), the frequency of sensorineural hearing loss was 82% (range: 67%-88%), and the frequency of one or more risk factors was 47% (range: 37%-61%). During calendar year 1999, a total of 63,590 births were recorded at 60 birthing hospitals in Colorado. The families of 263 (0.4%) of these newborns refused newborn hearing screening. Of the remaining 63,327 newborns, 87% (55,324 infants) were screened for hearing acuity before hospital discharge, a far greater percentage than the 19% of all newborns screened during the first five years of voluntary hospital participation, and approaching the American Academy of Pediatrics's recommendation of 95% of newborns completing hospital-based testing in a successful screening program. As a result of this statewide hearing screening program, congenital hearing loss was diagnosed in 86 Colorado newborns during 1999, representing an occurrence rate of approximately one affected child in every 650 newborns. In this group of 86 infants, 59 had bilateral sensorineural hearing loss, 17 had unilateral sensorineural hearing loss, four had bilateral conductive hearing loss, and six had unilateral conductive hearing loss. Mild hearing loss was present in six in-

infants, severe hearing loss was present in 33 infants, and profound hearing loss was present in the remaining five infants. Only 32 of the 86 affected newborns, in 1999, had one or more risk factors for hearing loss subsequently identified. After failing an initial hospital-based screening at one of the 57 participating hospitals in 1999, 2.3% of infants screened (1283 newborns) were referred for follow-up testing, easily exceeding the standard of <4% recommended by the American Academy of Pediatrics. Similarly, the false-positive rate of 2.2% during 1999 exceeded the recommended standard of <3%. Of the infants who failed their initial screening, 76% (978 infants) had documented follow-up testing to confirm or exclude congenital hearing loss, a percentage significantly improved from a follow-up rate of 48% during the first five years of screening, although not yet achieving the standard of 95% recommended by the American Academy of Pediatrics. Nine participating hospitals, however, were able to document appropriate follow-up for 95% or more of the infants who failed their initial screening tests. The median age of diagnosis of congenital hearing loss during 1999 was 2.1 months; 71% of affected infants were identified by three months of age (the recommended standard for age of diagnosis), and 92% of affected newborns were identified by five months of age. Measures of screening success were compared for large, mid-sized, and small hospitals. Increasing hospital size, as measured by the number of births per year, was associated with an increasing percentage of newborns who were successfully screened. It was notable that smaller hospital size was associated with increased referral rates for follow-up testing, whereas larger hospital size was associated with the highest recapture rate for follow-up testing.

**CONCLUSIONS:** Universal screening for congenital hearing loss is demonstrated to be feasible in a large regional effort of legislatively mandated participation. The success of such an endeavor is dependent on educational efforts for community professionals, commitment on the part of program planners, and data systems that more accurately track and recall infants who fail initial hospital-based screening. ♦