

Mission: *The Permanente Journal* advances knowledge in scientific research, clinical medicine, and innovative health care delivery.

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ON THE COVER "Ancient Magnolid"

a photograph by Latifat Apatira, MD, was taken in San Francisco, CA. Magnolias are primeval, having evolved before bees; their flowers are tough and waxy to withstand the damage caused by their pollinators: beetles.

The appearance of these brilliant flowers on naked trees welcomes spring to the city of San Francisco.

Dr Apatira is a second-year Resident in Internal Medicine and Preventive Medicine at the Kaiser Permanente San Francisco Medical Center. Her research interest includes examining the human health impacts of large-scale anthropogenic environmental change. In her spare time, she enjoys roaming the San Francisco Botanical Garden with her camera. This photograph is taken with a simple "point-and-shoot" Sony DSC-W90.

75 LETTERS TO THE EDITOR

78 BOOK REVIEWS

80 CME EVALUATION FORM

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ORIGINAL RESEARCH & CONTRIBUTIONS

4 Influence of Vascular Access Type on Sex and Ethnicity-Related Mortality in Hemodialysis-Dependent Patients.

CME

Karen Woo, MD; Janis Yao, MS; David Selevan, BS; Robert J Hye, MD

In an analysis of a database containing 6052 chronic hemodialysis patients between 2000 and 2008, age, male sex, prosthetic graft, tunneled catheter and diabetes are independent predictors of mortality. After controlling for these variables, when compared to Caucasians, African-American, Asian, Hispanic, and Pacific Islander ethnicity all demonstrate significantly decreased risk of mortality. Type of dialysis access is not responsible for gender and ethnicity-related mortality differences in this population.

10 Financial Implications of Increasing Medical School Class Size: Does Tuition Cover Cost?

Danny A Schieffler, Jr, PhD; Benjamin M Azevedo; Richard A Culbertson, PhD; Marc J Kahn, MD, MBA

To determine the financial consequences of increasing medical student enrollment, adjusted secondary revenue data are analyzed using linear regression to determine average fixed costs and variable costs per student. The best point estimate of the annual variable cost of educating a medical student is \$62,877. Tuition and fees revenue from increasing enrollment will not increase overall revenue to medical schools.

15 Out-of-Plan Pharmacy Use by Members of a Managed Care Organization.

Thomas Delate, PhD, MS; Gale Albrecht, MS, PharmD Candidate; Kari L Olson, PharmD, BCPS, FCCP

This retrospective health services investigation examined characteristics of patients in a managed care organization (MCO) who did and did not have a prescription written to an out-of-plan pharmacy (OOPP) from October 1, 2006 through September 30, 2010. A total of 10,353,283 prescriptions were included. Prescriptions written to an OOPP were more likely to be for chronic disease states. Patient age and MCO termination were associated with having a prescription written to an OOPP.

23 Association of Child and Adolescent Psychiatric Disorders with Somatic or Biomedical Diagnoses: Do Population-Based Utilization Study Results Support the Adverse Childhood Experiences Study?

CME

T C R Wilkes, MB, ChB, M Phil, DCH FRCP(Edin), MRCPsych, FRCPC, FAPA; Lindsay Guyn; Bing Li, MA; Mingshan Lu, PhD; David Cawthorpe, PhD

From a randomly selected sample of 205,281 patients under age 18 years, on their index visit, this study examined the effect on somatic or biomedical diagnosis costs during a 16-year period. All physician billing records (8,724,714) from the study period were grouped on the basis of presence or absence of any International Classification of Disease diagnosis of psychiatric disorder. The somatic disorder billing costs (nonpsychiatric costs) were 1.8 times greater for those with psychiatric disorders. Somatic costs peaked before the age of 6 years and remained higher than the same-age groupings without psychiatric disorders in each age group.

28 Long-term Outcomes of Shamanic Treatment for Temporomandibular Joint Disorders.

Nancy H Vuckovic, PhD; Louise A Williams, PhD; Jennifer Schneider, MPH; Michelle Ramirez, PhD, MPH; Christina M Gullion, PhD

Temporomandibular joint disorders (TMDs) are chronic pain conditions often refractory to treatment. Twenty-three women, ages 25 to 55 years, with a diagnosis of TMD were contacted at 1, 3, 6, and 9 months after treatment to record self-reported pain and disability outcomes and qualitative feedback. The improvements in usual and worst pain, and functional impairment at end of treatment persisted without change to 9 months.

SPECIAL REPORT

36 The Kaiser Permanente Implant Registries: Effect on Patient Safety, Quality Improvement, Cost Effectiveness, and Research Opportunities.

CME

Elizabeth W Paxton, MA; Maria CS Inacio, MS; Mary-Lou Kiley, MBA

The purpose of this article is to describe the Kaiser Permanente implant registries, which leverage the integrated health care system's administrative databases and electronic health records system. Data collection, quality control and validation, and statistical analysis for the registries are described. Areas discussed include: patient safety enhancement successes such as assistance during major recalls, identification of risk factors, risk calculator development, infection and adverse event surveillance, and research studies conducted using registry data.

REVIEW ARTICLE

45 **Transanal Endoscopic Microsurgery for Rectal Tumors: A Review.**

CME Hiroko Kunitake, MD; Maher A Abbas, MD, FACS, FASCRS

Since its introduction in 1983, Transanal Endoscopic Microsurgery has emerged as a safe and effective method to treat rectal lesions including benign tumors, early rectal cancer, and rectal fistulas and strictures. This minimally invasive technique offers the advantages of superior visualization of the lesion and greater access to proximal lesions with lower margin positivity and specimen fragmentation and lower long-term recurrence rates over traditional transanal excisions, with less morbidity, faster recovery, and greater potential cost savings.

CASE STUDIES

Corridor Consult

51 **False Estimates of Elevated Creatinine.**

Manpreet Samra, MD; Antoine C Abcar, MD

One of the most common reasons for a nephrology consult is an elevated creatinine. An elevation in the serum creatinine concentration usually reflects a reduction in the glomerular filtration rate (GFR). At times the elevation of the creatinine is not representative of a true reduction in GFR. Various causes of factitious elevation of creatinine include increased production of creatinine, interference with the assay and decreased tubular secretion of creatinine.

Corridor Consult

54 **Management of the Athlete with Concussion.**

John K Su, MD, MPH; Joel F Ramirez, MD

The approach to and management of the athlete with concussion can be a challenging endeavor to physicians that care for athletes who have suffered a head injury—this group includes family physicians, pediatricians, internists, emergency medicine physicians, primary sports medicine physicians, orthopedic surgeons, neurologists, and neurosurgeons. Sometimes questions regarding the need for neurologic, psychologic, or radiographic imaging can make the decision for return to play unclear. New legislation will undoubtedly increase physician visits for these athletes to return to play.

CLINICAL MEDICINE

57 **ECG Diagnosis: Hypokalemia.**

Joel T Levis, MD, PhD, FACEP, FAAEM

The earliest electrocardiogram change is a decrease in the T-wave amplitude. As potassium levels decline further, ST-segment depression and T-wave inversions are seen. The U wave is described as a positive deflection after the T wave, often best seen in the mid-precordial leads (eg, V2 and V3). When the U wave exceeds the T-wave amplitude, the serum potassium level is < 3 mEq/L.

58 **Image Diagnosis: Abdominal Wall Hematoma.**

Jasmine K Dhaliwal, MD; Gus M Garmel, MD, FACEP, FAAEM

Abdominal wall hematoma is uncommon, but may be a life-threatening condition. Risk factors include older age, female sex, systemic anticoagulation, abdominal wall trauma, pregnancy, and impaired renal function. Clinical manifestations include abdominal pain, abdominal wall ecchymosis, drop in hematocrit, and a positive Carnett's sign indicating the abdominal wall and not the abdominal cavity as the source of pain.

COMMENTARY

60 **The Familiar Foundation and the Fuller Sense: Ethics Consultation and Narrative.**

Craig Nelson, PhD, CLS

The intention of this essay is to examine "ethical expertise" and the idea of clinical ethics "consulting." The author's position champions the use of two tools: "familiar foundation" and "fuller sense." The "familiar foundation" represents a body of knowledge. Through a deep analysis of patient narrative found in the "fuller sense," the ethicist sharpens focus and achieves a richer understanding of the patient's situation in life. In using both tools, patients and families are better served.

65 **A Retirement and A Reservation: A Retrospective Autobiography.**

Sok K Lee, MD, MA

For 37 years, the author was a healing professional, a breadwinner, and a working spouse. After retirement, he felt like a jobless loner, an inactive pensioner, and a homebound spouse. In this retrospective autobiography, he suggests professional, financial, social, and familial points to help younger colleagues better their upcoming retirement. To overcome Erikson's identity crisis, he volunteered to be a (wounded) healer at Warm Springs Indian Reservation.

67 **The Health Care Professional as a Modern Abolitionist.**

Michael G O'Callaghan, DDS

Health care professionals are in a unique position to identify and to assist victims of human trafficking, which today occurs both domestically and globally. It manifests in many forms, including adult and child forced labor, involuntary domestic servitude, adult and child sexual slavery, involuntary servitude, debt bondage, and child soldiers. This article offers insight into modern human trafficking and ways health care professionals can be activists.

70 **Can Kawasaki Disease Be Managed?**

Alberto Coustasse, DrPH, MD, MBA, MPH; Julius Larry, DDS, JD, MPH; Doohee Lee, PhD

Kawasaki Disease (KD) is the leading cause of acquired cardiovascular disease among children, most commonly among Asians and Pacific Islanders. In 2006, over 5500 KD cases were reported in the US. Because the etiology remains unknown, and there is no specific laboratory test, timely and accurate diagnosis remains difficult. Developing a specific registry or a surveillance system may be necessary for increasing awareness and decreasing complications related to misdiagnosis.

EDITORIAL

73 **Medical Education—the Challenge of Distinguishing Actual Costs versus Charges (Tuition).**

William L Toffler, MD

The author of this editorial writes that Scheffler et al (page 10) use a creative "back door" approach to assess whether or not tuition covers medical school costs. It may provide insight into the true cost, if, and only if, two basic underlying assumptions are correct: 1) the funding coming from these sources does correlate with true costs, and 2) the estimated percentage actually allocated to education is correct. In conclusion, like all good research, the authors' published work raises more questions than have been answered.

SOUL OF THE HEALER

Original Visual Art

22 **"Birney Creek"**

Stephen Jacobs

27 **"Hearing Loss"**

Mohamed Osman, MD

53 **"Focus on the Physical"**

Marilyn Mitchell

64 **"Genetic Engineering"**

Mohamed Osman, MD