Selected Readings for Student Journal Clubs

Compiled by the ACP Council of Student Members

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Introduction

Selected Readings for Student Journal Clubs contains suggestions for articles that can be used for student journal club meetings. It is a companion piece to the Establishing a Journal Club section of the Internal Medicine Interest Group Resource Guide (http://www.acponline.org/medical_students/resources/interest_groups/resource_guide.pdf). Each selection contains author information, article title, reference and location information, Pub Med ID number, and a summary, from a student’s perspective, of the main points of the article. Selected Readings for Student Journal Clubs was compiled by the 2011-2012 Council of Student Members (http://www.acponline.org/medical_students/resources/med_csm.htm#sm).

Atrial fibrillation is the most common arrhythmia encountered in clinical practice. Contemporary medical treatment options include atrioventricular nodal blocking agents to control heart rates during atrial fibrillation, antiarrhythmic drugs aimed at maintaining normal sinus rhythm, and anticoagulation therapies to reduce stroke risk. Invasive treatment of atrial fibrillation has emerged because of drug toxicity, lack of long-term efficacy of available antiarrhythmic medications, and lack of improvement in symptoms for rate-controlled patients. These investigators review the evolution of the current catheter-delivered atrial fibrillation procedures, starting with surgical maze, up to and including left atrial appendage occlusion devices. The history of invasive atrial fibrillation therapy provides a basic understanding of contemporary ablation strategies and a backdrop for the cutting-edge rhythm and stroke prevention therapies of today.


Although many pharmacologic agents exist that benefit patients with chronic heart failure, many adjunct therapy further help with outcomes. Preliminary evidence suggests that meditative exercise may have benefits for patients with chronic systolic heart failure, but this has not been rigorously tested in a large clinical sample. This paper describes the results of a single-blinded, multisite, parallel-group, randomized controlled trial of 100 outpatients with systolic heart failure. The authors found that heart failure patients who practiced tai chi had improved quality of life, exercise self-efficacy, and mood compared with controls.


Percutaneous coronary interventions (PCIs) are very common in the United States, costing at least $12 billion each year. Although life-saving, this invasive procedure also exposes patients to many complications, such as long term-bleeding and stent thrombosis. Given the cost and complications of PCIs, the authors of this paper assess the appropriateness of PCI use in the United States. They look at the use in acute and nonacute indications and classify events as appropriate, inappropriate, and uncertain. This study helps guide physicians in determining whether and when PCI is an appropriate approach. The authors found that nearly all acute PCIs were appropriate, whereas 12% of nonacute indications of PCIs were inappropriate with considerable variation between centers.

Aspirin use reduces first heart attack and ischemic stroke by about 18% and 14%, respectively, but it also increases rates of intracerebral hemorrhage and gastrointestinal bleeding. Many guidelines make recommendation for individuals to take aspirin using such broad categorizations as age >65 and ignoring the aspects of individualized medicine and patient-centered care. This study estimates lifetime effects of aspirin treatment in quality-adjusted life-years. They found that not everyone benefited from daily aspirin and individual benefit variations, such that guidelines should discard dichotomous thresholds in favor of a more nuanced approached. Understanding who benefits from aspirin and to what extent can help clinicians and patients to develop a more patient-centered approach to preventive therapy.


Stroke is a common complication in patients with atrial fibrillation, and the usual pharmacologic agent for prevention this is warfarin. However, there are many issues with this drug: low onset of action, narrow therapeutic range, requirements for regular monitoring, drug and food interactions, pharmacogenetic variability, and hemorrhage risk. Recent studies have investigated alternatives to warfarin for stroke prophylaxis in patients with atrial fibrillation, but whether these alternatives are cost-effective is unknown. This study compares the projected quality-adjusted survival and costs of alternative treatment strategies with aspirin, warfarin, and dagibatran for atrial fibrillation. They found that it was cost-effective to use 150 mg dabigatran twice daily in atrial fibrillation patients with high risk for hemorrhage and stroke, respectively, whereas it was cost-effective to use warfarin in moderate-risk patients. Understanding the results can help clinicians utilize fewer resources to achieve the desired outcomes of preventing stroke.


Acute decompensation of heart failure commonly precipitates hospitalizations, and loop diuretics are frequently administered as part of the treatment plan. Despite extensive clinical experience, there is sparse prospective data guiding its use, especially its dosing and modes of administration. This prospective, double-blinded, randomized study recruited 308 patients to provide some objective evidence and data for loop diuretic use. The authors found no statistically significant changes in terms of patients’ global assessment of symptoms and changes in renal function with either bolus as compared with continuous infusion or with low-dose as compared with a high-dose strategy. The article provides objective data that helps to resolve questions of efficacy of loop diuretics when administration differences occur.


Assessment of cardiovascular risk using bloodstream measurable markers has relevance considering the prevalence of heart disease. Two markers, C-reactive protein (CRP) and N-terminal pro-brain natriuretic peptide (NT-proBNP), are two such markers. The study aimed to
compare the predictive capabilities of CRP and NT-proBNP for cardiovascular risk by prospectively recruiting 3,649 men and following them for nine years and assessing for cardiovascular events. The study found that NT-proBNP was a better predictive marker than CRP. This helps clinicians decide on which markers to use in which circumstances.

BRCA1 and BRCA2 are two mutations associated with a substantially increased risk of breast and ovarian cancers. To minimize risk for these cancers, which are hormone driven, patients are encouraged to undergo salphino-oophrectomy (removal of the ovaries and associated tissues). However, the consequence of removing the hormone-producing tissue has many detrimental systemic effects – including those on bone density and cardiovascular health. This study looked at the responses of 212 women who underwent the surgery for high-risk for cancer and their choice for hormone replacement therapies. Estrogen-only replacement is complicated by risk for venous thromboembolism and breast cancer.


The relationship between immune cells and the hypothalamic-pituitary-adrenal axis is complex but significant. In this study, the investigators explored this relationship using the model of postgraduate students – an interesting point of discussion for students who can relate! Study participants took a State-Trait Anxiety questionnaire that was then compared with biological markers. Results showed that as psychological stress indicators increased, plasma cortisol was increased and neutrophil superoxide release was reduced. The investigators took this one step further to compare with an *in vitro* system. Similar inhibitory effects were found when neutrophils were exposed to hydrocortisone. This was reversed by RU-486, a glucorticoid-receptor antagonist. Taken together, evidence from this study suggests that psychological stress can inhibit the immune system by suppressing neutrophil superoxide release through IgG immune complexes.


Polycystic ovarian disease (PCOS) is a common yet poorly understood endocrine condition. Patients can experience obesity, insulin resistance, menstrual irregularity, infertility, hirsutism, and increased risk for endometrial malignancies. On the basis that children with low birthweight and/or precocious puberty are at elevated risk for PCOS, this group explored the potential benefit of treatment of metformin. While this is a medication routinely given to PCOS patients and is known to improve their fertility outcomes, this group investigated benefits of early (ages 8-12) vs. late (ages 13-14) metformin treatment. Early treatment was shown to have a positive influence on many of the variables examined by the investigators. Participants in the early-treatment cohort had significantly greater height and reduced visceral fat. The early-treatment cohort also had improved outcomes on the defining features of PCOS: hirsutism, androgen excess, and amenorrhea.

The purpose of including this article in the journal club is two-fold: to discuss pituitary incidentaloma and its clinical significance and management and to review the primary components of a clinical guideline. Incidentalomas refer to atypical morphological features observed on radiologic images taken for an unrelated indication. The pituitary gland is a central component to the endocrine regulatory system in the body. Recommendations for management include a complete history and physical examination with a focus on endocrinologic features. Investigations should include assessment of pituitary hypersecretion or hyposecretion. Figure 1 is an excellent depiction of the workup of a pituitary incidentaloma. The key step in management is determining the level of function of the pituitary. Management is highly variable and is dependent on the results of initial workup. Patients who do not meet criteria for surgical resection should continue to be monitored.


Septic shock is a medical emergency that requires rapid and efficient management for successful outcomes. Shock has the final result of poor end-organ perfusion. Monitoring end-organ function is a critical for effective management of shock. This study explores a potential way of measuring adrenal function in an episode of septic shock. While total serum cortisol has historically been used, this group opted to compare results with free serum cortisol – unbound to the cortisol binding-globulin protein – because it is biologically active. Of note, free-cortisol can be collected from saliva, making it a practical indicator as well. Results from the study showed the correlation between salivary and total serum cortisol to be quite good (80%), thereby suggesting that free-salivary cortisol can be an appropriate surrogate for serum cortisol in the management of a septic shock patient.


In this survey of Medicare beneficiaries, the authors examined the relationship of obesity with all-cause mortality and the development and progression of disability. Only patients with markedly elevated body mass index (BMI) had increased all-cause mortality. However, patient reports of new or worsening disability increased in a dose-related manner as BMI increased above the normal range. Older obese adults may be an appropriate target group for interventions to prevent or decrease disability. (This summary is from *Annals of Internal Medicine Collections–Endocrinology.*)
Selected Readings in General Internal Medicine


This study examines the efficacy of massage on chronic low back pain. The trial compares two types of massage with usual care of chronic back pain. Participants were randomly assigned to one of the three treatment groups. Group 1- “relaxation massage,” which was intended to relax tissues, provided effleurage and petrissage; this group also received a 2.5-min relaxation audio disc. Group 2- “structural massage,” which was intended to alleviate musculoskeletal factors contributing to pain; these patients were given specific home exercises for their condition. Group 3 -“usual care,” for which individual care was determined from medical records and the patients were paid $50. The study was single-blinded so the therapists knew what treatment they were administering, but the patients did not know what treatment they were receiving. Each of the 27 massage therapists in the trial had been in practice for at least 5 years and was trained in the study’s massage techniques for 1.5 days. Treatment outcomes were measured at baseline and at 10, 26 and 52 weeks. All groups showed improvement of pain at the 10-week measurement, but improvement was greater with both massage groups as compared to the usual care group. This improvement remained statistically significant at 26 weeks. Limitations were the following: The study didn’t specify what constituted “usual care” of low back pain and reported that the usual care was individualized based on the patient.


This NIH study examined epidemiologic data to determine the influence of multiple lifestyle factors on diabetes and to how they relate to the 11-year risk for incident diabetes. The study design was a population-based prospective cohort study. The study contained 114,996 healthy men and 92,483 healthy women between 50-71 years of age. In 1994 and 1996, researchers surveyed demographic characteristics, including diet, height and weight, physical activity, smoking, and alcohol consumption at baseline. This information was then compared with data collected in 2004 and 2006, in addition to self-reported and physician diagnosed diabetes. Data showed 9.6% men and 7.5% women developed new-onset diabetes over the study’s duration. Patients who were considered to have low-risk lifestyle factors were found to have a 0.61 and 0.43 risk for men and women, respectively. The risk was even further reduced in patients who were not overweight or obese. The limitation of the study was that it was observational and had the potential to be affected by confounding factors. In conclusion, the study found that lifestyle factors, when considered in combination, are associated with a significant risk reduction in the development of diabetes.


This retrospective cohort study looked at whether COPD-related mortality is higher in persons living in rural areas than those living in urban areas with a goal of assessing whether hospital characteristics influence any of the observed associations. The study population consisted of
18,809 veterans in 129 acute care Veterans Affairs hospitals, who were hospitalized for COPD exacerbation. Patient factors that were measured in the study were degree of rurality, 30-day mortality, and hospital volume and rurality. Mortality was increased in patients living in isolated rural areas (5.0%) compared with those living in urban areas (3.8%). This increase was present after researchers adjusted for compounding factors. Limitations of this study were that it was mostly a male, veteran patient population and results were based on administrative data. Researchers concluded that patients with COPD who live in rural areas of the U.S. are at a greater risk for mortality related to COPD-exacerbations.


It is believed that quality of healthcare delivery is poorer during summer months, when new trainees are entering their intern year. This literature review aimed to examine the phenomenon termed the “July Effect”. Researchers completed an electronic literature search utilizing such resources as Pub Med, ERIC, EMBASE, and Cochrane Library for all English-language studies published between 1989 and July 2010. Two authors independently abstracted data on outcomes, study setting and design, and statistical methods. The 39 studies were all focused on inpatient settings and were categorized based on quality, sample size, and reported outcomes. The results of the analysis showed increased mortality and decreased efficiency (length of stay, duration of procedure, hospital charges) during this period. However, the study was not able to demonstrate a strong correlation between morbidity and medical error outcomes. The limitations of this analysis were as follows: It did not examine ambulatory care settings; many of the studies used different timeframes for trainee changeover; and most of the studies did not control for level of supervision. This analysis shows increased mortality and decreases in hospital efficiency due to the changeover of medical trainees during the summer months, known as “July Effect”.


Hospitalist care has expanded rapidly around the U.S., largely due to its association with reductions in hospital stay length and cost. This study examines the impact of hospitalist care on overall hospital cost, length of hospital stay, medical utilization, and Medicare costs after discharge. The study design was a population-based national cohort study. The patient population was a 5% national sample of Medicare parts A and B enrollees cared for by their primary care physician or a hospitalist during hospitalizations between 2001 and 2006. Researcher recorded 6 measurements, including length of stay, hospital charges, discharge location and physician visits, emergency department visits, rehospitalization, and Medicare spending within 30 days after discharge. Compared with those cared for by the primary care physician, patients under hospitalist care had a reduced length of stay (0.64 day) and $282 less hospital charges. However, Medicare costs in the 30 days following discharge were $332 higher. Patients cared for by hospitalists were also less likely to be discharged to home and were more likely to have emergency department visits and re-admissions following discharge. Observational studies are subject to selection bias. It is possible that the outcome of the study may be affected by the fact that the patients under hospitalist care probably had more co-
morbidities and more advanced disease, thus requiring more costly after-care following discharge. The conclusion of the study was that the decreased length of stay and hospital costs associated with hospitalist care are offset by higher medical utilization and costs after discharge.


Standard therapy for uncontrolled asthma includes inhaled corticosteroids and long-acting β-agonists; however, this regimen does not adequately control many patients’ asthma. This study looked at the efficacy and safety of omalizumab in patients with refractory asthma. This study was a prospective, randomized, parallel-group, double-blind, placebo-controlled trial, which took place at 193 investigational sites in the U.S. and 4 in Canada. A total of 850 asthmatic patients between the ages of 12-75 were divided into two groups. The first group (n=427) was given omaluzimab, and the other group (n=423) was given a placebo, in addition to their existing asthma medication regimens. Over 48 weeks, the frequency of asthma exacerbations, mean daily number of albuterol puffs, mean total asthma symptom score, and the mean score on the standardized version of the Asthma Quality of Life Questionnaire (AQLQ) were collected. The patients on omalizumab showed a 25% relative reduction in asthma exacerbations compared with the placebo (0.66 vs. 0.88 per patient). These patients also had improved means AQLQ scores, reduced mean daily albuterol puffs, and decreased mean asthma symptom score. The study’s limitations include the patient discontinuation rate of 20.8% and that the study was funded by the pharmaceutical company that manufactures omalizumab. This study demonstrates that omalizumab is effective as a multitherapy option for patients whose asthma is not well-controlled with standard therapy.


Coronary heart disease (CHD) is a leading cause of death and disability in developed countries, despite declining trends in morbidity and mortality. There is evidence that psychosocial factors contribute independently to the risk for CHD including, chronic stress, poverty, low social support, marital stress, work stress, and such emotional factors as depression, hostility, anger, and anxiety. The authors performed a randomized controlled trial with 362 patients discharged from the hospital after a CHD event. The active group received Cognitive Behavioral Therapy (CBT) with five elements: education, self-monitoring, skills training, cognitive restructuring, and spiritual development. After 20 two-hour sessions, the active group had a 41% lower rate of cardiovascular events of any kind, including acute myocardial infarction. In addition, in the active group there was a strong dose-dependent relationship whereby higher attendance at CBT sessions was associated with better clinical outcomes.

Verghese et al discuss the bedside examination in the practice of medicine. Some argue that the bedside examination is redundant in the presence of diagnostic technologies. Others argue that a skillful bedside examination can prevent unnecessary risk exposure and costs. The authors employ ethnography to assess the role of the bedside examination. With the bedside examination interpreted as a ritual or rite of passage, the authors conclude that the bedside examination establishes the roles for physician as a trust-worthy and authoritative provider of care. The manner of disrobement, laying-on of hands, and methodical examination may also signal the transition from illness to wellness. From a psychosocial perspective, the authors discuss the preservation of humanity, dignity, and personality that are facilitated by the examination. Whereas a diagnostic image or serologic test reduces a patient’s illness into discrete and obscure data, the bedside examination allows the whole patient to be recognized and observed. Verghese et al conclude with arguments for the preservation of bedside examination as an essential skill in the practice of medicine and the training of physicians.


The general internist is challenged to reduce smoking, one of the leading causes of preventable death. While many smokers do express the intention to stop, the stabilization and execution of that intention can be elusive. Free et al studied 5800 patients who smoked, were willing to quit smoking, and who owned a cell phone. Half of the sample was randomized to receive txt2stop, a smoking cessation program during which they received 5 text messages per day for 5 days, then 3 text messages per week for 26 weeks. After 6 months, the active patients were significantly more likely to report continuous smoking abstinence that was verified with a salivary test. No significant differences between groups were observed in secondary outcome measures: self-reported involvement in vehicle crashes, pain in thumb while texting, and use of other smoking cessation support services.

In the aging population, preventing delirium is an important aspect of the prognosis. In this article, authors sought to determine whether specific medications increased the risk of delirium in hospitalized and long-term institutionalized (e.g., nursing home and assisted living) patients. These authors reviewed 14 studies evaluating various drugs, including opioids, benzodiazepines, neuroleptics, anti-histamine H1 and H2 antagonists, dihydropyridines, anti-muscarinics, tricyclic antidepressants, anti-parkinsonian medications, digoxin, steroids, and non-steroidal anti-inflammatory drugs. Of clinical certainty is that meperidine should not be used in the elderly simply because of the availability of other narcotics that provide adequate pain relief without the increased risk for delirium. Counterintuitively, in a subset of patients low doses of narcotics were shown to precipitate delirium, most likely due to inadequate pain control. Also, benzodiazepines more consistently caused delirium, perhaps due to its longer half-life. However, for most classes of medications insufficient data are available to conclude the risk for iatrogenic delirium in the elderly.


Angiotensin-receptor blockers (ARBs) are often used to treat cardiovascular disease, especially in patients who cannot tolerate angiotensin-converting enzyme inhibitors (ACEi). There has been speculation that ARBs may increase the risk for mortality, including cancer, and adverse cardiovascular events. These authors sought to answer the question of whether ARBs increase the risk for cardiovascular and other outcomes. Studies included compared ARBs with placebo or active control and reported on the following adverse events: angina pectoris, myocardial infarction (MI), heart failure, stroke, new-onset diabetes mellitus (DM), cardiovascular mortality, or other causes of death. Authors concluded that ARBs, when compared with active control and placebo did not increase the risk for death or MI. Although the authors of this article confirm the cardiovascular safety of these drugs, they reiterate that ARBs should be second-line treatment for patients with left ventricular systolic dysfunction after MI and chronic heart failure.


Calcium-channel blockers (CCBs) are efficacious in the treatment of hypertension, especially in a certain subset of patients. However, peripheral edema is a common side effect. This occurs due to CCBs preferential arteriolar dilatation, which causes an increase in the hydrostatic pressure gradient between arterioles and venules. The resultant edema is refractory to the natriuretic effects of CCBs and thus does not respond to treatment with diuretics. In this study, the authors sought to understand whether the addition of an antihypertensive that works against the renin-angiotensin system (RAS) could reduce CCB-associated peripheral edema. Studies compared the
reduction in CCB associated peripheral edema when CCBs were combined with RAS blockers (ACE inhibitors, ARBs, or direct renin inhibitors). With the exception of aliskiren, a direct renin inhibitor, authors concluded that combination treatment with a CCB and RAS blocker both reduced CCB-associated peripheral edema and had better patient compliance.


Low doses of selenium, a mineral that is easily obtained in the average North America diet, are necessary for normal bodily function. As an antioxidant, it scavenges oxygen free radicals and reduces inflammation. As such, it has been presumed that selenium supplements can prevent chronic diseases, such as heart disease and cancer. Although there are data that link the benefits of selenium on heart health, the safety of high doses of supplementary selenium has recently been scrutinized. There was speculation that high doses may promote high cholesterol levels and thus, cardiovascular disease. In this study, 501 healthy volunteers aged 60 to 75 years were given placebo or low, intermediate, or high doses of selenium for 6 months. Those who received selenium, regardless of the dose, showed a reduction in both total and LDL cholesterol. There was also a modest elevation in HDL levels among persons receiving high-dose selenium. Essentially, researchers concluded that selenium supplementation does not cause an elevation in cholesterol but in fact slightly lowers cholesterol levels. However, using high-dose selenium was not recommended because the benefits were modest and potential harmful effects were not taken into consideration.
Selected Readings in Gastroenterology


This article measures the “placebo effect” in patients who are aware that they are receiving a treatment consisting of placebo pills. The participants all had irritable bowel syndrome (IBS). This disorder, which causes abdominal discomfort and altered bowel habits often resulting in reduced quality of life, is reportedly one of the top 10 reasons for seeking medical care. Participants were randomly assigned to a no-treatment group and an open-label group and were aware of their group assignment. All subjects received full disclosure and objective information about the power of the “placebo effect.” Primary outcome measure of the study was the IBS Global Improvement Scale (IBS-GIS), a subjective self-evaluation of symptoms by the participants in each group.


Proton pump inhibitors (PPIs) are among the most commonly prescribed medications and often, at least according to Linsky et al, without any clear indications. This is a retrospective cohort study using data over a 5-year period to determine whether there is any association between the use of PPI and risk for recurrent Clostridium difficile infection (CDI). The study showed an increase in CDI recurrence rate in patients with PPI exposure. This study was limited to patients within the Veteran Administration (VA) data system and therefore may not represent the population at large.


This article is the summary findings of a phase 3 noninferiority clinical trial comparing the efficacy and safety of fidaxomicin to vancomycin in treatment of Clostridium difficile (C. difficile). Patients were selected based on clinical symptoms along with positive stool toxin test. The primary outcome was clinical cure, and secondary outcomes were recurrence rate within 4 weeks of treatment and global cure (i.e., cure with no recurrence). This study demonstrated that the cure rates with fidaxomicin were noninferior to vancomycin. Although there was no significant difference in recurrence rates between the two drugs in patients infected with the hypervirulent strain (NAP1/B1/027 strain), fidaxomicin was shown to significantly reduce recurrence rates of other strains compared with vancomycin.


One of the most serious complications of portal hypertension is variceal bleeding. One option in these patients is treatment with transjugular intrahepatic portosystemic shunt (TIPS). This trial studied whether early treatment with TIPS using a stent covered with extended
polytetrafluoroethylene improves outcomes in high-risk patients. It found that high-risk patients benefit from early use of TIPS.

Cardiovascular disease is the leading cause of death in the U.S. and the largest cause of lower life expectancy in African Americans. Cardiovascular disease cost $450 billion each year. A new initiative called Million Hearts, by the Department of Health and Human Services, is a collaboration of federal, state, and local agencies as well as private partnerships aimed at management of the “‘ABCS” — aspirin for high-risk patients, blood-pressure control, cholesterol management, and smoking cessation. This article notes that the initiative will operate in both the community as well as a clinical setting. Community-based initiatives will focus on helping patients make lifestyle choices more conducive to cardiovascular health. Improvement of the ABCS has been estimated to prevent more deaths from cardiovascular disease than any other intervention and will be an important step toward expanding primary care and preventive measures for our nation’s health issues. The Affordable Care Act is instrumental to this initiative because it will waive patient cost-sharing for preventive services, such as cholesterol and blood pressure screening, and smoking cessation counseling/treatment for individuals in new private insurance plans. The Affordable Care Act will also work to reduce the Medicare “doughnut hole” in drug coverage so that individuals will be able to obtain blood pressure and lipid-lowering drugs more easily. Million Hearts will use existing spending initiatives and focus on voluntary community-based initiatives to create focused, cost-effective, and sustainable way to reduce the burden of cardiovascular disease in the U.S.


Rising health care costs are paramount in the US healthcare system. Healthcare reform is focusing on how we can decrease the costs of healthcare, which is now roughly 16% of our nation’s GDP, while increasing access and maintaining high-quality care. In this article, health policy experts discuss a major driver of increasing healthcare costs: insurance. The articles looks at economists’ views that health insurance is drives up costs in healthcare because it creates a situation where individuals are not directly bearing the costs of care after a certain point, and thus, the utilization of high-cost services increases. The article also explores how consumer-driven plans (high-deductible) encourage patients to use less superfluous healthcare, which may lower costs. However, a caveat is that patients may also use less essential and cost-effective healthcare, such as primary care visits. This article touches on many important issues in healthcare, including cost, insurance, and the views of many in health policy.

One of the exciting and challenging aspects of medicine is that it is always changing. As we develop new technologies and treatments, protocols for diagnosis and treatment are continually changing. This is especially true in the arena of cancer research. Ziogas et al recently conducted a study to determine how often family histories for cancer prevalence should be updated to ensure that patients receive appropriate screening for their cancer risk profile. The group assessed the need for more aggressive screening based on family history of breast, colorectal, and prostate cancer for individuals that were 30 years old compared with 50 years old. Interestingly, they found that family history and the more aggressive screening needs increase significantly during that 20-year time frame for breast and colorectal cancers and less so for prostate cancers. The article is a good reminder that family histories need to be updated over time along with other parameters that are assessed during routine check-ups.


Pick your poison: Choose the therapy regimen with greater toxicity and initial effectiveness or the one that is less toxic, but ultimately leads to equal survival. In our age of high-tech pharmaceuticals, new medications are continually coming out that ultimately prove to be equal or only slightly better in overall outcomes than their predecessors, and these new therapies often come with higher price tags. Ultimately, it is the physician’s responsibility, in consultation with his or her patient, to decide the risks and benefits of the different therapies. Viviani et al reveal this dilemma anew in their recent publication on two different salvage therapies for Hodgkin’s lymphoma: ABVD and BEACOPP. BEACOPP is the newer therapy that is more toxic but was shown in the study to have better initial tumor control. The study also showed that despite the initial benefit of BEACOPP, ABVD and BEACOPP have similar results on overall survival of the patient. The question raised is what therapy should be used, the tortoise (ABVD) or the hare (BEACOPP).
Selected Readings in Hospital Medicine


CT pulmonary angiography (CTPA) has revolutionized the diagnosis of pulmonary emboli; this highly sensitive test has increased the number of PEs detected by 81% in the last 15 years. This in turn has led to a concommitant increase in the proportion of patients receiving anticoagulant therapy. However, in this paper the authors show that the vast majority of PEs that are detectable only by CTPA are clinically insignificant (i.e., although the PE detection rate has increased across the country in the past 15 years, mortality of PE patients has not changed). In fact, the increased sensitivity of CTPA may have detrimental effects, as the number of adverse effects of anticoagulation therapy has also increased significantly.


Most observers agree that the time and money spent dealing with the multitude of different insurance types and plans available across the country is a major contributor to the high administrative costs of US medicine, which in turn is a cause of our massive health care costs in general. This study sought to quantify one aspect of the problem, specifically the cost to outpatient physicians. Survey responses show that the average outpatient physician spends $83,000 in time and staff costs in dealing with insurance companies about claims, coverage, and billing for patient care and prescription drugs – more than 4 times what physicians in Canada spend.


This ongoing series of articles is an invaluable way to easily incorporate EBM into patient management. Each article focuses on a common condition (e.g. stroke, UTI, osteomyelitis, etc.) and presents the evidence relating to its diagnosis. Previous research is aggregated to show the diagnostic value of relevant signs and symptoms, including accuracy, sensitivity, specificity, odds ratios, and likelihood values.


The landscape of internal medicine has transformed dramatically in recent years. Gone are the days of the primary care physicians who saw you both in the office and in the hospital. Today, outpatient and inpatient medicine are almost two separate specialties due to the creation of the hospitalist position. This paper talks about the role of hospitalists in medicine with emphasis on the pitfalls and advantages of this new dichotomy. It outlines four main areas of discussion: (1) patient care, (2) administration, (3) clinical practice, and (4) medical practice. The article
highlights the potential lack of continuity of care. However, it does note the benefits of allowing practitioners to focus wholly on inpatient versus outpatient medical issues. Hospitalist medicine is probably here to stay, and we need to address the potential problems that may occur as the worlds of outpatient and inpatient medicine become increasingly separate.
Selected Readings in Infectious Diseases


This study investigated a nationwide outbreak of salmonella infection that started in November 2008. Contaminated food ingredients can affect multiple products distributed through various channels and consumed in multiple settings. The researchers conducted two case-control studies, product trace-back, and environmental investigations. A case was defined as laboratory-confirmed infection with outbreak strain of Salmonella typhimurium occurring between September 1, 2008, and April 20, 2009. In study 1, illness was associated with eating peanut butter (OR 2.5; 95% CI 1.3 - 5.3), peanut butter-containing products (OR 2.2; 95% CI 1.1 - 4.7), and frozen chicken products (OR 4.6; 95% CI 1.7 – 14.7). Investigations of focal clusters and single cases associated with nine institutions identified a single institutional brand of peanut butter distributed to all facilities. In study 2, illness was associated with eating peanut butter outside the home (OR 3.9; 95% CI, 1.6 – 10.0) and two brands of peanut butter crackers (brand A: OR 3.6, 95% CI 1.3 to 9.8). Both cracker brands were made from brand X peanut paste. The outbreak strain was isolated from brand X peanut butter, brand A crackers, and 15 other products. A total of 3918 peanut butter-containing products were recalled between January 10 and April 20, 2009. Contaminated peanut butter and peanut products caused a nationwide salmonellosis outbreak. Ingredient-driven outbreaks may lead to widespread contamination of numerous food products.


In the southern region of the United States, such as Louisiana and Texas, there are indigenous cases of leprosy in native-born Americans with no foreign exposure. There are also wild armadillos infected with Mycobacterium. Whole-genome consequences of M. leprae from one wild armadillo and three U.S. patients with leprosy showed that the infective strains were identical. The M. leprae genotype of patients with foreign exposure generally reflects their country of origin. However, a unique M. leprae geotype (3l-2-v1) was found in 28 of the 33 wild armadillos and 25 of the 39 US patients who resided in areas where exposure to armadillo-borne M. leprae was possible. This genotype has not been reported elsewhere in the world. Wild armadillos and many patients with leprosy in the southern U.S. are infected with the same strain of M. leprae. Armadillos are a large natural reservoir for M. leprae, and leprosy may be enzootic in the region.


The Extension for Community Healthcare Outcomes (ECHO) model was developed to improve access to care for underserved populations with complex health problems, such as hepatitis C virus (HCV) infection. The ECHO program used videoconferencing to train primary care providers to treat complex diseases. This prospective cohort study compared treatment for HCV infection at the University of New Mexico (UNM) HCV clinic with treatment by primary care
clinicians at 21 ECHO sites in rural areas and prisons in New Mexico. A total of 407 patients with chronic HCV infection who had received no previous treatment for the infection were enrolled. The primary endpoint was a sustained virologic response. Among patients with HCV genotype infection, the rate of sustained viral response was lower at the UNM HCV clinic when compared with the ECHO sites. Serious adverse events occurred in 13.7% of patients at the UNM HCV clinic and in 6.9% at the ECHO sites. The results of this study show that the ECHO model is an effective way to treat HCV infection in underserved communities. Implementation of this model would allow other states and nations to treat a greater number of patients infected with HCV than they are currently able to treat.


Congenital cytomegalovirus (CMV) infection is an important cause of hearing loss. Most infants at risk for CMV-associated hearing loss are not identified early in life because of failure to test for the infection. The standard assay for newborn CMV screening is rapid culture performed on saliva specimens obtained at birth, but this assay cannot be automated. Other alternatives that have been developed are real-time PCR-based testing of liquid-saliva or dried-saliva specimen obtained at birth. This prospective, multicenter screening study of newborns compared real-time PCR assays of liquid-saliva and dried-saliva specimens with rapid culture of saliva specimens obtained at birth. The sensitivity and specificity of the liquid-saliva PCR assay were 100% and 99.9% respectively. This assay’s positive and negative predictive values were 91.4% and 100%, respectively. For the dried-saliva PCR assay sensitivity and specificity were 90.2% and 99.9%, respectively. The assay’s positive and negative predictive values were 90.2% and 99.9%, respectively. Real-time PCR assays of both liquid- and dried-saliva specimens showed high sensitivity and specificity for detecting CMV infection and should be considered as screening tools for CMV in newborns.


A frequent complication of hematopoietic stem-cell transplantation (HSCT) is diarrhea. Important causes of diarrhea after HSCT include acute graft-versus-host disease (GVHD), infections, and medications. After the transplantation and engraftment of hematopoietic stem cells from umbilical cord blood, the study observed a new syndrome of culture-negative, antibiotic-response diarrhea not attributable to any known cause. The study conducted a retrospective cohort study of all patients undergoing cord-blood HSCT. The cord colitis syndrome was defined as a persistent diarrheal illness in such patients that was not due to acute GVHD, viral or bacterial infection, or another identifiable cause. Clinical and histopathologic features of patients meeting the case definition were further analyzed. The results showed that cord colitis syndrome is clinically and histopathologically distinct from acute GVHD and other causes of diarrhea in patients who have undergone cord-blood HSCT and is relatively common in this patient population. The syndrome should be considered in such patients who have diarrhea that is not attributable to other causes.

Human papillomavirus (HPV) infection and diseases caused by HPV are common in boys and men. This study reported on the safety of a quadrivalent vaccine (active HPV types 6, 11, 16, 18) and on its efficacy in preventing the development of external genital lesions and anogenital HPV infection in boys and men. The study enrolled 4065 healthy boys and men 16 to 26 years of age from 18 countries in a randomized, placebo-controlled, double-blind trial. The primary efficacy objective was to show that the quadrivalent HPV vaccine reduced the incidence of external genital lesions related to HPV-6, 11, 16, or 18. Efficacy analysis was conducted in a per-protocol population, in which participants received all three vaccinations and were negative for relevant HPV types at enrollment, and in an intention-to-treat population in which subjects received vaccine, or placebo, regardless of baseline HPV status. In the intention-to-treat population, 36 external genital lesions were seen in the vaccine group as compared with 89 in the placebo group, for an observed efficacy of 60.2% (95% CI, 40.8-73.8); the efficacy was 65.5% (95% CI, 45.8 – 78.6) for lesions related to HPV-6, 11, 16, or 18. In the per-protocol population, efficacy against lesions related to HPV-6, 11, 16, or 18 was 90.4% (95% CI, 69.2 to 98.1). The quadrivalent vaccine prevents infection with HPV-6, 11, 165, and 18 and development of related external genital lesions in males 16 to 26 years of age.
Selected Readings in Pulmonology


This review article addresses the controversial practice of weaning, which is the gradual reduction of ventilator support prior to discontinuation in patients considered capable of beginning to breathe on their own. Despite its common use, weaning stands in direct contrast with evidence-based guidelines for ventilator discontinuation, which call for patients to undergo spontaneous breathing trials (SBTs) — short periods of complete withdrawal from ventilator support followed by discontinuation of the ventilator, if patients are deemed ready. The establishment of these all-or-none ventilator use guidelines stem from the high mortality and morbidity associated with prolonged ventilator support and weaning. For many physicians, however, weaning remains the classic and conservative approach to ensuring the readiness of patients to breathe when coming off a ventilator, despite the potential harms. The authors of this article argue that the practice of weaning should stop because the risks of weaning significantly outweigh the practice recommended in current guidelines.


This article provides an update on recent research findings made in the study of lung cancer. It begins with a general overview of the epidemiology, including identifying high-risk populations, and then follows with summarizing the updated guidelines for screening and diagnosis of lung cancer. Although as it currently stands, the U.S. Preventive Services Task Force still recommends no screening test for lung cancer, this article highlights that these suggestions may change in the near future based on the initial findings of the National Lung Screening Trial, initiated in 2002, which showed a significant reduction in all-cause mortality in smokers and formers smokers screened with a chest CT scan versus those who were not. The article then reviews advances in the treatment of lung cancer, highlighting pivotal clinical studies of novel treatments that have produced improved outcomes in cancer patients over the previous standards of care. These studies include one by Quoit et al, showing dramatically improved survival in elderly patients (ages 70 or older) with non-small cell lung cancer receiving double-agent chemotherapy for shorter periods versus those receiving a single agent over longer periods, which suggests that the benefits of aggressive chemotherapy in elderly lung cancer patients could outweigh the harmful added side effects from a survival standpoint. Another highlighted study by Maemondo et al showed that patients with mutated epidermal growth factor receptor (EGFR)-lung adenocarcinoma treated with gefinitib, an EGFR inhibitor, had significantly longer progression-free survival and treatment response rates versus those treated with the standard carboplatin-paclitaxel chemotherapy, suggesting the importance of molecular testing and targeted therapy in the treatment of this cancer. This article is an all-in-one source for the most up-to-date guidelines for screening, diagnosis, and treatment of lung cancer.

Acute exacerbations are one of the most frequent causes of hospitalizations in patients with chronic obstructive pulmonary disease (COPD) and can lead to increased risk for death and faster decline in lung function in these patients. While the standard treatment for this disease, which includes inhaled glucocorticoids, beta-2 agonists, and muscarinic receptor antagonists, has been shown to reduce the number of acute exacerbations, patients on this regimen on average still have one or more exacerbations each year. In this randomized control trial (RCT), azithromycin, a macrolide antibacterial drug that is an immunomodulatory and anti-inflammatory agent, was added to the standard COPD medication treatment regimen and patients were monitored for total number of acute exacerbations that they experienced. In this four-year study comprising a total of 1117 patients, it was found that those taking once-daily azithromycin in addition to standard COPD treatment had significantly fewer acute exacerbations (1.48 annually vs. 1.83 in the control group). Despite these findings, however, it is unknown how widespread use of azithromycin to treat COPD could affect microbial resistance patterns to macrolide antibiotics.


This ACP Journal Club abstract concisely summarizes a study by Rodrigo et al in which a randomized control trial was conducted to determine whether omalizumab (humanized antibody drug prescribed to patients with uncontrolled asthma) is a safe and efficacious addition to standard corticosteroid therapy in patients with moderate-to-severe allergic asthma. Much of the current debate regarding the use of omalizumab has to do with the drug’s high costs ($10,000-$30,000 per year), which has led to it only being prescribed when corticosteroid therapy is not effective on its own. Th study included over 3000 asthmatic adults and adolescents. It was found that use of omalizumab in conjunction with corticosteroid therapy significantly reduced asthma exacerbations, including those leading to hospitalizations. However, risks for major adverse asthma events were similar between omalizumab and placebo patients. Additionally, it was found that patients taking omalizumab were more likely to reduce the dose of corticosteroids needed to manage their asthma.


This ACP Journal Club abstract reviews the findings of Cahill et al who studied the efficacy of varenicline (Chantix, a nicotine-receptor partial agonist) for smoking cessation. The study evaluated a series of randomized control trials (RCTs) in comparison to bupropion (an antidepressant drug often prescribed for cessation), nicotine patch, and placebo. The RCTs contained over 10,000 patients total and lasted between 6 to 52 weeks. The results showed that a significantly greater proportion of patients on the standard dose of varenicline (1 mg twice daily) were observed to stop smoking when compared with those on placebo (130% greater cessation)
and bupropion (50% greater cessation). However, evidence was insufficient to determine whether there was a significant difference in cessation between varenicline and nicotine patch patients even though cessation proportions were slightly higher among those on varenicline. This study provides some evidence that varenicline is a more effective drug for smoking cessation than bupropriion, which is still widely prescribed by physicians as the first-line therapy to help patients quit smoking.