

The following abstracts, from medical journals containing recent literature on hypertension and cardiovascular disease, were selected for their relevance to a managed care perspective.

Nifedipine GITS versus Felodipine ER

In September 1992, Humana Health Care Plans, a mixed-model health maintenance organization, modified its formulary and converted patients with essential hypertension from nifedipine GITS (gastrointestinal therapeutic system) to felodipine ER. To evaluate the efficacy, safety, and cost effectiveness of this transition, records of 246 patients with stable hypertension who were switched were retrospectively reviewed, covering the 3-month period before and the 3-month period following the formulary switch. Differences in pre- and postconversion measures of systolic and diastolic blood pressures (BP), calcium channel blocker doses, dosage adjustments, number of office visits, changes in therapy, and treatment failures, or any new diagnoses made during the post-switch period were not statistically significant. Compliance with medication regimens was found to be 98.5%, based on prescription refills required to cover the number of days in a patient's pre- and postconversion period. Preconversion BP values were 144/85 mm Hg; postconversion values were 142/84 mm Hg. A total of 28 patients were considered hypertensive before the switch (systolic BP \geq 140 mm Hg and diastolic BP \geq 90 mm Hg); following the switch 21% were identified as hypertensive. The most commonly reported preconversion side effect was chest pain (7.7%). Following conversion to felodipine, the incidence of chest pain decreased (4.1%). The most common side effect reported with felodipine was edema (8.9%). Both regimens had comparable safety profiles and were therapeutically equivalent. The switch to felodipine also proved to be financially sound for the healthcare system, which realized a cost savings of 15%.

Krantz SR, Rase RS, Piepho RW Retrospective analysis of formulary transition at a large metropolitan HMO: Nifedipine GITS to felodipine ER. *J Managed Care Pharm* 1996;2:642-646.

Risk for CHD Associated with Hypercholesterolemia

The prevalence of hypercholesterolemia and its risk factors were examined in asymptomatic healthy siblings of people with premature coronary heart disease (CHD). A total of 668 siblings underwent screening for CHD risk factors and were included in the analysis. They were assigned to treatment categories on the basis of the National Cholesterol Educational Program Adult Treatment Panel (ATP II) guidelines. Siblings who were considered for additional evaluation and intervention for hypercholesterolemia were compared with a reference population from the third National Health and Nutrition Examination Survey (NHANES III). The NHANES III data were from phase I of the survey (1988-1991). On the basis of the ATP II guidelines, 65% of adult siblings required fasting lipoprotein analysis, compared with 33% of adults without CHD in the NHANES III reference population. Of those who required fasting lipoprotein analysis, 56% were candidates for dietary therapy, twice the percentage of the NHANES III adults who met dietary criteria. Under the ATP II guidelines, three times as many siblings qualified for drug intervention and dietary therapy as did so in the national sample (33% vs 11%, respectively). If, hypothetically, cholesterol levels were lowered 10% owing to dietary modification, the proportion of the sibling sample that was a possible candidate for drug therapy would decrease but still would be four times the 5% predicted for the national sample. The excess prevalence of hypercholesterolemia observed in this study suggests that the ATP guidelines have not made a sufficiently strong impression on the public or on those in medical practice, and that aggressive detection and treatment of hypercholesterolemia are recommended for this high-risk population of siblings of people with premature CHD.

Allen JK, Young DR, Blumenthal RS, et al. Prevalence of hypercholesterolemia among siblings of persons with premature coronary heart disease: Application of the Second Adult Treatment Panel guidelines. *Arch Intern Med* 1996;156:1654-1660.

Service Quality and Outcomes

Experiences in the United States and Europe on collecting and disseminating information on health service quality and outcomes were reviewed and examined from technical, sociopolitical, and ethical viewpoints, to determine approaches to providing quality information to consumers, and to identify future issues related to health policies in Europe. In the United States, data collection efforts have focused on collecting mortality data. Recently, employers and interest groups have developed data collection and publication systems to help employees choose the most compatible healthcare plan. In Europe, data are collected and disseminated, but are not often published. Although both the United States and Europe have begun to overcome technical and cost problems that limit data collection, not enough is known about the information that consumers want or are able to use to justify large-scale data collection efforts on global service issues. Rather, current efforts should focus on specialty- or treatment-level data, and patient groups should become involved in determining the information that patients with particular health conditions value most highly. Developments in these areas are leading to collaborations between healthcare workers and patients to increase knowledge about illnesses and treatments.

Øvretveit J Informed choice? Health service quality and outcome information for patients *Health Policy* 1996;37:75-90

Cost Expenditures of Fontan Procedure Over Heart Transplantation

The Fontan procedure has improved long-term survival rates of patients with congenital heart lesions. However, complications upon the maturity of patients, such as arrhythmias, declining ventricular performance, and repeated hospital admissions, have compelled a review of the cost effectiveness of this procedure over heart transplantation. Records of surgical procedures performed between 1988 and 1992 of 82 patients who underwent the Fontan procedure and 26 who underwent transplantation were reviewed. Data from definitive surgical admission revealed that transplant patients received nearly twice as many ECGs as those performed in Fontan palliation. Outpatient follow-up data revealed that hospital readmissions for transplant recipients exceeded the number of readmissions for patients who had undergone Fontan palliation, as did the number of clinic visits. Echocardiograms and cardiac catheterizations were also performed more frequently in transplant recipients. Surgical admission charges as well as postdischarge follow-up care were combined and averaged into three categories: (1) hospital charges during admission for surgical procedure; (2) follow-up charges beyond initial hospital discharge; (3) outpatient maintenance medication. In all categories, transplantation was more costly. The largest difference in charges resulted from surgeon, anesthesiology, and hospital room fees. Rehospitalization was associated with posttransplant rejection. Although heart transplantation is clearly the more expensive procedure, it was determined that unless rigorous selection procedures are adhered to in determining the eligibility of high-risk patients for the Fontan procedure, higher postoperative complications and an increase in short- and long-term morbidity and mortality will result, requiring heart transplantation owing to ventricular failure or intractable arrhythmias.

Gajarski RJ, Towbin JA, Garson A Jr. Fontan palliation versus heart transplantation: A comparison of charges. *Am Heart J* 1996;131:1169-1174.

Arrhythmia Specialists for Survivors of MI?

Physicians must determine whether survivors of myocardial infarction (MI), who are at risk for ventricular arrhythmias and sudden death, should be referred to specialists for assessment and therapy. To address the dearth of randomized data on therapeutic or diagnostic options, this study modeled the impact of arrhythmia detection and management strategies on mortality in MI survivors' depressed left ventricular function. Baseline risk estimates for the occurrence of sudden and nonsudden death were derived from the treatment arm of the Survival and Ventricular Enlargement trial. The risk of sudden death over 3.5 years was assumed to be 10%, and the ratio of sudden to nonsudden deaths among patients who do not receive antiarrhythmic intervention was assumed to be 1:1. Four studies were identified that addressed the sensitivity and specificity of tests for post-MI arrhythmia risk assessment from which was derived the predictive values for arrhythmic events and sudden death. Several models were constructed to determine mortality related to different arrhythmia strategies that reduced sudden death by 50% and 75%. When applied to all infarct survivors, a therapy reducing sudden death by 50% with 1% fatal adverse effects would save approximately 1 life for every 25 patients treated. Therapy reducing sudden death by 75% with 2% fatal adverse effects would save 1 life for every 14 patients. Holter electrocardiograms (ECGs), a signal-averaged ECG, or an invasive electrophysiology study were used to select higher-risk groups, where 1 life can be saved for every 4 to 11 patients treated, if invasive arrhythmia testing is applied to 28 to 47 patients for each life saved. Routine referral to arrhythmia specialists therefore is not warranted for the majority of MI survivors. Referral should be reserved for those with serious, symptomatic arrhythmias.

Stevenson WG, Ridker PM. Should survivors of myocardial infarction with low ejection fraction be routinely referred to arrhythmia specialists? *JAMA* 1996;276:481-485

Aspirin Following Coronary Event

Aspirin has been thought to decrease cardiac mortality modestly in patients with coronary disease. Using findings from the Multicenter Study of Myocardial Ischemia, an investigation was designed to measure the predictive capacity of noninvasive tests for subsequent coronary events. Therapy and patient outcomes were examined to assess the role of aspirin in patients with coronary disease receiving current therapy. A total of 936 subjects enrolled in the Multicenter study 1 to 6 months following an acute myocardial infarction (MI). Before enrollment, 31% of patients had thrombolysis and 38% had coronary angioplasty. Follow-up was conducted over 23 months. At enrollment, 751 patients (80%) took aspirin regularly (250 to 325 mg/day). In the follow-up period, regular aspirin use was associated with a 90% reduction in cardiac deaths among patients receiving thrombolytic therapy. Regular aspirin use was also associated with reduced cardiac death among those not receiving thrombolytic therapy, but was not statistically significant. Cardiac deaths were lower among patients using aspirin regularly following coronary angioplasty. The tendency toward lower cardiac mortality with regular aspirin use was not statistically significant in this group; however, a significant difference was observed in patients without angioplasty. Nonangioplasty patients taking regular aspirin therapy had a 65% lower cardiac mortality rate than those not taking regular aspirin therapy. It was determined that taking aspirin regularly would greatly benefit patients, especially those who had undergone thrombolytic therapy and those with preserved exercise capacity.

Goldstein RE, Andrews M, Hall WJ, Moss AJ. Marked reduction in long-term cardiac deaths with aspirin after a coronary event. *J Am Coll Cardiol* 1996;28:326-330.