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Cardiology

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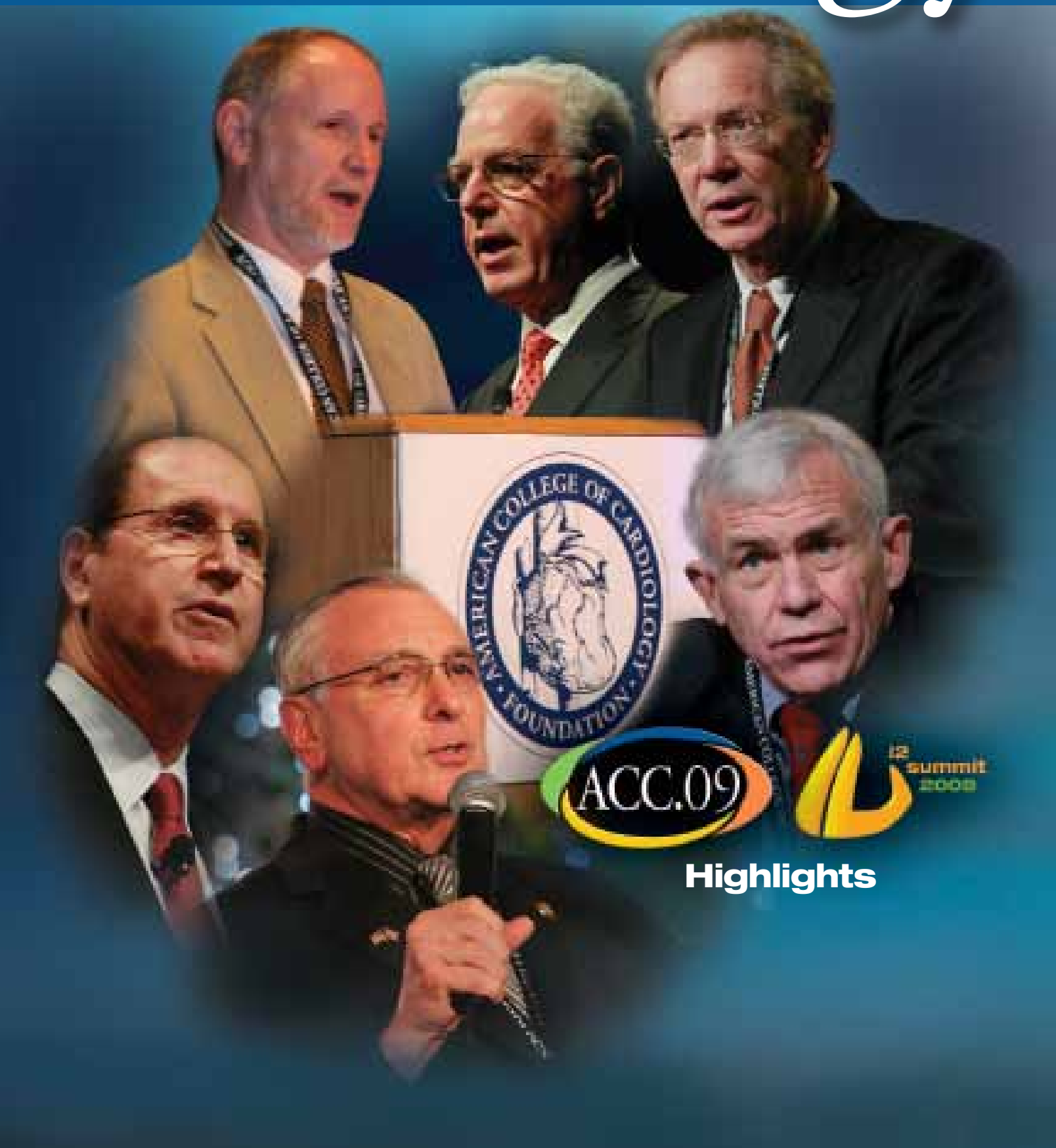

Highlights

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Inside this Issue

April 2009

Special 58th Annual Scientific Session Highlights Issue

Meeting photography by Oscar Einzig

"This year's Annual Scientific Session hit a home run for new content. The Maintenance of Certification and Lifelong Learning courses were full, and the 14 simultaneous International Society sessions were also filled and had unbelievably good educational content. We also used the time to bring the membership up to date with the health care reform agendas being bantered around Washington. This led to healthy dialogues as to what this means for those of us who are in the trenches, providing patient care. All in all, it was a tremendous meeting and it proved that despite the wonders of the Internet and its instant breaking news, we will never lose the need for person-to-person dialogs that are only possible by being there."

Immediate Past President
W. Douglas Weaver, M.D., M.A.C.C.

Patients at the Heart of New Presidential Year

In his convocation address at ACC.09, incoming President Alfred Bove, M.D., Ph.D., F.A.C.C., said that one of the most important areas in which the physician community can influence change in the health care system is by partnering with patients to improve access and ensure value.

"I call this year the 'Year of the Patient'," said Bove. "It's a year in which we must become more patient-centered. It's a year to empower patients to participate in their health care and to educate them about their cardiovascular disease. It's a year to encourage patients to communicate with their physicians regarding their illness, the quality of their care, and their role as a part of the health care team."

According to Bove, the patient theme will resonate throughout national leadership and into the state chapters — not only in 2009, but as a long-term theme for the College. Educational programs and tools will be developed to strengthen the patient-physician relationship. In addition, the College will work with lawmakers to implement policies that encourage patient empowerment, as

well as find ways to establish and maintain effective communication and collaboration within and across care teams and care settings.

Bove stressed that the "greatest challenge will be our commitment to do what is right for patients as we participate in the great effort to reform health care." Health care reform will likely require physicians and care providers to adjust the way they practice, he said. Key among the expected changes will be the use of electronic data systems to record and communicate patient data.

"There will be a period of discomfort as we create new work habits," he said, "but accurate, reliable health records will significantly improve patient care by minimizing miscommunication and by seamlessly populating clinical registries. The long-term rewards will be feedback on quality of care and practice performance measures in real time at the point of care."

Bove closed his speech by saying, "the year ahead will be full of challenges, but also full of promise." He urged new fellows to set aside time to be politically active and to participate in the design of a better health care system. "As physicians, we live in the health care trenches with our patients," he said. "We have the best understanding of the barriers — and the opportunities — for providing optimal high quality health care."

"Be proud to be a part of this great specialty," he said. "Be proud to be a part of the new health system we will have a hand in shaping. Be proud to be a part of the American College of Cardiology."

“Leading quality of care can be our legacy. It is also our duty; it was our oath on the day of our graduation from medical school.”

For his Presidential Plenary speech in the opening Showcase Session of the 58th Annual Scientific Session, ACC President W. Douglas Weaver, M.D., F.A.C.C., welcomed attendees, reflected on the College’s past and presented a bold vision for the future.

Weaver noted the challenges the 14 founders of the College faced in 1949 as they launched a specialty organization dedicated to practicing cardiologists. Then he exhorted attendees to follow in their footsteps and step up to the challenges we face in modern health care.

Those challenges, Weaver said, include an aging, increasingly obese population that is giving rise to a growing number of patients with cardiovascular disease.

“In addition,” he said, “we have not succeeded in consistently providing optimal, evidence-based care for all of our patients.”

Procedure use varies by as much as eight-fold among geographic regions in the U.S., and the variation is not explainable by patient differences, the availability of technology, payment systems or managed care. Instead, he said, variation is due to discretionary care provided without evidence that meaningful differences in outcomes will result.

The ACC and its members must lead the way in reducing variation and overuse to change the course of Medicare costs, he said.

“We can no longer wait for the government and others to tell us to reduce waste and improve poor performance,” Weaver said. “This is a defining moment for the College and its members — to lead as a profession or to be dragged kicking and screaming like a trade organization.”

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Holmes


Dangas

i2 Summit Expands Goals, Finds More Formulas for Success

By David R. Holmes Jr., M.D., F.A.C.C., and George P. Dangas, M.D., Ph.D., F.A.C.C.

The i2 Summit 2009 continued to build on the tradition of advancing the science, the practice and the ever-closer collaboration of interventional cardiology with the other stakeholders in the field of cardiovascular disease. This year the i2 Summit program executive committee worked closely with the ACC.09 general meeting chairs to broaden greatly the scope of interaction.

One of our goals was to provide the setting and opportunity for interventional cardiology to strengthen the relationship with general cardiology and to accomplish that, we dedicated one large tent room to that mission. The educational content included late-breaking clinical trials, state-of-the-art lectures, debates and case discussions.

Informative Late-breaking Clinical Trials

The late-breaking clinical trials included results that may change the practice of modern cardiovascular care. Examples include the use of a device to prevent stroke in atrial fibrillation, information that will change how we use adjunctive therapy such as statins for load or reloading at the time of intervention to optimize interventional outcome, and new data on the timing of angiography in acute coronary syndromes. This new information included more complete data on the longer-term safety of drug-eluting stents in the setting of large registries such as ACC's NCDR® and acute infarction in the HORIZONS trial.

Live Cases, Abstracts Provoke Good Discussions

Another area focused on live demonstration cases. These were tightly scripted and centered around themes that ranged from treatment of complex CAD to peripheral and carotid disease, to structural heart disease and percutaneous valve replacement among others. The cases were challenging, the moderators and panel were very instructive, and the educational content was superb. The wrap-up of these cases offered the opportunity for Monday morning quarterbacking, or in this case, Monday afternoon quarterbacking for a great discussion on patient selection and procedural performance.

The new original abstract session formats reinvigorated enthusiasm for the important role the abstracts play in ACC's educational mission, and in the middle of all the science, attendees found a great deal of time for interaction. In addition, the Interventional Council meeting was well attended and very productive.

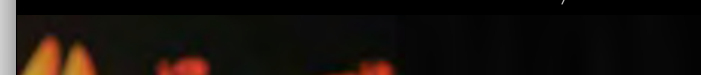
MOC Sessions Drew Crowds

The crucial new agenda item, the ABIM Maintenance of Certification (MOC) sessions truly tapped into a need as they were oversubscribed and well received, as were the Simulation sessions that were an integral part of these offerings.

As the world shrinks and flattens, the relationships between international groups become more important, and we all acknowledge that importance. As such, the luncheon sessions planned by the interventional societies were successful and gave us all a chance to explore the richness in taking an international perspective of interventional cardiology.

For those who missed the meeting, we missed you. For those who were there, we enjoyed the interaction immensely, and we look forward to building on what we learned this year and making it even better in 2010 in Atlanta.

Holmes is chair and Dangas is co-chair of i2 Summit.



Weaver

continued from page 4

Weaver acknowledged that members of the cardiovascular community already have faced payment reductions and will likely face more. However, he underscored the crisis situation in U.S. health care — almost 46 million Americans are uninsured; the cost per capita for health care is $7,400; the insurance premium for a family is $12,580; and individual employee contributions for care have more than doubled in the past eight years.

Despite the high costs, the U.S. has unacceptably high rates of preventable deaths and infant mortalilty, he said.

"We are truly almost Third World in performance," Weaver said, lamenting that both doctors and patients are unhappy with the current system.

Although payment reform, tort reform and widespread use of health information technology (health IT) are ideal goals, he suggested taking simple, straightforward steps to immediately improve the quality of care.

Trained as a flight instructor, Weaver said the same paper checklists that pilots depend on to ensure safe flight can be implemented in medical practice, even for practices that have not yet implemented sophisticated health IT.

He also encouraged members to take advantage of the many tools the College provides — NCDR® registries for measuring and benchmarking practice outcomes, appropriate use criteria to limit overuse of technologies and procedures, and more.

"Now is the time," said Weaver, "to start making your checklists, start measuring your performance, start looking at the care delivered in your office and determine its real value to patients, start showing others how good you really are."

His list of challenges to the attendees and all ACC members will not be easy to achieve, but they are an obligation, Weaver said. The many challenges include these —

- Reduce inappropriate imaging by 10 to 15 percent
- Reduce the rate of rehospitalization within 30 days for patients with heart failure by 20 percent
- Reduce the geographic variation in revascularization by 50 percent by 2012
- Ensure 90 percent or greater adherence to five published measures of quality for chronic heart failure, myocardial infarction and atrial fibrillation in a year
- Double the number of grandfathered cardiologists pursuing board recertification — though they're not obligated to do so — in the next three years
- Form a Quality Network of 500 hospitals and practices fully implementing ACC registries and reporting and comparing their performance within the next 18 months

As professionals, we must engage each of our members in the current problems of health care in this country. We must unite and lead and set an example of true health care reform for others.

At the most basic levels, we can ensure that we are doing what is best, and only what is needed, for our patients. If we are out of line in some areas, it is time to make it right. Focus on the value actually being delivered to patients, and help patients understand that more is not necessarily better. Spend time with them and guide better decision making in end-of-life care.

"Leading quality of care can be our legacy," said Weaver. "It is also our duty; it was our oath on the day of our graduation from medical school."

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Guidelines 25th Anniversary

Guideline Controversies and Milestones, Past and Present

How have the American College of Cardiology Foundation (ACCF)/American Heart Association (AHA) practice guidelines evolved? How are the guidelines being used? How should conflict of interest issues be handled?

Five cardiologists from various practice settings provided their insights to these questions during the session, "Guidelines Controversies: Past, Present and Future — Impact on Patient Care," during the closing day of ACC.09, March 31.

ACC/AHA: An Amicable Union

Addressing the "25th Anniversary of Guidelines" was session co-chair **Sidney C. Smith Jr., M.D., F.A.C.C.,** director, Center for Cardiovascular Science and Medicine, University of North Carolina Chapel Hill.

"This is the 25th anniversary of the ACCF/AHA clinical practice guidelines, which is arguably one of the best marriages you will find among professional societies," Smith said.

To date, 58 versions of ACCF/AHA guidelines have been published, 17 guidelines incorporating 2,869 recommendations are currently available and five new guidelines are under consideration. The cost to ACCF/AHA for developing 44 guidelines between 1993 and 2008 was approximately $10.7 million, with the average cost per guideline (without pocket guideline revenue) at $242,362.

Time for Different Evaluation Methods?

In his presentation, "The Evidence Base: Should We Evaluate It Differently," **Clyde W. Yancy, M.D., F.A.C.C.,** medical director of the Baylor Heart and Vascular Institute, Dallas, addressed the time-consuming approval process. Of the 25,000 days it takes to develop guidelines, 12,000 are spent in synthesizing data.

"I would submit to you that much of that time is spend adjudicating and coming to consensus about adequacy and value of information" he said.

One alternative he proposed was GRADE (Grading of Recommendations, Assessment, Development and Evaluation), a system that assigns different descriptors to recommendations and evidence. GRADE assigns two recommendations — "strong" and "weak" (equivalent to ACCF/AHA Class I, IIa, IIb, III) — and establishes three levels of evidence "high," "moderate" and "low quality" (equivalent to ACCF/AHA LOA: A, B, C). Another alternative is the Bayesian Approach, based on a system for learning from evidence as it accumulates.

"There are alternative methods to adjudicate data that could be perhaps selectively employed on a case-by-case instance or according to certain data sets," Yancy said.

Guidelines Controversies

Elliott M. Antman, M.D., F.A.C.C., director, Samuel A. Levine Cardiac Unit, Brigham and Women's Hospital, Harvard Medical School, presented his perspective on "Relationships with Industry: Will We Lose the Experts?"

Hypothetically, if all members with relationships with industry were excluded, there would be a "loss of a high level of general expertise, loss of critical insights into randomized controlled trials and a loss of unique insight into a new treatment," he said.

Antman pointed to the many checks and balances already in place. Currently, the Task Force on Committee Guidelines reviews potential members of its writing committee for relationships with industry, and the chair of the writing committee must be free of any relationships with industry, he said. Writing committee members with any relationship to industry are recused from voting on any specific recommendations.

Other points made during this session included —

- Regarding streamlining the process, **Alice K. Jacobs, M.D., F.A.C.C.,** pointed to the Guideline Process Improvement Group, which was appointed by ACCF and AHA in 2007 to review the guidelines process. The group successfully developed strategies for tightening the writing process, peer review, organizational approval and approval to publication.

- Take the guidelines off the shelf and use them, recommended **Robert O. Bonow, M.D., F.A.C.C.,** co-director, Bluhm Cardiovascular Institute, Northwestern Memorial Hospital, Chicago, during his presentation, "Derivative Products: The Reach of the Guidelines." To improve quality, he said, cardiologists should be diligent in their performance measures through structural measures, process measures, outcomes measures, efficiency measures, appropriateness determinations, reference to registries such as the National Cardiovascular Data Registry® and considerations in patient safety and continuity of care.

Updated HF Guidelines Focus on Key Research, Clinical Advances

An update of the 2005 ACC Foundation (ACCF)/American Heart Association (AHA) Guidelines for the Diagnosis and Management of Heart Failure in Adults was published on March 26. The update, a joint effort of the ACCF and AHA, in collaboration with the International Society for Heart and Lung Transplantation, features a new section for the management of patients hospitalized for heart failure.


Jessup

"The heart failure writing committee felt very strongly that we needed to tackle this particular group of patients because an admission for heart failure is such a critical event, not only for the patient, but for our overall health care system," said **Mariell Jessup, M.D., F.A.C.C.,** chair of heart failure writing committee.

"In the Medicare population, it is the no. 1 DRG (diagnosis-related group). Because of this, payers and government agencies are increasingly interested in looking at how doctors and hospitals perform in the management of the heart failure patient. We thought that given the huge epidemiologic problem and the huge cost to the economy, we needed to address this population," said Jessup, who is a professor of medicine at the University of Pennsylvania.

According to the new guidelines, the most common factors that lead to hospitalization for heart failure are:

- Noncompliance with medical regimen, sodium and/or fluid restriction
- Acute myocardial ischemia
- Uncorrected high blood pressure
- Atrial fibrillation and other arrhythmias
- Recent addition of negative inotropic drugs
- Pulmonary embolus
- Nonsteroidal anti-inflammatory drugs
- Excessive alcohol or illicit drug use
- Endocrine abnormalities
- Concurrent infections

The problem, says Jessup, is that there have not been as many large, multicenter mortality trials in patients hospitalized with heart failure as there have been in chronic heart failure. So, what the committee attempted to do was to outline a logical approach to the patient, including an assessment of the patient's overall perfusion and volume status, and co-morbid conditions.

Another part of the guidelines emphasizes the importance of the transition from the hospital to the home. Each recommendation has a class of recommendation and a strength of evidence for that recommendation. Although many of the recommendations are class of recommendation I, the level of evidence is often C, meaning we do not have good evidence for each recommendation based on multicenter trials, explained Jessup. There are a lot of epidemiologic data, but there are not a lot of randomized trials, she noted.

Other sections of the guidelines clarify the recommendations about defibrillators because the 2005 heart failure guidelines differed from the ACCF/AHA/Heart Rhythm Society/European Society of Cardiology guidelines published more recently, she said.

Another reason for the update is new data have been released since the 2005 heart failure guidelines were published, particularly regarding the management of atrial fibrillation in the setting of heart failure.

1957 ACC holds a regional meeting attended by an unprecedented 2,500 physicians.

"There doesn't seem to be any significant advantage of a strategy to maintain sinus rhythm versus a strategy to control ventricular response rate. The trials that were carried out really showed no advantage of one strategy or the other, so we clarified that," Jessup said.

The new guidelines also clarify that patients who receive cardiac resynchronization therapy may or may not have an ICD implanted. The full focused update is available at *www.acc.org/qualityandscience/clinical/statements.htm*.

Jessup was chair of the writing committee.

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Economists Offer Dollars and 'Sense' Behind Reform

The economics of health care reform were the subject of both the Simon Dack and Louis F. Bishop lectures at ACC.09.

Uwe Reinhardt, Ph.D., the James Madison professor of political economy and professor of economics and political affairs at Princeton University in Princeton, N.J., offered a cautionary perspective on the trends in American health care during the annual Simon Dack Lecture. Reinhardt warned health care spending reform will likely be a long process and that now is not the time to cut off health care spending. "The struggle to get spending down is a 10- to 20-year struggle. If Washington is thinking they can do this in one year, I wish them luck. They can't and they shouldn't."


Reinhardt


Nichols

However, Reinhardt emphasized that the U.S. must do something to help Americans who can't afford the skyrocketing individual cost of care. It costs $15,600 out of pocket for a family of four to pay for health care. "We are pricing the bottom half of the American income distribution out of health care," he said. Although the poorest Americans benefit from Medicaid and other programs, cab drivers, sales clerks and others who make modest incomes of $40,000 to $50,000 a year can't sustain these costs.

Of the current debate on Capitol Hill about a public health insurance plan, Reinhardt said he believes the plan will either die or be converted to something like Medicare or Medicaid. He expressed concerns about how the government would finance a public plan. While the administration has said it would use $318 billion from increased tax revenues from citizens who earn more than $250,000, as well as $316 billion saved from cuts in health care spending, Reinhardt likened the plan to "634 billion sparrows in a tree: Climb up and try to catch them."

He finished on a note of optimism, however, saying the economic crisis is an opportunity. Reinhardt said he "wholeheartedly endorses" the ACC approach to health care reform and is "most impressed with the patriotic, progressive way of thinking about health care at this organization."

Len Nichols, Ph.D, health care economist and director of the Health Policy Program at the New America Foundation in Washington, D.C., also lauded the ACC's health care reform efforts during the 40th Annual Louis F. Bishop Lecture. Nichols focused on the costs of current status quo trajectories, the costs associated with reform and what it will take for true health care reform to succeed.

According to Nichols, the U.S. health care system is primed for reform. Not only is health care becoming increasingly unaffordable to average Americans, but employer health care costs are exceeding revenue growth. In addition, 30 percent of what the U.S. spends on health care has no clinical value, and wide variations exist across the country in terms of outcomes and quality of care. Even more important, Nichols said, the incentive structure is deeply flawed and behavioral choices are affecting health and health costs "big time."

Like Reinhardt, Nichols noted that the current economic meltdown, while also an impediment, has created an opportunity to focus on priorities. He said that many policymakers and other stakeholders are willing to say the status quo is not sustainable and that delivery system reform must accompany coverage expansion and insurance market reform. He estimated coverage expansion will cost $150 to $175 billion per year (1 percent of GDP), while

delivery system investments will also be needed for health information technology, comparative effectiveness research and payment reform.

Importance of Payment Reform

"Payment reform is the Big Kahuna," he said. "It is critical that we align incentives among providers, payers and patients." In moving away from the current "fee-for-service" structure, Nichols advocated for sharing risks and rewards in sustainable ways; bundling payments across time and space; malpractice reform; legal and negotiation strategy changes; and verification of quality care and responsibility for that care. "Shared responsibility includes patients," he added.

Among the dangers associated with reform, Nichols listed inappropriate use of technologies and procedures, "brute-force price controls," a strong consensus that evaluation and management is undervalued; and the medical home "sounding like apple pie." "Market outcomes will need to be monitored and government programs will need to be evaluated," he said.

Nichols urged the College and all medical professionals to work with other like-minded societies and develop new voices. He said it is critical to teach policymakers how to think about, measure and encourage appropriate technical change. He suggested that the ACC could play a role in identifying physicians or practices providing high quality and efficient care and use them as examples for policymakers and other medical professionals. Outside of the medical community, Nichols said bipartisan cooperation and compromise will be key to successful reform — as will the president alienating some allies.

Nichols closed by illustrating the key components of reform: coverage expansion, payment reform, incentive alignments, cost/growth reduction and fiscal and economic sustainability. All of these elements feed into each other in a continuous circle. "We can't afford business as usual," Nichols said. "Change is impossible, but absolutely necessary."

ACC Approves Blueprint for Health Care Reform

The ACC Board of Trustees (BOT) in March re-affirmed the College's commitment to leading health care reform by approving a "blueprint" for reform, including six guiding principles and a series of action plans to implement those principles.

The ACC is engaging patients, lawmakers, payers and others in the medical community around a new standard of health care delivery focused on increasing the quality of care and ensuring greater patient value.

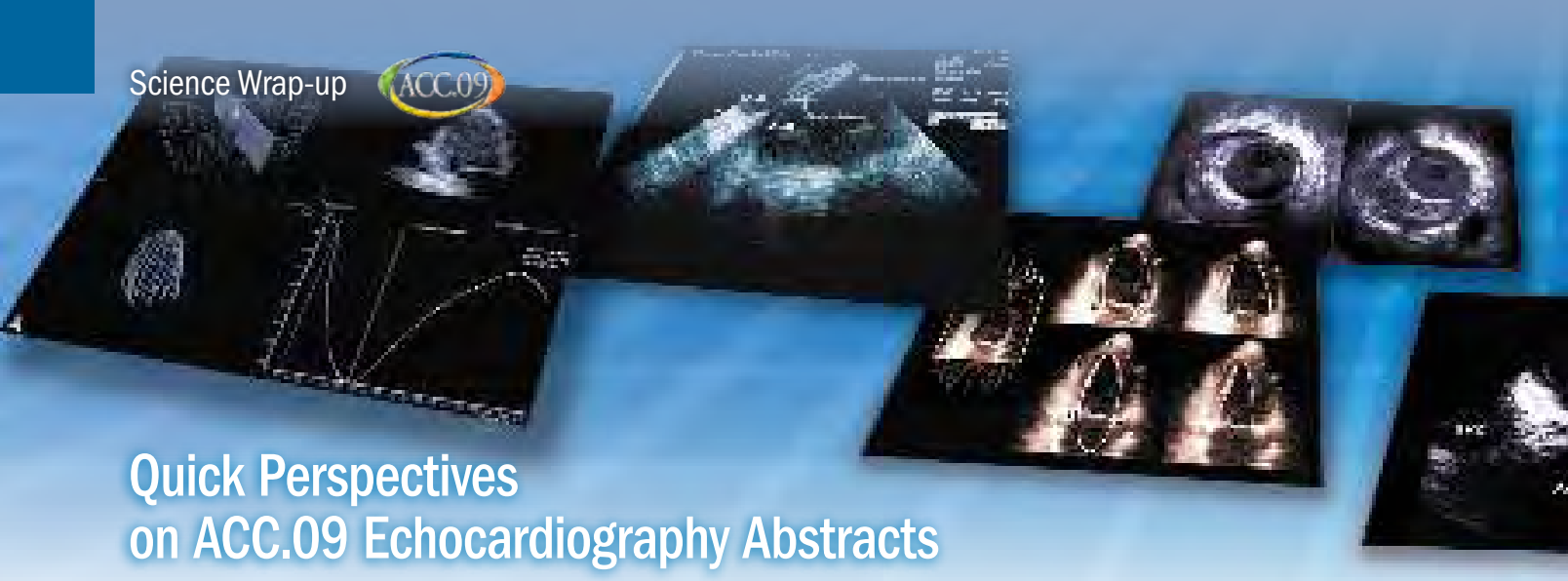
Under the organizing principle of "Quality First," the BOT approved the following six principles: universal coverage; expansion of coverage through public/private programs; a focus on patient value (transparent, high-quality, cost-effective, continuous care); professionalism and partnership with empowered patients; coordination across sources and sites of care; and payment reforms that reward quality and ensure value.

"While coverage and financing are extremely important, cardiovascular professionals can have the most impact on the last four principles, which focus on reforming delivery and payment systems to improve quality of care," says **ACC CEO Jack Lewin, M.D.**

In addition to the six principles, the BOT also approved a series of action plans in areas in which it believes the College can make major contributions in both cardiovascular care and overall system reform. The plans focus on reducing cardiovascular-related hospital readmission rates; limiting inappropriate imaging; reducing geographic variations in care; encouraging adherence to guidelines; partnering on patient-centered medical home models; ensuring transparency and professionalism; testing payment models that reward quality; and increasing primary and secondary prevention through medication adherence and lifestyle choices.

According to Lewin, ACC leaders believe that carefully crafted partnerships among patients, the Centers for Medicare and Medicaid Services (CMS), the Congress, the Obama administration and willing professional societies will achieve these results and expedite the progress needed. Each of these pilots will move us even closer to providing the right care, to the right patient, at the right time, he said.

For more on the ACC's health care reform efforts, go to *qualityfirst.acc.org*.



Quick Perspectives on ACC.09 Echocardiography Abstracts

By Wojciech Mazur, M.D., F.A.C.C., and Eugene S. Chung, M.D., F.A.C.C.

We selected some of the original contributions in the field of echocardiography from ACC.09 for these brief reviews. Unfortunately, space limitations prevented our commenting on all the important contributions. We chose to highlight abstracts with the potential to change daily practice of clinical cardiology and echocardiography. Please remember, too, that not all of these abstracts will undergo rigorous peer-review and become published manuscripts.

Echo Contrast Safety

Safety of echo contrast was the subject of three abstracts. Aggeli et al presented data on 22,600 patients undergoing dobutamine stress echocardiography in which no serious contrast-related complications were reported. There was one case of VT and one of VF requiring resuscitation, felt to be related to the dobutamine infusion, rather than contrast.

Abdelmoneim et al presented data in 16,434 patients with high right ventricular systolic pressure (resting RVSP up to 60 mmHg) undergoing stress echocardiography. They demonstrated no increased risk of death/MI in this group of patients. Main et al analyzed 2,900 critically ill patients receiving echo contrast, compared to 11,600 comparable patients who did not receive contrast. Optison was not associated with an increase in same day mortality. These data further support safety of echo contrast agents in wide-ranging clinical settings.

Strain, Torsion & Dyssynchrony

Shin et al evaluated the significance of early diastolic strain rate (Esr) using the Siemens speckle tracking technology in patients after a high-risk MI. In a multivariate Cox model after adjusting for 11 clinical variables including LVEF, patients in the lowest quartile had an increased risk of all-cause mortality or heart failure related hospitalization compared with the highest Esr quartile group (adjusted HR 4.38).

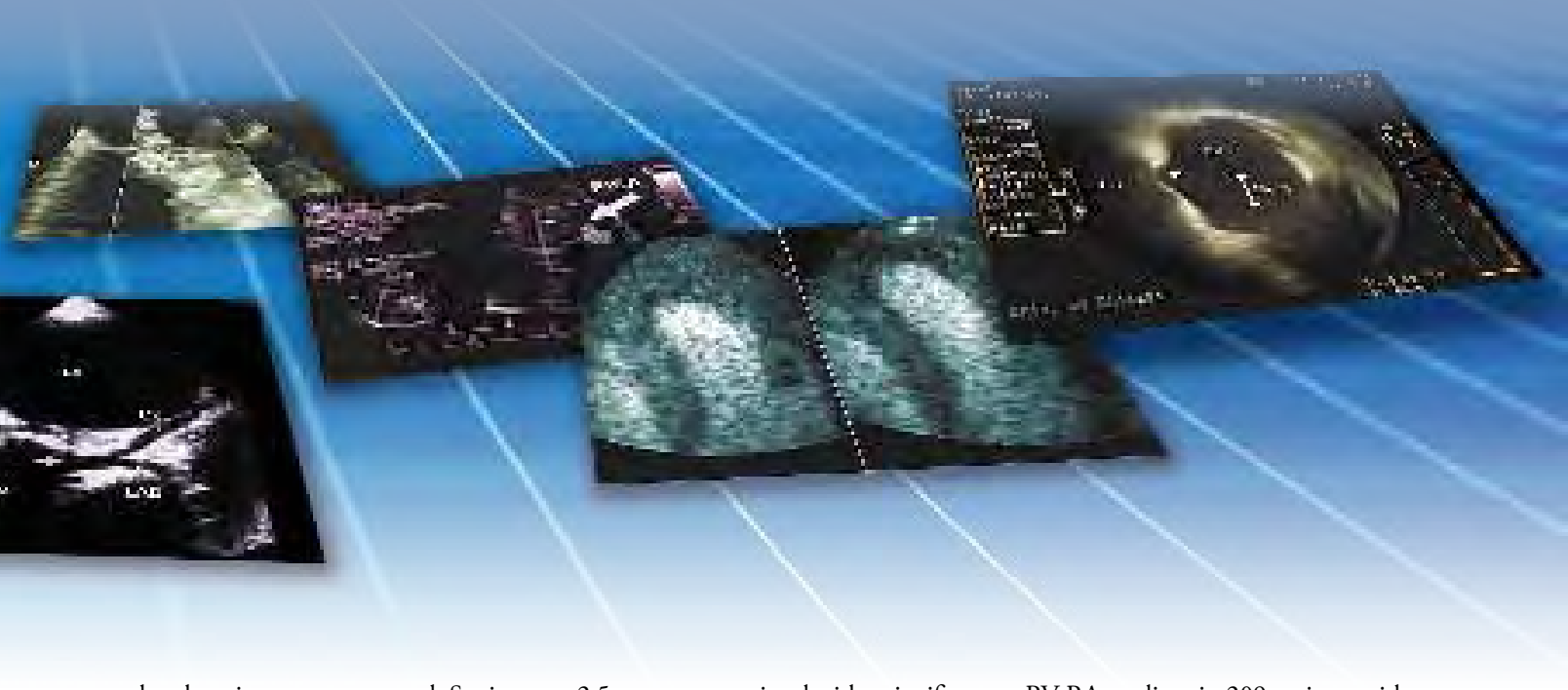
Tanaka et al reported a novel multiplane speckle tracking approach to quantify dyssynchrony and predict response to cardiac resynchronization therapy (CRT). Dyssynchrony was assessed for each patient using four measurements of timing difference, in radial, circumferential, transverse and longitudinal directions. The combination of radial dyssynchrony and transverse dyssynchrony best predicted response to CRT with AUC of 0.86.

The same group evaluated the utility of 3D-generated speckle-tracking–based strain data to quantify dyssynchrony and locate the site of latest mechanical activation. Strain was determined simultaneously from 16 standard segments from pyramidal 3D data sets acquired in a single beat. Radial strain analysis was possible in 94 percent of the patients. Dyssynchrony in heart failure patients was significantly greater than in normal controls (SD for HF 126 ± 52 ms versus 28 ± 11 ms for normals). The site of latest mechanical activation was located at the mid-posterior (37 percent), basal posterior (30 percent), mid lateral (27 percent), and basal lateral (20 percent) regions.

Sjoli et al evaluated and concluded that circumferential strain measurement could distinguish subendocardial from transmural necrosis with better sensitivity and specificity than longitudinal strain in patients with an acute MI. Strain measurements were validated by contrast-enhanced MRI.

Villarraga et al evaluated the potential of myocardial strain as a surrogate for cardiac contractility in patients with multivessel disease undergoing exercise stress echocardiography. Lower circumferential and longitudinal strains were observed when compared with normal controls. This method may provide a more objective tool for detecting stress-induced ischemia in cases where visually assessed wall motion abnormality is equivocal.

Simgen et al evaluated global longitudinal strain (GLS) and strain dispersion index (SDI) in differentiation of hypertrophic cardiomyopathy (HCM) from hypertensive and athletic hearts. Peak systolic longitudinal strain values in apical long, two and four



chamber views were measured. Strain dispersion was computed as the average of the standard deviations of segmental peak longitudinal strain values in the basal, mid and apical segments. Global longitudinal strain was calculated as the average peak strain of all 17 segments. Patients with HCM demonstrated significant heterogeneity of regional systolic deformation (high SDI and GLS). SDI and GLS were not useful in differentiating between athletic and hypertensive hearts.

Toncelli et al evaluated left ventricular rotation and torsion in subjects with physiological (athlete's heart) versus pathological left ventricular hypertrophy. The two groups have similar wall thickness and LV mass as well as speckle tracking–derived radial and longitudinal peak strains. However, basal and apical rotation and torsion were significantly higher in the hypertensive subjects.The last study may be of promise in distinguishing patients with athlete's heart from those with a pathologic increase in LV mass.

TEE Guidance During Percutaneous AVR

Bahn et al compared 2D to 3D TEE for aortic annular measurements before transcatheter aortic valve replacement and concluded that 2D TEE underestimates aortic annular diameter compared to 3D TEE, particularly pertaining to the maximal diameter. A difference over 2.5 mm was associated with a significant paraprosthetic leak at one month.

Mitral regurgitation

Mitral regurgitation annulus (MA) and subvalvular apparatus are uniformly dilated in dilated cardiomyopathy (DCM). In the absence of increased LA pressure, MA behaves normally, becoming more spherical at end systole. However, an increase in LA pressure attenuates this effect, increasing the MV antero-posterior dimension, MV sphericity index and MV area, all leading to more mitral regurgitation (Chung et al). This phenomenon may be the mechanism by which the severity of MV regurgitation decreases with diuresis.

Quantification of severity of MV regurgitation often poses a challenge. Effective regurgitant orifice area (EORA) is typically calculated rather then measured in 2D echo. Marsan et al directly measured EORA with color Doppler using real time 3D echocardiography (RT3DE) in patients with functional MR. This method correlated very well with magnetic resonance imaging three directional 3D acquisitions, a recently proposed reference method for MR quantification. On the other hand, 2D echo methods significantly underestimated EORA.

Echo Assessment of PASP

Testain et al measured pulmonary artery systolic pressures (PASP), using RV-RA gradient in 209 patients with echocardiography, with same day, right heart catheterization data. Mean difference in the PASP was 8.9 ± 7.5 mm Hg. Misclassification of clinical categories was found in 55 percent of normal patients, 29 percent with mild, 70 percent with moderate and 75 percent of severe pulmonary hypertension. Clinicians making decisions based on PASP by echo should be aware of potential limitations of this methodology, especially in patients with moderate or severe pulmonary HTN.

Echocardiographic PFO Characteristic and Risk of Recurrent Stroke

PFO closure in patients with first event (TIA, stroke) is likely over-used in the United States.

In a multivariate analysis, atrial septal aneurysm and PFO size were independently associated with recurrence of a CNS event. The best cut-off value of PFO was 3.05 mm and the recurrence-free survival rate was significantly different above and below this value.

Mazur

Chung

Mazur and Chung are with the Section of Advanced Cardiac Imaging, The Christ Hospital, Cincinnati, Ohio. Look in May *Cardiology* for a review of ACC.09 science related to cardiac computed tomography.

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Final Day's LBCTs Highlight New Treatments for Arrhythmia, CHF

It is relevant to clinical care that treatments for arrhythmias and heart failure were both featured in Late-breaking Clinical Trials IV on Tuesday, the last day of ACC.09.

"We scheduled randomized clinical trial reports along pathologic lines, and there is a coalescence of heart failure and arrhythmias that goes hand-in-hand," said **Aaron Kugelmass, M.D., F.A.C.C.,** medical director, Heart & Vascular Center, Baystate Medical Center, Springfield, Mass., moderator at a media conference on the trials and chair of ACC.09. "These studies are primarily linked by the arrhythmic consequences of heart failure."

Clopidogrel Improves Risk in AF Ptients

Clopidogrel plus aspirin reduced the risk of major vascular events by 11 percent compared with aspirin alone in patients with atrial fibrillation (AF) at high risk of stroke but unsuitable for vitamin K antagonists, said **Stuart J. Connolly, M.D., F.A.C.C.,** professor in the Department of Medicine, McMaster University, Hamilton, Ontario, Canada, speaking on behalf of researchers in the ACTIVE A trial.

But at a follow-up of 3.6 years for a total 7,554 patients, the risk of major bleeding increased in patients randomly assigned to receive clopidogrel — from 1.3 percent per year to 2 percent per year — while there was also an increase in fatal strokes from 0.2 percent per year to 0.3 percent.

"Treating 1,000 patients [with clopidogrel and aspirin] for three years would prevent 28 strokes — 17 of which would be disabling or fatal — and six MIs, at a cost of 20 non-stroke major bleeds, three of which would be fatal," Connolly said. Warfarin and other anticoagulants are the treatment of choice for patients with AF at high risk for stroke. But for the 40 to 50 percent who are not candidates for warfarin, this alternative approach could be considered after weighing the risks of stroke and bleeding, and falls.

ICDs — No Improved Outcomes after AMI

All-cause mortality and sudden death are highest early after MI, but guidelines based on randomized trials recommend not using an implantable cardioverter defibrillator (ICD) within 40 days of acute MI for primary prevention of sudden cardiac death, said **Gerhard Steinbeck, M.D.,** professor of medicine and director of Medical Clinic I, University of Munich, Germany.

Those guidelines were supported by data he presented from the European randomized IRIS (Immediate Risk-Stratification Improves Survival) trial, showing ICD implantation with optimal medical therapy (OMT) does not offer a survival benefit over OMT alone in high-risk patients after acute MI.

Steinbeck reported 117 deaths at 72 months among the 453 patients randomly assigned to OMT, versus 116 among the 445 receiving OMT plus ICD. All-cause (cardiac) mortality after one year was 12.5 percent for controls and 10.6 percent for ICD patients; at two years 18 percent and 15.4 percent respectively; and at three years 22.9 percent versus 22 percent respectively.

Sudden cardiac death was reduced by the ICD, but that was counterbalanced by an increase of non-sudden cardiac death.

CRT Can Reverse Disease Progression

Cardiac resynchronization therapy (CRT) modifies disease progression, improves ventricular structure and function, and improves clinical outcome in NYHA Class I-II heart failure patients with impaired left ventricular function and wide QRS duration, according to results from the European cohort of the REVERSE trial.

Following successful CRT device implantation, 182 patients were randomly assigned to have the device turned on and 80 had it turned off. Only technicians knew the difference.

Though there was no change in functional parameters, at 24 months, time to first hospitalization for CRT-on group was 11.7 percent versus 24.0 percent for CRT-off.

In clinical composite response, 34 percent of CRT-off patients worsened over time versus 15 percent for CTR-on.

Jean Claude Daubert, M.D., F.A.C.C., professor,

University Hospital, Rennes, France, reported a progressive improvement in LV function in the CRT-on group versus a worsening in the CRT-off group in the last six of the 24 months.

"This probably illustrates the natural history of these mild-HF patients," he said.

However, complications occurred in 10 percent of the patients and in a commentary, **Richard Page, M.D., F.A.C.C.,** of the University of Washington stated, "I am having trouble being convinced of true improvement in functional capacity, especially when you put that into context of some downside, and not just cost, of having the device."

Myocardial Scintigraphy Indicates Prognosis

Imaging with the norepinephrine analog 123I-m IBG can identify higher versus lower risk for cardiac events in heart failure patients, reported **Arnold F. Jacobson, M.D., Ph.D.,** head of the Cardiac Center of Excellence, GE Healthcare, Princeton, N.J.

"Many studies over the years demonstrated that as nervous function of the heart decreases, outcome is poorer," said Jacobson. He reported on the phase-III prospective international ADMIRE-HF study of the prognostic value of scintigraphy in patients with NYHA Class II and III and ejection fractions less than or equal to 35 percent.

The two-year composite rate of cardiac death and other major cardiac events among the 964 patients was 37 percent in those with low cardiac uptake of the agent versus 15 percent for those with more normal uptake.

STICH Trial QOL Outcomes

Clinical outcomes were no different in the STICH (Surgical Treatment of Ischemic Heart failure) trial between patients in ischemic heart failure treated with coronary artery bypass grafting (CABG) plus surgical ventricular reconstruction (SVR) or with CABG alone. Likewise, there were no differences between the two study arms in quality-of-life measurements, including patient functioning, wellbeing and depression.

However, **Daniel B. Mark, M.D., F.A.C.C.,** director of outcomes research at Duke University Medical Center, Durham, N.C., said the extra procedure significantly increased time in the OR, ICU, CCU and total hospital length of stay, and it increased hospitalization costs from $56,122 to $70,717. In summary, it seems that combining a ventricular reconstruction procedure with CABG in patients with heart failure should not be done as a routine way of managing this problem.

For more extensive clinical discussion of these and all other late-breaking clinical trials from ACC.09 and i2 Summit, go to *www.acc.org* and click Cardiosource. Also, to read *Scientific Session News* from every day of the meeting, go to *acc09.acc.org* and click *Scientific Session News*.

SPECT-MPI: Inappropriate Tests Can Be Curtailed

Inappropriate radionuclide imaging tests can be curtailed. Investigators in the Single-Photon Emission Computed Tomography (SPECT) Pilot study said that total cardiac diagnostic radionuclide imaging tests could be reduced by 12 percent, and inappropriate cardiac diagnostic testing by 90 percent, by using a simple tool and automated algorithm.

Details of the SPECT pilot study testing this hypothesis were presented Sunday in the Late-Breaking Clinical Trials II by **Robert C. Hendel, M.D., F.A.C.C.,** a clinical cardiologist at Midwest Heart Specialists, Chicago, and lead investigator for the SPECT pilot study.

The study, a collaboration between the American College of Cardiology Foundation (ACCF), Washington, D.C., and United HealthCare, Minneapolis, focused on SPECT myocardial perfusion imaging (MPI).

Hendel said the ACCF, in conjunction with other societies, has published appropriate use criteria for a variety of procedures and techniques. The appropriate use criteria were published in 2005.

Data for the SPECT Pilot were based on 6,351 patient imaging studies for which a computer-based algorithm assigned the appropriate use criteria indication automatically.

Hendel reported that 66 percent of the studies were deemed appropriate, 13 percent inappropriate and 14 percent uncertain.

The most common inappropriate indication was for detection of CAD in asymptomatic, low-risk patients, accounting for 9 percent of all studies, Hendel said.

UHC Updates Physician Roster for its Premium Designation Program

UnitedHealthcare (UHC) on April 1 posted an updated list to its Web site of physicians who meet the criteria for its Premium Physician Designation Program. The insurer has added providers who met the programs' requirements and removed the names of those who did not continue to meet the criteria. Inclusion in the UnitedHealth Premium® Physician Designation exempts physicians from the UHC Radiology prior notification protocol for advanced diagnostic imaging procedures: CT, MRI, PET and Nuclear Medicine/Cardiology.

The American College of Cardiology strongly encourages members to review their designations carefully and appeal any inconsistent and inaccurate data. Physicians may review this information on the UHC Web site, *UnitedHealthcareOnline.com*, and click on "View Your UnitedHealth Premium Assessment Report." These reports show which treatments or services were reviewed against practice guidelines. By conducting a review of patient charts and billing records, physicians can determine if there are any discrepancies between the care provided and the data used for assessment.

If reconsideration is necessary, it is important to make corrections or changes to the report and provide comments on the patient detail report. To reach the Physician Designation Reconsideration section, follow these instructions. Go to *www.UnitedHealthcareonline.com*, then click through the following sequence to reach the reconsideration section: Clinician Resources > UnitedHealth Premium > UnitedHealth Premium Physician Designation > Physician Designation Reconsideration.

The ACC is tracking member complaints or problems regarding this program and following up with the insurer. Contact Henry McCants at (800) 435-9203 with questions or complete the ACC Payer Hassle Form at *www.acc.org/advocacy/pmr/payer_advocacy.htm*. The ACC does not endorse this physician designation program. For additional questions on the UHC Premium Designation Program, contact UHC directly by phone (866) 270-5588) or e-mail *unitedpremium@uhc.com.*

ACC President Participates in White House Summit

On March 5, then-ACC President **Douglas Weaver M.D., M.A.C.C.,** represented the cardiovascular community at the White House Summit on Health Care. The Summit was intended to build support for health care reform and to gather ideas from health care leaders. After attending the Summit, Weaver said, "What I heard today was a consensus from the President, leaders from both parties in Congress and industry — all of whom agreed that we can and must work together to reform our health care system. And the sooner we do that, the better we'll be able to provide quality care to our patients."

The ACC wants to hear from members on health care reform. Nearly a hundred members have written in to share their views on what is needed for health care reform. A selection of these comments appears on ACC's online forum, The Lewin Report, and the ACC encourages you to contribute your thoughts to the ongoing discussion at *lewinreport.acc.org*.

Medicare Testing Physician Use Reports

Medicare is currently testing confidential Physician Use Reports that will report back to physicians the cost of care for patients with certain chronic conditions, including CHF and CAD. CMS has already sent some test reports to physicians and will contact them to request feedback. If you have received a letter from Medicare saying that you have been selected to receive a confidential Resource Use Report, or if you have received one of the reports themselves in the last couple of months, please contact Brian Whitman (*bwhitman@acc.org*). Feedback on these reports will determine their format when they are distributed nationwide later in the year.

ACC Celebrates Quality Leader Louise Liang

The ACC on March 12 celebrated the accomplishments of **Louise Liang, M.D.,** a senior consultant at Kaiser Permanente, in promoting higher quality and value in the health care sector. Liang, a champion and innovator of patient-centered quality and outcomes improvement, spoke of her experiences with the launch of Kaiser Permanente's electronic health record (EHR), personal health record (PHR) and HealthConnect and how these experiences could be leveraged in the current debate around health care reform. Liang said the results of EHR and PHR use at Kaiser helped reduce or replace unnecessary or marginally productive office visits without sacrificing quality and satisfaction. When asked what she thought should be the next step to improving quality, she said the next step might not be in health information technology but rather in "leveraging what patients can do" for their own health. For more on the ACC's efforts to reform health care and improve quality visit: *qualityfirst.acc.org*. Additional information on health IT is available at *www.acc.org/healthit*.

ACC Represented at FY 2010 Budget Hearing

ACC CEO **Jack Lewin, M.D.,** on March 18 testified at the House Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies on funding recommendations for fiscal year 2010. Lewin urged the subcommittee to support a 7 percent increase in funding for the National Institutes of Health, for a total of $3.227 billion; a FY 2010 budget for the National Heart, Lung and Blood Institute of $3.277 billion; and a base funding level of $405 million, an increase of $32 million, for the Agency for Healthcare Research and Quality. He also recommended $74 million for the Centers for Disease Control and Prevention Heart Disease and Stroke Prevention Program and $8.927 million for the Health Resources and Services Administration Community Access to Emergency Defibrillation program. In addition, during his testimony, Lewin made recommendations for CV research areas. His testimony is available online at: *qualityfirst.acc.org/advocacy/Pages/FederalActions.aspx* and click on "ACC Testimony on FY2010 Funding for Key Federal Agencies," March 2009.

ACC Responds to NCRP Radiation Exposure Report

Medical radiation exposure of the U.S. population has increased more than seven-fold since 1980, according to a recent National Council on Radiation Protection and Measurement (NCRP) report. The report cites the dramatic increase in the use of imaging technology to diagnose and treat cancer, heart disease and other major illnesses as one of the leading causes of this increase.

The ACC commends the NCRP for its focus on this important patient safety issue. Unfortunately, though, attempts have been made to link the report's findings to ownership or leasing of imaging equipment by non-radiologist physicians.

"Medical radiation exposure is a concern of everyone who relies on medical imaging technology," says Immediate Past President **Douglas Weaver, M.D., M.A.C.C.** "The ACC has worked with the American College of Radiology (ACR) to find ways to eliminate unnecessary and inappropriate procedures ... . The argument that someone other than the specialist caring for a patient will make a better decision about whether a test should be done is a thinly veiled attempt to protect 'turf.' Worse, it will neither lower utilization nor guarantee that patients are receiving the right test, in the right setting, at the right time."

International Lecture Examines Gender Differences in Illness, Treatment

The worst kept secret in history is that men and women are different, but why they are different is coming under increasing scrutiny. Those differences were examined by Swedish cardiologist **Karin Schenck-Gustafsson, M.D.,** during the Maseri-Florio International Lecture March 31 at ACC.09.

"There might be gender differences in genetics, anatomy, pathophysiology, epidemiology, symptoms, diagnostics, risk factors, treatment response, pharmacology and prognosis," said Schenck-Gustaffson, professor of cardiology at Karolinska University and founder of the Centre of Gender Medicine at the Karolinska Institute, Stockholm.

Schenck-Gustafsson

> **"Women in Europe are underdiagnosed and undertreated for angina, atrial fibrillation and heart failure. MI without significant stenosis is more common in women, as is small vessel disease, endothelial dysfunction and spasm."**

The fact that many of those differences are unclear is linked to the fact that women have long taken a back seat to men in society, which she reviewed with a mixture of humor and frustration.

A 1960 American Heart Association conference about heart disease aimed at women had the theme, "How can I help my husband cope with heart disease?" and as late as 1995 *Reader's Digest* had a cover story about women and heart disease that was headlined, "Is your husband headed for heart attack?"

Today, even though most cardiologists in Europe are women, its cardiology societies have never had female leaders, and conferences have male-only faculties, a problem that the United States does not have, Schenck-Gustaffson said. She recently reviewed 100 abstracts for the 2009 European Society of Cardiology meeting, and 45 did not stratify for gender.

Despite those ongoing slights, what is becoming increasingly clear is that some diseases are dominant in women versus men. Women get osteoporosis, breast cancer, lung cancer, rheumatic diseases, multiple sclerosis, eating disorders, depression, fibromyalgia, thyroid disease, gallstones, migraines and whiplash. Men get myocardial infarction (MI) at a younger age, prostate cancer, infections, colon cancer, ulcers, diabetes, alcoholism and schizophrenia, she said.

There are differences in anatomy. Women's coronary arteries and other vessels are smaller than those of men, which "may have an impact when putting in stents," Dr. Schenck-Gustaffson said.

In the area of pharmacology, men and women react to drugs differently, she said, and women have "more and different adverse drug effects and more drug interactions."

In addition, more men die earlier at all ages. More aborted fetuses are male, more boys die at birth and are born with congenital deformations, and more men die of suicide and murder by age 40. After 40, more men have MI.

"Is it biology, sociocultural or both? I think both," Schenck-Gustaffson said. "Women in Europe are underdiagnosed and undertreated for angina, atrial fibrillation and heart failure. MI without significant stenosis is more common in women, as is small vessel disease, endothelial dysfunction and spasm."

Women also have poorer short-term outcomes in-hospital. They have more problems with interventions, including cardiac surgery and percutaneous intervention, possibly because they have cardiovascular problems at an older age, more co-morbidities, differences in prodromes and presentation, smaller coronary vessels and lower body weight, she said.

Complicating this is chronic stress, which "probably has a larger impact in women," she said. "A combination of family stress and work stress might be important for CV health."

Despite the centuries of second-class status for women, they have made great strides in recent years toward achieving equal status both as professionals and in medical research.

"I am optimistic. I think we have come further, but we need more sex and gender research in cardiology," Schenck-Gustaffson said.

What's NICE in the Differences in U.S., UK Health Care?

What is the difference between health care in the United States and the United Kingdom? It appears to be NICE, which is not an attitude, but an acronym for the **National Institute for Health and Clinical Excellence.**

NICE is responsible for overseeing the efficiency of the UK's National Health Service, which was discussed and compared with the U.S. health care system during Tuesday's symposium, "Delivering Cardiovascular Care in Different Healthcare Systems."

The session was a joint symposium presented by the ACC and the British Cardiovascular Society as one of 14 joint symposia co-sponsored by the ACC with cardiovascular societies around the world.

Three representatives from the UK explained how its nationalized system works, from efforts in the last decade to dramatically improve health care to how it controls costs. Two representatives from the U.S. addressed the great differences in care around the U.S. and the cost of care in America — which may very well be related.

"In America, if you analyze the system, you see a regional variation that is so unacceptably high," said **Steven E. Nissen, M.D., M.A.C.C.** "It is unimaginable that there is this kind of variation. In the absence of an organization like NICE, people make up their own minds. I believe that is one of the reasons we have this variability."

Nissen is chairman of the Department of Cardiology at the Cleveland Clinic, Cleveland, and a former president of the ACC.

Compared with the remainder of the world, the U.S. has a $650 billion spending gap overall for health care while life expectancy is only 77.9 years, compared with Japan's 82.3 years, the best in the world. Much of that gap is fueled by spending on pharmaceutical drugs, Nissen said.

In contrast, NICE has an Appraisal Committee that has three national centers that oversee public health excellence, clinical practice and health technology evaluation. The technology center focuses on comparative effectiveness of technology.

"This means technology is clinically effective if in normal clinical practice it confers a health benefit when compared to relevant alternative technologies," **David B. Barnett, M.D.,** said in explaining how the technology center evaluates when physicians around the UK should use technology for procedures.

Barnett is a professor of clinical pharmacology at the University of Leicester, UK, and chair of the NICE Appraisals Committee. In short, he said, the committee balances clinical and cost effectiveness.

"We have to compare and contrast costs and benefits to define relative cost-effectiveness for different treatments for the same disease and different treatments for different diseases," Barnett explained.

Other panel participants were **Nicholas Boon, M.D., F.A.C.C.,** president of the British Cardiology Society and a cardiac consultant; **Roger Boyle, M.D., F.A.C.C.,** national clinical director for heart disease for the UK Department of Health; and **David Malenka, M.D., F.A.C.C.,** a cardiologist at Dartmouth-Hitchcock Medical Center, Lebanon, N.H.

International Lunch Symposia Offer Variety, Networking

Fourteen societies joined their U.S. ACC counterparts to share findings and perspectives on various topics, including myocardial ischemia, delivering CV care in different health care systems, stem cell therapy for heart failure/myocardial infarction, LDL and glucose, congestive heart failure and treating hypertension.

In opening the Canadian joint session, "Stem Cell Therapy for Heart Failure/Myocardial Infarction," **William A. Zoghbi, M.D., F.A.C.C.,** said the international forum opened up "the interchange of ideas between various societies and the ACC."

The 14 joint sessions not only offer the opportunity "to enhance the dialogue of members of the societies around the world," he said, "but also provide attendees a unique forum to catch up with colleagues in health care and cardiovascular disease."

Michael Nihill, M.B.B.S., F.A.C.C., has been attending ACC for 40 years and said he appreciates the international symposia. Although he hails from Australia and spent time in Saudi Arabia, he currently resides in Houston. The international symposia offer an "interesting element" because they allow him to see old friends as well as learn what is happening in different parts of the world.

Hoo Liem, M.D., from the Netherlands, attended the Australian joint session "LDL and Glucose: How Low Can You Go." He said he was drawn to this session because of the point/counterpoint discussion of glycemic control.

This year's ACC.09 and the international forum is the first for **Sebhat Erquo, M.D.** Originally from Ethiopia, he stepped into the Joint Session of the Pan African Society of Cardiology and ACC because he wanted to learn about the progress in cardiology in Africa. He said there is so much work to do in his home country and a dire need to advance the state of health care there.

Awards Recognize Scientific Accomplishments, Professional Excellence and Substantial Contributions

ACC's Distinguished Service Awards, which were presented during the Convocation ceremony at ACC.09 in Orlando, recognize the professional excellence and substantial contributions of the many awardees. The awards shine the spotlight on their strong personal commitment to cardiovascular medicine, the ACC and most important, to the patients.

Distinguished Scientist Award (Basic Domain)

Blase A. Carabello, M.D., F.A.C.C.

Blase A. Carabello, M.D., F.A.C.C., received his medical degree from Temple University in 1973, completed his internal medicine residency at the Massachusetts General Hospital and served his cardiology fellowship at the Peter Bent Brigham Hospital at Harvard Medical School from 1973 to 1978. He is chief of medicine at the Michael E. DeBakey VA Medical Center and professor of medicine at Baylor College.

Carabello is a leading expert in the field of valvular heart disease, with expertise that spans both clinical medicine and experimental studies in valvular heart disease and cardiac hypertrophy. His lifelong devotion to the scientific investigation of valvular heart disease has resulted in the publication of 145 peer-reviewed manuscripts and editorials and 122 book chapters.

His laboratory developed a unique canine model of chordal rupture that has allowed investigators to study the development of cardiac decompensation following the onset of mitral regurgitation. This model has provided important insights into the role of mitral regurgitation in neurohormonal activation, degradation of the extracellular matrix, the effects of pure volume overload on the development of cardiac hypertrophy and the contribution of heart rate and energy metabolism to the development of cardiomyopathy. Well ahead of clinical trials, his model demonstrated that beta-blockers were salutary in dilated cardiomyopathy because they allowed the heart to recover from the deleterious effects of norepinephrine with regrowth of cardiac myofilaments and restoration of cardiac contractility.

In addition to these contributions, he has been an outstanding leader in shaping the field of clinical valvular heart disease and played a prominent role in developing the ACC/AHA guidelines on valvular heart disease.

Distinguished Scientist Award (Clinical Domain)

Daniel B. Mark, M.D., M.P.H., F.A.C.C.

Daniel B. Mark, M.D., M.P.H., F.A.C.C. is professor of medicine and vice chief of the division of cardiovascular medicine as well as director of outcomes research at the Duke Clinical Research Institute and editor of the *American Heart Journal*. His unique ability to blend quantitative thinking with clinical expertise has given him a well-deserved position among the world's foremost cardiovascular clinical investigators and quantitative methodologists. He has pioneered contributions in diagnostic testing and risk prediction, economics and cost effectiveness and assessing quality of life as an important patient outcome.

Early in his career, Mark tackled the enormous problem of developing a way to risk-stratify patients with ischemic heart disease. The resulting Duke Treadmill Score crystallized this effort into a multivariable prognostic model that has become a gold standard for determining prognosis and for the development and presentation of such models. He has also established independent, academically based cost-effectiveness analysis as part of the mainstream of clinical trials research. As a result, scientific inquiry now routinely moves beyond the emotional question of "which therapy is better?" to the much more interesting question of "how much better must a therapy be to justify a major difference in cost?" Not satisfied with cost alone, Mark has developed novel designs and approaches for measuring quality of life, such as the Duke Activity Status Index. He has applied these novel analytic approaches in key cardiovascular clinical trials including GUSTO, SCD-HeFT, HAT and OAT study.

Mark has the uncanny ability to cut right to the core of key issues to formulate ideas and hypotheses that address some of the most important unanswered questions in cardiovascular disease. His extraordinary intellectual capabilities are supplemented by an absolute commitment to the highest level of scholarship. He is one of the few individuals who can provide critical perspective on our enthusiasm for new technology

by constantly asking important questions about clinical applicability, economic value and impact on patient wellbeing.

He is respected at Duke as a truly outstanding cardiac intensivist with both highly honed technical skills and a unique humanitarian approach to the care of critically ill patients. Mark's warmth, humor and generosity complement his unique leadership skills and grasp of complex issues in technology assessment. He truly exemplifies the word "distinguished."

Distinguished Scientist Award (Translational Domain)

Albert L. Waldo, M.D., F.A.C.C.

Albert L. Waldo's distinguished career as both a clinical and basic scientist began in 1966 at the College of Physicians and Surgeons of Columbia University.

Today, he is the Walter H. Pritchard professor of cardiology, professor of medicine and professor of biomedical engineering at Case Western Reserve University.

Waldo's research interests are primarily in the field of cardiac electrophysiology. He was among the first to systematically use the open heart operating room as a cardiac electrophysiology laboratory to map the electrical activation of the human heart directly and to study its electrophysiological properties. His studies included mapping to delineate the specialized AV conduction system — especially complex congenital heart disease — studies of ectopic atrial activation and its relationship to P wave polarity, morphology and the P-R interval, mapping studies of ventricular arrhythmias including for the surgical treatment of ventricular tachycardia and much more.

He has made other major contributions, such as the use of temporary epicardial wire electrodes in the diagnosis and treatment of arrhythmias following open heart surgery, and has performed seminal work in the identification and characterization of the atrial flutter reentrant circuit. Furthermore, he developed the canine sterile pericarditis model of atrial flutter and atrial fibrillation interventions. Waldo also described entrainment of cardiac arrhythmias, which has become a central part of clinical electrophysiologic studies.

His involvement in many important clinical trials concerning cardiac arrhythmias has been central. He has been and continues to be a leader in his field as a translational basic scientist.

Distinguished Service Award

Jane Somerville, M.D., F.A.C.C.

The American College of Cardiology presents the Distinguished Service Award to individuals who have embodied the mission of the College through their service to this profession. **Jane Somerville, M.D., F.A.C.C.,** typifies the characteristics of individuals who have received this coveted recognition.

Born in London, Somerville qualified M.B.B.S from London University in 1955. Originally, she was determined to become a cardiac surgeon; however, she eventually found her passion — congenital heart disease, and she joined the successful cardiac unit at the Hospital for Sick Children located on Great Ormond Street in London. With her smart, quick brain, energy and a bit of good luck, she established a cardiac children and adolescents unit, the Paul Wood Ward. She became consultant physician for congenital heart diseases at the National Heart Hospital in 1972.

Then, realizing the neither pediatric nor adult cardiologists were serving the needs of the growing number of patients who were living to adulthood, she established the new subspecialty of cardiology, calling it "Grown-up Congenital Heart Disease" and naming the patients GUCHs. Then, the National Heart Hospital joined the Brompton Hospital and established the Jane Somerville GUCH unit.

Somerville founded the World Congress of Pediatric Cardiology in 1980, which was joined to Pediatric Cardiac Surgery for a collaborative meeting that continues today. She established and chaired the first European Society of Cardiology Working Group on Grown-up Congenital Heart Disease and the British Cardiac Society's report on care of Grown-up Congenital Heart disease. She contributed to the Canadian Cardiovascular Society's Consensus on Adult Congenital Heart Disease and chaired both Bethesda Conferences on "Care of the Adult with Congenital Heart Disease."

International Service Award

Shahryar Sheikh, M.B.B.S., F.A.C.C.

Shahryar Sheikh qualified in medicine at King Edward Medical College in Lahore, Pakistan. He was an intern at Mount Sinai Hospital Services at Elmhurst General Hospital in New York and later spent many years at Henry Ford Hospital in Detroit as a medical resident, cardiology fellow and finally, associate staff cardiologist. He returned to Pakistan in 1980 and joined the department of cardiology at King Edward Medical College in Lahore as assistant professor. He is currently professor of cardiology at Allama Iqbal Medical College and consultant cardiologist at Doctors Hospital and Medical Centre in Lahore.

Shahryar Sheikh received the Pakistan Government's Pride of Performance Award in 1998 for his contribution to cardiovascular health care in Pakistan. He has been president of the Asian Pacific Society of Cardiology, president of the Pakistan Cardiac Society from 2002 to 2004 and chairman of the editorial board of the Pakistan Journal of Cardiology. He served as an executive board member of the World Heart Federation and was subsequently elected president, and he served three years on the ACC's International Committee and will be a member of the College's newly established International Council.

He has made an enormous contributions to cardiovascular medicine in his home country of Pakistan and also globally through his leadership of the World Heart Federation.

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Distinguished Fellow Award
Elliott Rapaport, M.D., F.A.C.C.

For his exceptional and outstanding career in the field of cardiology, **Elliot Rapaport, M.D., F.A.C.C.,** is being recognized with the ACC Distinguished Fellow Award. of the recognition of the ACC Distinguished Fellow Award. After receiving his medical degree in 1946 from The University of California, San Francisco (UCSF) School of Medicine, he completed his internship and residency at The University of California Hospital in San Francisco. He then completed a research fellowship and USPHS postdoctoral fellowship at UCSF School of Medicine. He completed a second research fellowship at Peter Bent Brigham Hospital in Boston.

After his training, Rapaport accepted a position as assistant professor at Albany Medical College with a joint appointment at the Veterans Administration Hospital in Albany, N.Y., as assistant director of professional services for research. However, in 1957, he returned to San Francisco, first to Mount Zion Hospital then to San Francisco General Hospital (SFGH) where he continues to work today.

At SFGH, he has held every leadership position in cardiology and medicine. He was named the William Watt Kerr professor of medicine from 2001 to 2008. In 2001, he became emeritus professor of medicine at UCSF School of Medicine, but he has continued actively in the cardiology service.

Rapaport has truly distinguished himself as a giant in cardiology with his encyclopedic knowledge, renowned clinical acumen, and outstanding teaching and mentoring skills, and he has contributed significantly to our knowledge of cardiovascular physiology and disease through his scholarly work and continues to do so.

Gifted Teacher Award
Valentin Fuster, M.D., Ph.D., F.A.C.C.

It is indeed fitting for the American College of Cardiology to recognize **Valentin Fuster, M.D., Ph.D., F.A.C.C.,** with the 2009 Gifted Teacher Award for his "innovative, outstanding teaching characteristics, compassionate qualities, and major contributions to the field of cardiovascular medicine on a national and international level."

Ranked among the world's preeminent cardiologists, Fuster is director of the Zena and Michael A. Wiener Cardiovascular Institute as well as the Marie-Josée and Henry R. Kravis Center for Cardiovascular Health at Mount Sinai Medical Center in New York. He is also the Richard Gorlin/Heart Research Foundation professor of medicine at the Mount Sinai School of Medicine. Twenty-one of the world's most distinguished universities have granted him Honoris Causa.

A prodigious investigator, his contributions to cardiovascular medicine are great and have centered chiefly on platelet reactivity, atherothrombosis, vascular inflammation, lipids, restenosis and the application of magnetic resonance imaging to enhance the understanding of vascular biology.

However, this award celebrates his unsurpassed qualities as a teacher. Remarkably, he greets each class of incoming fellows with his own, complete core curriculum lecture series and delivers ad-hoc lectures throughout the year on late-breaking science. He meets weekly with the fellows and personally ensures that every fellow has the opportunity to co-manage his own hospitalized patients during an intensive one-month rotation. In testimony to the loyalty and admiration of his trainees, the Valentin Fuster (VF) Society, which now includes more than 150 fellows, was formed several years ago.

His commitment to the educational activities of the ACC has been extraordinary and includes the highly successful New York Cardiovascular Symposium, an annual program that has now grown to more than 2,000 attendees.

Gifted Teacher Award
Howard F. Warner, M.D., F.A.C.C., F.A.C.P.

Howard F. Warner, M.D., F.A.C.C., F.A.C.P., is Emeritus Professor of Medicine in the Section of Cardiology at Temple University Medical School in Philadelphia. He attended Temple University Medical School for his medical degree and received his medical training at the Philadelphia General Hospital and the Henry Ford Hospital in Detroit, and returned to Philadelphia General Hospital for his cardiology training.

He joined the faculty at Temple University Medical School in 1968 where he is an emeritus professor today. He remains active as a clinician in the cardiology section at Temple University Medical Center.

Warner established the coronary care unit service at Temple University Hospital in 1968 and was the director of the unit for 30 years. During this time, he was closely involved with training medical students, residents and cardiology fellows. His service was one of the most desired programs in the medical training program, and he earned the respect of thousands of students, residents and fellows throughout his tenure.

He was recognized throughout his academic career for his excellence in clinical teaching, and has received multiple awards, including the Russell P. Moses award for excellence in clinical teaching from Temple University School of Medicine, the American Heart Association council on clinical cardiology teacher of the year award in 1984 and the Linback award for excellence in teaching in 1995. Temple University Medical School named him the Outstanding Educator in 1994 and Honored Professor in 2002.

Lifetime Achievement Award
James S. Forrester, M.D., F.A.C.C.

The Lifetime Achievement Award recognizes an individual with a long and outstanding career in cardiovascular disease and someone who has been a model through service, teaching, and basic or clinical research. This year, the award goes to **James S. Forrester, M.D., F.A.C.C.,** for a remarkable career that has spanned more than 30 years and influenced generations of cardiologists.

Forrester joined the division of cardiology at Cedars-Sinai Medical Center in 1969. His leadership in the Cedars-Sinai NIH SCOR program was central to the emergence of Cedars-Sinai as a leading cardiovascular center. His early research in the 1970s, conducted with **George Diamond, M.D., F.A.C.C.,** described the precise mathematical relationships in other biologic systems, hypothesized and proved that the relationship between pressure and volume in the left ventricle was precisely exponential.

Later, working with Edwards Laboratories, Drs. Jeremy Swan, Willie Ganz and George Diamond and Forrester incorporated a thermistor into the catheter and devised an algorithm that allowed them to measure cardiac output. Based on the data collected in patients with acute myocardial infarction, Dr. Forrester developed the concept of hemodynamic subsets.

In the late 1970s and early 1980s, Forrester was director of the Cardiac Stress Laboratory. He and Diamond recognized that the definitions of sensitivity, specificity and predictive accuracy could be applied to ECG stress testing. Recognizing that these independent variables could be integrated by Bayesian analysis, they developed the concept of probability analysis for cardiac diagnostic testing. In the 1980s and 1990s, Forrester and **Frank Litvack, M.D., F.A.C.C.,** developed coronary angioscopy.

Clearly, Forrester has used his gifts effectively as clinician, scientist and educator for the benefit of society.

Master of the American College of Cardiology
W. Douglas Weaver, M.D., M.A.C.C.

The Master of the American College of Cardiology (M.A.C.C.) recognizes long and distinguished service to the ACC on the part of the designee. This year's M.A.C.C. designee, **W. Douglas Weaver, M.D., M.A.C.C.,** exemplifies and honors the designation.

As ACC President, he has been to the White House and sat before members of Congress to carry the ACC message about health care reform. He has also spoken to the ACC membership through his writings and speeches of the need to take a lead role in shaping the health care system of the future. He believed that ACC's priorities were — and still are — strengthening collaborations with other cardiovascular societies, enhancing the value of membership to international colleagues, engaging new fellows in College activities and engaging the membership in the need for health care reform. In addition to his many accomplishments this past year as ACC president, he has served on many ACC committees and task forces and was on the Board of Trustees since 1998.

Weaver is the division head of cardiovascular medicine, the Darin Chair of Cardiology, director of the Henry Ford Cardiovascular Institute at the Henry Ford Health System and professor of medicine at Wayne State University. He has been at Henry Ford for the past 11 years. His academic and research interests include cardiac resuscitation, heart failure and acute coronary syndromes. He has been an active leader of multicenter clinical trials and has published more than 300 articles.

2009 ACC celebrated six decades committed to quality cardiovascular care on March 31 with a 60th Anniversary Reception at the Peabody Orlando. Pictured are Dr. Janet Wright, Senior Vice President for Science and Quality and Dr. James Fasules, Senior Vice President for Advocacy.

ACC.09 Grantor Acknowledgments

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Kasper New Clinical Director of Cardiology at Johns Hopkins

Physician-science investigator **Edward Kasper, M.D., F.A.C.C.,** an expert in chronic heart failure and the heart transplantation that often results from the disease, has been named the new clinical director of the Johns Hopkins University School of Medicine's Division of Cardiology and co-director of the School's Heart and Vascular Institute. He will also serve as co-director of Heart and Vascular Institute.


Kasper

Since 1987, Kasper, 52, has taught medical students, clinical residents and research fellows and treated thousands of patients at Johns Hopkins. He succeeds **Richard Lange, M.D., F.A.C.C.,** who led clinical operations in the division since 2003 and will remain active as adjunct faculty. Kasper also succeeds Lange as the E. Cowles Andrus professor of cardiology.

In addition to managing day-to-day clinical cardiology operations, Kasper will continue his research into the biological origins of heart failure and the underlying reasons why the body rejects some transplanted hearts and not others.

60 1949 - 2009 AMERICAN COLLEGE OF CARDIOLOGY

1951 The ACC publishes *Transactions of the American College of Cardiology*, a record of the papers presented at the first national meeting. It is the precursor to the College's research journals.

Pulmonary Hypertension Consensus Document Released

The medical community's research and clinical knowledge of pulmonary hypertension is exploding. Until 1996, pulmonary hypertension had no treatments. Now, not only has the Food and Drug Administration (FDA) approved six medical therapies, researchers have discovered gene activity related to the development of the disorder and explored various treatment pathways, and patient survivability has more than doubled.

Despite the large strides made in research and diagnosis, gaps still exist. To assist practitioners with navigating pulmonary hypertension treatment, the ACC Foundation (ACCF) and the American Heart Association (AHA) released on March 30 the 2009 Expert Consensus Document on Pulmonary Hypertension: A Report of the ACCF Task Force on Clinical Expert Consensus Document.

The consensus document examines the prevalence of one type of pulmonary hypertension, pulmonary arterial hypertension (PAH), a syndrome resulting from restricted flow through the pulmonary arterial circulation, resulting in increased pulmonary vascular resistance and ultimately, right heart failure. Fifteen people per million suffer from PAH. Untreated, the survival is approximately 2.5 years.

To view the full document and "Ten Points to Remember," visit *Cardiosource.com*.

SAVE the DATE

March 13 - 16

In Memoriam: Philip Poole-Wilson, M.D., F.A.C.C.

Philip Poole-Wilson, M.D., F.R.C.P., F.A.C.C., died suddenly March 6 on his way to work at the Imperial College in London. He had officially retired just a few months ago from his role as British Heart Foundation Simon Marks professor of cardiology, head of cardiac medicine at the National Heart & Lung Institute, Imperial College London, and Honorary Consultant Physician at the Royal Brompton & Harefield Hospitals, but he was still working a few days a week.


Poole-Wilson

Poole-Wilson was a giant of European cardiology. In the 1990s, he was president of the European Society of Cardiology, and just a few years ago he served as president of the World Heart Federation. He was a founder of the British Society for Heart Failure.

He was an undergraduate at Trinity College, Cambridge University, before moving to St. Thomas' Hospital Medical School. He held a range of clinical training posts in the UK. In 1973 he was awarded a British-American Traveling Fellowship supported by the British Heart Foundation. He was appointed as professor of cardiology at the University of London in 1983 and held numerous visiting professorships in the UK and the United States.

Dr. Poole-Wilson's death is a great loss for the cardiology community. He will be missed.

ACC.10 Speaker Site Open — Suggest a Topic or Speaker!

The Topic and Speaker Suggestion Site is now open for the 59th Annual Scientific Session and Innovation in Intervention: i2 Summit in Atlanta, March 13 – 16, 2010. The submission deadline is May 6. Go to *www.acc.org* to suggest a topic or speaker.

Young Investigators Recognized at ACC.09 Convocation

Judges and others viewed the presentations of competitors for the Young Investigator Awards on Sunday at ACC.09. The winners were announced Monday night at the 58th Annual Convocation.

Physiology, Pharmacology and Pathology

First Place — $2,000
Naoki Sawada, M.D., Ph.D.

Second Place — $1,000
Muhiddin A. Ozkor, M.B.B.S.

Honorable Mentions — $500 each
Andreas Schafer, M.D.

Samrat Yeramaneni, M.D.

ACCF/Herman K. Gold YIA Competition in Molecular and Cellular Cardiology

First Place — $2,000
Stephen Y. Chan, M.D., Ph.D.

Second Place — $1,000
Yuxin Li, M.D., Ph.D.

Honorable Mentions — $500 each
Praphulla C. Shukla, Ph.D.

Peter Van der Meer, M.D., Ph.D.

Anthony J. White, M.B.B.S., Ph.D.

Clinical Investigations, Congenital Heart Disease and Cardiovascular Surgery

First Place — $2,000
Thomas Maddox, M.D., F.A.C.C.

Second Place — $1,000
Jasper Brugts, M.D., M.Sc.

Honorable Mentions — $500 each
Saina Attaran, M.D.

Abhinav Goyal, M.D., M.H.S.

Uzoma N. Ibebuogu, M.D.

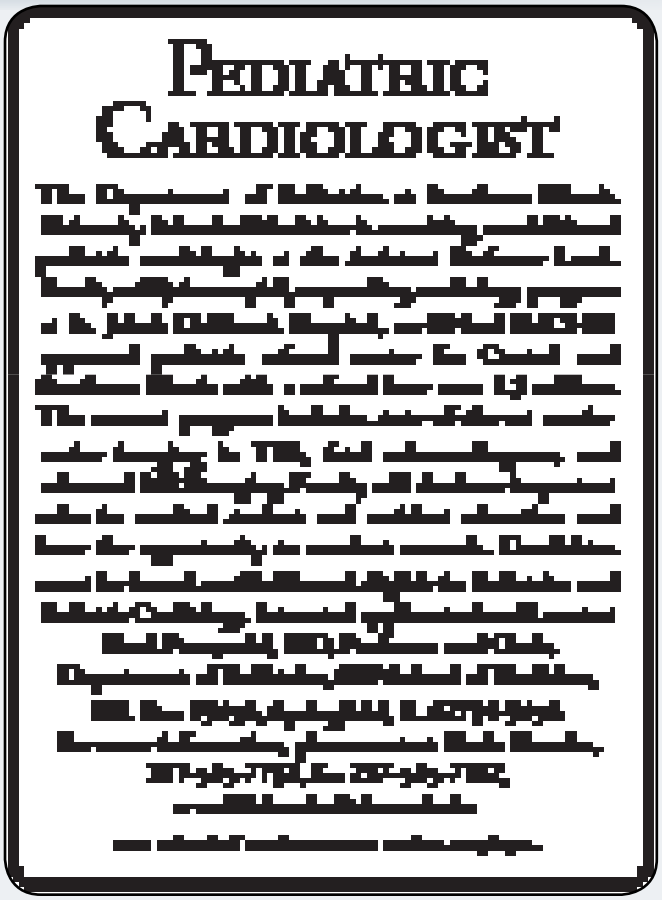
MEDLINE Accepts JACC Journals

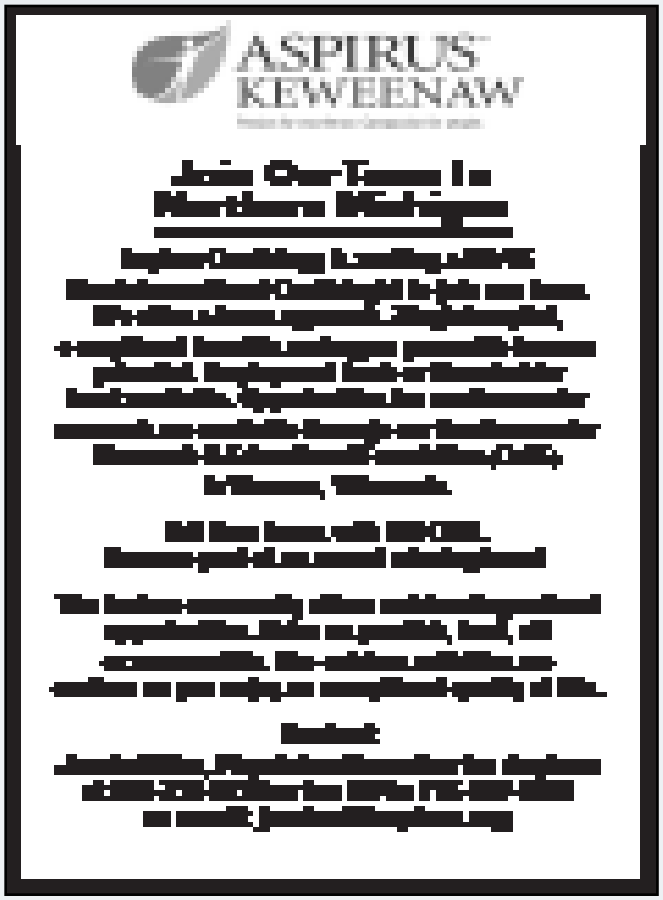
The ACC is honored to report that both *JACC: Cardiovascular Imaging* and *JACC: Cardiovascular Interventions* have been accepted by MEDLINE. MEDLINE will index both journals, which launched last year, retroactively to Volume 1, Issue 1.

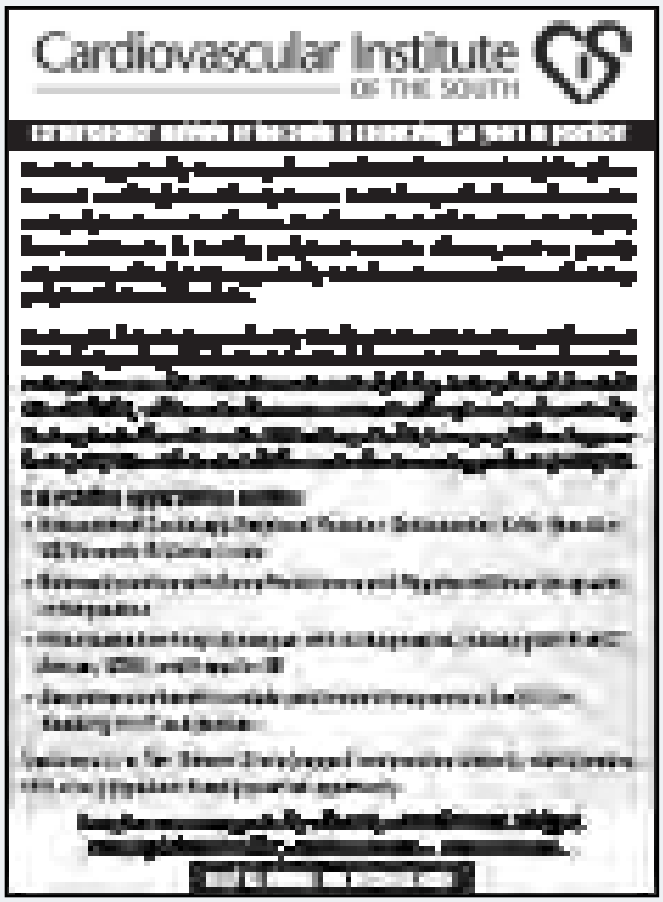
April 2009

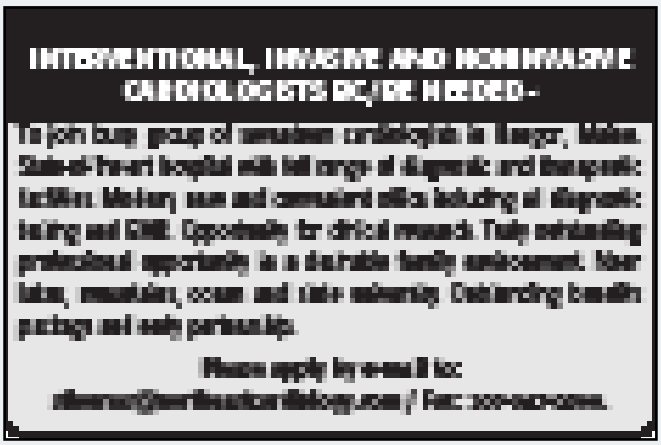
Ad Index

Pediatric Cardiologist









This Month in

JACC

April 7

- Heart Failure in Hispanics
- The 'Second Factor': A First Step Towards Diagnosing the Substrate of Atrial Fibrillation?
- Edema as a Very Early Marker for Acute Myocardial Ischemia - A Cardiovascular Magnetic Resonance Study

April 14

- Disease Progression in Non-intervened Saphenous Vein Graft Segments: A Serial Intravascular Ultrasound Analysis
- Interaction Between Cigarette Smoking and Clinical Benefit of Clopidogrel
- Inflammatory Burden of Cardiac Allograft Coronary Atherosclerotic Plaque is Associated with Early Recurrent Cellular Rejection and Predicts a Higher Risk of Vasculopathy Progression

April 21

- Predictors of Coronary Stent Thrombosis: the Dutch Stent Thrombosis Registry
- Ischemia Detected on Continuous Electrocardiography Following Acute Coronary Syndrome: Observations from the MERLIN-TIMI 36 Trial
- Ischemia Detected on Continuous Electrocardiography Following Acute Coronary Syndrome: Observations from the MERLIN-TIMI 36 Trial

April 28

- Cardiovascular Magnetic Resonance in Myocarditis: A JACC White Paper
- Acute Left Ventricular Dynamic Effects of Primary Percutaneous Coronary Intervention: from Occlusion to Reperfusion
- Intrusion through the Fragile Back Door - Immature Plaque Microvessels as Entry Portals for Leukocytes and Erythrocytes in Atherosclerosis

JACC cardiovascular Imaging

- Rock 'n' Roll Ventricle of Dyssynchrous Heart: Clinical Significance of Rocking Motion in Selection of Patient for CRT
- Prognostic Value of 64-slice Coronary Computed Tomographic Angiography for Prediction of Cardiac Events in Patients with Suspected Coronary Artery Disease
- End of the Road for Delayed Hyper-Enhancement Cardiac Magnetic Resonance?

JACC cardiovascular Interventions

- Mini-Focus Issue: Stent Technology contains seven articles including "Bioabsorbable Polymeric Nanoparticle-Eluting Stents" and "Temporal Course of Neointimal Formation After DES Placement: Is Our Understanding of Restenosis Changing?"
- Integration of Pre-hospital Electrocardiograms and STEMI Receiving Center Networks: Impact on Door-to-Balloon Times across Ten Independent Regions
- Accelerating STEMI Care: EMS Takes Center Stage

Educational Programs Calendar

2009*	**ACCF/SCCT Coronary CTA Practicum**	*Washington, D.C.* CME
	**Program Dates available online*	
May 7 - 9, 2009	**31st Annual Recent Advances in Clinical Nuclear Cardiology and Cardiac CT Featuring Case Review with the Experts**	*Washington, D.C.* TECH CME CE
	Daniel S. Berman, M.D., F.A.C.C. Guido Germano, Ph.D., M.B.A., F.A.C.C. Jamshid Maddahi, M.D., F.A.C.C.	
May 29 - 30, 2009	**Emergency CV Care 2009**	*Chicago* CME CE
	Christopher B. Granger, M.D., F.A.C.C. James G. Jollis, M.D., F.A.C.C. Mayme Lou Roettig, R.N., M.S.N.	
May 29 - 31, 2009	**7th Annual Cardiovascular Magnetic Resonance Imaging: State-of-the-Art Updates and Comparisons with Computed Tomography**	*Washington, D.C.* CME
	W. Gregory Hundley, M.D., F.A.C.C.	
June 19 - 21, 2009	**2nd Annual West Coast Cardiovascular Forum**	*San Francisco* CME CE
	Valentin Fuster, M.D., Ph.D., F.A.C.C.	
August 20, 2009	**ACCF Study Session for Maintenance of Certification – Interventional Cardiology Updates 2007 and 2008**	*Dallas* CME
	Joseph D. Babb, M.D., F.S.C.A.I., F.A.C.C. James E. Tcheng, M.D., F.A.C.C., F.S.C.A.I., F.E.S.C	
August 21 - 23, 2009	**ACCF/SCAI Premier Interventional Cardiology Overview and Board Preparatory Course**	*Dallas* CME
	Joseph D. Babb, M.D., F.S.C.A.I., F.A.C.C. James E. Tcheng, M.D., F.A.C.C., F.S.C.A.I., F.E.S.C	
September 8 - 13, 2009	**ACCF Cardiovascular Board Review for Certification and Recertification**	*Lake Las Vegas, Nev.* CME
	Rick A. Nishimura, M.D., F.A.C.C. Patrick T. O'Gara, M.D., F.A.C.C.	
September 10 - 12, 2009	**Arrhythmias in the Real World 2009**	*Washington, D.C.* CME CE
	Peter N. Smith, M.D., F.A.C.C.	
September 10 - 12, 2009	**2009 Heart Valve Summit**	*Washington, D.C.* CME CE
	David H. Adams, M.D., F.A.C.C. Robert O. Bonow, M.D., M.A.C.C.	
September 12, 2009	**ACCF Study Session for Maintenance of Certification (MOC): Cardiovascular Disease Updates 2007 and 2008**	*Lake Las Vegas, Nev.* CME
	Rick A. Nishimura, M.D., F.A.C.C. Patrick T. O'Gara, M.D., F.A.C.C.	
September 22, 2009	**Hot Topics in Clinical Cardiology ACC.09 Highlights for the Interventional, Invasive and General Cardiologist**	*San Francisco* CME
	Aaron Kugelmass, M.D., F.A.C.C. Marc E. Shelton, M.D., F.A.C.C.	

For a complete listing of upcoming events and to register online, go to *www.acc.org/education/programs/programs.htm*

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LIPITOR is indicated to reduce the risk of myocardial infarction (MI), revascularization procedures, angina, and stroke in adult patients with multiple risk factors but without clinically evident coronary heart disease (CHD) to reduce the risk of MI and stroke in patients with type 2 diabetes and without clinically evident CHD, but with multiple risk factors; to reduce the risk of nonfatal MI, fatal and nonfatal stroke, revascularization procedures, hospitalization for congestive heart failure (CHF), and angina in adult patients with clinically evident CHD.

LIPITOR is contraindicated in patients with active liver disease or unexplained persistent elevations of serum transaminases. It is unknown if use will be safe in pregnancy. Women of childbearing potential should not take LIPITOR unless they are highly unlikely to conceive and are informed of the potential risk. Nursing is contraindicated in patients with hypersensitivity to any component of this medication.

Rare cases of rhabdomyolysis have been reported with LIPITOR and other statins. Risk may increase at higher doses, especially 80 mg. Patients should be advised to promptly report unexplained muscle pain, tenderness, or weakness. Discontinue drug if creatine kinase (CK) levels increase significantly or if myopathy is diagnosed or suspected. Temporarily withhold LIPITOR in any patient with an acute, serious condition suggestive of myopathy or having a risk factor for renal failure.

Due to increased risk of myopathy seen with LIPITOR and other statins, lower starting doses of LIPITOR should be considered when administered concomitantly with [illegible], or immunosuppressive drugs, [illegible], and in patients at greater risk for myopathy/rhabdomyolysis. Concomitant use of [illegible] should be avoided. Use with caution in patients who consume substantial quantities of alcohol and/or have a history of liver disease. Perform liver enzyme tests before the initiation of therapy and if signs or symptoms of hepatitis develop. Monitor liver enzymes during therapy and when titrating doses of other drug.

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In clinical trials, the most common adverse events were constipation, dizziness, dyspepsia, and abdominal pain.

*Data on file.

**Based on the Adult Treatment Panel III guidelines.