

**Medication vs. Surgery: Protecting the Heart When Needing A High Risk Operation***Edward McFalls, MD, PhD**Director, Cardiac Research, Minneapolis VAMC*

Thursday, March 31, 2005 9:30—10:30am

The benefit of coronary artery revascularization prior to an elective vascular operation is unclear. In this study, patients with increased cardiac risk and significant coronary artery disease were randomly assigned to either revascularization or no revascularization prior to a major elective vascular operation. The primary endpoint was long-term mortality. Our results indicate that of 5,859 patients scheduled for vascular operations at 18 VA Medical Centers, 510 (9%) were eligible for the study and were randomly assigned to either coronary artery revascularization or no revascularization prior to surgery. The indications for vascular operation were an expanding abdominal aortic aneurysm (33%) or lower extremity arterial occlusive disease (67%). Among the patients undergoing preoperative coronary artery revascularization, percutaneous coronary intervention (PCI) was performed in 59% and bypass surgery was performed in 41%. The median time from randomization to vascular surgery was 54 days in the revascularization group and 18 days in the no revascularization group ($P < 0.001$). At 2.7 years following randomization, mortality in the revascularization group was 22% and in the no revascularization group was 23% ($P = 0.92$; the relative risk was 0.98 and 95% confidence interval of 0.70 to 1.37). Within 30 days of the vascular operation, a post-operative myocardial infarction, defined by elevated troponins, occurred in 11.6% of the revascularization group and 14.3% of the no revascularization group ($p = 0.37$). The study conclusions indicate that coronary artery revascularization prior to elective vascular surgery does not significantly alter long-term outcome. Based on these data, a strategy of coronary artery revascularization prior to elective vascular operations among patients with stable cardiac symptoms is not supported.

**Quality Improvement via Quality Measurement***Rod Hayward, MD,**Director, VA Health Services Research & Development Center of Excellence, Ann Arbor VAMC*

Thursday, March 31, 2005 11am—Noon

Over the past decade, the VA healthcare system has become a leader in healthcare quality and safety. Recent evidence suggests that VA's efforts in performance measurement and reporting may have been one of the leading mechanisms behind this dramatic transformation in VA healthcare. In this presentation, Rod Hayward will briefly review some key lessons from recent research on quality measurement and improvement, and discuss possible future policy directions that could make performance measurement and reporting even more accurate and effective in promoting quality improvement. The focus will be on three key issues in refining quality: 1) systems for streamlining the process for adopting important new quality measures, 2) value-weighting performance measures (a process for capturing the relative importance of various deviations from recommended care), and 3) approaches to provider-level profiling (with special attention to implications of pay-for-performance and perverse incentives).



Influenza Pandemics: Past, Present & Future

*Jeffery Taubenberger, MD, PhD
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Thursday, March 31, 2005 1—2 pm

The 'Spanish' influenza pandemic of 1918-1919 caused acute illness in 25-30% of the world's population and resulted in the death of an estimated 40 million people. Using fixed and frozen lung tissue of 1918 influenza victims, the complete genomic sequence of the 1918 influenza virus has been deduced. Sequence and phylogenetic analysis of the completed 1918 influenza virus genes shows them to be the most avian-like among the mammalian-adapted viruses. This finding supports the hypothesis that (1) the pandemic virus contains genes derived from avian-like influenza virus strains and that (2) the 1918 virus is the common ancestor of human and classical swine H1N1 influenza viruses. The relationship of the 1918 virus with avian and swine influenza viruses is further supported by recent work in which the 1918 hemagglutinin (HA) protein crystal structure was resolved. Neither the 1918 hemagglutinin (HA) nor the neuraminidase (NA) genes possess mutations known to increase tissue tropicity that account for virulence of other influenza virus strains like A/WSN/33 or the highly pathogenic avian influenza H5 or H7 viruses. Using reverse genetics approaches, influenza virus constructs containing the 1918 HA and NA on an A/WSN/33 virus background were lethal in mice. The genotypic basis of this virulence has not yet been elucidated. Analysis of the 1918 pandemic influenza virus is allowing us to test hypotheses as to the origin and virulence of this strain, and to develop models for influenza pathogenesis. This information should help elucidate how pandemic influenza virus strains emerge and what genetic features contribute to virulence in humans.



'State-Of-The-Science' in Wheelchair Technology

*Alicia Koontz, PhD, RET
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Associated Rehabilitation Engineering, Pittsburgh VAMC*

Thursday, March 31, 2005 2:30—3:30 pm

Worldwide, an estimated 100-130 million people with disabilities need wheelchairs, though less than 10 percent own or have access to one. While these numbers are staggering, experts predict that the number of people who need wheelchairs will increase by 22 percent over the next ten years. As such, there is an overwhelming need for wheelchairs and the research and development required to make them safer, more effective, and widely available.

Unfortunately wheelchair use has been associated with a multitude of secondary disabilities. Among the more frequently reported include repetitive strain injuries at the wrist (e.g., carpal tunnel syndrome) and shoulder (e.g., impingement and rotator cuff tears), neck and back pain, obesity, cardiovascular disease, and fractured bones or other injuries due to tips and falls. Researchers at the VA Rehabilitation R&D Center of Excellence on Wheelchairs and Associated Rehabilitation Engineering (WaRE) are working to understand the etiology of these problems and to determine preventative mechanisms that involve engineering new and improved devices and developing innovative techniques.

This talk will review the research being conducted at WaRE. More specifically participants will learn about:

- Research for developing the recently compiled PVA evidence-based practice guidelines concerning appropriate wheelchair prescription, wheelchair fit, propulsion and transfer techniques for preservation of upper limb function
- Research and development of a computer game interface for exercise and increased cardiovascular conditioning
- Research for understanding and reducing whole body shock and vibration resulting from indoor/outdoor wheelchair use
- Research for gaining a deeper understanding of community wheelchair use and issues concerning wheelchair safety, durability, and performance
- Research resulting in more advanced and versatile wheelchair designs and components

The emergence of advanced mobility devices shows promise for the millions of people who have disabilities and older adults. Improvements in wheelchair design and exercising safe and evidence-based practices concerning wheelchair prescription, fit and technique will likely minimize the risk of secondary injuries.