To read all new materials from MAS and OHTAC, be sure to visit the "What's New" section of our websites. You can subscribe to the e-Bulletin and other OHTAC/MAS releases via our RSS feed. To find out more, click on the icon to the right or visit:

http://www.health.gov.on.ca/english/providers/program/mas/mas_ohtac_rss.html

NEW REPORTS FROM MAS & OHTAC

The following recommendations and MAS report have been recently completed and are available for download at the **Ontario Health Technology Assessment Series** (OHTAS) website.

The *2009 OHTAC Progress Report*

The Ontario Health Technology Advisory Committee is pleased to announce the release of its 2009 Progress Report *Advancing Health – Evidence-Based Advice on Health Technology*. The report contains a series of graphs and maps that capture by Local Health Integration Network (LHIN), the use of select technologies at the time of the analysis and tracks changes in usage over time. In future, we will continue to track these procedures while adding new technologies. Our 2009 Progress Report demonstrates how Ontario's approach to health technology is generating collaboration, saving lives, driving evidence-based decision-making and attracting world-wide attention. If you have questions or require further information, please contact MAS Director, Birthe Jorgensen at 416-314-3999 or birthe.jorgensen@ontario. For a copy of the report please contact Joanne Walsh at 416-314-1092 or joanne.e.walsh@ontario.ca.

1. Non-Invasive Cardiac Imaging Technologies for the Assessment of Myocardial Viability

In July 2009, the Medical Advisory Secretariat (MAS) began work on *Non-Invasive Cardiac Imaging Technologies for the Assessment of Myocardial Viability*, a review of the evidence surrounding cardiac imaging modalities that was undertaken to ensure that appropriate technologies are accessed by patients undergoing viability assessment. Based on the findings of a 2005 MAS analysis, this analysis was restricted to F-18-Flurodeoxyglucose Positron Emission Tomography (FDG PET) and cardiac Magnetic Resonance Imaging (MRI).

In terms of diagnostic accuracy, both FDG PET and cardiac MRI are good tests for the prediction of regional functional recovery as a surrogate for viability. However, the sensitivity of FDG PET is higher than that of cardiac MRI. In terms of clinical utility of FDG PET, very low quality of evidence suggests that revascularization may be more beneficial than medical treatment for patients with viable myocardium and moderate quality of evidence suggests that there are no significant differences in clinical outcomes and survival for patients whose treatment plan was based on viability assessment with FDG PET, SPECT, or standard care. There was no evidence evaluating the clinical utility of cardiac MRI available at the time of the review.

With regard to PET, OHTAC recommended the collection and analysis of further patient outcomes to determine the clinical utility of cardiac FDG PET viability testing and to assess if there is improved utility by adding perfusion imaging to FDG PET viability testing. OHTAC also recommended that perfusion/metabolism imaging continue in patients with left bundle branch block and diabetes. With regard to cardiac MRI OHTAC did not recommend its routine use for the assessment of myocardial viability, but recommended the collection and analysis of patient outcomes where cardiac MRI is being used to assess viability.

2. Smart Infusion Pumps: Design and Staff Training Strategies

The Ontario Health Technology Advisory Committee (OHTAC) engaged the University Health Network's (UHN) Healthcare Human Factors (HHF) Group to collect evidence on the effectiveness and safety of smart, large volume infusion systems. To this end, HHF conducted both lab and field evaluations. The results revealed that smart infusion systems have the potential to improve medication safety, contingent on effective pump design,

configuration and implementation. To this end, HHF and OHTAC have developed recommendations to ensure the full benefits are achieved, which are summarized in two reports:

- **Primary Report:** HHF's first report (April 2009) highlighted that smart pump system implementation must be viewed as a patient safety initiative rather than a stand-alone pump replacement initiative and can be accessed using the following link:
  http://www.ehealthinnovation.org/files/SmartMedicationDeliverySystems_FullReport.pdf
  OHTAC's accompanying recommendations (July 2009) can be accessed at:
  http://www.health.gov.on.ca/english/providers/program/ohtac/tech/recommend/rec_smd_20090701.pdf

- **Supplementary Report:** HHF's supplementary report (February 2010) draws on two lab studies, field research and a literature review, to describe how pump design and training can be optimized to assist with successful pump implementation and uptake. This report can be accessed using the following link:
  http://www.ehealthinnovation.org/files/SmartMedicationDeliverySystems_SupplementaryReport.pdf

The findings have been shared with Ontario hospitals.

3. Primary Angioplasty for the Treatment of Acute ST-Segment Elevated Myocardial Infarction: An Evidence Update

A literature search was conducted to update the 2004 evidence-based review by the Medical Advisory Secretariat (MAS) on the use of primary angioplasty, also referred to as primary percutaneous coronary intervention (PCI), for the treatment of acute ST-segment elevated myocardial infarction (STEMI).

Five comparisons were examined in this updated review:
- Primary PCI vs. In-Hospital Thrombolysis
- Primary PCI vs. Pre-Hospital Thrombolysis
- Facilitated PCI vs. Primary PCI
- Rescue PCI vs. Repeat Thrombolysis
- Routine Early PCI after Thrombolysis vs. Thrombolysis (and Rescue PCI if needed)

There is evidence from RCTs for the superiority of primary PCI over thrombolysis for recurrent myocardial infarction rates but not for overall survival. However OHTAC is concerned that: 1) there are significant numbers of STEMI patients who receive no reperfusion therapy; 2) a substantial proportion of reperfused STEMI patients do not receive reperfusion therapy within maximum recommended delays, especially among those who need to be transported long distances from referral hospitals to PCI hospitals for primary PCI; and 3) recent data from observational studies suggest that the timeliness with which either mode of reperfusion is delivered is a more important determinant of outcomes than the mode of reperfusion.

4. Stenting for Peripheral Disease of the Lower Extremities

Peripheral artery disease (PAD) is a progressive disease occurring as a result of plaque accumulation in the arterial system that carries blood to the extremities (arms and legs) as well as vital organs. Although the prevalence of PAD in Canada is not known, it is estimated that 800,000 Canadians have PAD. Risk factors associated with PAD include advanced age, male gender, family history, smoking, diabetes, hypertension and hyperlipidemia. PAD is a strong predictor of myocardial infection (MI), stroke and cardiovascular death. More than 70% of the patients diagnosed with PAD remain stable or improve with conservative management of pharmacologic agents and life style modifications. For those who do not improve, revascularization methods both invasive and non-invasive, can be used to restore peripheral circulation.

OHTAC recommended the use of self-expanding stents in the treatment of superficial femoral artery disease but as this technology is not currently licensed by Health Canada for this indication, they did not make a recommendation regarding use of drug-eluting stents for peripheral artery disease intervention. In the event that

drug-eluting stents are licensed by Health Canada, OHTAC cautioned that current evidence is of very low quality which should preclude its use in the absence of further research.

5. Updates to OHTAC Recommendations

The following OHTAC recommendations, posted earlier in 2010, have been updated and can be accessed through this link:
http://www.health.gov.on.ca/english/providers/program/ohtac/tech/recommend/rec_mn.html

- Solid Organ Transplantation for End Stage Organ Failure in Persons with HIV (Revised)
- Clinical Utility of Vitamin D Testing (Revised)

COMING SOON

1. Percutaneous Vertebroplasty for the Treatment of Painful Osteoporotic Vertebral Compression Fractures

The Medical Advisory Secretariat conducted a health technology assessment on vertebroplasty reviewing the results of all randomized controlled trials published since 2005. The objective was to assess the efficacy and safety of this procedure in the treatment of painful osteoporotic vertebral compression fractures.

Recently, the results of two blinded randomized placebo-controlled trials of percutaneous vertebroplasty were reported. These trials, providing the highest quality of evidence available to date, do not support the use of vertebroplasty in patients with painful osteoporotic vertebral compression fractures. Based on the results of these trials, vertebroplasty confers no additional benefit over usual care and is not free of risks.

2. Balloon Kyphoplasty for Treatment of Painful Osteoporotic Vertebral Compression Fractures: an evidence update

Balloon kyphoplasty and vertebroplasty are surgical procedures that have been used to alleviate the pain caused by vertebral compression fractures (VCFs). These procedures involve the injection of bone cement into the fractured vertebral body. Balloon kyphoplasty is a vertebroplasty procedure with an additional requirement of inserting a bone tamp with an inflatable balloon to expand the collapsed vertebral body and to create a space to be filled with bone cement. The injection of bone cement into the expanded cavity may allow the natural height of the fractured vertebra to be restored.

Recently, the results of two well-conducted randomized control trials (RCT) on vertebroplasty were published which reported no benefit from vertebroplasty compared to sham. OHTAC published its recommendation in regards to vertebroplasty, and updated its 2004 recommendation on balloon kyphoplasty. Blinded RCTs on vertebroplasty which compared vertebroplasty with conservative treatment demonstrated that the spontaneous healing of osteoporotic vertebral fractures results in significant improvement in pain and measures of physical, mental, and social functioning.

3. Clinical Utility of Serologic Testing for Celiac Disease in Ontario

Celiac disease is an autoimmune disorder characterized by a chronic inflammatory state of the proximal small bowel mucosa and triggered by the ingestion of gluten - a protein present in various grains. The structural and functional changes in the small bowel result in impaired digestion and absorption of nutrients and the treatment consists of strict, lifelong adherence to a gluten-free diet. The diagnosis of celiac disease is confirmed by characteristic abnormalities in small bowel biopsy. However, serologic tests for celiac disease initially detect and support the presence of the disease. MAS has conducted a systematic review of evidence in order to evaluate the sensitivity, specificity, clinical validity, clinical utility, and cost-effectiveness of serologic celiac disease tests used in Ontario in subjects with symptoms consistent with the disease. An expert panel has been struck to contextualize the evidence.

4. Neuroimaging for the Evaluation of Chronic Headaches

Headache disorders are generally classified as either primary or secondary with further sub-classifications into specific headache types. Primary headaches are those not caused by a disease or medical condition and include i) tension-type headache, ii) migraine, iii) cluster headache and, iv) other primary headaches. Secondary headaches are those caused by an underlying medical condition. While primary headaches disorders are far more frequent than secondary headache disorders, there is an urge to carry out neuroimaging studies (CT and/or MRI scans) out of fear of missing uncommon secondary causes and often to relieve patient anxiety. The clinical utility of neuroimaging studies to detect uncommon secondary causes of headache is examined. An expert panel will begin meeting in the early fall and will assist with further contextualizing the evidence.

CURRENTLY UNDER REVIEW

The following topics are under review: http://www.health.gov.on.ca/english/providers/program/ohtac/under_review.html

Da Vinci Robotic Surgical System for Gynecologic and Urologic Oncology - This review will examine the clinical effectiveness of a robotic surgical system to standard surgical techniques for gynecologic and urologic oncology. *Anticipated Completion: Fall 2010*

Diurnal Tension Curve for Intraocular Pressure Management - This review will examine the validity of this test for screening for glaucoma in selected populations and the test's clinical utility in a post diagnosis treatment situation. *Anticipated Completion: Fall 2010*

Endovascular Radiofrequency Ablation for Varicose Veins - The purpose of this analysis is to determine the safety and effectiveness of endovascular radiofrequency treatment for varicose veins. A*nticipated Completion: Fall 2010*

An Evaluation of Current Pharmacogenetic Tests across Three Cancers: Breast, Colorectal and Non-Small Cell Lung - As pharmacogenetic testing is increasingly being used to predict response to new, targeted therapeutic strategies, these reviews will assess the efficacy and cost-effectiveness of several pharmacogenetic tests that are currently diffusing in Ontario. *Anticipated Completion: Fall 2010*

Update on Negative Pressure Wound Therapy - This review is undertaken in response to the development of new RCTs since the initial report on negative pressure wound therapy was published in July 2006. *Anticipated Completion: Fall 2010*

Chronic Obstructive Pulmonary Disease (COPD) - This mega analysis will synthesize the evidence around smoking cessation, multidisciplinary care, vaccines, pulmonary rehabilitation, oxygen therapy and hospital at home care for acute exacerbations as a platform for policy development *Anticipated Completion: Winter 2011*

Study of Improving Multiple Infusion Line Safety - As requested by OHTAC, the Healthcare Human Factors Laboratories at the University Health Network is investigating the safety, effectiveness and usability of multiple line infusions. *Anticipated Completion: 2011*

OHTAC and MAS welcome your questions and comments. Please contact us at: OHTACinfo.moh@ontario.ca