OHTAC Ontario Health Technology Advisory Committee

Seeking the best in health technologies for Ontario

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The OHTAC E-bulletin is issued on a regular basis to provide you with updates on the latest committee recommendations. OHTAC has reviewed several health technologies and all its recommendations are available on the OHTAC Web site at http://www.health.gov.on.ca/english/providers/program/mas/ohtac_recommend.html.

Should you have additional information about any of these technologies, please submit it to the Medical Advisory Secretariat (MAS) at the contact information found at the end of this bulletin.

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AUTOMATED EXTERNAL DEFIBRILLATORS (AEDs) IN CARDIAC ARREST

Issue

The objectives of this technology review were: to identify the components of a program to deliver early defibrillation which optimize the effectiveness of AEDs in out-of-hospital and hospital settings; to determine whether AEDs are cost effective; and if they are cost effective, to advise on how they should be distributed in Ontario.

Approximately, 7,000 cardiac arrests annually occur in out-of-hospital settings in Ontario. The majority (85%) of these arrests occurs in homes. The rest (15%) are distributed across a wide range of public access areas among which office buildings have the highest arrest rate – however, the arrests in office buildings constitute only 1.2% of the total arrests in Ontario.

An Automated External Defibrillator (AED) is a device that can analyze heart rhythm of a cardiac arrest patient and deliver shock if needed. Thus, AEDs can be used by first responders to deliver early defibrillation in out-of-hospital and hospital settings. Approximately, 36% of cardiac arrest patients have shockable rhythm and they can be successfully resuscitated using AEDs in a timely fashion. With each minute delay in defibrillation from the onset of cardiac arrest, the probability of survival decreases by 10%.

Key Findings

Based on the Medical Advisory Secretariat (MAS) Review, it was found that:

- AEDs have a role in strengthening the 'chain of survival' which includes prompt activation of the 911 telephone response system, early cardiopulmonary resuscitation (CPR), rapid defibrillation, and timely advanced life support. However, simply providing an AED without trained personnel would not likely improve survival outcomes.

- MAS examined cost effectiveness of providing AEDs in hospitals, office buildings, apartments and houses. The results suggested that deployment of AEDs in hospitals would be cost effective in terms of cost per quality adjusted life years (QALYs) gained. Deployment of AEDs in office buildings, apartments and houses was not cost effective. An exception, however, was possible provision to individuals at higher risk of sudden cardiac arrest (patients with left ventricular ejection fraction < 35%).

OHTAC Recommendations

- OHTAC endorses and supports the current policy of giving AEDs to EMS, fire-fighters and police;
- OHTAC encourages education of the public in CPR/AED for high risk individuals;
- OHTAC does not recommend the installation of AEDs in public buildings which are at low risk of cardiac arrest incidents – that is the probability that a cardiac arrest would occur in these buildings is very low;
- OHTAC supports the provision of AEDs in those areas of the hospitals which are not readily accessible by the code blue team;
- OHTAC supports the current initiative taken by some airlines to place AEDs on aircrafts and train flight attendants in CPR/AED use;
- OHTAC encourages the use of AEDs for patients who are implantable cardiac defibrillator (ICD) candidates (with left ventricular ejection fraction < 35%) but are awaiting ICD implant. It is essential that a response plan should be in place. For example, the spouse or partner should be willing to train in CPR and AED use in the event of an arrest.

Implications

AEDs have no role to play in assisting patients with non-shockable rhythm. Also, AEDs would not improve survival rates if deployed at a site where no one knows how to use them, or where no cardiac arrest occurs in five years.

The incidence of cardiac arrest occurring in public buildings is very low. The cost of an AED (including training) is in the range of $2,000-$4,000. Among 911 call responders in Ontario, 100% of ambulances, > 90% of firefighters, and approximately 30% of police officers carry AEDs. This deployment strategy of AEDs is cost effective ($2632/life saved). However, it is neither practical nor cost effective to deploy AEDs in all homes, or in public access areas. For example, if AEDs are installed in 3,000 government buildings in Ontario, one additional life may be saved annually. This corresponds to $184,467 to $1.7 million per QALY gained over a five-year period.

The full downloadable version of the **Health Technology Policy Review** by the Medical Advisory Secretariat can be found at:
http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_aed_120105.pdf

The **OHTAC recommendation** for this technology can be found at the following link:
http://www.health.gov.on.ca/english/providers/program/mas/tech/recommend/rec_aed_121605.pdf

SPOTLIGHT: Health Technology Utilization Guidelines of Ontario

Health Technology Utilization Guidelines of Ontario (Health TUGO) is a new collaboration between the Medical Advisory Secretariat (MAS) of the Ministry of Health and Long-Term Care and McMaster University. The mandate of Health TUGO is to assist in the implementation of OHTAC recommended technologies through the development and publication of health technology utilization guidelines. Health TUGO utilization guidelines expand upon the evidence gathered by MAS health technology and policy reviews by eliciting expert opinion on such questions as:

- For which patients is the technology appropriate?
- What are the specific treatment provision concerns of this technology?
- Which health professionals should be providing this technology?
- What organizational and resource allocation concerns are specific to this technology, and how should they be addressed?
- What factors will affect the implementation of this technology in Ontario?
- What is required to ensure that high quality service is provided to patients?

The utilization guidelines are developed in accordance with an evidence-based model in which a panel of expert clinicians devises recommendations through a consensus process. This guideline development process incorporates the feedback of a wider audience of clinicians and other relevant stakeholders from across Ontario. Health TUGO guidelines will play an important role in the implementation of emerging health technologies in the province. Guidelines are currently being developed for bariatric surgery, thermal balloon ablation therapy (TBEA), and mid-urethral slings. Health TUGO is in the process of developing their website, which can be found at www.healthtugo.ca

TECHNOLOGIES CURRENTLY UNDER REVIEW

• Cardiac positron emission tomography	• Photopheresis
• Endovascular repair for thoracic aortic aneurysm	• Breast Cancer Screening and Optimum Imaging Breast Technologies for Women 40-49 years of age
• Electroanatomic cardiac mapping and ablative techniques	• Vascular ultrasound screening for abdominal aortic aneurysm Bladder Ultrasound
• Automatic external defibrillator	• Hydrophilic Catheters
• Intravascular coronary ultrasound	• Routine Eye Exams
• Metal-on-metal Hip Resurfacing	• Sleep Disorder Clinics
• Implantable Cardioverter defibrillator	• Bone Densitometry

Integrated Health Technology Literature Reviews

• Cardiac imaging technologies	• Heart failure	• Osteoarthritis

Literature Reviews Being Updated

• Mid-Urethral Slings (February 2004)	• Artificial discs (March 2004)
• Coil Embolization (March 2004)	• Enhanced External Counterpulsation (February 2003)

OHTAC is envisaged as the first step in creating a single portal for providing advice to the Ministry of Health and Long-Term Care regarding the uptake, diffusion, and distribution for new health technologies. Find more about OHTAC, its application process, and its recommendations at the following Web site: http://www.health.gov.on.ca/english/providers/program/mas/ohtac_about.html.

PREVIOUS OHTAC RECOMMENDATIONS

- Interim Report on Drug Eluting Stents — December 2005
  http://www.path-hta.ca/DESreport.pdf
- Air Cleaning Technologies — November 2005
  http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_act_110105.pdf
- Biventricular Pacing (Cardiac Resynchronization Therapy) — September 2005
  http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_biv_090105.pdf
- Athroscopic Lavage and Debridement — September 2005
  http://www.health.gov.on.ca/english/providers/program/mas/tech/recommend/rec_lavdeb_061705.pdf
- Intrathecal Baclofen Pump for Spasticity — August 2005
  http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_pump_081605.pdf
- Hyperbaric Oxygen Therapy for Non-Healing Ulcers in Diabetes Mellitus — August 2005
  http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_hypox_081105.pdf
- Interim Report on Endovascular Repair of Abdominal Aortic Aneurysm (EVAR) — July 2005
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/ohtac_report_evar_051705.pdf
- Intra-Articular Viscosupplementation With Hylan G-F 20 To Treat Osteoarthritis of the Knee — June 2005
  http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/sum_hylan_061705.html
- Total Knee Replacement — June 2005
  http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_tkr_061705.pdf
- Osteogenic Protein-1 — April 2005
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/ohtac_rec_op1_051705.pdf
- Multi-detector Computed Tomography Angiography for Coronary Artery Disease — April 2005
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_multi_050805.pdf
- Spinal Cord Stimulation for Neuropathic Pain — March 2005
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/scs_0305.pdf
- Sacral Nerve Stimulation for Urinary Incontinence, Urgency-Frequency, Urinary Retention, and Fecal Incontinence — March 2005
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/sns_0305.pdf
- Deep Brain Stimulation in Parkinson's Disease and Other Movement Disorders — March 2005
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/dbs_0305.pdf
- Bariatric Surgery — January 2005
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_baria_012105.pdf
- Vacuum Assisted Closure Therapy for Chronic Wounds — December 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_vac_121604.pdf
- Balloon Kyphoplasty — December 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_kypho_121604.pdf
- Thermal Balloon Endometrial Ablation for Dysfunctional Uterine Bleeding — October 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_tbea_091504.pdf
- Primary Angioplasty — September 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_pri_angio_110804.pdf
- Bispectral Index Monitor — August 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_bis_081304.pdf
- Radio Frequency Ablation for Primary Liver Cancer — June 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_rfa_061704.pdf
- Repetitive Transcranial Magnetic Stimulation for Major Depressive Disorder — June 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_rtms_061704.pdf
- Coil Embolization For Intracranial Aneurysms — March 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_ece_0304.pdf
- Pyrocarbon Finger Joint Implant — March 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_pyrocarb_0304.pdf
- Video Laryngoscopy for Tracheal Intubation — March 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_vic_laryng_0304.pdf
- Bone Morphogenetic Proteins and Spinal Surgery for Degenerative Disc Disease — March 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_bmp_ddd_0304.pdf

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- Artificial Discs for Cervical and Lumbar Spinal Surgery for Degenerative Disease — March 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_bmp_ddd_0304.pdf
- Computer-Assisted Hip and Knee Arthroplasty: Navigation and Robotic Systems — March 2004
  Http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_arthro_0304.pdf
- Computer-Assisted Surgery Using Telemanipulators — March 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_teleman_0304.pdf
- Tension-free Vaginal Tape for Stress Urinary Incontinence — February 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_tvt_050204.pdf
- Patient Monitoring System for MRI — February 2004
  http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_pmri_050204.pdf

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