

E-Bulletin**February 2006, Issue #9**

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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AIR CLEANING TECHNOLOGIES**Issue**

In the aftermath of the SARS crisis, there was a need for a clearer understanding of Ontario's capacity to manage suspected or confirmed cases of airborne infectious diseases. The Walker Commission felt that increased attention should be paid to the potential use of new technologies such as in-room air cleaning units and recommended that the Ministry of Health and Long-Term Care through OHTAC and the Medical Advisory Secretariat begin to evaluate the appropriate use and effectiveness of such new technologies. The Health Technology Policy Assessment answered the following questions:

1. When should in-room air cleaners be used?
2. How effective are in-room air cleaners?
3. Are in room air cleaners that use combined HEPA and UVGI air cleaning technology more effective than those using HEPA filtration only?
4. What is the role the of the Plasmacluster ion air purifier in the pandemic influenza preparation plan?

Key Findings

- In-room air cleaners may be used to protect health care staff from air borne infectious pathogens such as tuberculosis, chicken pox, measles and disseminated herpes zoster.
- In addition, and although in-room cleaners are not effective in protecting staff and preventing the spread of droplet transmitted diseases such as influenza and SARS, they may be deployed when a novel/emerging infectious agent presents whose epidemiology is not yet defined and where airborne transmission is suspected.
- Because influenza is primarily transmitted by large droplets from and direct and indirect contact with an infectious person there is no role for the Plasmacluster ion air cleaner or any other type of in room air cleaner in pandemic influenza control itself.
- It is preferred that in-room air cleaners be used with a fixed and permanent room placement when ventilation requirements must be improved and the HVAC system cannot be used. However, for acute (temporary) situations when a novel/emerging infectious agent presents whose epidemiology is not yet defined and where airborne transmission is suspected it may be prudent to use the in-room air-cleaner as a portable device.
- To maximize effectiveness, consultation with an environmental engineer and infection control practitioner should be undertaken before using an in-room air cleaner and protocols for maintenance and monitoring of these devices should be in place.
- An estimate of effect is uncertain, regarding the benefit of adding UVGI lights to in-room air cleaners with HEPA filtration.

**OHTAC
Recommendations**

- In room air cleaners may be used to decrease the concentration of airborne infectious pathogens in a room.
- In room air cleaners are unlikely to be of any benefit in the containment of non-airborne transmitted infectious diseases such as influenza and SARS as these diseases are primarily transmitted by large droplets and direct and indirect contact from an infectious person.
- In room air cleaners are optimally deployed as fixed and permanent devices and used when the HVAC system cannot meet building ventilation rate requirements as set out in international and national guidance documents or when after an infection control risk assessment an increase in the number of negative pressure rooms is required in the health care facility and these cannot be created by renovating the HVAC system.
- In room air cleaners may be used as portable devices and as a temporary solution for supplemental ventilation and or creation of negative pressure rooms in acute situations where surge capacity is needed to manage the spread of a suspected airborne infectious disease. This would include situations in which a novel/emerging infectious agent whose epidemiology is not yet defined and where airborne transmission is suspected.
- In all situations of use, in-room air cleaners should be deployed only after consultation with a ventilation engineer and an infection control practitioner.
- All air cleaning systems in health care facilities should have written protocols for maintenance and monitoring of these systems.
- If properly installed and maintained, in room air cleaners with HEPA or combined HEPA and UVGI air cleaning technology are effective in removing airborne pathogens.
- However, there is only weak evidence available at this time regarding the benefit of using an in-room air cleaner with combined HEPA and UVGI air cleaning technology instead of those with HEPA filter technology only.
- It is recommended that the University Health Network Human Factors Laboratory undertake the evaluation of the use of in-room air cleaners in hospitals.

Implications

Currently, there are approximately 310 in room air cleaners in health care facilities around Ontario, which are used in a variety of service areas including clinic and emergency waiting rooms and intensive care units to increase room ventilation rates as well as to create negative pressure rooms.

The full downloadable version of the **Health Technology Literature Review** by the Medical Advisory Secretariat can be found at:

http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_act_110105.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_act_111605.pdf

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/ohatc_about.html.

**SPOTLIGHT:
The University Health Network Human Factors Laboratory**

The Healthcare Human Factors group of the Centre for Global eHealth Innovation at the University Health Network (UHN) is a team of biomedical and human factors engineers, information designers and clinical educators who specialize in the user-centred design and evaluation of medical devices, clinical information systems and healthcare environments, with a focus on improving patient care and safety.

The Healthcare Human Factors group works with government, medical device manufacturers and IT vendors during the design and development life cycle of new products to ensure that resulting systems are intuitive, safe, and meet human factors standards and regulatory requirements.

Using the Centre for Global eHealth Innovation's state of the art multi-tasking simulation environments and usability labs, high fidelity clinical environments such as

operating rooms, intensive care units, general wards, waiting rooms, and patient homes, are configured using theatre style props and actual medical equipment. Representative end users are recruited from UHN staff and patient populations and are asked to work through realistic scenarios and tasks with the technology while they verbalize their thoughts and impressions. Collected data are analyzed qualitatively and quantitatively (for error rates, task completion times, etc.) to determine safety and usability issues.

OHTAC recommended technologies currently being reviewed by the lab include Radiation Safety Issues of Multi-Detector Computed Tomography; Magnetic Resonance Imaging Suites: Patient and Staff Safety; Human Factors Analysis for Selection of Automatic External Defibrillators; and the evaluation of the use of in-room air cleaners in hospitals. For more information please visit their website: <http://www.ehealthinnovation.org/chmembers/18>

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
• Biventricular Pacemakers (Cardiac Resynchronization Therapy)	
Integrated Health Technology Literature Reviews	
• Cardiac imaging technologies	• Heart failure
• Osteoarthritis	

Literature Reviews Being Updated

- Mid-Urethral Slings (February 2004)
- Artificial discs—application to cervical and lumbar spinal surgery for degenerative disc disease (March 2004)

PREVIOUS OHTAC RECOMMENDATIONS

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| • Interim Report on Drug Eluting Stents
http://www.path-hta.ca/DESreport.pdf | December 2005 |
| • Athroscopic Lavage and Debridement
http://www.health.gov.on.ca/english/providers/program/mas/tech/recommend/rec_lavdeb_061705.pdf | September 2005 |
| • Intrathecal Baclofen Pump for Spasticity
http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_pump_081605.pdf | August 2005 |
| • Hyperbaric Oxygen Therapy for Non-Healing Ulcers in Diabetes Mellitus
http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_hypox_081105.pdf | August 2005 |
| • Interim Report on Endovascular Repair of Abdominal Aortic Aneurysm (EVAR)
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/ohtac_report_evar_051705.pdf | July 2005 |
| • Intra-Articular Viscosupplementation With Hylan G-F 20 To Treat Osteoarthritis of the Knee
http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/sum_hylan_061705.html | June 2005 |
| • Total Knee Replacement
http://www.health.gov.on.ca/english/providers/program/mas/tech/reviews/pdf/rev_tkr_061705.pdf | June 2005 |
| • Osteogenic Protein-1
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/ohtac_rec_op1_051705.pdf | April 2005 |
| • Multi-detector Computed Tomography Angiography for Coronary Artery Disease
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_multi_050805.pdf | April 2005 |
| • Spinal Cord Stimulation for Neuropathic Pain
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/scs_0305.pdf | March 2005 |
| • Sacral Nerve Stimulation for Urinary Incontinence, Urgency-Frequency, Urinary Retention, and Fecal Incontinence
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/sns_0305.pdf | March 2005 |
| • Deep Brain Stimulation in Parkinson's Disease and Other Movement Disorders
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/dbs_0305.pdf | March 2005 |
| • Bariatric Surgery
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_baria_012105.pdf | January 2005 |
| • Vacuum Assisted Closure Therapy for Chronic Wounds
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_vac_121604.pdf | December 2004 |
| • Balloon Kyphoplasty
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_kypho_121604.pdf | December 2004 |
| • Thermal Balloon Endometrial Ablation for Dysfunctional Uterine Bleeding
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_tbea_091504.pdf | October 2004 |
| • Primary Angioplasty
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_pri_angio_110804.pdf | September 2004 |
| • Bispectral Index Monitor
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_bis_081304.pdf | August 2004 |
| • Radio Frequency Ablation for Primary Liver Cancer
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_rfa_061704.pdf | June 2004 |
| • Repetitive Transcranial Magnetic Stimulation for Major Depressive Disorder
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_rtms_061704.pdf | June 2004 |
| • Coil Embolization For Intracranial Aneurysms
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_eee_0304.pdf | March 2004 |
| • Pyrocarbon Finger Joint Implant
http://www.health.gov.on.ca/english/providers/program/mas/reviews/docs/recommend_pyrocarb_0304.pdf | March 2004 |

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- 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
- 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

For any comments related to this E-bulletin, please contact the Medical Advisory Secretariat at:

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