CADTH Evidence Driven.

Horizon Scan **Roundup**

A Compilation of New and Emerging Health Technologies from Around the World

CADTH's Horizon Scanning program identifies and monitors new and emerging health technologies likely to have a significant impact on health care in Canada. The program systematically scans and monitors health information resources to identify promising health technologies not yet in wide use in the Canadian health care system. It then provides summaries of current information about the use, effectiveness, cost, and implementation of these technologies, which it publishes in bulletin form.

Part of CADTH's horizon scanning process involves monitoring what other international horizon scanning agencies and services have been tracking and evaluating for their own jurisdictions. The resulting "roundup" is a compilation of 130 titles published in 2014 by major international horizon scanning services and selected health organizations recognized for their identification of innovative technologies. The materials have been organized into the medical specialty headings used to categorize CADTH's own reports. The focus of this roundup is restricted to non-drug medical technologies including medical devices, laboratory tests, biomarkers, programs, and procedures.

Topics Covered in this Edition:

Anesthesia and Pain Management

Computer-assisted personalized sedation station
Cleveland Clinic

This new, first-of-its-kind sedation system is able to deliver minimal to moderate sedation using the drug propofol to patients during colonoscopy procedures without the need for an anesthesiologist to be present.

Perioperative Decision Support System
Cleveland Clinic

Perioperative decision support systems are new anesthesia management systems that record physiological patient data in real time and document the care provided by anesthesiologists throughout preoperative, intraoperative, and recovery activities.

Magnetic resonance-guided focused ultrasound for bone-crushing cancer pain: A new use for an old technology?
ECRI Institute (May require free log-in)

ExAblate 2000/2100 is a complementary treatment for patients suffering from certain cancers, and is to be used with existing magnetic resonance imaging systems. It uses high intensity-focused ultrasound energy, which acts on wider areas, shortening treatment duration and allowing for longer periods of pain relief.

Down-under: Will lower costs and higher patient satisfaction offset brewing turf wars over computer-assisted sedation systems?
ECRI Institute (May require free log-in)

The Sedasys computer-based personalized sedation system is designed to monitor patients undergoing the administration of the drug propofol during endoscopic gastrointestinal procedures by non-certified anesthesiologists or nurse anesthetists.

End-tidal Control software for use with Aisys closed circuit anaesthesia systems for automated gas control during general anaesthesia
NICE/National Institute for Health and Care Excellence MIB

End-tidal Control is a new software that enables reduced anesthetic use and faster achievement of anesthetic concentration targets by monitoring and controlling the flow of fresh gas through a closed breathing circuit system. The software may be used with existing GE Healthcare Aisys CS2 Anesthesia Carestation delivery systems.

Curelator Headache™ digital platform for adults with migraine
NIHR/National Institute for Health Research Horizon Scanning Centre

The Curelator Headache is a Web and mobile app-based tool that will enable migraine sufferers to record, track, and analyze their migraine headaches, and have modifications proposed to various behaviours and triggers associated with them.

Arthritis

Autologous mesenchymal stem cell therapy for osteoarthritis
AHRQ/Agency for Healthcare Research and Quality

As progenitor cells, mesenchymal stem cells (MSCs) purportedly have the ability to differentiate into a number of cell types, including chondrocytes, which are the cells needed to maintain cartilage. MSC therapy has the potential to be the first treatment to regenerate articular cartilage and provide additional benefit compared with platelet-rich plasma therapy for patients with osteoarthritis.

Autologous platelet-rich plasma therapy for osteoarthritis
AHRQ/Agency for Healthcare Research and Quality

Platelet-rich plasma therapy, although not considered a therapeutic substance or drug by the FDA, is under investigation as a way of promoting tissue regeneration and repair for patients with osteoarthritis. Plasma from a patient's blood is processed to achieve a higher-than-normal concentration of platelets, which are thought to secrete a variety of growth factors and cytokines.

Cancer, Imaging, and Radiology

Irreversible electroporation (NanoKnife®) for ablation of solid tumors
AHRQ /Agency for Healthcare Research and Quality

Irreversible electroporation using the NanoKnife system is a non-thermal ablation technique in which target tissue is exposed to a precisely aimed, rapid, short-duration series of high-voltage electrical pulses. This treatment makes possible the ablation of tumours next to blood vessels, ducts, and nerves without causing them harm.

Magnetic resonance imaging–ultrasound image fusion to guide prostate biopsy

AHRQ/Agency for Healthcare Research and Quality

The fusion process occurs following a magnetic resonance imaging (MRI) scan of the prostate from which a radiologist identifies and grades any suspicious prostate lesions. By superimposing the transrectal ultrasound images onto the previously obtained prostate MRI, a urologist is then able to perform a real-time, three dimensional-guided biopsy. A key feature of the software, designed to integrate with many commonly used ultrasound platforms, is the incorporation of algorithms to adjust for patient movement and prostate deformation resulting from the probe's pressure.

MarginProbe System for intraoperatively identifying positive margins during breast cancer lumpectomy

AHRQ/Agency for Healthcare Research and Quality

The MarginProbe System was developed to rapidly assess surgical margins to ensure the complete excision of malignant breast tissue. The system uses radiofrequency spectroscopy and is intended to reduce the need for second surgeries by providing intraoperative assessment of lumpectomy margins and differentiating cancer-free tissue from malignant tissue.

Stool DNA molecular test (Cologuard) for colorectal cancer screening

AHRQ/Agency for Healthcare Research and Quality

The Cologuard molecular test is intended to be an adjunctive screening test to detect genetic signatures of colorectal cancer markers in cells shed from the intestinal walls and excreted with human stool. Cologuard could improve on the accuracy of current non-invasive tests such as Fecal Occult Blood Test and Fecal Immunochemical Test.

Ovarian tissue cryopreservation for fertility preservation in women undergoing gonadotoxic cancer therapy

AHRQ/Agency for Healthcare Research and Quality

This procedure is currently being studied for prepubertal and reproductive-age women who require gonadotoxic cancer therapies that may impair future fertility. Before treatment begins, clinicians harvest and cryopreserve the patient's ovarian tissue. Once the cancer treatment is done, the tissues can be re-implanted in the original or an alternative anatomical site.

Radium-223 dichloride (Xofigo) for treatment of solid tumor bone metastases

AHRQ/Agency for Healthcare Research and Quality

This treatment has the potential to improve current treatments for patients with prostate cancer and bone metastases. It emits higher-energy alpha particles and more localized activity than other radiopharmaceuticals.

KRAS Testing for metastatic colorectal cancer using *therascreen* KRAS RGQ PCR Kit

CADTH/Canadian Agency for Drugs and Technologies in Health

The therascreen KRAS RGQ PCR Kit is a companion diagnostic device for cetuximab. It is more sensitive than most direct sequencing techniques commonly used on patients with advanced colorectal cancer, for whom anti-epidermal growth factor receptor treatment is considered.

Optical Scanners for Melanoma Detection

CADTH/Canadian Agency for Drugs and Technologies in Health

Three hand-held optical scanner devices have been approved in Canada and the US that permit a deeper visualization into the skin to detect evidence of malignant change. The technology may help primary care providers and dermatologists determine whether a skin biopsy is indicated.

Genome-guided solid tumor diagnostics

Cleveland Clinic

Genome-guided solid tumour diagnostics is the ability to analyze the genes in a person's tumour and predict both the biology and the aggressiveness of the cancer, without surgery. These tests — which may be used for prostate, breast, and colorectal cancer — could potentially make treatment decisions more reliable, as well as reduce the number of unnecessary cancer treatments and the resulting side effects.

Real-time MRI adaptive radiation therapy: A ray of hope or hype?

ECRI Institute (May require free log-in)

ECRI's 2014 Top 10 Hospital C-Suite Watch List 2014 report provides an overview of a relatively new magnetic resonance imaging (MRI)-adaptive radiation therapy cleared by the FDA in 2012. The ViewRay is a real-time, low field strength, MRI-guided radiation system. Two other MRI-adaptive therapies, MRI simulation and adaptive fluorodeoxyglucose positron emission tomography imaging, are also highlighted. Ongoing clinical trials will provide evidence regarding whether these systems offer improved outcomes relative to standard radiation planning and treatment.

NanoKnife® system: Real or false hope for patients with cancer?

ECRI Institute (May require free log-in)

The NanoKnife uses an ablation technique that exposes target tissue to a precisely aimed, rapid, short-duration series of high-voltage electrical pulses. The pulses disrupt cellular membranes leading to cell death in the treatment zone. Unlike thermal ablation, the NanoKnife's irreversible electroporation (IRE) does not cause heat-sink effects. It leaves intact the acellular portion of tissues — such as blood vessels, ducts, and nerves — potentially allowing the ablation of tumours next to these structures without harming them.

HPV OncoTect™ E6, E7 mRNA assay to guide colposcopy referral in cervical cancer screening

HealthPACT

The Human Papillomavirus (HPV) OncoTect E6, E7 mRNA assay was developed for use as a primary screening tool to detect pre-cancerous changes or abnormalities in cervical cells before progression to cancer occurs. The in vitro diagnostic test is primarily used as a triage test to guide referrals for women with ambiguous or abnormal cytology test results.

SentiMag® and Sienna+® for sentinel lymph node localisation in breast cancer

HealthPACT

SentiMag is a hand-held, magnetic sensor probe used to detect Sienna+ superparamagnetic iron oxide (SPIO), a solution of iron oxide particles injected into the breast following anesthesia. Together, the magnetometer probe and SPIO guide the surgeon to sentinel lymph nodes that require removal.

The Oncentra Prostate™ v4.x for ultrasound-guided real-time HDR brachytherapy in men with localised prostate cancer

NICE/National Institute for Health and Clinical Excellence

The Oncentra Prostate system provides clinicians with 3-D ultrasound guidance to show where the applicators are inserted in the prostate gland, and offers a clear view of the surrounding organs at risk from the radiation dose. The v4.x version of the Oncentra Prostate system includes two new features: a radiotherapy treatment plan manager module that automates routine tasks during treatment planning, and the ability to contour in arbitrary planes. The overall intention is to reduce the number and complexity of steps in administering a radiotherapy treatment plan.

Aixplorer ShearWave Elastography for ultrasound imaging and assessing suspicious breast lesions

NICE/National Institute for Health and Clinical Excellence

The Aixplorer system's ShearWave Elastography mode provides non-invasive diagnostic imaging of the breast in secondary care breast assessment clinics. It adds qualitative and quantitative elasticity data to 2-D and 3-D ultrasound imaging to assess breast lesions and to detect cancer of the breast.

Cologuard® for colorectal cancer screening

NIHR/National Institute for Health Research Horizon Scanning Centre

Cologuard is a stool screening test for detecting colorectal cancer and advanced pre-malignant lesions through the presence of mutated or altered DNA known to be associated with colorectal neoplasia. Cologuard is intended for use in adults aged 50 or more, who are at average risk of colorectal cancer.

Non-marker based circulating tumour cell capture for solid malignant tumours

NIHR/National Institute for Health Research Horizon Scanning Centre

The report describes a number of systems designed to capture and identify circulating tumour cells from blood samples of patients with solid malignant tumours. Potential uses for this "liquid biopsy" include triage, diagnosis, prognosis, prediction of response to treatment, and monitoring of disease.

Minicare H-2000 remote monitoring system for patients undergoing chemotherapy

NIHR/National Institute for Health Research Horizon Scanning Centre

The Minicare H-2000 is a portable remote monitoring system that tracks white blood cell count, hemoglobin, temperature, and other symptoms associated with chemotherapy-related toxicities. It includes a small hematology analyzer, thermometer, and a telecommunication hub that provide clinicians with monitoring information to facilitate optimum timing decisions regarding next chemotherapy doses. Patients are able to self-test their blood at home, answer symptom assessment questions, and record their feedback on the telecommunication hub.

BreathLink™ for breast cancer screening

NIHR/National Institute for Health Research Horizon Scanning Centre

BreathLink is a mobile, point-of-care, breath testing system for the detection of breast cancer in women. It is also being used in UK to detect active pulmonary tuberculosis. The system detects and collects volatile organic compounds in human breath at picomolar concentrations with a surface acoustic wave detector. It then separates them by gas chromatography, analyzes and then sends the data to servers in a central laboratory.

The ViewRay™ System for MRI-guided radiotherapy

NIHR/National Institute for Health Research Horizon Scanning Centre

The ViewRay System combines magnetic resonance imaging (MRI) and radiation therapy delivery for the treatment of cancer. As well as allowing clinicians to accurately target the tumour and adjust to changes in the patient's anatomy, the MRI may also be used for pre-treatment imaging to predict the radiation dose to be delivered to the tumour.

SpaceOAR®perirectal spacing system for prostate cancer radiation

NIHR/National Institute for Health Research Horizon Scanning Centre

This spacing system reduces exposure of the rectum to radiation by injecting a hydrogel that temporarily pushes the rectal wall away from the prostate. It is minimally invasive, maintains the space for about three months, gradually liquefies, and is absorbed into and cleared from the body in six months.

SoftVue™ system for diagnostic breast imaging

NIHR/National Institute for Health Research Horizon Scanning Centre

The SoftVue system uses a ring of energy-converting sensors to conduct a non-invasive, non-compressing, non-ionizing breast examination. It is quick, radiation-free, and does not require the use of imaging agents. SoftVue uses ultrasound signals in a 360-degree range to look for the presence of suspicious masses, without having to compress the breast. It is not intended to replace mammography.

Terahertz intraoperative breast cancer probe

NIHR/National Institute for Health Research Horizon Scanning Centre

An imaging probe based on terahertz light was developed to help identify and differentiate between malignant and benign breast and lymph node tissue during breast cancer surgery.

Cardiovascular

Transcatheter implantable miniaturised leadless pacemakers

Agenzia nazionale per i servizi sanitari regionali (age.na.s.)

Miniaturized leadless pacemakers may be used on patients with arrhythmia who require single-chamber ventricular demand pacing. The devices are small in size, and weigh 2 grams or less. All pacing functions occur on a single chamber, require shorter procedure times (and therefore less hospital time), are easily repositioned and retrieved, can be done on an in-patient basis, and offer a lower risk of complications.

Portable Freedom Driver for in-home support of the Total Artificial Heart

AHRQ/Agency for Healthcare Research and Quality

This device will act as a bridge and increase quality of life for patients waiting for a donor heart transplant. The pneumatic device, designed as a backpack or shoulder bag, powers the SynCardia Systems temporary Total Artificial Heart (TAH-t) and will allow patients to remain at home rather than in a hospital setting.

Percutaneous left atrial appendage occlusion (Watchman) for prevention of atrial fibrillation-associated stroke

AHRQ/Agency for Healthcare Research and Quality

The Watchman device is intended to prevent strokes and reduce dependency on anticoagulant pharmacotherapies in patients with atrial fibrillation through the implanting of a permanent device in the left atrial appendage.

Subcutaneous Implantable Cardioverter-Defibrillator (S-ICD)® for treatment of life-threatening ventricular tachyarrhythmias

AHRQ/Agency for Healthcare Research and Quality

This minimally invasive system provides defibrillation by detecting cardiac activity through a single subcutaneous electrode. It is a treatment for individuals with life-threatening ventricular tachyarrhythmias who do not require a unipolar pacemaker.

Transcatheter aortic valve implantation (CoreValve) for treatment of severe aortic stenosis

AHRQ/Agency for Healthcare Research and Quality

The CoreValve System is a less invasive therapeutic option than open-heart surgery for patients with severe aortic stenosis at high risk of surgical complications. Transcatheter aortic valve implantation with the CoreValve System may be used for treating or delaying end-stage heart failure.

Transcatheter mitral valve repair (MitraClip) for treatment of mitral regurgitation

AHRQ/Agency for Healthcare Research and Quality

The MitraClip percutaneous mitral valve repair system provides a less invasive surgical option for patients with degenerative mitral regurgitation and uses catheter technology. It provides options for patients with mitral regurgitation by reducing the latter, among other things, thereby improving quality of life.

Zilver PTX drug-eluting peripheral stents to treat peripheral arterial disease of the femoropopliteal vessels

CADTH/Canadian Agency for Drugs and Technologies in Health

Used to treat symptomatic lesions of peripheral arterial disease in the (above-the-knee) superficial femoral and popliteal arteries, the Zilver PTX drug-eluting peripheral stent is a minimally invasive endovascular drug and device combination. The tubular stent incorporates a flexible, self-expanding mesh-metal nitinol platform with a polymer-free paclitaxel coating, and acts to hold open a narrow or blocked artery.

TMAO-ASSAY novel biomarker for the microbiome

Cleveland Clinic

Trimethylamine N-oxide (TMAO) is a microbial by-product of intestinal bacteria. It is being described as a powerful new biomarker that could act as a screening tool for predicting and identifying individuals at risk for heart attacks and strokes who may not have been identified through traditional blood tests and risk factors.

Mitral valve clip for degenerative mitral regurgitation

CNESH/Canadian Network for Environmental Scanning in Health

Medication or heart surgery for severe cases have been standard treatments for mitral regurgitation and repair. A new catheter-based approach, the MitraClip device, is a less invasive approach for high-risk patients with severe mitral regurgitation who are too ill or frail to undergo surgery. Performed under general anesthesia, a small incision is made in the groin area into which the MitraClip is inserted using a long, flexible, soft plastic tube (catheter), and then delivered into the heart through the femoral (leg) vein. The catheter is removed once the clip is positioned in the area of the mitral valve.

Remote ischemic conditioning (RIC) device to prevent cardiac ischemia and infarction in patients undergoing cardiac surgery

CNESH/Canadian Network for Environmental Scanning in Health

This device — when worn by patients suffering from severe cardiac ischemia prior to, during, or after cardiac surgery, or after a heart attack — has the potential to protect the heart from injury. The non-invasive automated cuff, worn on the arm or leg, activates the body's defensive mechanism against reperfusion injury by starting and stopping the blood flow through a series of inflations and deflations.

Self-expanding, drug-coated stent for the treatment of peripheral arterial disease

CNESH/Canadian Network for Environmental Scanning in Health

Coated with the drug paclitaxel, which deters the re-narrowing of the artery, the material of this stent is self-expanding and returns to its original shape once external pressures are removed. The stent can improve survival by 5.8 months, improves quality of live, and allows for lower toxicity.

The pressure is on: Is catheter-based renal denervation for treatment-resistant hypertension a new cash cow or more fuel for the fire?

ECRI Institute (May require free log-in)

The Symplicity Renal Denervation system is a catheter-based system that uses radiofrequency as a treatment for individuals suffering from uncontrolled or treatment-resistant hypertension. The catheter is inserted percutaneously to ablate the desired renal artery nerves. The treatment is intended to lower the risk and side effects of open surgery.

Drug-eluting stents with CD34 antibodies for the treatment of coronary artery disease

HealthPACT

The combination of CD34 antibodies with drug-eluting stents is intended for patients with artery disease who require an angioplasty and stent placement procedure, and could be a treatment option for patients with dual-antiplatelet therapy contraindications who previously would have been implanted with bare metal stent implants.

Catheter ablation for atrial fibrillation

HealthPACT

Catheter ablation is an invasive process whereby a catheter (thin, flexible wire) is passed through blood vessels to the heart to find abnormal electrical signals (or heart rhythm problems). Once found, the signals are mapped, a specific area of the atrial tissue is electrically isolated, and damaged (ablated) with the use of an alternating electrical current, laser, ultrasound, or microwave.

Implantable carotid sinus baroreflex device for the treatment of drug-resistant hypertension

HPACT/Health Policy Advisory Committee on Technology

This report is a follow-up to an earlier summary and looks at two new evaluations of implantable baroreflex stimulation for drug-resistant hypertension: the Rheos Baroreflex Hypertension Therapy System and the Barostim neo. The two baroreflex stimulation devices are reviewed for safety and effectiveness.

Extracorporeal shockwave myocardial revascularization (ESMR)

NECA H-SIGHT/National Evidence-based Healthcare Collaborating Agency

ESMR is a shock wave therapy applied to the myocardium to help improve symptoms experienced by patients with refractory cardiovascular disease for whom percutaneous coronary angioplasty and coronary artery bypass graft are not indicated, and where medication is the only treatment option.

The PressureWire fractional flow reserve measurement system for coronary artery disease

NICE/National Institute for Health and Care Excellence

Interventional cardiologists may use the PressureWire fractional flow reserve device to measure fractional flow reserve as part of diagnostic testing to assess the severity of stenoses in the coronary arteries and to use these results to inform decisions regarding whether to perform revascularization.

The RhinoChill intranasal cooling system for reducing temperature after cardiac arrest

NICE/National Institute for Health and Care Excellence

The RhinoChill system is designed to be used as an adjunct to systemic temperature control systems that maintain and reverse hypothermia. The system reduces temperature in patients through evaporation and direct conduction.

The hTEE system for transoesophageal echocardiographic monitoring of haemodynamic instability

NICE/National Institute for Health and Care Excellence

This hemodynamic transesophageal echocardiography (hTEE) system is for individuals requiring advanced hemodynamic management. It is intended for use in critical care settings including cardiac intensive care units and general intensive care units. The probe, which may remain inserted in the patient for 72 hours, visualizes the structures of the heart, and allows for the episodic assessment of cardiac filling and function using transesophageal echocardiography.

CoVa™ Monitoring System for congestive heart failure

NIHR/National Institute for Health Research Horizon Scanning Centre

Patients with congestive heart failure may benefit from the CoVa Monitoring System. The device is a non-invasive sensor worn around the neck. Using Bluetooth technology, the device allows clinicians to remotely monitor chest fluid levels and heart and respiration rates, and heart rate variability. Modifications to medications, exercise, or diet may then be made to help patients avoid further health deterioration and possible hospitalization.

Cydar imaging overlay system for endovascular surgery

NIHR/National Institute for Health Research Horizon Scanning Centre

The Cydar imaging overlay system is a software technology that will allow clinicians to match preoperative 3-D CT scans with live X-ray images. This image registration allows clinicians a greater perception of 3-D anatomy during X-ray guided surgery or interventions in the chest, abdomen, or pelvis.

OPTIMIZER system for chronic heart failure

NIHR/National Institute for Health Research Horizon Scanning Centre

The OPTIMIZER system's innovative feature is the delivery of non-excitatory electric pulses — cardiac contractility modulation (CCM) — that act as signals to the heart. It is designed to modulate the strength of contraction of the heart muscle rather than the rhythm. Health professionals may customize the CCM signals for adult patients with symptomatic heart failure due to left ventricular systolic dysfunction.

Nellix® EndoVascular Aneurysm Sealing System for abdominal aortic aneurysm repair

NIHR/National Institute for Health Research Horizon Scanning Centre

The Nelix EndoVascular Aneurysm Sealing system has the ability to seal an entire aneurismal sac for the endovascular repair of infrarenal abdominal aortic aneurysms. Using this system may result in the reduction of problems such as stent migration and lateral movement. It may also be easier to use and applied to a variety of aneurysm anatomies.

Mitralign percutaneous annuloplasty system for functional mitral regurgitation

NIHR/National Institute for Health Research Horizon Scanning Centre

The Mitralign annuloplasty system is a customizable solution for patients with mitral regurgitation who continue to experience symptoms of heart failure having failed medical therapy. Via surgical implants, the system reduces the circumference of the mitral valve opening and improves the seal when the valve closes.

Micra™ Transcatheter Pacing System for atrial fibrillation and bradycardia

NIHR/National Institute for Health Research Horizon Scanning Centre

The Micra Transcatheter Pacing System, unlike current pacemakers, has no lead in its electrodes. The self-contained chamber is attached to the epicardium of the heart via small prongs, and paces the heart by delivering electrical impulses to it. Using the Micra System, patients suffering from symptomatic bradycardia and atrial fibrillation can expect lower risk of complications, little to no visible lump or scar, and improved lifestyle and mobility.

Nanostim Leadless Pacemaker for atrial fibrillation and bradycardia

NIHR/National Institute for Health Research Horizon Scanning Centre

Nanostim is a fully retrievable, single chamber, rate responsive pacemaker for patients with symptomatic bradycardia and atrial fibrillation. It has no separate pulse generator and contains no lead, unlike pacemaker counterparts, and the battery may last nine years at 100% pacing or more than 13 years at 50% pacing.

Wireless Cardiac Stimulation System for chronic heart failure

NIHR/National Institute for Health Research Horizon Scanning Centre

The Wireless Cardiac Stimulation System for the left ventricle is a leadless pacing system that works with single or dual chamber conventional pacemakers and/or defibrillators. For use in patients with chronic heart failure who require cardiac resynchronization therapy, it comprises a pulse generator implanted subcutaneously near the heart, and wireless transmissions of ultrasound to a receiver electrode implanted in the heart's left ventricle. The ultrasound energy is then converted by the receiver electrode to deliver electrical stimulation to the heart, enough to synchronize the left ventricle with the right.

Reducer stent for refractory angina

NIHR/National Institute for Health Research Horizon Scanning Centre

The Neovasc Coronary Sinus Reducer is an expandable stainless steel balloon stent. The hourglass shape allows for a controlled and permanent narrowing of the coronary sinus. The device creates outflow restriction, resulting in back pressure, which drives blood to areas that may not be receiving enough.

Dermatology, Wounds, and Injuries

Oxyzyme and Iodozyme 2-layer hydrogel wound dressings with iodine for treating chronic wounds

NICE/National Institute for Health and Clinical Excellence

Oxyzyme and Iodozyme are two-layer hydrogel wound dressings intended for use on moderately exuding, non-exuding, or dry wounds under the supervision of a healthcare professional. The two-step process involves releasing iodine and oxygen onto the wound surface.

The Versajet II hydrosurgery system for surgical debridement of acute and chronic wounds and burns

NICE/National Institute for Health and Clinical Excellence

The Versajet II hydrosurgery system, intended for use in the operating theatre, pressurizes water or saline to create a very fine, localized jet of fluid, which is shot over a wound. The speed of the jet creates a vacuum that lifts non-viable tissue and carries it into a collection canister.

CelluTome™ epidermal harvesting system for autologous skin grafting

NIHR/National Institute for Health Research Horizon Scanning Centre

CelluTome is intended to help patients with chronic or acute wounds, such as venous leg ulcers, pressure sores, and skin cancer. It harvests thin sections of epidermal skin for autologous skin grafting. The process takes less than an hour and does not require anesthesia.

Ear, Nose, and Throat

Balloon sinuplasty for chronic rhinosinusitis — update

HealthPACT

Balloon sinus dilation is a minimally invasive tool used to treat chronic rhinosinusitis. The process is used to dilate obstructed sinus openings.

Acoustic CR Neuromodulation for adults with chronic subjective tonal tinnitus

NICE/National Institute for Health and Care Excellence

The Acoustic CR Neuromodulation device is a matchbox-sized neurostimulator device that may be programmed by an audiologist. Its purpose is to reduce tinnitus symptoms in adults with chronic tonal tinnitus by applying auditory stimuli, programmed to match the tinnitus frequency.

Endocrine, Nutrition, and Metabolic

Artificial pancreas device systems (MiniMed 530G with Enlite Low-Glucose Suspend System) for treatment of diabetes

AHRQ/Agency for Healthcare Research and Quality

This system mimics pancreatic activity for patients with diabetes. It is a first-generation, closed-loop artificial pancreas device system that combines the technologies of an external or implantable insulin pump, a glucose sensor with advanced-algorithm software, and a glucose monitor.

ITCA 650 (exenatide continuous subcutaneous delivery) for treatment of type 2 diabetes

AHRQ/Agency for Healthcare Research and Quality

The ITCA 650 is a miniature osmotic pump that delivers a controlled rate steady dose of exanatide subcutaneously as part of the DUROS delivery technology.

Metabolic (bariatric) surgery for resolution of type 2 diabetes in mildly obese and nonobese patients

AHRQ/Agency for Healthcare Research and Quality

The goal of metabolic bariatric surgery is to help patients who have been unable to achieve adequate weight loss control with first- or second-line therapy. Study results showing metabolic improvements in diabetes patients with BMI of < 35 kg/m2 may indicate the desirability of loosening patient eligibility criteria for surgery away from the focus on (and current guidelines for) patients with a BMI of > 35 kg/m2 (with comorbidities) or morbidly obese patients with a BMI of > 40kg/m2.

Intragastric dual balloon (ReShape Duo)

AHRQ/Agency for Healthcare Research and Quality

The ReShape Duo balloon is a non-surgical weight loss aid, which is delivered to a patient's stomach via an endoscope. When inflated with equal volumes of saline, the two balloons better conform to the stomach's natural curvature causing the patient to feel fuller on less food. The design of the dual balloon minimizes the risk of balloon migration, and reduces the risk of obstruction of the stomach.

Online programs for weight loss

HealthPACT

Online weight loss programs not only help individuals lose weight, they also serve as an alternative to community-based initiatives for isolated populations. They may also become components of surgical, face-to-face, or online tool multi-modal strategies.

The Space GlucoseControl system for managing blood-glucose in critically ill patients in intensive care

NICE/National Institute for Health and Care Excellence

This device is a decision support system that combines information from nutrition pumps with manually entered blood-glucose measurements, administered insulin dose, and patient-specific data to control blood-glucose levels in critically ill, intensive care patients. It includes two nutrition infusion pumps and one insulin pump, and an insulin pump proprietary computer algorithm (the enhanced model predictive control or eMPC algorithm), which calculates the amount of insulin needed for the patient.

Kangaroo™ feeding tube with IRIS technology for aid in nasogastric tube placement

NIHR/National Institute for Health Research Horizon Scanning Centre

The Kangaroo feeding tube is designed for single use, and is disposable. It uses an integrated, real-time imaging system (IRIS) that helps clinicians identify anatomical markers to ensure tubes are placed correctly.

Oxford Medical Diagnostics Breath Ketone Device for monitoring type 1 diabetes

NIHR/National Institute for Health Research Horizon Scanning Centre

The Oxford Medical Diagnostics Breath Ketone Device was developed as an alternative to the finger prick test to monitor blood ketone levels in adults and children with type 1 diabetes mellitus. The device is designed to analyze and convert the content of a patient's breath to an equivalent blood ketone measurement.

ClearPath DS-120® for the detection and monitoring of diabetes

NIHR/National Institute for Health Research Horizon Scanning Centre

This device is a non-invasive ophthalmic test for the detection of diabetes. Clinicians may use the device to identify patients who have high levels of fluorescence ratios, and signs of premature cataract formation.

Obalon balloon for obesity

NIHR/National Institute for Health Research Horizon Scanning Centre

The Obalon balloon is a gas-filled balloon, enclosed in a gelatin capsule the size of a large pill, attached to a micro-catheter. Once the pill is dissolved, the balloon is inflated with nitrogen gas via the micro-catheter, and is positioned to sit at the top of the stomach. A non-surgical alternative to current bariatric treatments, it does not require sedation, and can be removed through an endoscopic procedure.

Eye and Vision

Corneal collagen cross-linking (VibeX/KXL System) for treatment of progressive keratoconus

AHRQ/Agency for Healthcare Research and Quality

Corneal collagen cross-linking combines two processes: Firstly, a riboflavin photosensitizing solution is applied to the cornea. Secondly, a portable, battery-powered touch-screen monitor and an articulating arm are used to focus ultraviolet A light to strengthen the corneal structure. It is performed while the patient is awake in an outpatient setting using topical anesthesia for pain management.

Pediatric Vision Scanner screening for strabismus and amblyopia

AHRQ/Agency for Healthcare Research and Quality

The Pediatric Vision Scanner uses proprietary technology called retinal birefringence scanning to measure polarized light reflection by the retina, and can distinguish between light reflected by the fovea and light reflected by the paracentral retina. The device can automatically detect the presence of amblyopia (lazy eye), strabismus (misaligned eyes), or other serious eye conditions.

Retinal prosthesis system (Argus II) for treatment of retinitis pigmentosa (RP)

AHRQ/Agency for Healthcare Research and Quality

Argus II is an implanted epiretinal prosthesis device used for treating adults with advanced RP. Its components include both implanted (retinal prosthesis) and external (video-enabled glasses, and a video processing unit worn at the waist or carried) equipment. The video unit transforms images from a miniature camera into electronic data that is wirelessly transmitted to the retinal prosthesis, inducing visual perception.

Femtosecond laser-assisted cataract surgery (FLACS)

CADTH/Canadian Agency for Drugs and Technologies in Health

FLACS involves the use of laser energy to create precise incisions previously performed manually. The use of FLACS also softens the lens and reduces the amount of ultrasound energy applied to the eye.

Retinal prosthesis

Cleveland Clinic

This technology combines retinal prosthesis, external video camera-enabled glasses, and a video processing unit. The glasses send images to the video unit, which transforms them into electronic data that is wirelessly transmitted to the retinal prosthesis. Here, the data are transformed into small, electrical impulses that stimulate the retina's remaining inner neurons, resulting in corresponding perceptions of light and images. People then learn to interpret these patterns of light, thereby regaining some visual function.

Retinal implant to improve vision in patients with retinitis pigmentosa

CNESH/Canadian Network for Environmental Scanning in Health

This prosthetic implant has the potential to restore some level of vision in patients with retinitis pigmentosa. Acting like a "bionic eye," it can improve independence, performance in distinguishing motion and perception of colours, and mobility in RP patients and those with severe sight impairment.

Femtosecond lasers for cataract surgery (update to 2012 report)

HealthPACT

The use of the femtosecond laser, combined with an imaging and alignment system, facilitates a more precise removal of the cataractous lens with reduced adverse events compared to conventional phacoemulsification procedure.

The SENSIMED Triggerfish contact lens sensor for continuous 24-hour recording of ocular dimensional changes in people with or at risk of developing glaucoma

NICE/National Institute for Health and Clinical Excellence

The SENSIMED Triggerfish is intended to help people who have glaucoma, are at risk of glaucoma, or have suspected high intraocular pressure. It is a minimally invasive medical device designed to provide a continuous 24-hour recording of changes in the shape of the eye, and records patterns of intraocular pressure-related changes in a 24-hour period.

myVisionTrack® for monitoring degenerative eye disease

NIHR/National Institute for Health Research Horizon Scanning Centre

This home vision monitoring app may be used by patients with hand-held electronic devices such as smart phones or tablets. The process takes approximately ten minutes and uses a proprietary shape-discrimination hyperacuity test. Once completed, the data are uploaded, stored, compared with prior test results, and, if significant changes are detected, the patient's doctor is alerted.

OkuStim® System for the treatment of retinitis pigmentosa

NIHR/National Institute for Health Research Horizon Scanning Centre

The OkuStim transcorneal electrical stimulation system is a single-use product developed for patients with retinitis pigmentosa. The device delivers painless, weak electrical impulses to the retina as a way of reducing the degeneration of photoreceptor cells and prolonging vision in adults with retinitis pigmentosa.

Pediatric Vision Scanner for the detection of eye conditions in children

NIHR/National Institute for Health Research Horizon Scanning Centre

Pediatric vision scanners may be used to identify eye conditions, such as lazy eye and misaligned eyes, in children between the ages of two and seven years. The device is hand-held or easily mounted on a table. It is able to scan the retinas of both eyes in three seconds, and provides instant results indicating a pass or referral.

LipiView® and LipiFlow® for dry eye management

NIHR/National Institute for Health Research Horizon Scanning Centre

The LipiView Ocular Surface Interferometer and LipiFlow Thermal Pulsation System are used in the diagnosis and treatment of dry eyes in adults. The LipiView Ocular Surface Interferometer has the potential to reduce the number of dry-eyes treatments, and is the only device that can quantify the absolute thickness of the tear film lipid layer.

Gastrointestinal and Liver

Fecal microbiota transplantation

Cleveland Clinic

Gastroenterologists use fecal microbiota transplantation, the use of human stool transplants, to treat *C. difficile* in patients for whom drug therapy is ineffective. This form of bacteriotherapy requires a colonoscopy or enema to transfer a liquid suspension made from a healthy donor's fecal matter into a sick person's colon in order to reconstitute bacterial balance.

Fecal microbiota transplantation — update

HealthPACT

This report updates a 2011 HealthPACT Technology Brief. Fecal microbiota transplantation is a process in which a donor stool is added to a liquid suspension of non-bacteriostatic saline, and then introduced into the upper gastrointestinal tract. The treatment is intended to restore the diversity of the normal flora of the colon for *C. difficile* patients who do not respond to standard drug therapy.

The PolySoft hernia patch used with the ONSTEP technique to treat inguinal hernias

NICE/National Institute for Health and Care Excellence

The PolySoft hernia patch is a self-expanding, non-absorbable sterile mesh used for the repair of inguinal (groin) hernias. It is used with the ONSTEP technique in general operating theatres.

Check2C™ for inflammatory bowel disease

NIHR/National Institute for Health Research Horizon Scanning Centre

Check2C™ is a non-invasive diagnostic test and analyzer that may be used to distinguish patients suffering from inflammatory bowel disease from those with irritable bowel syndrome. In addition, it can monitor existing inflammatory bowel disease cases, and assess therapy effectiveness.

LiverMultiScan™ multiparametric MRI for liver disease

NIHR/National Institute for Health Research Horizon Scanning Centre

LiverMultiScan is multiparametric magnetic resonance imaging (MRI) software that enables a standard MRI system to assess liver tissue in a single fifteen-minute scan. It is non-invasive, as patients do not require the injection of a contrast media. The LiverMultiScan software may help to identify patients with asymptomatic liver disease such as hemochromatosis and early liver fibrosis.

Gynecology

Lyrette™ for stress urinary incontinence

NIHR/National Institute for Health Research Horizon Scanning Centre

Lyrette, a transurethral device, is intended to induce localized thermal collagen remodelling for women with stress urinary incontinence. The process entails the use of low-power, non-ablative radiofrequency to deliver controlled heating to submucosal sites in the bladder and urethra.

Infectious Disease and Infection Control

Antimicrobial copper surfaces in the intensive care unit for prevention of hospital-acquired infections

AHRQ/Agency for Healthcare Research and Quality

Antimicrobial copper touch surfaces can be incorporated into a wide variety of components, including bedrails, door handles, grab bars, intravenous poles, food trays and carts, sinks, faucets, computer keyboards, equipment adjustment knobs, and face plates. Copper's antimicrobial properties do not require re-coating, and will not wear off or wash away.

Retrofitted private intensive care rooms to reduce hospital-acquired infections

AHRQ/Agency for Healthcare Research and Quality

Hospital-acquired infections may be reduced significantly by converting traditional multiple patient intensive care units (ICUs) to single-patient rooms. An additional benefit associated with private rooms includes reduced patient stress by providing better accommodation for family members staying with patients in the ICU.

Xpert MTB/RIF test for simultaneous detection and drug-sensitivity testing of *Mycobacterium (M.) tuberculosis*

AHRQ/Agency for Healthcare Research and Quality

This test is run on the diagnostic company Cepheid's GeneXpert real-time, polymerase chain reaction system. It has the potential to address the need for a rapid diagnosis of *M. tuberculosis* and preliminary treatment. In addition, it can determine whether the identified bacterium is susceptible to the first-line tuberculosis drug rifampicin.

Antimicrobial copper surfaces to reduce hospital-acquired infections in intensive care settings

CNESH/Canadian Network for Environmental Scanning in Health

Touch surfaces made of antimicrobial copper may be applied to a variety of surfaces such as food trays and carts, sinks, faucets, shower and lavatory components, bed sheets and bed rails, work surfaces, intravenous poles, and door handles to reduce bacterial contamination. Copper's antimicrobial properties do not wear off and remain consistent for the product's lifetime.

Copper surfaces: How many are needed in a hospital room to prevent hospital-acquired infections?

ECRI Institute (May require free log-in)

The only hospital touch surface with a US Environmental Protection Agency public health registration, antimicrobial copper can be incorporated into a variety of components for use in hospital settings such as patient rooms and intensive care units. Ongoing antimicrobial copper trials will help determine the optimum number of copper-fitted items to be used in a room, as well as costs and savings associated with their use.

RAPIDEC® CARBA NP test for confirmation or detection of Carbapenemase producing bacteria

NIHR/National Institute for Health Research Horizon Scanning Centre

Carbapenemase producing bacteria are a class of antibiotic-resistant bacteria, and a main cause of hospital-acquired infection. The makers of RAPIDEC CARBA NP claim their test will speed the detection of resistance to Carbapenem — an important element for improving therapy decisions and for implementing timely control measures.

Kidney and Urology

RenalGuard for prevention of contrast-induced nephropathy

AHRQ/Agency for Healthcare Research and Quality

The RenalGuard System is intended to minimize the risk of over- or under-hydration associated with contrast-induced nephropathy. The system consists of a console, a urine collection set, and a set for infusion of a sterile solution. The urine collection set connects to a patient's Foley catheter and the infusion set connects to a standard intravenous catheter. The console measures the urine volume in the collection set and uses the hydration infusion set to match the patient's urine output.

The NGAL Test for early diagnosis of acute kidney injury

NICE/National Institute for Health and Clinical Excellence

The Neutrophil Gelatinase-Associated Lipocalin (NGAL) Test has been identified as one of the newer biomarkers for detecting acute kidney disease. The test determines the level of NGAL found in human urine and blood, and may be included as part of standard clinical laboratory tests.

The NxStage System One NX1000-1 home haemodialysis device for renal replacement therapy in chronic kidney disease

NICE/National Institute for Health and Clinical Excellence

The NxStage System One is a hemodialysis system for renal replacement therapy for people who have been diagnosed with stage V chronic kidney disease. It may be used at home or while travelling. The system is smaller than conventional home systems. It is able to use tap water that has been purified using the PureFlow SL Dialysate Preparation system, or while travelling, using pre-packaged, pre-mixed sterile bags of PureFlow dialysis fluid.

Autologous muscle derived cells-urethral sphincter repair (AMDC-USR) for stress urinary incontinence

NIHR/National Institute for Health Research Horizon Scanning Centre

Autologous muscle derived cells (AMDCs)-urethral sphincter repair is a stem cell-based therapy for use in the treatment of stress urinary incontinence in women. AMDCs are isolated from biopsies of skeletal muscle, expanded ex vivo, and injected into the urethral sphincter in order to improve function.

Mental Health

Community-based opioid overdose prevention program (Project Lazarus)

AHRQ/Agency for Healthcare Research and Quality

Project Lazarus is a coordinated, community-based prevention program model designed to address the problem of opioid overdose. The program seeks to increase collaboration between existing overdose prevention programs including such resources as treatment facilities, health departments, primary care practices, hospitals, and law enforcement initiatives, which tend to operate independently of one another.

Video game for cognitive behavior therapy for adolescents with major depressive disorder

AHRQ/Agency for Healthcare Research and Quality

SPARX is a video game aimed at adolescents with early-onset major depressive disorder as an outpatient intervention supported by regular clinician monitoring. The self-help game is intended to help patients learn appropriate cognitive behavioural therapy-based coping strategies to address negative thoughts and feelings.

Pesky gNATS cognitive behaviour therapy for children with anxiety and low mood

NIHR/National Institute for Health Research Horizon Scanning Centre

Pesky gNATs is a smart phone gaming app that uses cognitive behavioural therapy (CBT) to help treat children nine years of age and older suffering from anxiety or low mood. It has been developed to be used over the course of six to eight in-sessions under the guidance of a mental health professional. The app could help make CBT more accessible to children with persistent mental health issues.

Nervous System and Neurology

Serum Biomarkers to Diagnose Mild Traumatic Brain Injury in Adults

CADTH/Canadian Agency for Drugs and Technologies in Health

A number of biomarkers have been developed, both alone and in combination, to aid in the diagnosis of mild, moderate, and severe traumatic brain injury. They include: S100B, S-100B and neuron-specific enolase, S-100B and glial fibrillary acidic protein, and S100-B and apolipoprotein AI.

MIETHKE proSA® adjustable gravitational shunt for hydrocephalus

HealthPACT

This shunt, for use in pediatric and adult patients with hydrocephalus, is the first adjustable gravitational valve that allows surgeons to provide different opening pressures for supine and standing positions. Post-implantation adjustments can be made by a clinician using hand-held adjustment tools, and confirmed by some means of imaging.

Strokefinder MD100 microwave tomography for early diagnosis of stroke type

NIHR/National Institute for Health Research Horizon Scanning Centre

The Strokefinder MD100 is designed to screen patients for the presence of intracranial bleeding in pre-hospital (ambulance), and hospital settings in less than ten minutes. It is compact, portable, uses microwave tomography, and is able to differentiate between ischemic and hemorrhagic strokes in patients.

Orthopedics

Implantation of polyurethane scaffold for the treatment of partial meniscal lesions

NECA H-SIGHT/National Evidence-based Healthcare Collaborating Agency

This process is minimally invasive, and facilitates natural meniscal tissue regeneration and repair. It involves implanting a polyurethane scaffold to remove the ruptured or damaged area, and transplanting a synthetic material to promote vessel ingrowth. Advantages over current allograft (tissue donor) treatment include less dependency on donor tissue availability and less risk of disease transmission.

The OSCAR 3 ultrasonic arthroplasty revision instrument for removing bone cement during prosthetic joint revision

NICE/National Institute for Health and Clinical Excellence

The OSCAR 3 is a portable, two-channel generator and control unit that uses ultrasound to soften and remove polymethyl methacrylate bone cement used for holding implants during large joint revision procedures, and then removes the softened cement using specially designed probes.

Palliative and Long-Term Care

Macy catheter for rectal drug administration

NIHR/National Institute for Health and Clinical Excellence Horizon Scanning Centre

The Macy catheter is intended to be used when intravenous access or an oral route is not possible or is compromised. It is the first disposable device to permit repeated delivery of medication to the rectum. The Macy may allow patients with serious or terminal health issues to remain in their homes and avoid the discomfort and expense of hospitalization.

Pediatrics

Tympanostomy Tube Insertion System for Children with Otitis Media

CADTH/Canadian Agency for Drugs and Technologies in Health

The Tympanostomy Tube Insertion System provides an alternative to conventional surgery to treat children suffering from otitis media (middle ear infections). The system integrates the delivery of a local anesthetic and deployment of a tube into the ear in a single motion. It may be used in an outpatient setting.

Tympanostomy tube insertion delivery system for children with chronic ear infections

CNESH/Canadian Network for Environmental Scanning in Health

This tube-delivery system was developed as an alternative to conventional surgery. The device combines the administration of a local anesthetic with tube delivery. Ten minutes after administering the anesthetic, the system makes a rapid incision in the eardrum and deploys a tube into the ear in a single, automated motion.

SafePlace for the peripheral insertion of central venous catheters in infants

NIHR/National Institute for Health and Clinical Excellence Horizon Scanning Centre

SafePlace has been designed to help clinicians accurately position peripherally inserted central venous catheters in premature neonates and infants aged zero to one year. The device detects an electrocardiogram (ECG) signal from the tip of the catheter during insertion, and then provides signals compatible with a standard patient monitor. The shape of the waveform changes as the catheter approaches the heart. The device is intended to reduce the need for infants to be exposed to X-rays and contrast media.

Rehabilitation

Intraoral tongue-drive computerized system to maneuver electric wheelchairs

AHRQ/Agency for Healthcare Research and Quality

The Tongue Drive System (TDS) is a computerized, assistive, neurotechnology that can be fully integrated with a powered wheelchair. The movement of a patient's tongue, sensed through an affixed magnetic stud, is picked up by a headset located near the cheek. TDS software is used to transmit wireless signals to a device such as a smart phone, which then communicates with the powered wheelchair.

Roboman, arise: Should you offer wearable powered exoskeleton rehabilitation for individuals with paraplegia?

ECRI Institute

Wearable powered exoskeletons may be used for both functional improvement and locomotion for individuals with spinal cord injury as part of rehabilitation or as an at-home assistive device.

Sheffield Support Snood for neurodegenerative conditions

NIHR/National Institute for Health Research Horizon Scanning Centre

The Sheffield consists of a lightweight support snood that fits the neck of the user and can be worn under clothing. Resembling a neck brace, it acts as a scaffold for support structures that can be added or removed, depending on a user's need. It is designed to allow head movement and facilitate eye contact, speech, eating, swallowing, and drinking for patients with motor neurone disease and other neurodegenerative conditions that cause neck muscle weakness.

Respiratory

Portable warm blood perfusion system (Organ Care System) for lung transplantation

AHRQ/Agency for Healthcare Research and Quality

The Organ Care System Lung is a portable, ex vivo, lung perfusion system developed to assess, preserve, and improve donor lungs. Potential advantages over traditional organ preservation methods include immediate and sustained lung recruitment at the donor site, less time for the transported organ to be maintained in a cold ischemic state, continuous quality assessment of the organ, and the possibility of increasing the time an organ can be maintained outside the body prior to transplantation.

Ex vivo lung perfusion device to preserve and assess donor lungs prior to transplant

CNESH/Canadian Network for Environmental Scanning in Health

This technology is intended to preserve and possibly improve the condition of routine donor lungs by using warm, oxygenated blood to keep donor lungs functioning outside the body while in transport from donor to recipient. The system provides a supply of oxygen and nutrients to the lungs, and a wireless monitor allows clinicians to monitor and assess lung function until transplantation.

Bronchial Thermoplasty

NECA H-SIGHT/National Evidence-based Healthcare Collaborating Agency

Bronchial thermoplasty is an alternative therapy for patients with severe persistent asthma. The process uses radiofrequency thermo-energy to shorten or remove muscle tissue in the thickened airway wall.

The Airsonett temperature-controlled laminar airflow device for persistent allergic asthma

NICE/National Institute for Health and Clinical Excellence

This device is for individuals whose asthma is severe, persistent, and is affected by exposure to airborne allergens. The Airsonett is for use while the patient sleeps, providing cooled, filtered air. It is an add-on to established treatments.

InterVapor® System for the treatment of severe emphysema

NIHR/National Institute for Health Research Horizon Scanning Centre

The InterVapor System is an endoscopic lung volume reduction procedure that uses heated water vapour to treat the most diseased lung segments. It works by inducing a localized inflammatory response, which enables a natural healing process of scarring and tissue remodelling, while preserving the still-functioning segments.

AeriSeal® System for advanced emphysema

NIHR/National Institute for Health Research Horizon Scanning Centre

The AeriSeal is a bioabsorbable sealant designed to reduce hyperinflation and improve pulmonary function in patients with advanced emphysema by directing an expandable liquid foam into the peripheral airways of the most damaged areas of the patient's lungs.

Other

Emergency departments just for the elderly patients: Fad or wise planning?

ECRI Institute (May require free log-in)

As the population ages, it is expected that, between 2010 and 2050, the number of adults aged 65 years and more will double from present numbers. Emergency departments (EDs) should begin planning how to accommodate for the unique needs and increased numbers of geriatric patients. Needs assessments include infrastructure and the structural redesign of EDs; and new protocols and care processes for ED services for an elderly population, including training ED staff in geriatric care.

Inside out: Will intelligent pills magically improve medication adherence and prevent readmissions?

ECRI Institute (May require free log-in)

The Proteus Digital Health Feedback System is a medication adherence monitoring system that aggregates data on a patient's medication use in order to optimize dosages. It is comprised of three main components: an ingestible sensor embedded in the medication, a personal monitor, and a smart phone or Web-enabled communication device.

Big data: Does it signify big decisions?

ECRI Institute (May require free log-in)

Big data in health care is still in a relatively early state of development. The digitization of electronic health records, improved data sharing, and the guidance of organizations experienced in gathering, cleaning and analyzing data will be needed to establish the use of big data in health care. If successfully implemented, benefits will include increases in effectiveness and efficiency in the areas of patient outcomes, facility operations, and patient flow for services.

New and emerging organ perfusion systems

HealthPACT

Perfusion systems have the potential to increase the number of organs available for transplantation. Newer, oxygenated normothermic (normal body temperature) perfusion systems may restore cellular function and metabolism to organs more quickly than hypothermic systems. Additionally, perfusion systems provide an opportunity to assess the viability of the donated organ through the presence or concentration of biomarkers in the perfusate. Perfusion systems are being developed for specific organs such as the lung, heart, and liver.

Remote presence robots in telemedicine

HealthPACT

Remote presence (RP) robots are a complementary technology intended for patients who do not have in-person access to a clinician for a variety of reasons including their location, clinician shortages, or on-call demands. The RP robots are semi-autonomous and Web-enabled, and allow for real-time, two-way, audiovisual telecommunications.

AccuVein AV400 for vein visualisation

NICE/National Institute for Health and Clinical Excellence

The AccuVein AV400 facilitates the detection of superficial veins by using an infrared laser light, which allows images of the veins to be projected back onto the skin surface. The device improves visualization in finding veins for venipuncture and cannulation.

SensiumVitals® vital signs monitoring patch

NIHR/National Institute for Health Research Horizon Scanning Centre

A key feature of the SensiumVitals patch is the freedom it allows patients in moving about within a hospital setting. The patch monitors vital signs every two minutes, sends them to a monitoring station and, if signs deteriorate, sends notifications to Web-enabled devices so that timely intervention can be provided.

List of Horizon Scan Websites Reviewed

Agenzia nazionale per i servizi sanitari regionali (age.na.s.)
http://www.agenas.it/

AHRQ/Agency for Healthcare Research and Quality Health Care Horizon Scanning System
http://effectivehealthcare.ahrq.gov/

CADTH/Horizon Scanning
www.cadth.ca/horizon-scanning

Cleveland Clinic
http://my.clevelandclinic.org/

CNESH/Canadian Network for Environmental Scanning in Health
http://www.cadth.ca/en/products/environmental-scanning/overview/cnesh

ECRI Institute
https://www.ecri.org/Pages/default.aspx

EuroScan
http://euroscan.org.uk/

HealthPACT
http://www.health.qld.gov.au/healthpact/

NECA H-SIGHT/National Evidence-based Healthcare Collaborating Agency
http://www.neca.re.kr/hsight/eng/about/about_us_01.jsp

NICE/National Institute for Health and Clinical Excellence Medtech Innovation Briefings
http://www.nice.org.uk/about/what-we-do/our-programmes/nice-advice/medtech-innovation-briefings

NIHR/National Institute for Health Research Horizon Scanning Centre
www.hsc.nihr.ac.uk

Horizon scanning websites last reviewed on June 30, 2015.

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