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**NEWS RELEASE**

## Innovations in Plastics Drive Past, Present and Future Medical Care

**Toronto, ON, March 27, 2013** - Ever stop and look around during a doctor or hospital visit? Even a cursory look reveals dozens of medical instruments and hygienic tools made with plastics: protective examination gloves, sterile bandages and gauze, syringes that help prevent infection, IV tubes and bags that guard against contamination—all made possible by plastics.

Frankly, plastics so pervade the medical field that we often take them for granted. But recent advances could lead to even more innovations that could really get our attention … and help people all around the world. Here are some examples:

Plastic Heart: Plastic tubes act like heart valves to let blood in and out of two plastic ventricles in an artificial heart that helps extend the lives of patients waiting for transplants. Implanted in more than 1,000 patients, the plastic heart has extended lives by more than 270 years, according to its manufacturer. Regulators now are reviewing an accompanying mobile power supply carried in a backpack, so suitable patients could leave the hospital and live at home.

Lifesaving Plastic Foam: A novel use of polyurethane foam is being explored to stabilize trauma patients with internal injuries on the battlefield. Governments are studying the use of polyurethane foam to fill injured body cavities following severe internal injury from combat. The foam expands inside the body, conforming to the shape of injured tissue and reducing blood loss, before the surgeon removes the foam in one piece. Based on recent tests, researchers estimate that this technology could significantly boost post-injury survival rates.

Polycarbonate Medical Devices: An extremely tough, clear plastic, polycarbonate now is being used to make transparent surgical tools, such as cannulas (small tubes inserted into the body) that enable arthroscopic surgery. Since polycarbonate is clear, surgeons gain better visibility of sutures and surgical knots during the procedure.

Vaccination Patches: Researchers are developing a plastic skin patch that could replace many painful injections. The patch contains plastic “micro-needles” that dissolve into the skin, painlessly delivering vaccinations for a variety of diseases, including the flu. Patients might even be able to administer the vaccine themselves.

Resorbable Heart Stent: A plastic heart stent can open a clogged artery to restore blood flow to the heart—and then slowly dissolve into the body. This resorbable plastic could eliminate the need for another invasive procedure to remove the stent, as well as reduce the likelihood of blood clots and scarring.

3-D Body Part Printing: Researchers are using a layered assembly manufacturing technique—called “3-D printing”—to create medical devices and implants using plastics. For example, a type of polyester plastic (polycaprolactone) and living cells are combined into a material used to make 3-D printed implants to replace human ear cartilage. The combination of materials makes the body more likely to respond favourably to the implant, according to researchers.

Bacteria-Resistant Plastics: Several newly discovered plastics might contribute to reduced infections. These plastics have “nonstick” surfaces that bacteria aren’t attracted to, which could help prevent contamination from bacteria-laden “biofilms.” The plastics could be used to make catheters or medical equipment to help ward off preventable disease.

Self-healing Prosthetics: Researchers are developing a new plastic “skin” that recognizes when it’s been damaged and responds by healing itself. The plastic skin mimics the flexibility and sensitivity of human skin—it becomes electrically conducive by adding a bit of nickel. The plastic skin can restore its mechanical and electrical properties after being cut … and repeat that cycle over and over again. Among other applications, researchers hope the self-healing plastic may be used to manufacture lifelike prosthetic limbs that heal themselves after injury—much the way human skin does.

Printing human ears … delivering painless vaccines … reducing blood loss on the battlefield … see-through medical devices. Plastics are helping drive innovations in medical care that were only dreams a few years ago.

Today's intelligent plastics are vital to the modern world. These materials enhance our lifestyles, our economy and the environment.  For more information visit www.intelligentplastics.ca.

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The Canadian Plastics Industry Association is the national voice of Canada’s plastics industry, representing the interests of processors, material suppliers, equipment manufacturers and brand owners across the country.

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