



# Registered Respiratory Therapy and the Hyperbaric Medicine Unit at Toronto General Hospital

By Barb Saunders

**R**ay Janisse is a Registered Respiratory Therapist, Certified Hyperbaric Technologist and Practice Leader for the Hyperbaric Medicine Unit at Toronto General Hospital (TGH), the only hospital in Toronto that has a hyperbaric chamber.

"The Hyperbaric Medicine Unit (HMU) at TGH, in many ways, functions like a mini ICU. I am able to perform many of the procedures that I would in the ICU. I work with IVs, art-lines and provide ventilation for intubated patients while inside the Chamber. Having the added skills of a Certified Hyperbaric Technologist (CHT) allows me to provide a safe treatment for the patients and staff inside the chamber as a senior operator," says Ray.

The primary focus of the chamber is to provide emergency hyperbaric treatment for patients, including carbon monoxide poisoning and decompression illness or "the bends", which divers can get if they rise too quickly to the surface of the water, air gas embolism, necrotizing infection and compromised skin flaps or grafts.

Toronto General Hospital receives calls from both patients and physicians. Once a referral from a physician is received, the patients' needs are assessed and if they qualify for HBOT, the treatment plan is initiated.

"I've seen people who have been through a variety of med-

ical and/or surgical treatments come in, upset because they are at the end of the line, with nothing else to try. In the case of a diabetic foot ulcer that won't heal and is infected, the physician has referred the patient to Hyperbaric Oxygen Therapy (HBOT) as a last resort and within five-10 days the wound closes and infection begins to go away. Every patient seems to experience great results. The Ontario Health Technology Advisory Committee, which advises the Ministry of Health and Long-Term care on new technologies, has clearly noted that the evidence suggesting hyperbaric therapy is beneficial for persons with diabetic wounds is uncertain and inconsistent. Therefore a well-conducted trial is needed before this technology can be widely encouraged among all patients with diabetic foot wounds," said Ray.

Ray still gets goose bumps just talking about the speed of the recovery for people being treated with Hyperbaric Oxygen Therapy (HBOT). He also gets a great amount of satisfaction being involved in the full treatment of the patient, from beginning to end.

Ray stays current in traditional Respiratory Therapy practice by "floating out" to work in different areas in the hospital. For example, rotations to the OR, Medical/Surgical and Cardiovascular ICU's help him



**Ray Janisse, RRT and Practice Leader for the Hyperbaric Medicine Unit at Toronto General Hospital.**

remain current on new therapies. He is also receiving training as an anaesthesia assistant.

### Are there risks involved in HBOT?

"There are but they are minimal," explained Ray. Safety precautions are in place to decrease any risk to patients and staff. Patients may develop barotrauma to their ears if unable to equalize the pressure during pressurization of the chamber. Nervous system irritability due to long exposures to oxygen under pressure may produce seizures in some patients, so "medical air breaks" are provided during the treatment process to decrease this risk.

Respiratory therapists are perfectly suited to work in this practice area. RRT's who work in HBOT have a foundation of knowledge on this subject but also undergo additional training and certification, with particular emphasis in following set safety protocols for HBOT.

Earlier this year, UHN

Respiratory Therapy students visited the Hyperbaric Medicine Unit as part of their clinical rotation, and were able to assist with patient care while reviewing the principles and dynamics of hyperbaric oxygen therapy. Many of the students had never seen a Hyperbaric Chamber.

"My dream is to be in a situation where I can provide education about Hyperbaric Oxygen Therapy to fellow health-care providers, the public and to be involved in the much needed research in the area," said Ray.

### History of HBOT at TGH

The first hyperbaric chamber was sent to TGH in 1964 to treat the men who were digging underground tunnels to build Toronto's subway system. The digging was so deep that it went below the water table and water would flood the tunnels. Pressurized air was pumped into the tunnels to keep the water from flooding the tunnels and to ensure that work would

Hamilton General Hospital and Ottawa General are the other Ontario hospitals that have Hyperbaric Oxygen Therapy Units.

In Ontario, approximately 50 Respiratory Therapists are specially trained as Certified Hyperbaric Technologists to perform inhalation hyperbarics and work in a pressurized environment.

Hyperbaric Oxygen Therapy (HBOT) is most often an adjunctive therapy. New research on HBOT is being done and there is evidence that HBOT may be effective for brain injuries.

Of the approximately 2,200 RTs in Ontario, 70 per cent work in acute/critical care.

not be interrupted. It wasn't long before the workers came down with decompression sickness or the "bends", as it is more commonly called, and needed to be treated in the hyperbaric chamber.

In late November, Toronto General Hospital received a new rectangular hyperbaric chamber, which is a North American first because of its design. Shaped like a room rather than a cylinder, its design will allow UHN staff to safely and comfortably treat patients on stretchers.

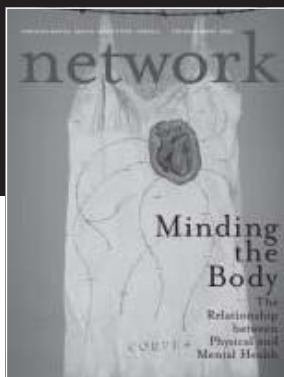
The new chamber, which arrived on Nov. 28, 2005, is a four-door chamber designed by Fink Engineering in Australia. It can accommodate up to eight seated occupants (at least one who is a staff attendant) or two patients on stretchers as well as two attendants. The primary focus of the chamber is to provide emergency hyperbaric treatment for patients, including carbon monoxide poisoning, decompression illness or "the bends" (which divers can get if they rise too quickly to the surface of the water), air gas embolism, necrotizing infection and compromised skin flaps or grafts.

The chamber will be installed over the next few months, and should be fully functional in spring, 2006. Until then, the current chamber will continue to be used to treat patients.

Barbara Saunders is Coordinator of Communications and Member Services at the College of Respiratory Therapists of Ontario.

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