CIHR IRSC

EVIDENCE IN THE MAKING

LIMITING EXPOSURE

Improved Imaging Technology Could Reduce Radiation Exposure for Patients and Medical Staff

THE CHALLENGE

X-ray movies (fluoroscopy) are used to diagnose certain diseases such as the blockage of arteries and abnormalities of the intestine. Fluoroscopy helps guide clinicians as they perform biopsies to obtain tissue samples, and as they conduct and evaluate treatments, such as the unblocking of arteries (angioplasty) and the non-surgical replacement of heart valves. But as we rely on fluoroscopic procedures more and more, patients and medical staff are exposed to more radiation. "Depending on how long it goes on, the dose the patient receives could be the equivalent of up to 3500 chest x-ray doses," says Dr. Alla Reznik of Lakehead University in Thunder Bay. "And it's just as important to be concerned about the staff's exposure because the patients come and go, but the staff is there day in and out."

Research: Dr. Reznik is working on a fluoroscopic detector that can produce high-quality digital images from low-dose x-ray exposures. Combining this new technology with region-of-interest (ROI) imaging, which zeroes in on precisely those parts of the patient medical staff need to observe, can reduce the radiation dose "by a factor of 10," says Dr. Reznik. Her collaborator, Dr. John Rowlands, developed an approach to ROI imaging at Sunnybrook Health Sciences Centre in Toronto. Dr. Reznik is also working with an industrial partner and is on schedule to deliver a prototype in 2015.

Sources: U.S. Food and Drug Administration, Bureau of Radiological Health, Center for Devices and Radiological Health. "Initiative to Reduce Unnecessary Radiation Exposure from Medical Imaging," February 2010.

Visit **SHOW ME THE EVIDENCE** to learn more about CIHR-funded research: http://www.cihr-irsc.gc.ca/e/44211.html.

Fall 2013, Volume 2, Issue 1, Insert 3

Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Canada