

January 20, 2009

## Discovery boosts cancer radiation therapy effectiveness

*Edmonton...* Dr. Gino Fallone and his team of medical physicists at the Cross Cancer Institute in Edmonton are the first in the world to successfully take a magnetic resonance (MR) image at the same time radiation therapy is being delivered.

This discovery has the potential to increase the likelihood of tumour control by an estimated 20 to 40 per cent. The discovery also makes radiation therapy more accessible for cancers difficult to treat with radiation because of organ movement, such as liver, stomach and pancreatic cancers.

Fallone, the director of medical physics at the Cross Cancer Institute and professor of oncology at the University of Alberta says, "We were told by some that it couldn't be done." Mutual interferences (magnetic and radio frequency fields) make the linear accelerator (linac) and the MR systems "allergic" to each other, an obstacle previously thought to be insurmountable.

"However, we've now proved our design principle and can proceed to developing a larger (whole body system) prototype and eventually to clinical trials," says Fallone.

Dr. Fallone and his team are the first to develop and build a prototype linac-MR hybrid (head system) that has successfully taken MR images of objects while linac radiation is being delivered. The prototype gives the ability to guide the curative radiation to the tumour at the same time the image is being taken.

Current state-of-the-art equipment allows for a CT snapshot moments before delivering the radiation. Fallone says it is like relying on blurry snapshot that does not capture soft tissue well. The linac-MR prototype provides clear video images, including soft tissue, and allows one to guide radiation in real time to the tumour.

The prototype will also minimize the need to radiate a margin of healthy tissue, currently required to ensure the entire tumour has been treated and will allow for a higher dose of radiation.

The Alberta Cancer Foundation has contributed more than \$3 million to Dr. Fallone's work over several years. "Our donors invest in research because they know answers mean progress in defeating this disease," says Sandy Slator, Alberta Cancer Foundation chair. "This is exactly the type of return on investment they want."

More information on the prototype is available at [linac-MR.ca](http://linac-MR.ca).

-30-

### For media inquiries, please contact:

Phoebe Dey  
780 905 4242  
[pdey@shaw.ca](mailto:pdey@shaw.ca)

Lee Elliott  
780-643-4423  
[lee.elliott@cancerboard.ab.ca](mailto:lee.elliott@cancerboard.ab.ca)