Sweating the really, really small stuff

I began life as a microbiologist and I remember being thrilled to see living things moving around (albeit by Browning Motion) magnified 1000X under a light-focusing microscope. Originally, this was achieved by placing two convex lens in a frame, one that enlarged (and inverted) the image and an eyepiece that magnified the image for the observer. Over a few hundred years, we gained the ability to make invisible living things not only visible but morphologically unique, and a new science was born.

Those of us who inhabited the world of microscopes started to see the structure of cellular architecture that had only been part of theoretical discussions for years, and a new world of sub-cellular structure and function began to rapidly evolve. When electron microscopes were developed and extremely tiny structures could be magnified up to around 100 000 times, whole new possibilities started to emerge not only in the biological domains but in the inorganic sciences as well. The structure of metals and crystals began to emerge as their atomic architecture started to be "almost" seen by electron microscopy and X-ray magnification techniques.

As we have become more aware of what the basic structure of matter most likely is, the theoretical constructs around the building blocks of the universe have exploded, and cosmologists are on the verge of finding evidence that supports super string theories.

We are never going to see the vibrating strings that make up the Brane (our four-dimensional world), but we *are* going to be able to clearly see atoms, their unique structure, and their interactive, mysterious quantum functions through new magnification techniques currently being developed.

Canada's own National Institute for Nanotechnology (NINT) at the University of Alberta (Edmonton) joins other nanotech centres in this fascinating field of looking at and manipulating atoms and molecules. Nanoscientists are currently using new magnification technology termed a *scanning tunneling microscope* and are now able to manipulate nano-sized particles, including single atoms. This will result in an ability to engineer new materials and applications previously only imagined. You can almost feel the excitement of the people working in these fields whenever you read anything about their current and future projects. These same scientists have created completely new atoms and many of them are looking at controlling some of the quirky aspects of quantum mechanical laws so they can be used in computing, utilizing carbon atoms rather than silicone chips.

The world of computing is about to explode with this new technology, and when integrated into medical technology—including imaging techniques, new pharmaceuticals, drug delivery systems, replacement parts, and new organ synthesis—the mind boggles. It's exciting and scary, but the possibilities to do good are enormous. If we have to do something with our carbon footprint this sounds like a good way to rationalize my SUV.

—JAW

Correction—pandemic preparedness

In the April issue (*BCMJ* 2007; 49[3]:146) an error was introduced into Dr Ian Gillespie's report on the pandemic preparedness exercise in Cranbrook. In his original he wrote that there was a lack of Regional Health Authority (RHA) and Ministry of Health (MoH) support for the integration of family doctors in the community and of hospital-based physicians into the planning and the exercise. However, in the printed version it appears that he is making a blanket statement criticizing the RHA and MoH for their lack of support of the exercise, which was not the case. In fact, the Regional District of East Kootenay sponsored the exercise, with involvement of innumerable partners, including the Interior Health Authority and the MoH. We sincerely apologize to all those involved for this error.
—ED