

NEWS

Parkinson's research: Achieving quality of life

Parkinson's disease affects over 100,000 Canadians.

They all want a cure. But, in the meantime, they want to live the best lives possible with their disease. Research is likely the quickest way to get there.

Improving mobility

With symptoms such as tremor, slow movement, muscle rigidity and walking difficulties, people with Parkinson's have impairments in coordinating posture, motion and navigation.

At the University of Western Ontario, Dr. Mandar Jog, director of the Movement Disorders Program at London Health Sciences Centre and his team, in collaboration with Dr. Michael Katchabaw, an associate professor in the Department of Computer Science, are building virtual reality scenarios to study how people with Parkinson's navigate spaces such as an apartment interior and a grocery store aisle.

While wearing virtual reality (VR) goggles, the subjects will perform tasks like watering plants or picking up grocery items, as the basis for a VR-based rehabilitation program that correlates directly to activities of daily living.

"Cleaning the house and shopping are activities you can't train for with standard rehabilitation techniques," says Jog. "We want to create a rehab program that people can implement

on their own, using the software we provide."

The original pilot project was funded by Parkinson Society Southwestern Ontario through Parkinson Society Canada's national research program.

In a longer-term project, Jog is using a technology-enhanced suit to understand the dynamics of human motion. The suit is a multi-sensor device that will relay critical information about how people with Parkinson's move their arms, legs, heads and bodies to coordinate action as they move throughout their own homes.

"If the mobility suit can give us, say, three sensors that are the most predictive of mobility dysfunction in Parkinson's," says Jog. "We could possibly have a portable, easy-to-use, in-home mobility assessment system, in a few years' time." Together with the VR-based rehabilitation program, it makes a neat package.

Funding for the pilot "suit" project was provided by Parkinson Society Canada. The project continues to be funded by the Canadian Institutes of Health Research.

Managing non-motor symptoms

Parkinson's is considered primarily as a movement disorder. However, some people tell their neurologists that the non-motor symptoms create the greatest disruption of quality of life.

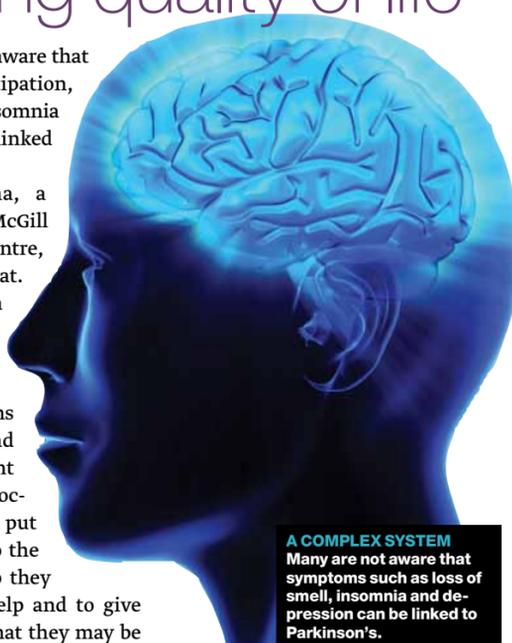
Others are not even aware that loss of smell, constipation, urinary problems, insomnia and depression are linked to Parkinson's.

Dr. Ron Postuma, a neurologist at the McGill University Health Centre, hopes to change that. He has developed a guide with a questionnaire to help people identify the non-motor symptoms of Parkinson's and to discuss treatment options with their doctors. "The idea is to put the information into the hands of patients so they can seek medical help and to give them clues about what they may be able to do about these symptoms, on their own."

The booklet resulted from a psychosocial research partnership between Parkinson Society Canada and the CIHR's Institute of Neurosciences, Mental Health and Addiction. Postuma says it's a perfect example of how clinical care can be improved by research.

Investing in research

"Innovative research has given us these three practical applications that will help people with Parkinson's improve their quality of life. They are



concrete examples of the need for ongoing investment in research," says Joyce Gordon, president and CEO of Parkinson Society Canada.

To learn more about Parkinson's research in Canada and to download a copy of A Guide to the Non-Motor Symptoms of Parkinson's Disease, visit www.parkinson.ca.

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Commercialization funding: A crucial missing piece

A decade ago, there was a failing effort by the Canadian capital markets, Federal and Provincial governments, as well as pension funds, insurance companies and the Banks, to strategically empower the commercialization funding of biomedical technologies.

Today, the problem is exacerbated and more acute, but it is pushing up against a post 2008 financial crisis environment where the government's contemplate austerity budgets to reign in the deficits.

Federal and Provincial governments continue to provide large sums

of money to the academic research sector. Yet they have been unable to develop effective policies for a long term strategy to significantly grow commercialization funding for the life sciences sector. There is also only a handful of private equity pools targeting the life sciences sector.

The public perception

It is surprising that taxpayers do not ask: How can we be funding this medical and scientific training and research and not have programs in place to fund the commercialisation of any inventions? Especially when the majority of the medical and scientific inventions are sold prematurely to American and European companies, or are not developed at all. The foreign buyers in most cases have reaped the world wide income, high paying jobs and have the pleasure of selling those drugs and devices, discovered by means of public funding, back to us.

Today, although there is a crisis, for

the life sciences industry, in terms of commercialisation capital available, there are potential intelligent solutions that are a combination of public private sharing.

Sharing the burden

One of these would be the extension of the flow-through shares program.

There are many small public companies, that could go public if the Federal government would treat the life sciences sector the same as it treats the natural resource and some alternative energy projects.

Simply, flow-through shares allow companies to pass the losses they create early in development on to investors who claim them against their personal income, in exchange for buying shares of these companies. The deduction cushions the financial risk for the investors, and provides precious capital to the companies.

Implementing strategy

As a result of 55 years of the use of flow-through shares, as a strategic capital tool, an internationally strong natural resources junior and senior public company sector has been built. Further, flow through shares are not a government hand out. They are a market based tool (the market decides which companies are funded), and are a temporary deferral of tax dollars. That deferral of tax is offset by many new high tax paying jobs, and eventually, the tax on worldwide inflow of income to Canada.

We have many early discovery successes from government funded science and medicine in this country. Our goal should be to reap the real financial rewards on a global scale from the commercialization of these innovations.

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NEWS IN BRIEF

Creating a case for drug innovation

■ Discovering a new drug is a very expensive business. Soaring research costs and failure after failure in expensive clinical trials have led to fewer new medicines on the market and plenty of job losses in the pharmaceutical industry.

Annual job losses in the pharmaceutical industry tallied 20,000 last year and 50,000 in the previous year. These are largely highly skilled, high paying research and development positions that are also key to sustaining a healthy national economy.

In early February, AstraZeneca announced that its research site in Montreal was to close, and it would no longer be investing heavily in neuroscience diseases such as Alzheimer's and autism.

The industry now is under serious strain, and this leaves Canadians wondering where science will find the cures to some of the most serious diseases.

The private-public partnership

Aled Edwards is head of the Toronto-based Structural Genomics Consortium, one of the largest public-private drug discovery partnerships in the world. He says it is the process of drug invention itself that needs reinvention. "We all now agree that the process of investing in research is so expensive and so risky that it does not make sense for any single company, single institution or government to bear the costs alone," he said. The solution lies in researchers from academia and companies pooling resources to share the risk, he said.

He has developed a business model to partner with global pharmaceutical companies to produce and share research data with all scientists.

SGC is building momentum to create this new model with support from and in collaboration with the Government of Canada through Genome Canada and the Canadian Institutes of Health Research, and international partners, such as the Wellcome Trust and several of the largest pharmaceutical companies.

Open sourced early-stage drug development could reduce duplication, share the burden of early investment costs among industry, governments and institutional partners. "Not only does this approach advance science faster", said Edwards, "it also is a way for industry to remain profitable and vibrant."

On the other hand, if we don't act, then I fear that when our children are older, they will still face a world with no treatments for Alzheimer's, schizophrenia, autism and other terrible diseases."

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Canada's bio-economy:

- Contributes \$86.5 billion to our GDP
- Over 1 million Canadians are part of the bio-economy employment network



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Canada's Voice for Biotechnology

Parkinson's...

A degenerative brain disease.

If you or someone you know has Parkinson's, we can help.

Online. On the phone. Or In person.

Research has shown that staying physically active is important to managing Parkinson's symptoms.

Visit parkinson.ca/exercise to learn more.

