

DNA CLUSTER PROJECT QUESTIONABLE RESEARCH FUNDING IS THE FUEL THAT KEEPS UNWARRANTED RABIES PROGRAMS ALIVE

BACKGROUND

There has been little, if any, oversight with respect to the Ontario Ministry of Natural Resources (OMNR) rabies program since its inception.

The contradictory objectives of the program are little understood. The public mandate is to control and eradicate raccoon rabies, but doing so would put the requirement for major research and development programs in serious question. While public fear and active cases are needed to keep the program alive, there is also the need to prove that OMNR is effective at rabies control. But without active cases, there is no money for control programs and no money to be funneled into research projects.

A small but determined group of Canadian and United States scientists have propelled rabies into a thriving “industry”. This is in spite of the fact that rabies represents one of the lowest public health risks in North America. The “industry” is made up of government scientists, academics and vaccine and bait manufacturers who have grown dependent on millions of dollars of public funds each year.

Using deception (the expansion of the raccoon rabies high-risk area in eastern Ontario was based on blatant misinformation); outlandish and unsupportable fear-mongering (a MNR scientist was recently quoted *“My nightmare...is a hitchhiking raccoon with rabies getting into downtown Toronto”* when, in fact, thousands of positive-tested raccoons in major cities such as Baltimore, Washington and New York over the last twenty years has produced little concern and no health consequence); and the suspicious arrival of new cases when funding is about to expire or when new research funding has just been approved (in eastern Ontario a major research grant from NSERC was approved on September 30, 2002, at a time when existing cases had all but been extinguished, but then just several days later on October 2nd new cases suddenly appeared, representing a 180 degree shift in direction and an equally dramatic jump of 50 kilometers in just a few weeks), the rabies “industry” has been able to obtain increasing amounts of money for rabies research, testing and control. Remarkably, this is in spite of declining cases and the lack of threat to humans given pet vaccination and the availability of human post-exposure treatment.

Facing increasing competition from new, real human health risk diseases such as SARS and BSE, the rabies “industry” has had to aggressively pursue a high public profile. This profile and the fear-mongering that accompanies it is generated by fish and wildlife agencies and other government interests whose budgets benefit from rabies funding. Press releases that hype “closing in on rabid raccoons” and quote U.S. rabies personnel *“there are a lot of raccoons in and around the Cleveland area. It’s a bit analogous to a raging fire. We need to make some breaks and try to contain this thing”* and *“Ontario has assembled a SWAT team of trappers to pounce on raccoons carrying rabies”* demonstrate the outlandish and coordinated efforts being made by the rabies “industry”.

It is the quest for research funding, however, that drives rabies programs. Federal funding through various granting agencies to Trent University’s Forensic Science Centre in which

the OMNR is a partner has provided millions of dollars for rabies research in the last few years.

It exposes serious concerns about the lack of evaluation that goes into government funding decisions. Public dollars should be spent on public policy priorities and on projects that reflect evidence-based science. Rabies research funding simply does not meet these criteria.

The research grant to Trent University from the Canada Foundation for Innovation for \$3.6 million for the DNA Forensic Science Centre is of particular concern because it will go into infrastructure costs that not only will require millions more from the public purse through the Ontario Innovation Trust as (recently approved) matching grants but the only significant “commercial enterprise” that is identified will require substantial on-going public funding for yet more costly and unwarranted rabies programs.

A CLOSER LOOK AT THE DNA CLUSTER PROJECT

The development of this Project which commenced in 1998 (interestingly, the first case of raccoon rabies entered Ontario in July 1999), kicked into high gear in 2001 as part of an initiative, through the Ontario Competitive City-Regions (OCR) pilot project to “harness local innovation and develop a stronger regional economy”.

According to the literature, ‘Trent University and The Greater Peterborough Region DNA Cluster’, *“the vision for the Cluster is driven by DNA research led by Trent University, and its commercialization potential. The foundations of the DNA Cluster lie in the core strengths of the partners. The Natural Resources DNA Profiling and Forensic Centre (NRDPFC), a laboratory partnership between Trent and the Ontario Ministry of Natural Resources (OMNR), has considerable expertise in DNA and forensic research and services in support of natural resource management and conservation – with comprehensive genetic information on wildlife, fish, plants and forests”*.

The promotional literature on the DNA Cluster project attempts to justify the infrastructure costs on a variety of research programs from cancer and stress, to molecular physiology, water quality, pollution control, plant biotechnology, conservation genetics and biodiversity at Trent that will benefit. But a review of the material shows that these are merely enhancement baits for what the project is really all about – rabies research. Here is why:

- The Forensic Science Centre is clearly the centerpiece in the project. Dr. Bradley White, the Director of the Centre is identified as *“the spark behind the initiative”*, stating that Dr. White *“deliberately moved his laboratory from McMaster University to Trent University in 1997 because the OMNR relocated its headquarters to Peterborough”*. And the primary partner at OMNR is the Rabies Research and Development Unit (RRDU).
- The major funding that has been received to date has come from the public purse and has been on behalf of rabies research. An example is the four-year Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Grant to investigate the spread of raccoon rabies using genetic means. We have

criticized this grant on the basis that effective rabies control tools are already available so how much more effective will it be to know the genetics of a sample of the host population? Using DNA research to confirm that a raccoon has hitchhiked on a truck from Georgia will help little in rabies control programs. It is well established that, although infrequent, migration can sometimes occur accidentally so the continued use of targeted public education with respect to obvious access points makes more sense, particularly given that funding resources are not unlimited for research that has little applied value.

- The \$3.6 million grant from the Canada Foundation for Innovation was approved on the basis that the project focuses on the forensic sciences and wildlife ecology. It removed the plant physiology sections from funding consideration.

QUESTIONABLE ECONOMICS:

- While the Cluster project is presented as one with major economic development potential for Peterborough, there is **no substantiating evidence in the form of a business plan**. In fact, the only specific project example that is referenced is OMNR as the *“leader in rabies control in North America, having developed a combination of bait setting techniques, equipment, software and vaccines that have virtually eliminated fox rabies in Ontario”*. It indicates that *“this \$4.2 million/yr. project with private-sector vaccine producers has the potential to spin-off as a commercial enterprise. The bait drop machines and methods were developed by the MNR and the jointly developed vaccines are licensed. Rabies is a worldwide problem, so the technology is applicable internationally. DNA profiling will track virus movement and create predictive data for future outbreaks”*.
- There are a number of aspects of this statement that need to be seriously examined. First, the MNR cannot claim that fox strain rabies has been “virtually eliminated” given that there continue to be upwards of 75 or more cases annually using the Ontario produced vaccine ERA. On the other hand, vaccinia-rabies glycoprotein (V-RG) developed at the Wistar Institute in Philadelphia has been used to very successfully eliminate fox rabies in France and is currently used throughout the United States to control both fox strain and raccoon strain rabies. It is also being used in Ontario to effectively contain raccoon strain rabies.
- So, not only are there current vaccines and baits available to control rabies but the more significant question must be what international markets does the OMNR hope to gain? From a human health perspective, rabies remains primarily a problem in developing countries in Asia, Africa and Latin America where dogs are not vaccinated. However, given the limited resources and many other serious health problems that remain unaddressed in these countries, it is entirely unlikely they will represent the “international” market the OMNR hopes to achieve. And, where these countries attempt to reduce human cases, as in Latin America, they do so by introducing a control and/or vaccination program for dogs.

- “It is ironic that in the United States (and Ontario), where rabies is effectively controlled and risk of rabies is extremely low, additional rabies control is accepted as necessary. It appears that in an affluent society, fear of rabies, rather than actual risk, has created the necessary market for new rabies control technologies.” (Bruggemann – Rabies in the mid-Atlantic states – should raccoons be vaccinated? 1992 American Institute of Biological Sciences).
- It is, however, even in the affluent North American market acknowledged that “to warrant consideration as a public health intervention, efficacy of oral vaccination must be proven, and desirable cost-benefit ratios or a willingness to pay among the general public or other stakeholders will be required” (Cathleen Hanlon et al. – Article III: Rabies in Wildlife – 1999 Journal of the American Veterinary Medical Association).
- A rabies “industry” of government scientists, academics, vaccine and bait manufacturers has grown dependent on government funding for rabies research, testing and control. It is hard to imagine that these interests will be able to continue to make the case for one of the lowest public health risk diseases in North America. Particularly, when it diverts critical funding from so many other significant health care needs that are not being met.
- Rabies is a cyclical wildlife disease that can be controlled by the promotion of pet vaccination, public education along with surveillance and oral vaccination control programs when necessary. The use of the term “eradication” of this disease by the rabies “industry” is unrealistic, particularly when you consider at what cost, given that they are suggesting this is a 30-year plan. The career aspirations of scientists, funded by the public purse, need to be tempered by regular independent reviews and “sunset clauses” on all research.

SUMMARY:

If there is widespread cynicism about the Ontario Ministry of Natural Resources rabies program and the extensive research funding that drives it, it is not without reason. Consider the timelines:

1996 – The corporate direction of OMNR changes with the cancellation of many programs and the downsizing of others.

1997 – Dr. Brad White, a researcher at McMaster University moves his forensic science laboratory to Trent University in Peterborough because, as he states, “*the OMNR relocated its headquarters to Peterborough*”. The Forensic Science Centre opens as a joint venture between OMNR and Trent.

1998 – The DNA Cluster Project, with the Forensic Science Centre as its core, gets underway as an “*economic development initiative*” for Trent and Peterborough.

1999 – The first case of raccoon rabies enters Ontario as funding for the raccoon rabies prevention program which commenced in 1994 is in question.

2001-2002 – During this period, nearly \$2.4 million in public funding is directed to the research project at Trent.

Sept. 30, 2002 – Included is a \$815,000 grant approved on Sept. 30, 2002 by NSERC. The recipient of this grant, Dr. Brad White, also happened to be a member of the Selection Committee that approved the grant. At the time of the grant, cases of raccoon rabies had all but been extinguished.

Oct. 2, 2002 – Just two days later, new cases of raccoon rabies suddenly appeared, representing a 180 degree shift in direction and an equally dramatic jump of 50 kilometers in just a few weeks. This marked the beginning of a new flurry of activity by the OMNR Rabies Unit where almost 1,500 animals were killed (99.8% turned out to be healthy) as part of “depopulation”, allowing for the almost identical number of samples from “depopulation” areas outlined as part of the NSERC funding proposal, to be met.

2004 – Announcement of a \$3.6 million grant from the Canada Foundation for Innovation to build a Forensic Science Centre as the key element of the DNA Cluster project at Trent. Another \$3.6 million in matching funds has recently been approved by the Ontario government. This substantial government investment in infrastructure will now require significant on-going public funds for operating highly questionable rabies programs. In fact, a \$1.9 operating grant from the Ontario Ministry of Economic Development and Trade is pending.

2001-2005 – Thus far, over \$10 million has been obtained in public funds in just a few years for research on the lowest public health risk disease in North America. This does not include an additional \$25 million or more spent during this period by the Ontario and federal governments for rabies control and testing programs.

It is the demonstrated self-interest of career scientists and their drive for research funding through the DNA Cluster project that best explains the actions of the OMNR in expanding its raccoon rabies campaign in eastern Ontario. The unjustified expansion of the high-risk area and the introduction of severe and unnecessary restrictions with respect to wildlife rehabilitation in July, 2002, just two months before the major NSERC grant was approved, was very much based on the fact that you cannot attract millions of dollars for research unless you have a serious disease threat along with a high degree of public fear. Wildlife rehabilitators represented an impediment to creating this climate of fear. Obviously, if baby raccoons were being cared for by community volunteers with a large and visible measure of public support for this work and without the animals ever having presented any risk, it made it very difficult to portray raccoons and other wild mammals as a major threat to public health.

The DNA Cluster project is relying on the taxpayer, through federal and provincial government funding programs, to put up millions of dollars for the infrastructure costs of this project. Once built, it will mean the entrenchment of even greater operating costs that will also have to come annually from the public purse. It is clear that the vested “spin-off” commercial interests expect that the unsupportable fear-mongering that has produced the current unjustified level of government funding will continue into the future.

It is critical that the federal government work with the Ontario government to ensure that collaborative research projects, funded with public dollars, are focused on priority policy areas.