Canadian Conflict-of-Interest Follies: Anything Goes Except Non-Disclosure

Featuring Dan Krewski, the Royal Society and Health Canada

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In 2011, Health Canada found itself in a tough spot. The public was becoming more and more uneasy over exposure to RF radiation from the proliferating number of cell phones, cell towers and Wi-Fi routers. After holding hearings in the spring and fall of 2010, Parliament asked the health agency to investigate whether its exposure limits —the Canadian national RF standard known as Safety Code 6 (SC6)— were too lenient and needed strengthening. Soon afterwards, the International Agency for Research on Cancer (IARC) added urgency to the assignment by classifying RF radiation as a possible human cancer agent, or, in the vernacular, a 2B carcinogen.

Health Canada's dilemma was that it had no interest in tightening SC6. Yet IARC's 2B designation could not be easily ignored, especially after France and Belgium, among other European countries, had responded by adopting precautionary policies. Last year, for instance, Belgium banned the sale of cell phones to children. How would Health Canada find a way to stick with the status quo?

The answer was to commission a review of SC6 by the Royal Society of Canada (RSC) —many call it the equivalent of the U.S. National Academy of Sciences— and to have a trusted colleague, Daniel Krewski of the University of Ottawa chair the panel. This was an encore performance for the RSC and for Krewski. Fifteen years earlier, Health Canada had asked the Society to evaluate a previous revision of SC6. Krewski had chaired that first RF panel which issued its report in 1999.[1] The RSC was now asking Krewski to do it again.

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In early 2013, Health Canada and the RSC signed a contract, worth a total of C$100,000 (~US$91,000) for a “rigorous, transparent and independent review” of a new draft of SC6. Krewski’s panel held its first meeting on March 14th, 2013, at a Best Western hotel in Ottawa.

A little more than a year later, on April 1st, the RSC released its report to Health Canada. The report advised that the SC6 needed just a few tweaks but no major revisions. The RSC’s central message was the most common of all scientific recommendations: More research needed. By far the biggest change was that by then Krewski had resigned from the panel.

The *Globe and Mail,* the newspaper with the largest circulation in Canada, summed up the panel report neatly with the headline, “Safety Study of Phone and Wi-Fi Radio Waves Calls for More Research,” and updated it later to “Government Panel Finds No Need to Change Exposure Limits for Radio Waves.” The RSC had given Health Canada precisely what it wanted.

Dan Krewski: An Academic-Corporate Entrepreneur

Not everyone was pleased with the decision for Krewski to chair the SC6 review panel. Not long after the RSC’s announcement, Frank Clegg, the head of Canadians for Safe Technology (C4ST), and a former president of Microsoft Canada, wrote a letter to Yolande Grise, the president of the RSC, to complain that: “Your chair, Daniel Krewski, has such well documented and admitted ties to the wireless telecommunications industry” that he fails to meet the RSC procedures to deal with conflicts of interest. Clegg went on to point out that four of the seven other members of the panel had their own conflicts of interests (CoIs).

Krewski, a statistician by training, is the director of the McLaughlin Centre for Population Health Risk Assessment, which is a part of the Institute of Population Health at the University of Ottawa. Krewski’s operation is patterned after the Center for Risk Analysis at the Harvard School of Public Health as run by John Graham with generous corporate funding.

One witness at the 2010 Parliamentary hearings on RF called Krewski “the leading scientific expert on the effects of microwaves on human health.” He has indeed been one of the busiest and most prolific in Canada: After the 1999 RSC report, Krewski together with many of those on the first RSC panel, published regular literature reviews on RF and health —in 2001, 2007 and 2009. For the 2009 update, one of the coauthors was James McNamee of Health Canada’s radiation bureau who served as the agency’s liaison for the new RSC RF report.

Beyond all the literature reviews, Krewski has also been doing epidemiological research. He was a member of the Canadian Interphone Study Group on the cancer risks associated with the use of mobile phones for the entire 2000-2010 decade. Krewski is currently leading the Canadian component of the Mobi-Kids project investigating brain tumor risks to children from cell phone

radiation —both are large, multi-country collaborations run by Elisabeth Cardis in Spain.

And there's much more. On May 17, 1999, the same day that the RSC released its first RF report, the Canadian Wireless Telecommunications Association (CWTA) announced that it would sponsor a new organization called the Wireless Information Resource Centre (WIRC) to provide "impartial and objective information on health questions." An "independent staff of experts," would run the new center, according to the CWTA.

At the time, the CWTA was no doubt concerned over one of the key recommendations that had been floated in the 1998 draft revision of SC6: To set a lower exposure limit (0.2 W/Kg) for the eyes (see *MWN,* S/O98, p.1). While the 1999 RSC report agreed with the proposal in principle, it was shelved because, as a staff member of Health Canada's Radiation Protection Bureau explained to *Microwave News* at the time, the RSC panel had concluded that more research was needed before definite conclusions could be drawn (see *MWN,* M/J99, p.3). The new RSC report states that a more stringent limit for the eyes is not necessary.

15 Years of Support from the Cell Phone Industry

Krewski was named the chairman of WIRC's Board of Directors. Over the next 15 years, he and the McLaughlin Centre were major beneficiaries of CWTA's support. They received on the order of C$2 million for RF research and information dissemination.

The CWTA contributed C$100,000 each year between 1999 and 2004 to support the WIRC, according to Marc Choma, a senior communications officer at the association, also based in Ottawa. In 2004, the WIRC became the RFcom.ca Web site, operated by the McLaughlin Centre. The site is still up and running and Krewski continues to serve as a project director. All the while, CWTA has continued to help support RFcom.ca.

In addition to the initial C$500,000 for the WIRC, Choma said that the CWTA also provided C$1 million over the same five-year period ending in 2004: C$125,000/year for the Canadian Interphone group and C$75,000/year to help set up an NSERC professorship at the University of Ottawa.

Krewski ran one of the Interphone study groups and has held the NSERC chair since 2002. (It's now called the NSERC Industrial Chair in Risk Science). "Since 2004, CWTA continues to offer yearly grants to the NSERC Chair program at the McLaughlin Centre ranging from $50,000 to $150,000," Choma told *Microwave News.* Among CWTA's co-sponsors for the NSERC professorship are the American Chemistry Council and the European Aluminium Association.

Choma explained that the funds given by the CWTA to the NSERC chair are "used at the sole discretion of the Chair," that is Krewski. "But," he added, "it is our wish and understanding that some of the funding will be used to support the continuation of RFcom.ca."

RF is only one of the many topics Krewski works on. He is also a project director of emcom.ca, which, like RFcom.ca, is based at the McLaughlin Centre. Emcom calls itself the "preferred source of information and commentary on endocrine disruption." (In September 2013, emcom.ca became part of McLaughlin's riskcom site.) Among emcom.ca's funders are the American Chemistry Council, the Canadian Plastics Industry Association and DuPont Canada.

The industry sponsors of these McLaughlin projects are listed on their Web site, but this has not always been the case. In its early days, WIRC did not mention its close ties to the CWTA. This was an "unfortunate" omission, William Leiss, a former president of the RSC, wrote in his 2001 book, *In the Chamber of Risks: Understanding Risk Controversies*. Leiss criticized WIRC for not disclosing how its board of directors was appointed or who was paying for its operation. Perhaps surprisingly, Leiss later joined WIRC's board of directors and is today still affiliated with the McLaughlin Centre.

WIRC called itself independent (as does RFcom.ca), yet its board of directors has included representatives from Lucent Technologies (Deborah Sena) and Motorola (Norm Sandler), two companies which have an obvious interest in RF health effects. One of RFcom.ca's current scientific advisors is Leeka Kheifets, who has strong ties to the electric utility industry though her work for EPRI.

Beyond McLaughlin: Risk Sciences International

Beyond his appointment at the university, Krewski also runs Risk Sciences International (RSI), a consulting firm in Ottawa. His official title there is Chief Risk Officer and CEO. The company offers a wide range of services including RF risk communications and advice on dealing with climate change.

Before joining the University of Ottawa, Krewski worked at Health Canada where he served as the director of risk management in the Health Protection Branch. He and his company have become among Health Canada's favored contractors. Between 2007 and 2013, for instance, Health Canada awarded Krewski and Risk Sciences International (it's often hard to tell them apart) at least 19 contracts with a total value of close to C$750,000. The funded projects were as diverse as assessing the risks of copper, manganese, and shale gas.

In addition to all this, Krewski also serves as the chair of the Health Effects Institute's (HEI) Diesel Epidemiology Panel. Another member of the HEI panel is Paul Demers of the University of Toronto. Demers was named to take over the RSC RF panel in September 2013 after Krewski's resignation. HEI's work is paid with money from industry and government sources.

Other Panelists, Other Conflicts

In his letter to the RSC president, C4ST's Frank Clegg also questioned the objectivity of the two American members of Krewski's panel: Ken Foster of the University of Pennsylvania and

John Moulder of the Medical College of Wisconsin. Both hold senior academic positions and both are prominent skeptics of low-level RF effects.

Foster is perhaps best known in the EMF community for coauthoring a provocative commentary in *Nature* more than 25 years ago. He and William Pickard of Washington University argued that microwave-health research was a dead end and should be closed down. The work has produced "scientific noise," they wrote, and concluded, "Such search for hazards can go on too long, and guidelines for ending them must be established."

Moulder has a well-documented history of being an industry consultant. Here's how he describes himself on his Web page: he "has served as a consultant and expert witness in several cases involving the alleged health effects of exposure to ionizing and non-ionizing radiation." In recent years, Moulder has kept a low profile, but back in 2001, he disclosed that 8-10% of his income came from working for the telecom industry.

Moulder has been an editor at *Radiation Research* for some 20 years; he is currently a senior editor of the journal. In the mid-2000's James McNamee, Health Canada's liaison to the RSC panel, served a four-year term as an associate editor of *Radiation Research* and was most likely recruited by Moulder to help him handle manuscripts on non-ionizing radiation (the majority of papers in *Radiation Research* are on ionizing radiation). McNamee replaced another notable skeptic of low-level effects on the journal's masthead, Vijayalaxmi of the University of Texas in San Antonio.

Reams of Review Papers

Moulder has written review papers on RF and cancer with both McNamee and Vijayalaxmi. In 1995 and again in 1999, Moulder and Foster collaborated on evaluations of EMF–cancer risks. Then in 2005, Moulder, Foster and McNamee joined together to write a review paper on whether cell phones and cell towers can lead to cancer. This paper would, as they say, have legs.

Last December, Moulder and Foster together published another review paper, "Wi-Fi and Health: Review of Current Status of Research" in *Health Physics,* that covered some of the same material as the new RSC report. It was paid for by the Wi-Fi Alliance, a trade group with headquarters in Austin, Texas, and the Mobile Manufacturers Forum (MMF), based in Brussels, many of whose members make cell phones. "My paper on Wi-Fi was well known to the RSC," Foster told *Microwave News,* adding, "The work was done before the panel began its work."

Having both Foster and Moulder on the RSC panel begs the question of who selected the members of the Krewski panel and why someone with a less industry-friendly outlook wasn't picked to balance their common viewpoint. Documents released through freedom of information requests show that Health Canada offered the RSC a list of eight potential panelists, but the actual names of the nominees were blacked out. All we know is that Health Canada

proposed “3-4 engineers, 2-3 biologists, 1 MD [and] 1 epi[demiologist].” When pressed, Health Canada has stated that, “All selection and final decisions regarding the Expert Panel membership are made by the RSC.”

On the same day that he wrote to the RSC, C4ST’s Clegg also sent a letter to Leona Aglukkaq, then the Canadian minister of health (she was responsible for Health Canada; she is now the minister of the environment). “It is significant that most of the Royal Society panelists have published works together as coauthors of the science that is consistently used to refute statements by public health authorities that wireless devices require caution,” he wrote. “There is a distinct lack of separation between the authors of the supporting work and the reviewers.” Clegg went on to add: “In fact, we are led to believe that Health Canada actually chose most of the panel members.” Aglukkaq’s staff drafted a reply for her, which encouraged Clegg to take the matter up with the RSC.

There were two Americans on the 1999 RSC panel, Craig Byus of the University of California, Riverside and Greg Lotz of NIOSH. They have both done RF laboratory research and, unlike Foster and Moulder, neither is known for taking a hard stand, on either side of the RF–health controversy. Byus and Lotz continued to work with Krewski for the first literature update published a couple of years later. Lotz was a coauthor on the next two, in 2007 and 2009, as well. In an e-mail exchange, Lotz told *Microwave News* that he had not been invited to serve on Krewski’s 2013 RSC panel.

The *Canadian Medical Association Journal* Joins the Fray

On June 5th, 2013, Geoffrey Flynn, the RSC’s secretary of expert panels replied to Clegg’s letter to the president of the society. He assured him that the “potential conflicts of interests of the panel members… are largely known to us” and that they had been “carefully reviewed” and “will be published with the panel report.” Flynn then wrote: “I am confident that the existing panel, working with a wide variety of inputs … will make a fair assessment of SC6 and make sensible recommendations for changes.”

Just when it appeared as if the RSC would stand pat, Paul Webster, a veteran freelance reporter, took an interest in the story. Webster had seen Clegg’s letter to the RSC that was on the C4ST Web site. Webster then came across a C$131,000 contract between Krewski’s consulting firm and Industry Canada, a government agency responsible for business development, including that of the wireless industry. Under the contract, Risk Sciences International would develop a series of ten fact sheets to help the public understand RF health risks together with a “Handbook on Wireless Communications and Health.”

On June 24th, the *Canadian Medical Association Journal (CMAJ)*, posted an advance copy of Webster’s article, “Federal Wi-Fi Panel Criticized for Undisclosed Conflict” on its Web site, in which Krewski confirmed that he had not disclosed the contract to the RSC. Webster went on to quote Flynn on how such conflicts were just about unavoidable: “We realized some of [the] members had previously had close connections to the [RF] industry … I know it

must be hard to believe, but it was very difficult to find people with sufficient expertise without apparent or perceived connections to the [RF] industry."

On seeing the article, Krewski and Flynn were outraged. They complained to the editors of the *CMAJ* that they had been misquoted, each maintaining that Krewski had informed the RSC about the contract with Industry Canada. Flynn submitted a letter to the *CMAJ* for publication in which he personally vouched that "the record of the [CoI] discussion confirms that consulting work done by panel members for federal government agencies was in fact disclosed." He also wrote:

> "The activities of all panel members were discussed at the initial panel meeting, in accordance with the requirements of the Society's Committee on Expert Panels. At that time, none of the activities of the panel were determined to present conflicts that would compromise the ability of the panel to complete its work in objectively evaluating the scientific data on potential health effects of radiofrequency fields."

Krewski and Flynn must not have been aware that Webster had recorded the interviews. "The tapes very, very clearly confirmed that Krewski had told me bluntly that he had not disclosed the contract," Webster told *Microwave News.* After the editors reviewed the tapes, they declined to publish Flynn and Krewski's letters which cast doubt on Webster's reporting. (Krewski later sent a more restrained letter to the *CMAJ*.)

Not long after Webster's article appeared, Krewski submitted his resignation. "The panel chair has voluntarily elected to step down from the panel effective July 5, 2013," Flynn revealed.

The apparent disconnect in this story is that Krewski was brought down for not revealing a C$131,000 contract with a government agency at the same time he may or may not have disclosed that he had —directly or indirectly— received C$2 million or more directly from the mobile phone industry over the last 15 years. When asked about this, Clegg replied that the whole RSC process is "shrouded with secrecy" and that the solution should be full disclosure by all panel members.

Now that Krewski has resigned, we may never know what was on the CoI statement that he submitted to the RSC. As for the CoIs of the other panelists, they were supposed to have been published with the final report, as Flynn had assured Clegg. But they weren't. This was due to an "oversight," Russel MacDonald, an RSC officer on expert panels, told *Microwave News.* MacDonald said that this information was in the process of being assembled and would be made "publicly available as soon as possible."

Consensus Against Precautionary Policies

For most of last summer, the RF panel was without a chairman, as well as two of its other seven members who had quietly stepped down after Krewski left: Louise Lemyre, an associate of Krewski's who holds a McLaughlin chair at the university's Institute of Population Health, and Brian Christie of the University of Victoria.

On September 18th, the RSC announced that Paul Demers,[2] an epidemiologist at the University of Toronto, had taken over as chairman. Two replacement panel members were also named: Bryan Kolb of the University of Lethbridge and Anne-Marie Nicol of Simon Fraser University.

The panel moved quickly and, by the end of January, a draft of their report had reached the seven peer reviewers selected by the society. The final 163-page report was delivered to Health Canada at the end of March, and, on April 1st, was made available to the general public.

In an extended interview, Demers said the report should be considered his own rather than Krewski's. "It was pretty much on hold after Krewski resigned," he said, "There was no draft when I came; the work was still at an early stage."

The RF exposure limits, proposed by Health Canada in SC6, and endorsed by the RSC panel, are similar to those adopted by ICNIRP some years ago —both are based on avoiding body heating. According to the report (p.14), "no new [RF] adverse health effects have been established [since 2009]," the last time SC6 had been reviewed.

The panel refers to SC6 standards as "science-based" limits which should not be undermined by "additional precautionary measures," because, as Mike Repacholi's EMF project at the WHO has warned, they might "undermine the credibility of the science and the exposure limits."

Demers commented that there was a diversity of opinion on the panel about whether there were enough data to do or say more about precaution. "We were focused on numerical limits," he said, "and the consensus was not to suggest precautionary policies," such as those in Europe that limit the use of phones by children.

The panel and Health Canada were in general agreement. In a fact sheet posted on its Web site in mid-February, the health agency stressed that, "There is no evidence that children and teenagers are at increased risk when [SC6] limits are respected." The timing of this post, February 20th, titled "Busting Myths on Safety Code 6," seems peculiar: Health Canada was making a public statement on SC6 weeks before it received the RSC's report, a review that it had itself commissioned. One inference is that Health Canada was so confident of what the RSC would recommend that James McNamee and others at the agency saw no reason to wait for the final report.

RSC RF Panel on Cancer Risks

On the hot-button issue of cancer risk, here is the conclusion of Demers's panel:

> "The authoritative reviews considered by the Panel find that a causal association between cancer and exposure to RF energy is possible (based on the IARC definition for Group 2B). This Panel agrees with that assessment. The present review also considered numerous studies that

> appeared after these authoritative reviews were completed. None of the newer studies materially affect the conclusions of the authoritative reviews. *However, a weight-of-evidence evaluation shows that the current evidence for a causal association between cancer and exposure to RF energy is weak.* The epidemiological evidence is largely limited to a weak association of prolonged mobile phone use with increased incidence of glioma and acoustic neuroma. The epidemiological associations are not strong and the various studies are inconsistent with each other." [p.81, emphasis added]

The text that follows "however" —in which the association between cancer and exposure to RF energy is described as "weak" and "inconsistent"— appears to contradict, or at least undermine, the IARC 2B designation. Not so, said Demers. He stressed that he agreed with IARC's evaluation, as did the panel. As for the second part of the panel's conclusion: Demers said that that he considered the phrase "weak" evidence to be consistent with "limited" evidence, the criterion used by IARC to designate a 2B carcinogen.

Who wrote that sentence that calls the evidence weak? Demers said that he could not recall. He was not aware that virtually the same sentence, word for word, appears in the abstract of another review published nine years earlier, long before Interphone and IARC, in the *International Journal of Radiation Biology.* Here's the wording from 2005: *"Overall, a weight-of-evidence evaluation shows that the current evidence for a causal association between cancer and exposure to RF energy is weak and unconvincing.*"[3]

That review, now close to a decade old, was the one written by John Moulder, Ken Foster, and James McNamee.[4]

April 24, 2014

RSC Releases Statement on CoIs

Today, the RSC posted an "Overview of Conflict of Interest Disclosures from Panelists" —those who served on the SC6 report. None of the panelists is cited by name. Here is the complete text of the release:

> "The panel consisted of eight members, two of which have received research or consulting funds from industry associations having links to commercial interests in the wireless sector. Three panellists had been involved in carrying out and publishing primary research exploring low level (below SC6 limits) effects of radiofrequency exposures on biological systems. Two of those individuals did not see biological effects in the course of their work while the third panellist did observe biological effects in some, but not all of the studies. Interviews with the panellists revealed that none felt that there was overwhelming evidence for or against low level (below SC6 limits) effects on biological systems or human health, and all were open to the potential of such effects existing.
>
> "Four declared that over the past 20 years, they had been involved on other panels or as an author of report(s) exploring electromagnetic fields, health impacts and

safety regulation. Two declared government service in the field of cancer research and epidemiology.

"None of the panelists knowingly had direct financial interests or investments in companies involved in the wireless industries although many acknowledged that they did not know the details of their investment portfolios."

July 1, 2015

See these updates by Paul Webster in *CMAJ:*
"Scientists Decry Canada's Outdated Wi-Fi Safety Rules"
"Parliamentary Report Calls for Action on Wi-Fi"

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1. In many ways, the 1999 Panel Report was more progressive than the new one. Here's what the RF panel said about non-thermal effects 15 years ago: "There are documented biological effects of RF fields even at low, non-thermal exposure levels, below Safety Code 6 exposure limits. These biological effects include alterations in the activity of the enzyme ornithine decarboxylase (ODC), in calcium regulation, and in the permeability of the blood-brain barrier … Some of these biological effects brought about by non-thermal exposure levels of RF could potentially be associated with adverse health effects" (p.3).

2. Early in his career, Paul Demers worked on a study that linked occupational exposures to EMFs and male breast cancer. The results were published in the August 15, 1991, issue of the American Journal of Epidemiology (see *MWN,* J/A90, p.1 and S/O91, p.3).

3. This same 2005 sentence, together with a couple of others from the same abstract, was also quoted by Siddhartha Mukherjee, who attributed it only to "a panel of experts." He cited the text to support his view that cell phones pose no danger of brain cancer in a *New York Times Magazine* story published three years ago (see our comment, "Siddhartha Mukherjee's Questionable Sources.") Now, as we prepare to post this story on the RSC, the *Indian Express* has reported that Mukherjee is calling for IARC to remove RF radiation from its list of 2B carcinogens. He was speaking at an event co-sponsored by COAI, an Indian cell phone industry trade association. An April 21 press release issued by COAI begins with a quotation from Mukherjee: "Linking Cancer with Cell Phones Is 'Crying Wolf'."

4. There was also a fourth coauthor: Linda Erdreich of Exponent, the corporate defense consulting firm.

Safety Code 6, Canada, Health Canada, Royal Society of Canada, Wireless Information Resource Centre, WIRC, Daniel Krewski, Paul Demers, Frank Prato, John Moulder, Ken Foster, Norm Sandler, Paul Webster, Linda Erdreich, Siddhartha Mukherjee, James McNamee, conflict of interest, Exponent, Frank Clegg,

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