

*Point / Counterpoint – Replies and Rebuttals between Georgia Straight author Alex Roslin, and B.C. provincial health authorities Dr. Perry Kendall and Dr. Eric Young. February 2013*

### **Issue 1 – INFANT MORTALITY**

*[The Tyee]* For example, expectant parents in Vancouver could be unsettled to read in a Straight article that “some impacts may have already occurred in North America” because infant mortality in eight cities in the U.S. Northwest jumped 35 per cent after Fukushima, according to a website called Counterpunch, which quoted data from the U.S. Centers for Disease Control.

Dr. Kendall replied that: “This has clearly been demonstrated to be a case of cherry picking statistically expected variations from the norm, has no biologically plausible causal link, and does not reflect any link to measured radiation in the atmosphere. . . . The data used for the infant mortality analyses were deliberately chosen by the [Counterpunch] authors to produce the most alarming results because the increase disappears completely when the ten weeks prior to Fukushima emissions are compared with the ten following weeks. This analysis had been widely debunked by multiple sources within days of its first appearance.”

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*Alex Roslin’s response to Dr. Kendall’s points above:*

**In my dealings with BCCDC, I got the impression its overriding priority after Fukushima was to reassure the public - more than to monitor possible problems.**

**I'd say it's an exaggeration to say the study was "widely debunked." Like many studies, it's been disputed and could have been done differently, but I think it raised questions that authorities like BCCDC should have used their resources to investigate further. Its own rebuttal to the study ([http://www.bccdc.ca/NR/rdonlyres/5B6E918D-F306-4842-8EC9-32EBD4149715/0/infant\\_mortality\\_response.pdf](http://www.bccdc.ca/NR/rdonlyres/5B6E918D-F306-4842-8EC9-32EBD4149715/0/infant_mortality_response.pdf)) could also be accused of cherry-picking because it rather arbitrarily chose two 10-week periods before and after Fukushima to claim there were no infant mortality impacts in the U.S. or B.C. If BCCDC was interested in doing a proper investigation, it might have analyzed a large variety of timeframes and subvariables.**

**In fact, a subsequent statistical review by Counterpunch did take another look at the data and said that in a cluster of cities in the U.S. Pacific Northwest, there was an even higher jump in infant mortality than the first study had indicated. See here (scroll down to "Post-Fukushima Infant Deaths in the Pacific Northwest"): <http://www.counterpunch.org/2011/06/17/definitely-bachmann-over-weiner/>.**

**I asked Kendall about this second review, and he dismissed the findings as "random fluctuations" - even though the author of the review said the results were statistically significant. As well, I'd note that even though Kendall was aware of this second review, this didn't seem to prompt his office to do any further investigation of this question.**

**Unfortunately, the Canadian data on radiation contamination drifting to Canada from Fukushima was inadequate for me to do a correlation analysis with infant mortality in B.C. or the rest of Canada. For example, radiation in rainwater falling in Canada was compiled only on a month-by-month basis by Health Canada - which wouldn't permit a useful statistical analysis. (Health Canada didn't release this data publicly until I requested it. The data showed that rainwater in Calgary in April 2011 exceeded the Canadian ceiling on radiation in drinking water.)**

**However, the U.S. data, which was much better, was adequate for me to do a review. For one city, Seattle, there was enough data for radiation in rainwater to achieve statistical validity. (A certain number of datapoints are needed for both rainwater and infant mortality for there to be statistical validity.) I found a statistically significant correlation between infant deaths and I-131 levels detected in rainwater - suggesting again grounds for further investigation. I reported my findings in this story:**

**<http://www.straight.com/life/what-are-officials-hiding-about-fukushima/page/0/2>**

**"... Have there already been health impacts from Fukushima? It's much too early to say. B.C. infant-mortality statistics don't show any rise in deaths after Fukushima.**

**On the other hand, there is a statistically significant 33-percent correlation between infant deaths in Seattle so far this year and levels of iodine-131 detected in rainwater at the U.S. government monitoring station in nearby Olympia, Washington. (Radioactive iodine was detected over a period of five weeks in the rainwater in Olympia, so for calculation purposes, it was assumed that the level of iodine was zero the rest of the year.)**

**The correlation is only moderate and could still just be a coincidence. But it does suggest a need for more monitoring of health impacts. Unfortunately, the poor Canadian government data on radiation in rainwater here makes it impossible to see if such a correlation exists in Canada."**

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*Dr. Eric Young's response to Alex Roslin's rebuttal, above:*

According to the report of Aug 4, 2011 in the Georgia Straight the infant mortality rate went up 35% in 8 US cities after Fukushima. (Sherman and Mangano – Counterpunch website) The article was later published in the International Journal of Health Services in 2012 The numbers of deaths rose from 9.25 per week in the four weeks prior to Marcy 19 to 12.5 per week in the following 10 weeks according to the US CDC. Weekly reports from the US Centres for Disease Control were used to compare the number of deaths in the four weeks prior to Fukushima emissions to the number of deaths in the ten following weeks. The data used for the analyses chosen by the authors produced the most alarming results. Clearly the time periods before and after Fukushima were cherry-picked.

The BC Centre for Disease Control did its own review of the Infant Mortality data and concluded that the Sherman and Mangano article was “scientifically unsound”. Please see the BCCDC comment attached. [http://www.bccdc.ca/NR/rdonlyres/5B6E918D-F306-4842-8EC9-32EBD4149715/0/infant\\_mortality\\_response.pdf/](http://www.bccdc.ca/NR/rdonlyres/5B6E918D-F306-4842-8EC9-32EBD4149715/0/infant_mortality_response.pdf/).

The Environmental Health Division of BCCDC has within it not only experts in Environmental Health, and epidemiologists, but also in radiation physics. Your note to me has a paragraph that points to a suggestion by Alex Roslin that his impression of BDDCD was that its “overriding priority after Fukushima was to reassure the public more than to monitor possible problems.” I can’t imagine that anyone would say that about a public health organization that is committed to providing the public with good scientific information. The fact that good science, instead of poor science, is reassuring, as it is in this case, is just a fact. And yes, it does not support the generation of hysteria about risk to BC.

The rebuttal from Alex Roslin about the choice of looking at the rates 10 weeks before and 10 weeks after Fukushima, is itself cherry picking. He is unhappy that looking at those rates, which are much more representative of the true data than 4 weeks, don’t show any increase. In fact if you look further back in time, the same pattern emerges showing no change or even a slight reduction in rates, as demonstrated by Dr. Arthur Korbein’s critique of the article.

Please have a look at the IMR variations over a period of months (attached). Dr. Robert Gale points out the biological implausibility (attached). Alex Wolf’s rebuttal is also attached. All 3 are published in the IJHS.

The authors of the article responded, but don’t address the main issue – the convenient choice of 4 weeks before and 10 weeks after. They admit that even this shows a correlation, and not causation since this is an ecological study, but they go on to say that “the potential that exposure to Fukushima fallout played a role in increased deaths in the months following the meltdowns is not an illogical assumption and merits more research.” A good ecological would at best generate a hypothesis that could be looked with more research. It does not provide evidence to lead to assumptions of causation. And this is not even a good ecological study.

Further rebuttals on the Sherman/Mangano article are below:

The data presented by

<http://blogs.scientificamerican.com/observations/2011/06/21/are-babies-dying-in-the-pacific-northwest-due-to-fukushima-a-look-at-the-numbers/> (has one good chart looking at CDC data from prior to the 4 weeks before Fukushima), by the editor of Space and Physics coverage for Scientific American.

[http://vitals.nbcnews.com/\\_news/2011/12/21/9616921-experts-discount-claims-of-us-deaths-from-japan-radiation](http://vitals.nbcnews.com/_news/2011/12/21/9616921-experts-discount-claims-of-us-deaths-from-japan-radiation)

<http://boingboing.net/2011/06/23/fukushima-babies-and.html>

<http://www.physicsforums.com/showthread.php?t=562587> – Physician forum – below:

Last Monday a press release announced the *shocking* result of a new study:

**[Medical Journal Article: 14,000 U.S. Deaths Tied to Fukushima Reactor Disaster Fallout](#)**

Immediately seeing major problems with that study by Mangano & Sherman (M&S), I asked a statistician what he thought of it. He crunched the data and while he found several devastating statistical problems, his most remarkable finding was that the U.S. infant-death data M&S report as being from the CDC does *not* jibe with the actual CDC infant-death data for the same weeks. [etc.] <http://www.jonbarron.org/article/fukushimaone-more-time>

### *SIDS deaths in BC*

In addition to all of this, the authors of the article in the IJHS, in the introductory section, reported that BC had experienced an increase in SIDS in the first half of 2011 (up from 16 deaths in all the prior year). They also said that the numbers of deaths from SIDS rose from 1 to 10 in the months of March, April, May and June 2011 “after Fukushima fallout arrived” compared to the same period in 2010. The clear implication was that one thing caused the other, otherwise why mention it in the introduction to their article.

Presenting a couple of sentences of superficial information like this in an article, with no attempt of any analysis is completely unscientific to the point of being misleading. The article fails to set the numbers in context and compare overall rates. So, it fails to meet any reasonable epidemiological standards.

In fact the BC Provincial Coroner who has actually looked at the details of the data, does not support any link between the tsunami and the deaths. The risk factors seen were those normally seen with a SIDS/SUDI outcome.

Here is the IMR data from BC. As you can see there is no trend and correlation in any of the charts with anything out of the ordinary. Because the numbers are so small in terms of deaths per year (about 1 a week in a population of over 4 million people) the numbers of cases vary annually as well as from month to month and week to week. One year there can be a few deaths in one health service delivery area and the next year there could be 0 cases. [See 7 attachments]

Just one further bit of information about the unscientific use of BC’s infant mortality data in the article by Sherman and Mangano. Here are the actual numbers of cases of SIDS/SUDI (sudden unexpected death in infancy) for BC over the recent years (from the coroner’s office)

Year SIDS/SUDI Cases

2003 – 25 / 2004 - 18 / 2005 - 21 / 2006 - 22 / 2007 - 28 / 2008 - 24 / 2009 - 25 / 2010 - 14 / 2011 - 17

As you can clearly see the number of cases are small per year, so we can expect some variation. However, in 2011 compared to the average of the previous 8 years, there is no increase.

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## Issue 2 – RISK LEVEL

[The Tyee] When reporting on a test of Japanese fish catches of last June, the Straight said: “All of these catches exceed Japan’s 100 Bq/kg ceiling for cesium in food, but none would have surpassed Canada’s much higher ceiling, which is 1,000 Bq/kg.”

Dr. Kendall replied that: “The Japanese are now using an action level for radioactivity in food that is one tenth of the international, Codex Alimentarius level (100 vs 1000 Bq/Kg). They have done this to reassure consumers and customers of their diligence and their product safety. To turn this around and talk about the % of samples exceeding the Japanese action level, as being proof of dangerous levels, is disingenuous at best.”

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*Alex Roslin’s response to Dr. Kendall’s points above:*

**Kendall’s response is disingenuous. Japan tightened its ceiling in response to a public outcry about a lack of government attention to radiation contamination in food. Japan also applies the 100 Bq/kg ceiling to its exports to Canada, so this ceiling is directly relevant to Canadians.**

**Also, since any amount of radiation exposure increases cancer risks, as Health Canada acknowledges, but I suppose not Kendall, it’s incorrect to say that tightening the ceiling ensures food safety. Any amount of radiation is unsafe and dangerous. Thus, it’s incorrect to say that a food product with some cesium is safe simply because it falls below either the Canadian ceiling or the Japanese one.**

**To turn it around, Canada’s radiation ceiling is much higher than Japan’s, so we’re simply allowing more radiation exposure in food than Japan does - and thus a higher cancer risk. For example, according to the Health Canada cancer risk model, Canada’s ceiling for radiation in food is set at a level that would lead to 5,000 cancers per million people over a 70-year lifetime of exposure. (The figure is 8,000 cancers if you use the authoritative 2006 U.S. National Academy of Sciences report on cancer risk from radiation.)**

**That works out to 170,000 lifetime cancers if all 34 million Canadians were exposed at the “safe” level. As Gordon Edwards has pointed out, the ceilings are set at a "permissible" level of radiation - not a "safe" one.**

**It’s also worth noting that the Canadian ceiling on radiation in drinking water is much less strict than the U.S. one. And it’s worth comparing Canada’s radiation ceiling to the ceilings that Health Canada sets for chemical carcinogens. The latter are generally set at levels that cause at most just one to 10 lifetime cancers per million people.**

### Issue 3 – CROSS-PACIFIC IMPACTS

[The Tyee] Another Straight story said that, “Some migratory B.C. salmon stray into Japanese waters or could traverse a vast mass of radioactive water -- now slowly making its way eastward across the Pacific -- which is expected to reach the North American west coast by 2017.” (Dr. Kendall replied that the notion of a mass of radioactivity crossing the Pacific and hitting the North American west coast at some point in the future is absurd, because radioactive isotopes would not hang together in a pool any more than a puddle of dye would.)

Others doubt the likelihood of that last scenario. “I’ve talked to lots of fishermen and the issue of radiation never came up,” said **Maurice Cardinal, business development director of the B.C. Salmon Marketing Council**. The salmon that B.C. fishermen do catch come down the coast from Russia by way of Alaska, he added. The longest salmon trip is 5,000 miles total, and “it would be a stretch to think they would ever go near Japan.”

“Even if B.C. salmon did go all the way to Japan and back, how many years would that take?” asked Dr. Young, adding that salmon spend two to five years in the ocean before coming back to spawn, and if they did pick up a bit of iodine-131, the half-life of that is eight days, so within seven to ten half-lives one could barely measure what is left. If they had cesium, it would leech from their muscles quite quickly through their gills and urine and back into the water.

Dr. Young said he has seen salmon migratory maps and “these don’t show our salmon migrate there, but I’m told that a small proportion might.” He noted that B.C. salmon don’t care to swim so far southeast because the water is too warm, and some recent testing on Japanese waters has found most of the radiation there has settled back to pre-quake background levels.

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*Alex Roslin’s response to Dr. Young’s points above:*

**I suggest you ask a disinterested (i.e. non-industry) salmon expert if salmon migrate near Japan or areas where radiation has spread. The Japanese fish data show that Japanese fishers do indeed catch migratory salmon near Japan. The data also shows that some have been found with cesium. Also, if there was no cause for concern, why did Christina Burrige of the B.C. Seafood Alliance ask the CFIA to test salmon - and tuna - for radiation in 2011 and 2012, as I reported in one of my stories?**

**As for whether radiation has settled back to pre-quake background levels, Young is building a straw man when he talks about iodine-131. The issue is obviously cesium, not to mention other isotopes that no one is monitoring. Young's response also suggests he is unaware of the data out there. Japanese fish monitoring data has clearly shown that many fish species, including those Japan has exported to Canada, have continued to have highly elevated cesium contamination levels: <http://www.ifa.maff.go.jp/e/inspection/index.html>.**

**I just took a look at the data for Jan. 2013, and there are a number of fish catches with far more than background levels of cesium. Also, Ken Buesseler's study suggests continuing**

**sources of radiation contamination from Fukushima: <http://www.bbc.co.uk/news/science-environment-19980614>. And Nicholas Fisher's tuna study showed cesium can stay in fish from Fukushima stayed in fish longer than thought: [http://www.cbsnews.com/8301-201\\_162-57442544/radioactive-bluefin-tuna-crossed-pacific-to-u-s-/](http://www.cbsnews.com/8301-201_162-57442544/radioactive-bluefin-tuna-crossed-pacific-to-u-s-/).**

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*Dr. Eric Young's response to Alex Roslin's rebuttal, above::*

With respect to radiation in fish:

The Canadian Food Inspection Agency is responsible for the safety of imported and exported food in Canada and Health Canada is responsible for the assessment of risk from any contaminant in food. The Department of Fisheries and Oceans is responsible for support and sustainability of the fishing industry in general.

The CFIA has provided us with the following assessment:

“As part of the Government of Canada’s response to the March 11, 2011 earthquake in Japan and subsequent tsunami, the Canadian Food Inspection Agency (CFIA) tested imported food products from Japan for radioactivity. As of June 15, 2011, 169 samples of imported food products from Japan were tested and all products were below Health Canada action levels (1000 Bq/Kg).

“It is important to note that testing of imported fish and edible marine products (fish, seaweed) in 2011-2012 by CFIA showed that the results from all samples were lower than Health Canada’s action limit for radionuclides. The CFIA has also tested domestic fish during the early phases of the crisis and in the spring of 2012. All domestic fish sample results, which included Albacore tuna and Pink, Sockeye, Chum, Coho and Spring salmon, were below the Health Canada action levels for radionuclides.

“Health Canada, with assistance from the CFIA, will continue to assess the safety of Canada’s food supply through the Total Diet Study. First conducted in 1969, the Total Diet Study analyzes food in the marketplace and provides information on levels of exposure to chemicals that Canadians might accumulate through the food chain. In 2012 the Total Diet Study will be conducted in Vancouver, BC and will include testing for radionuclides in domestic and imported food products with a focus on imported foods from Japan.”

The Federal Department of Fisheries and Oceans has provided us with the following assessment:

“In addition Fisheries experts have been following the migratory patterns of salmon for many years and these patterns indicate that salmon that return to the west coast of British Columbia do not migrate into waters near the coast of Japan.

“Tests on migratory fish such as tuna and salmon were all below the Health Canada and international action level for radionuclides. There is naturally some background radioactivity in

seawater and allowable limits in seafood are based on levels that are known not to have effects on human health. Fish do not concentrate radioactivity in their bodies like they do with some other contaminants. This means that radioactivity levels are directly related to the radioactivity levels in the water the fish swim in.

“The levels of Cesium-137 and -134 in the bluefin tuna caught off the coast of California in August 2011 measured by the scientists are still well below the allowed level of concern as defined by the international reference on food safety and consumer protection (CODEX alimentarius) of the FAO (Food and Agriculture Organisation) and the WHO (World Health Organisation) of the United Nations. For Cs-134 and Cs-137, this guideline level is set by the WHO and FAO at 1000 Bq/kg.”

DFO through the Institute of Ocean Sciences has also provided us with these links regarding salmon migration.

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/facts-infos/chinook-quinnat-eng.htm>

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/facts-infos/pink-rose-eng.htm>

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/facts-infos/chum-keta-eng.htm>

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/facts-infos/coho-eng.htm>

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/facts-infos/sockeye-rouge-eng.htm>

The USA has provided the following information:

[http://www.nmfs.noaa.gov/mediacenter/docs/2011/may/seafoodsafetyfactsheet\\_03may2011.pdf](http://www.nmfs.noaa.gov/mediacenter/docs/2011/may/seafoodsafetyfactsheet_03may2011.pdf)

With respect to radiation monitoring in fish cesium is the main radioisotope that is being measured. I-131 isn't a concern for the reasons that I mentioned in my note. There are guidelines for action levels in Canada for various radionuclides in milk, foods and beverages, as well as drinking water. The action level for Cs 134, Cs 137 is 300 Bq/kg in milk, 100 Bq/L in water and 1,000 Bq/kg in food. From what we have heard from Health Canada so far, is that their assessment is that there isn't a public health risk. Even the testing in the bluefin tuna, caught off San Diego last May showed results that were “far below safe-to-eat limits set by the US and Japanese governments”. [http://www.cbsnews.com/8301-201\\_162-57442544/radioactive-bluefin-tuna-crossed-pacific-to-u-s/](http://www.cbsnews.com/8301-201_162-57442544/radioactive-bluefin-tuna-crossed-pacific-to-u-s/)

Research in this field is ongoing and will be followed closely by food-safety and public health experts.