

Dr. James O Reilly T.D.

3<sup>rd</sup> July 2012

Dear Minister

In response to a parliamentary question by Deputy Maureen O' Sullivan T.D. to the Minister for Health (Question 163 dated 21st June 2012) enquiring how the Minister has prevented the possibility of bias towards fluoridation issues within the members of the Irish Expert Body on Fluorides and Health; the Minister of State at the Department of Health (Deputy Roisin Shortall T.D. responded that the advice provided by the Expert Body is impartial and evidence-based. This question was extremely relevant as the largest representation on the Expert Body is from the dental profession with in the region of five representatives (a majority) being members of *Dental Health Foundation Ireland*. In addition to sitting on the Irish Expert Body on Fluoride and Health, this dental organisation undertake all secretarial and administration functions for the Expert Body, furthermore *Dental Health Foundation Ireland* and its members on the Irish Expert Body purport to be a National authority on the toxicology of ingested fluoride compounds. Questions on fluoride ingestion safety or effectiveness sent to the Minister for Health and Children are always transferred within the Expert Body to the *Dental Health Foundation Ireland* who in effect represents the dental industry in Ireland.

Subsequent to the Ministers written response to Deputy Maureen O Sullivan's parliamentary question it was necessary to examine the evidence that the members of the Expert Body and its member organizations provide impartial and evidence based advice to the Minister for Health and Children. This has further been thoroughly investigated in my detailed rebuttal to the Expert Body on their unfair, unsatisfactory, substandard and erroneous review of my report titled *Human Toxicity, Environmental Impact and Legal Implications of Water Fluoridation* where gross bias was demonstrated in their review.

Notwithstanding the latter this subsequent investigation involved examining the published statements from *Dental Health Foundation Ireland* on water fluoridation and determining if their statements are in agreement with scientific facts. In undertaking such an exercise it is relatively straightforward to determine if their views are objective, true and offer a fair opinion of water fluoridation. If evidence shows that this is not the case (as has been clearly demonstrated here) then concern for bias and unreliability of professional representation within the Expert Body remain. This exercise demonstrates that *Dental Health Foundation Ireland* censor scientific information to support their continued and biased pro water fluoridation beliefs and in doing so present a serious conflict of interest in providing independent, objective and unbiased advice to the Minister for Health or the public on all aspects of water fluoridation. The evidence provided here shows the level of bias by *Dental Health Foundation Ireland* which clearly demonstrates that their opinions are based on opinion and personal beliefs rather than on sound scientific facts; therefore their advice is not in the best interest of the Minister or consumers.

In ending can the Minister advise if the five dentists on the Expert Body may have any potential conflict of interest such as consulting or contractual relationships with the fluoride industry that may further compromise their independence on the board.

Yours sincerely

Declan Waugh

## Structure of the Expert Body on Fluoride and Health and Evidence of Bias.

In response to a parliamentary question (Question 163 dated 21<sup>st</sup> June 2012) by Deputy Maureen O' Sullivan T.D. to the Minister for Health enquiring how he has prevented the possibility of bias towards fluoridation issues within the members of the *Irish Expert Body on Fluorides and Health*; the Minister responded that the advice provided by the Expert Body is impartial and evidence-based.

This question is extremely relevant as the largest representation on the Expert Body is from the dental profession with five representatives being members of *Dental Health Foundation Ireland*. In addition to sitting on the Expert Body this organisation undertake all secretarial and administration functions for the Expert Body on Fluoride and Health, furthermore the meetings of the Expert Body are also held in their premises.

In addition to the five dental professionals on the board, there is one environmental health officer, one food scientist and one biochemist. Significantly there are no medical doctors, immunologists, cardiologists, endocrinologists, epidemiologists, gastroenterologists, oncologists, haematologists, nephrologists, neurologists, pathologists, paediatricians, pharmacologists, radiologists, rheumatologists, toxicologists, urologists, biologists, ecologists, environmental scientists, ecotoxicologists, water chemistry specialists, soil scientists, inland fisheries experts or veterinary specialists on the Expert Body.

## Understanding Bias

In determining bias it is important to clearly understand its meaning in the context of how members of the Expert Body may represent scientific facts or more appropriately personal beliefs that are not based on scientific findings in support of their personal views on water fluoridation.

Bias is an inclination to present or hold a partial perspective at the expense of (possibly equally valid) alternatives. Anything biased generally is one-sided, and therefore lacks a neutral point of view. Bias arises from various processes that are sometimes difficult to distinguish and may be based on beliefs rather than scientific evidence. Cognitive biases are a common outcome of human thought, and often drastically skew the reliability of anecdotal and legal evidence.

To illustrate the degree of bias that exists within the Expert Body it is necessary to examine the public statements on water fluoridation from *Dental Health Foundation Ireland*, whose members are a majority on the Expert Body, and compare these statement to the findings of scientific fact as noted by the NHS York Review and the SCHER Review.

The scientific facts as found by SCHER or the NHS York Review do not support the statements on water fluoridation made by *Dental Health Foundation Ireland*. The examples provided here clearly demonstrate that the *Dental Health Foundation Ireland* statements on water fluoridation are based on beliefs rather than scientific evidence. Such bias also demonstrates an inability or unwillingness by *Dental Health Foundation Ireland* to interpret scientific facts correctly or to be fair and objective in its reporting on matters relating to water fluoridation.

## Dental Health Foundation Ireland:

*“Fluoridation of the public piped water supplies is the safest, most effective and most efficient method of preventing tooth decay.”*

## Scientific Committee on Health and Environmental Risks SCHER

- *“In the 1970s, fluoridation of community drinking water, aimed at a particular section of the population, namely children, was a crude but useful public health measure of systemic fluoride treatment, however, the caries preventive effect of systemic fluoride treatment is rather poor”*
- *“Water fluoridation as well as topical fluoride treatments (e.g. fluoridated toothpaste or varnish) appears to prevent caries, primarily on permanent dentition, **but topical application is the more efficient measure.**”*
- *“SCHER agrees that **topical application of fluoride is most effective in preventing tooth decay.**”*
- *“There is a risk for dental fluorosis in children in EU countries with systemic fluoride exposure, but a threshold cannot be detected.”*
- *“In children a **very narrow margin** exists between achieving the maximal beneficial effects of fluoride in caries prevention **and the adverse effects of dental fluorosis.**”*
- *“The susceptibility to develop dental fluorosis depends on the timing of systemic exposure and the uptake of circulating fluoride by developing teeth. The period of the greatest susceptibility is in the period up to two years of age. Other subpopulations susceptible to systemic fluoride exposure include the elderly, with nutritional and metabolic deficiencies as these may alter bone composition leading to skeletal fluorosis.”*
- *“**The continued systemic exposure of fluoride from whatever source is questionable once the permanent teeth have erupted.**”*
- *“The benefits of fluoridation to adult and elderly populations in terms of reductions in coronal and root decay are limited.”*
- *“There is **equivocal evidence linking fluoride in drinking water to the development of Osteosarcoma.**”*

## NHS YORK REVIEW

- *“The impact of fluoridation of drinking water supplies depends on a number of major issues: the potential benefits (including improved dental health and reductions in dental health inequalities); the potential benefits over and above that offered by the use of alternative interventions and strategies (e.g. fluoridated toothpaste); and the potential harms (including dental fluorosis, bone fractures and bone development problems, genetic mutations, birth defects, cancer and hypersensitivity).”*
- *“The review found water fluoridation to be significantly associated with high levels of dental fluorosis which was not characterized as “just a cosmetic issue.”*
- *The NHS York Review on Water Fluoridation found that at 1ppm fluoride one in six persons would develop dental fluorosis, representing chronic overexposure to fluoride. Of these approximately they found that one quarter will have fluorosis of aesthetic concern.*
- *“The review did not show water fluoridation to be safe. The quality of the research was too poor to establish with confidence whether or not there are potentially important adverse effects in addition to the high levels of fluorosis.”*
- *“The evidence of a benefit of a reduction in caries should be considered together with the increased prevalence of dental fluorosis along with the ethical, environmental, ecological, costs and legal issues that surround any decisions about water fluoridation.”*
- *“Any future research into the safety and efficacy of water fluoridation should be carried out with appropriate methodology to improve the quality of the existing evidence base.”*

## Dental Health Foundation Ireland:

*“By controlling the quality and the amounts of fluoride in the public water supply through technical means and under legal rules, the safety of everybody in the community is assured.”*

## Scientific Committee on Health and Environmental Risks SCHER

- *“In children a very narrow margin exists between achieving the maximal beneficial effects of fluoride in caries prevention and the adverse effects of dental fluorosis.”*
- *“There is a risk for dental fluorosis in children in EU countries with systemic fluoride exposure, but a threshold cannot be detected.”*
- *“There is not enough quality data on sources and levels of fluoride to perform a full uncertainty analysis within the European context.”*
- *“Subpopulations susceptible to systemic fluoride exposure include infants, the elderly, with nutritional and metabolic deficiencies as these may alter bone composition leading to skeletal fluorosis.”*
- *“There is equivocal evidence linking fluoride in drinking to the development of Osteosarcoma”*

## NHS YORK REVIEW

- *“The evidence of a benefit of a reduction in caries should be considered together with the increased prevalence of dental fluorosis. The research evidence is of insufficient quality to allow confident statements about other potential harms or whether there is an impact on social inequalities. This evidence on benefits and harms needs to be considered along with the ethical, environmental, ecological, costs and legal issues that surround any decisions about water fluoridation.”*
- *The NHS York Review on Water Fluoridation found that at 1ppm fluoride one in six persons would develop dental fluorosis, representing chronic overexposure to fluoride. Of these approximately they found that one quarter will have fluorosis of aesthetic concern.*
- For Ireland that equates to 783,000 individuals who will have developed dental fluorosis from exposure to water fluoridation alone, (not including other contributory sources) of which 195,750 who will have developed fluorosis of aesthetic concern.

## Dental Health Foundation Ireland:

*“Most scientists agree that the reason for the improvement is fluoridation of public water supplies and the increased use of other fluoride products.”*

## Scientific Committee on Health and Environmental Risks SCHER

- *“Independent of the fluoridation policies across European countries, there has been a consistent decline over time in tooth decay in 12 years old children from the mid-seventies, regardless of whether drinking water, milk or salt are fluoridated.”*
- *“A vast number of clinical studies have confirmed that topical fluoride treatment in the form of fluoridated toothpaste has a significant cariostatic effect.”*
- *“In the 1970s, fluoridation of community drinking water, aimed at a particular section of the population, namely children, was a crude but useful public health measure of systemic fluoride treatment, however, the caries preventive effect of systemic fluoride treatment is rather poor.”*
- *“In countries not using such additives, the improved dental health can be interpreted as the result of the introduction of topical fluoride preventive treatment. Oral hygiene, changes in nutrition or care system practices, or any change that may result from an improved wealth and education in these countries. **This suggests that water fluoridation plays a relatively minor role in the improved dental health.**”*

## NHS YORK REVIEW

- *“Whilst there is evidence that water fluoridation is effective at reducing caries, the quality of the studies was generally moderate and the size of the estimated benefit, only of the order of 15%, is far from "massive".”*

## Dental Health Foundation Ireland:

*“Water fluoridation is a low cost public health measure which is safe to human health and crosses social boundaries providing benefits equally to all sections of society, including both young and old and socially deprived.”*

### Scientific Committee on Health and Environmental Risks SCHER

- *“In children a very narrow margin exists between achieving the maximal beneficial effects of fluoride in caries prevention and the adverse effects of dental fluorosis.”*
- *“There is a risk for dental fluorosis in children in EU countries with systemic fluoride exposure, but a threshold cannot be detected.”*
- *“There is equivocal evidence linking fluoride in drinking to the development of Osteosarcoma”*
- *“The continued systemic exposure of fluoride from whatever source is questionable once the permanent teeth have erupted.”*
- *“The benefits of fluoridation to adult and elderly populations in terms of reductions in coronal and root decay are limited.”*
- *“Water fluoridation was considered likely to have a beneficial effect, but the range could be anywhere from a substantial benefit to a slight risk to children's teeth with a the narrow margin between achieving the maximal beneficial effects of fluoride in caries prevention and the adverse effects of dental fluorosis”*

### NHS YORK REVIEW

- *“There was little evidence to show that water fluoridation has reduced social inequalities in dental health.”*
- *“The research evidence is of insufficient quality to allow confident statements about other potential harms or whether there is an impact on social inequalities. This evidence on benefits and harms needs to be considered along with the ethical, environmental, ecological, costs and legal issues that surround any decisions about water fluoridation”*



## Dental Health Foundation Ireland:

*“Major reviews of the evidence by leading medical scientists have shown that the use of fluoride in drinking water at one part per million is safe to human health.”*

### Scientific Committee on Health and Environmental Risks SCHER

- *“There is not enough quality data on sources and levels of fluoride to perform a full uncertainty analysis within the European context.”*
- *“Subpopulations susceptible to systemic fluoride exposure include infants, the elderly, with nutritional and metabolic deficiencies as these may alter bone composition leading to skeletal fluorosis.”*
- *“There is equivocal evidence linking fluoride in drinking to the development of Osteosarcoma”*
- *“There is a risk for dental fluorosis in children in EU countries with systemic fluoride exposure, but a threshold cannot be detected.”*
- *“In children a very narrow margin exists between achieving the maximal beneficial effects of fluoride in caries prevention and the adverse effects of dental fluorosis.”*
- *“For children between 1-6 yrs the UL is exceeded if they consume more than 500ml a day of fluoridated water and use toothpaste.”*

### NHS YORK REVIEW

*“Given the level of interest surrounding the issue of public water fluoridation, it is surprising to find that little high quality research has been undertaken.”*

*“The review found water fluoridation to be significantly associated with high levels of dental fluorosis which was not characterised as “just a cosmetic issue”.”*

*“The review did not show water fluoridation to be safe.”*

*“The review team was surprised that in spite of the large number of studies carried out over several decades there is a dearth of reliable evidence with which to inform policy. Until high quality studies are undertaken providing more definite evidence, there will continue to be legitimate scientific controversy over the likely effects and costs of water fluoridation.”*

*“The number of people who would have to be exposed to water fluoride levels of 1.0 ppm for one additional person to develop fluorosis of any level is 6, of these approximately one quarter will have fluorosis.”*

**For Ireland, this equates to 783,000 individuals who will develop dental fluorosis of which 195,750 who will have fluorosis of aesthetic concern from exposure to water fluoridation alone.**



## Dental Health Foundation Ireland:

*“Fluoride in the diet through fluoridated tap water ensures a constant optimal level of fluoride in the body. This enhanced, beneficial fluoride level in the saliva ensures the greatest resistance of teeth to decay.”*

### Scientific Committee on Health and Environmental Risks SCHER

- *“The predominant beneficial cariostatic effects of fluoride in erupted teeth occur locally at the tooth surface (applied topically as toothpaste not ingested in the body). This is achieved by maintaining the intra-oral fluoride levels of the teeth, dental plaque and saliva throughout the day.”*
- *“Independent of the fluoridation policies across European countries, there has been a consistent decline over time in tooth decay in 12 years old children from the mid-seventies, regardless of whether drinking water is fluoridated.”*

## Dental Health Foundation Ireland:

*“Fluoride toothpaste is helpful but not as effective as water fluoridation.”*

### Scientific Committee on Health and Environmental Risks SCHER

- *“Water fluoridation as well as topical fluoride treatments (e.g. fluoridated toothpaste or varnish) appears to prevent caries, primarily on permanent dentition, **but topical application is the more efficient measure.**”*
- *“A vast number of clinical studies have confirmed that topical fluoride treatment in the form of fluoridated toothpaste has a significant cariostatic effect.”*
- *“SCHER agrees **that topical application of fluoride is most effective in preventing tooth decay.**”*

## Dental Health Foundation Ireland:

*“Fluoride, particularly in drinking water, is largely responsible for the enormous reduction in tooth decay in recent years.”*

### Scientific Committee on Health and Environmental Risks SCHER

- *“Independent of the fluoridation policies across European countries, there has been a consistent decline over time in tooth decay in 12 years old children from the mid-seventies, regardless of whether drinking water, milk or salt are fluoridated”*
- *“In the 1970s, fluoridation of community drinking water, aimed at a particular section of the population, namely children, was a crude but useful public health measure of systemic fluoride treatment, however, the caries preventive effect of systemic fluoride treatment is rather poor. **In countries not using such additives, the improved dental health can be interpreted as the result of the introduction of topical fluoride preventive treatment. Oral hygiene, changes in nutrition or care system practices, or any change that may result from an improved wealth and education in these countries. This suggests that water fluoridation plays a relatively minor role in the improved dental health.**”*

### NHS YORK REVIEW

- *The York Review found fourteen studies which demonstrated that after stopping water fluoridation the incidence of dental caries increased marginally compared to when the community was fluoridated.*
- *However only eight of these studies were properly documented and of these four had an effect at the 5% level while for the other four the effect was insignificant*
- *Similarly, the NHS found eight studies which demonstrated that when water fluoridation ceased an improvement in dental health resulted.*

## **ALL IRELAND CANCER INDICENCE MAPS AND IMPLICATIONS FOR WATER FLUORIDATION**

In 2002 the UK Medical Research Council (MRC) found that there was significant uncertainty concerning the bioavailability of fluoride for consumers especially with respect to the possible influence of water hardness on uptake of fluoride from artificially fluoridated water. The MRC observed that if the bioavailability of ingested fluoride can vary significantly, this might need to be taken into account in the interpretation of epidemiological studies.

It is evident from examining the National Cancer Research Institute information, which is summarized in the attached illustrations, demonstrating the relative risk of developing cancer in the Republic of Ireland and Northern Ireland, that no account by the researchers was taken of water fluoridation or water hardness in the interpretation of epidemiological data.

It is clear from the MRC review, the EU Commissions Scientific Committee for Health and Environmental Risk (SCHER) review and U.S National Research Council (NRC) review of water fluoridation that fluoride is a risk factor in the development of certain cancers. Fluoride has been identified by the U.S toxicological agency as an equivocal carcinogen and both SCHER and the U.S NRC reported that water fluoridation may be linked to increased risk of developing Osteosarcoma, a childhood bone cancer. In addition the World Health Organisation have also documented how drinking water hardness plays an important role in the prevalence of certain cancers in society.

In my report titled Human Toxicity, Environmental Impact and Legal Implications of Water Fluoridation, a relatively simple but effective risk assessment map was presented identifying the geographic areas in the country with known low calcium levels in drinking water. Most, if not all, of these areas have fluoridated water. It was with some alarm and concern therefore that when I examined the cancer incidence maps by the Irish Cancer Research Institute that the highest incidence of cancers mirrored the same locations identified in my study.

I have shown the data to a number of international academics who are experts in fluoride toxicity and they all agree that the fact that the cancer incidence maps so clearly delineates the border area and where the one of the key known variables between both populations and geographic areas is that drinking water is not artificially fluoridated in Northern Ireland and is in the Republic of Ireland, that this evidence should be a major cause for concern for consumers and the Department of Health in the Republic of Ireland. I attach for your information the comments of one such expert and earnestly hope that you will seek for an immediate cessation to water fluoridation in light of this new evidence.

Yours sincerely

Declan Waugh

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The notion is possible, that another variable besides industrial fluoride treatment of people may be involved in Ireland cancer risk data between South and North. Similar contentions were put forth to attempt to re-interpret the cancer incidence data described by the late Dr. Yiamouyiannis for U.S. cities, before and after fluoride infusions into public water supplies. However, after intense argument, rebuttal, and scrutiny, the relation between chronic industrial fluoride exposure from drinking water with increased incidence of lethal cancers was accepted in no less than three U.S. Courts.

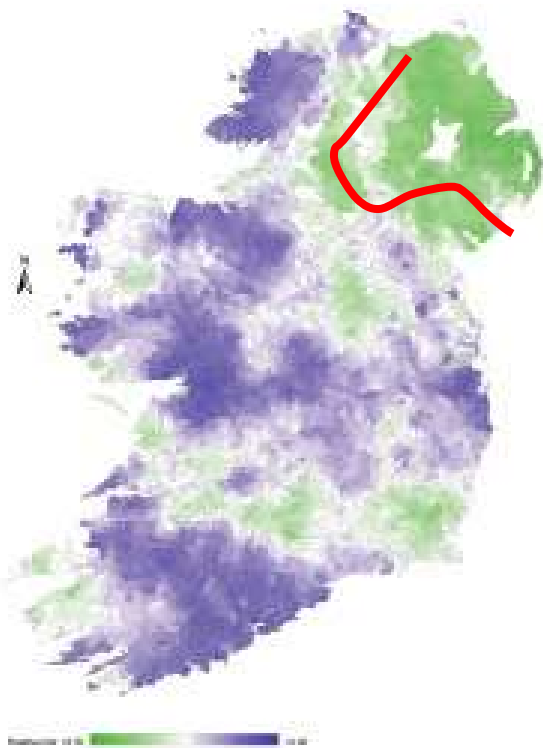
Industrial fluoride treatment of the people of Southern Ireland should be halted because: 1) there are no valid or logical environmental, behavioural or genetic factors known at the present time that consistently explain the sequestration of cancer risk mapped in Ireland's fluoridated regions. 2) The increased incidence of cancers in U.S. cities, discovered in the 1960's after fluoridation began, has never been explained by any factor other than fluoride. There the cities themselves acted as their own controls in prospective observations and thus represent the best data we have, in the absence of intentional studies with volunteer populations with this synthetic poison, which would be illegal.

There are also unknown variables even when it comes to gross acute lethal poisoning with industrial fluoride taken internally. Lethal heart failure is known to occur at fluoride blood concentrations at which precipitation of calcium fluoride can begin. This level is also associated with elevated blood potassium, so one can argue it is the hyperkalemia that is the lethal event, rather than the calcium uptake inhibition during the plateau phase of the cardiac action potential. Hyperkalemia itself however is not necessarily lethal within hours at these levels. Physical precipitation of calcium fluoride may not necessarily be discovered at autopsy, but this is unnecessary to induce heart malfunction, since the activity of the calcium ion is itself substantially lowered by fluoride at levels prior to precipitation.

I always say, 'it is what it is'. In other words, whether fluoride induces cancer or not, or whether fluoride potentiates cancers caused by other factors, etc., the data are what they are: lethal cancer incidence is higher in all carefully examined U.S. cities after fluoridation, compared to before fluoridation. And fluoride blood levels associated with severe reduction in calcium mobility in solution is also the known concentration at which heart action impairment is lethal. It makes no difference whether the exact mechanism for these correlations is ever known in detail or not, to set environmental or health policy. The fact that Southern Ireland is experiencing high cancer risk compared to Northern Ireland makes it absolutely essential to correct any and all unusual known factors that could possibly be involved, and that are feasible to correct. Fluoridation of Southern Ireland could explain the unequal incidence distribution, particularly after considering all the data taken together, including the known mutagenic effects of fluoride *in vitro* (National Research Council, **Report on Fluoride in Drinking Water**, 2006), and for this reason must be stopped now, because it is artificial and *can* be stopped. Continuing to fluoride-treat the people of Ireland, with these data at hand, is inconsistent with the meaning of due diligence in duty of care and also presumes that an unidentified mythical factor is instead responsible, even though it is known with certainty that calcium deficient soft fluoride water ingestion causes four fold higher blood fluoride levels, compared to ingestion of calcium-rich fluoride water.

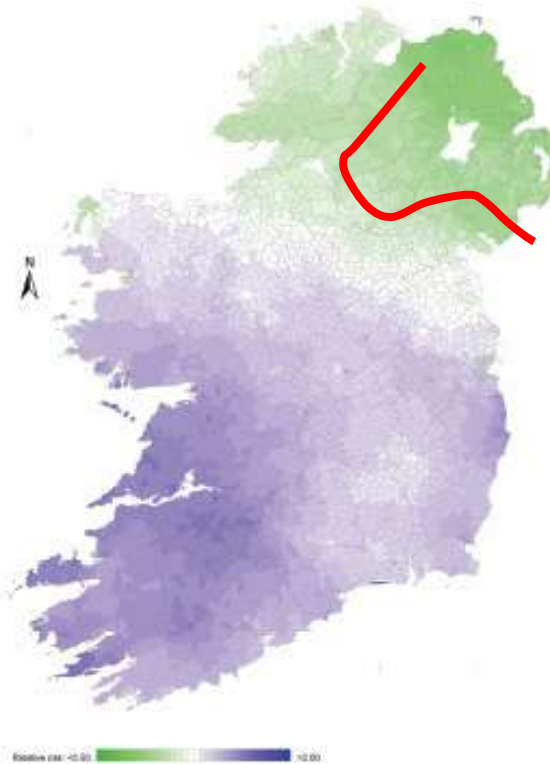
# ALL IRELAND CANCER INCIDENCES, PROSTATE, LEUKAEMIA, PANCREATIC CANCER

Prostate Cancer



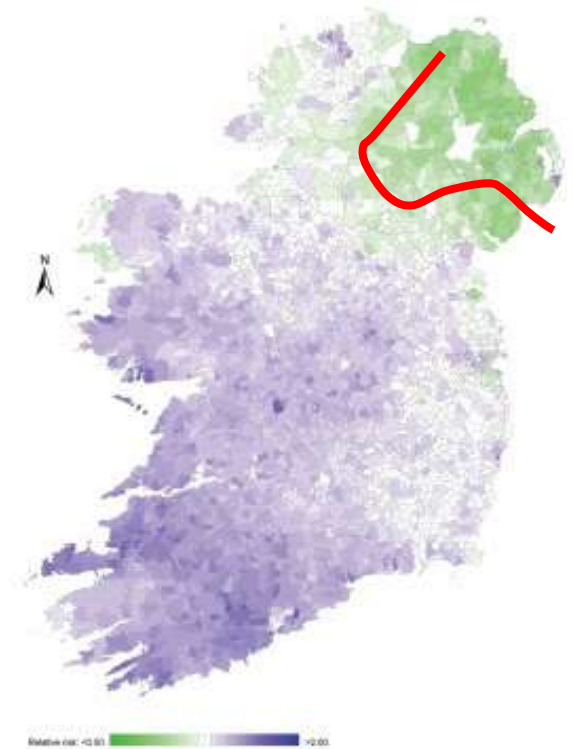
Source: National Cancer Research Centre

Leukaemia: Both Sexes



Source: National Cancer Research Centre

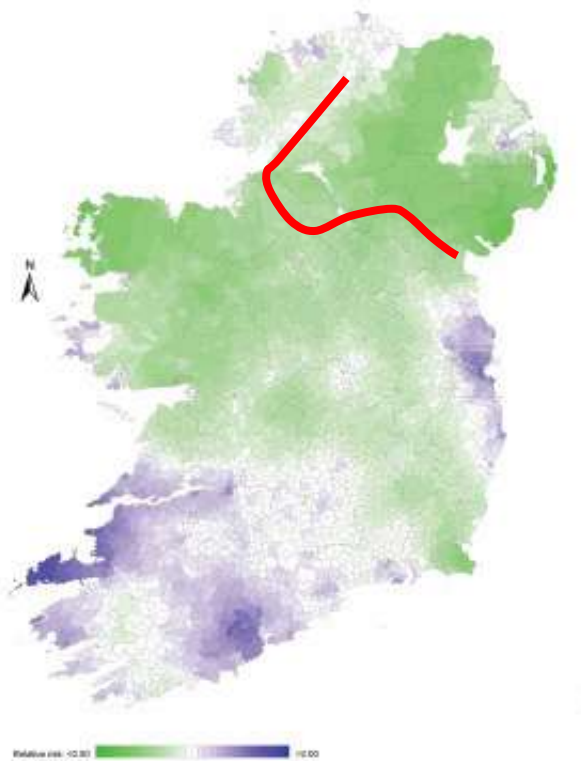
Pancreatic Cancer: Both Sexes



Source: National Cancer Research Centre

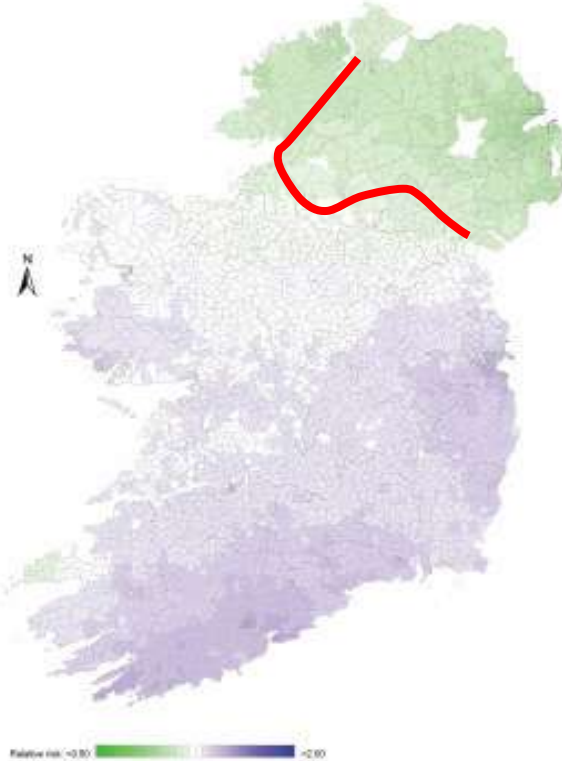
# ALL IRELAND CANCER INCIDENCES, BLADDER, BRAIN & CENTRAL NERVOUS SYSTEM AND OESOPHAGEAL CANCER

Bladder Cancer: Women



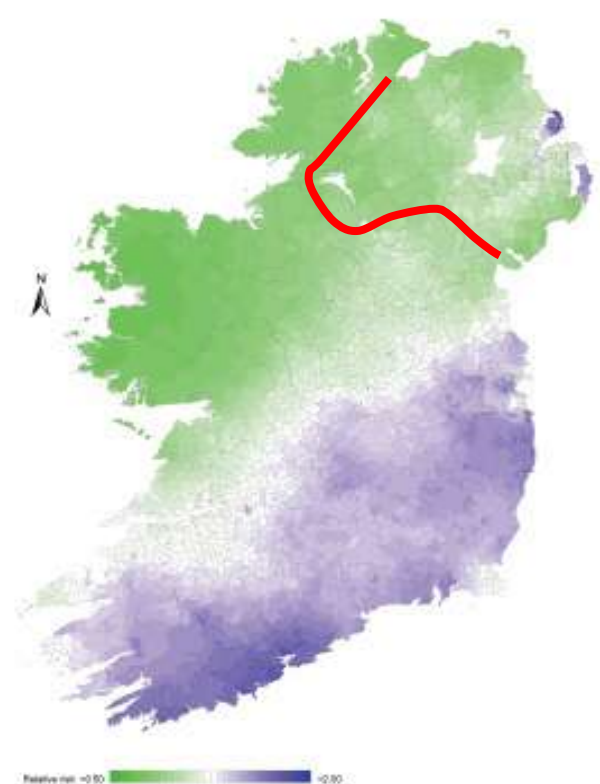
Source: National Cancer Research Centre

Brain and Central Nervous System Cancer



Source: National Cancer Research Centre

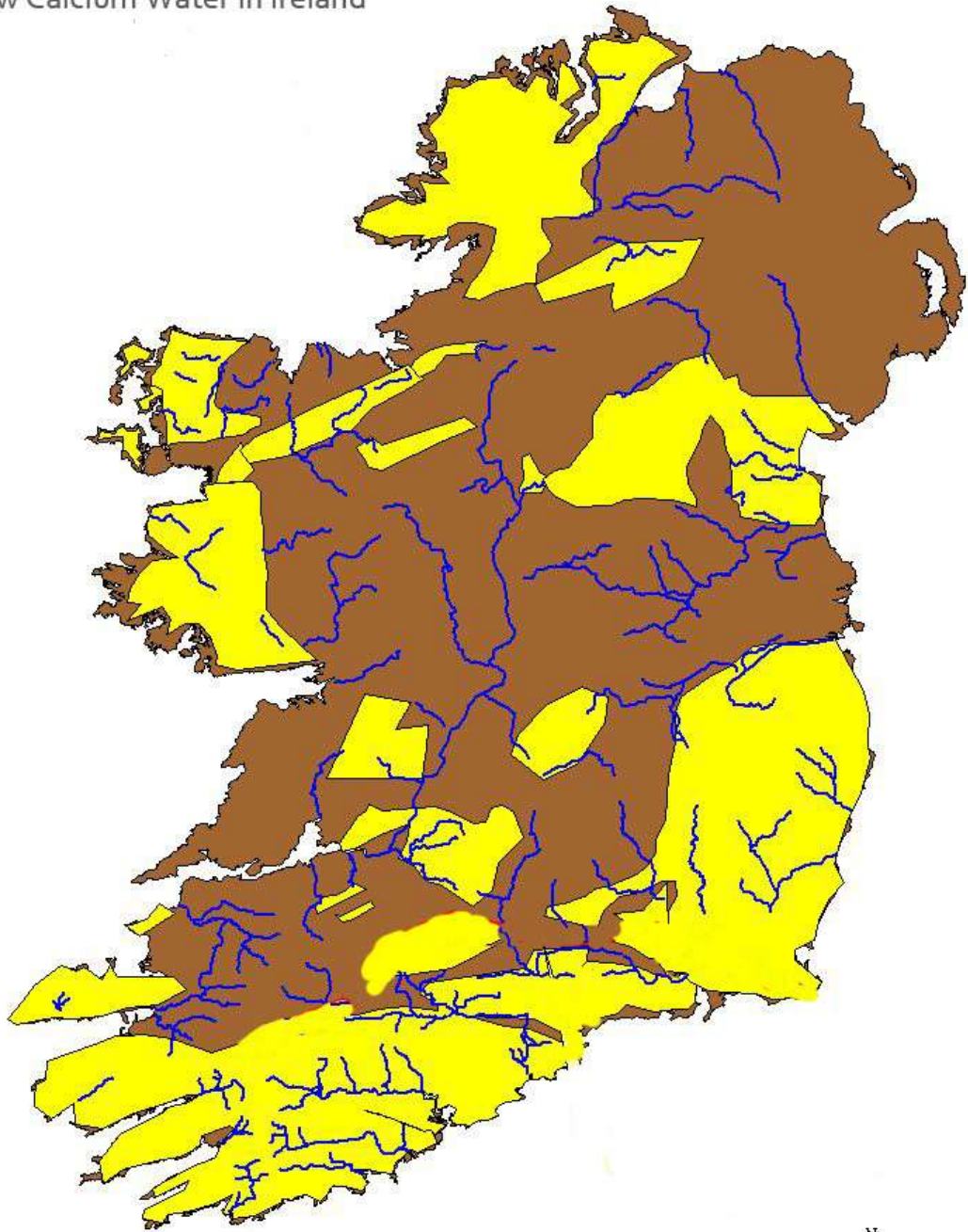
Oesophageal Cancer: Females



Source: National Cancer Research Centre



# High Risk Geographic Areas with Artificially Fluoridated Low Calcium Water in Ireland



- Major\_Rivers
- Low Calcium and Magnesium
- Ireland

