

The Use of Scientific Data to Influence the Taking of a Policy Position

CASE STUDY: Water Fluoridation in the City of Dorval

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Dorval is one of the few Quebec cities to provide fluoridated water. Until December 2001, the Isle of Montreal included the city of Montreal and 27 others municipalities. Two of these municipalities, Dorval and Pointe Claire, had

fluoridated water. In January 2002, a provincial law led to a consolidation, subjecting all municipalities to a new administrative body. They were not thrilled, losing their autonomy, which was decades old.

Following another provincial law in January 2006, a referendum was held. Several municipalities made the decision at that time to depart this administrative body, including Pointe-Claire and Dorval. In the process, Dorval regained its independence but lost control of the drinking water infrastructure. Having offered fluoridated water since the 1950s, Dorval stopped the process in 2003 due to the age of the equipment and a financing accord reached by the local minister. However, by 2006, the city of Montreal controlled the water infrastructure, and the city decided not to allow Dorval the right to resume its water fluoridation.

I work for the National Institute of Public Health of Québec. After hearing about the fluoridation decision, a coalition in Montreal approached me to ask for advice. In fact, the decision by Montreal officials was not scientific, but political. The previously mentioned coalition wanted to launch an informational campaign with the people of Dorval, and it asked me whether data existed to measure the impact of ceasing water fluoridation. No epidemiological data were available, but

Quebec has a school program which includes an examination of all preschool-age children by dental hygienists. The examinations are focused on two oral health criteria. The first one yields whether a child is “at risk” according to the modified Grainger index (children with visible cavities on the anterior teeth or inter-proximal caries on posterior teeth). The second criterion addresses the untreated caries: children with identified dental cavities are immediately referred to the dentist. If the children who are examined are subject to individual monitoring, it is evident that the associated data had never been used as epidemiological data.

Each region in Québec is affiliated with a Local Service Centre Community (CLSC). The Dorval-Lachine region is, therefore, subject to the same CLSC. The CLSC produces raw data, namely an overall percentage. The water was fluoridated in Dorval, while Lachine was not. I went into different schools: I noticed that in 2003 and 2004, right when water fluoridation ended in Dorval, 7.4% of Dorval children were identified at risk of caries. In Lachine, certainly a more disadvantaged area, this percentage stood at 26.4%, which is comparable to the average of Montreal, which was 26% — while the average was around 15% in areas of the Montreal-Dorval area comparable in socioeconomic terms.

Between 2003 and 2005, following the cessation of fluoridation, the rate of children at risk of cavities in Dorval moved from 7.4 to 16% — a significant increase. Similarly, in 2003, only 3% of Dorval kindergarten children had untreated cavities, a percentage well below that found in the other Québec regions. However, between 2003 and 2005, this percentage rose to 12%. At the same time in Lachine, the percentages remained

constant. Were those data reliable? In my capacity as a scientist, it was necessary to study this question.

In fact, screening conditions were difficult, as was the socioeconomics of the population. In addition, the protocol performed by the dental hygienists was old, and we are not well-versed in its content. And there were not a lot of study subjects. That being said, the analysis still has strength because it was conducted by professionals who are competent and calibrated, and the data analysis was not biased through the ceasing of fluoridation because the dental hygienists were not intended to be there at this juncture. Furthermore, all children were included in these examinations, and this was not a sample. The increases observed between 2003 and 2005 were statistically significant.

Moreover, I used a predictive model developed by the University of York for the fluoridation of water. I have also used socioeconomic data comparable to those for Dorval to verify the consistency of the results. Based on the simulation performed according to the York report, 6.3% of Dorval children would be at risk if the water was fluoridated, as opposed to a percentage of 14.6% if no fluoridation occurred. The results obtained by modeling are comparable to the data reported by dental hygienists. Therefore, both methods come to the same conclusions. Moreover, for the sake of information, we should never mention — when speaking to journalists — children “at risk,” but, instead, we should refer to children with “serious decay.” Indeed, it is difficult for them to understand and to convey to the larger public the concept of risk.

Thereafter, the Montreal Coalition for Healthy Teeth organized a press release, press conferences, radio conferences and communication campaigns on television, in neighborhood newspapers or in the large-circulation newspapers in order to maximize media coverage. From the beginning of July 2006, dental health occupied the front page of newspapers, along with (soccer star) Zinedine Zidane. In several media, dental health was on the first page, which prompted citizens of Dorval to

mobilize. These citizens circulated a petition signed by hundreds of people and the provincial deputy of the region was involved, which secured a governmental decree allowing Dorval to resume control of its water infrastructure until 2009. In fact, water fluoridation resumed in summer 2008.

Anyway, it is our duty to depart from our practitioner mode of thinking, and work as public health players to engage journalists. They are interested in the newest issue and are seeking untold stories. Similarly, this media coverage called attention to a health crisis, a mobilizing issue additionally because of the fact that it affected children. Moreover, the problem was linked to a controversy policy, marked by the distrust of municipalities before the takeover of Montreal.

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Furthermore, what about the risk assessment? It is human nature that we are willing to run a significant health risk if we feel in control of our decisions. But if the risk is imposed on us by others, our perception is very different. Take the example of smoking. Someone tends not to care much about messages regarding the cancer risk. However, if it is indicated to him that the chemical plant near his home can cause cancer, he becomes upset. It's the same with dental subjects.

Thus, a practitioner can ask the mother of a child whose number of cavities has doubled in one year to stop giving her sweets, and hear the mother explain that she is sorry, but her child likes treats. But if the doctor tells her that the doubling of decay has resulted from the policy of the Mayor of Montreal, the mother's reaction is not the same.

During the campaign conducted in Dorval, fluoridation was rarely mentioned. The leading message was: “Children's health has suffered.” The second message was: “The policy of Montreal is

responsible.” The third message emphasized the sentiment of losing autonomy, which had damaged the health of children. The fourth insisted on respecting the tradition of water fluoridation in Dorval. Ultimately, these messages have created a sense of indignation and anger, drawing the public’s reaction.

In conclusion, it is very important to have health monitoring data. Public health is much more than a science. It encompasses — over and above surveillance data — the defining of a social

marketing strategy, appropriate to the situation, to reach the public. In this regard, it is essential to seize the opportunities available to involve local citizens. A researcher cannot be judge and jury and, therefore, directly involved in the promotion of the policy request, while being responsible for the production of data. The message must be carried by a citizens' committee. Finally, we must dare to think the unthinkable and do not underestimate the power of changing the things within our field.