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Dear Colleagues, I want to reassure you I’m not going to present in French. But as Dr. Maddocks told you, Brian Rawson asked me at the last minute to present something because one of the speakers wasn’t able to show up. And I accepted if you allow me to use a presentation in French I had given to an association of psychiatrists in Quebec a few months ago. And as the issue to address here is: ‘linking medical or epidemiological evidence with policy creation’ I will try to go through the thinking and the actions we’ve taken, to inform, to document policy making in Canada and Québec during the past decade to obtain better firearms controls in view of preventing deaths and injuries.

Well, for starters, this is a sculpture by a Quebec woman artist [slide shows a lipstick standing next to a bullet next to a cigar, in increasing sizes, almost like bars in a graph] which could be interpreted in two ways. One being the tobacco problem which is greater than the firearms one, and the lipstick I am not sure what it represents. This sculpture could also represent the three instruments of power, a cigar being the symbol of money, the full metal jacket bullet being force and coercion, and the lipstick being persuasion. Persuasion is obviously what people of our profession can use to inform decisions. Although there is one caveat, that in politics most of the time politicians will say: “Don’t confuse me with the facts. My mind is already made up.” So facts do not have the same power that we would like them to have. Still the only way to have some influence in our societies - and we have to start in our own communities before we go to the international scene - is to be part of coalitions or mobilizing various sectors of society under a coalition that has very precise objectives. And we must stay as steadfast as a bulldog - that should be the mascot of any form of advocacy to promote safety and health through public policy. And in our work, we can try to contribute by defining a problem in a public health view, so as to be able to resolve it with a public health approach. Because such a community medicine approach has the advantage of being scientific, neutral, not political, but humanitarian in essence, like Hippocrates, defined the Ethics of medicine, 2,500 years ago.

The data I’ll be presenting as an example to further the point that medical evidence can orient policy creation, is mostly mortality data, but that is just the tip of the iceberg. And I will take the example of the tragic incident that started Canada’s and Québec’s preoccupation with the problem of firearms, when in 1989 there was a massacre at the École Polytechnique of Montreal and 14 women were killed, another 12 were injured. When we saw that event which shocked Canadians who thought they lived in the safest
country on earth, we realized in public health that this was just the tip of the iceberg. Because for those 14 deaths in Montréal that day, there was another 1,400 that were killed each year by suicide, by domestic violence, and a few “accidents”. Later on, we discovered also, that Canada was far too high in the firearm related deaths of children under age 15, right after the USA, Finland, Northern Ireland and Israel.

Now I’ll be concentrating on Quebec because it’s a province of almost the same population as Finland, and the epidemiology of firearms injury and death in Quebec is very similar to that of Finland. Perhaps I can show some data that could be useful to a country that wants to work on bettering their firearms control before going on to the international scene. As you can see mostly suicides occur in our Northern societies. Almost 80% of firearm deaths in Finland as in Quebec and Canada are suicides. Homicides, most of them are between people who know each other. It’s not the random homicide in the street, it’s people who often sleep in the same bed that kill each other. Accidents, or unintentional injury is relatively a small part of the problem. So in policy making the focus should be on guns and suicide prevention.

The costs per year are for Canada about $6 billion or $7 billion dollars. For Quebec it’s almost $2 billion dollars per year. That’s total cost, medical, police, but also lost productivity and lost quality of life. Measures to reduce the problem through public policy can certainly be cost-effective.

This slide is the real face of gun suicide (a case of attempted suicide with a 12 gauge shotgun, before and after reconstructive surgery of the face at Enfant-Jésus Hospital in Québec City), and I’m sorry for those who aren’t physicians, and I won’t leave it too long for that reason. But the suicide attempt - which people rarely survive - costs a lot to repair. But what’s of interest for policy thinking in this sort of event, is that on a series of about 300 survivors of firearm attempted suicide, after reconstructive surgery of the face over a 20 year period, only 3 have reattempted suicide and killed themselves since. So there is presumably a real benefit to trying to save lives by reducing ready access to such lethal and destructive means as guns, and we’ll be talking about that important notion – ACCESS --for policy making purposes later on.

What types of firearms are used? The majority are with hunting guns, long firearms. Mostly rifles of caliber .22 and shotguns of 10 and 12 gauge. Only about 6% of suicides in Quebec are with handguns, even though handguns are so much easier to use that long guns like rifles or shotguns. Why? We have compared rural and urban regions. Québec City is urban, and Chaudière-Appalaches is mostly rural. And you see that firearms are the preferred means in the rural area, and the second most frequently used means of suicide in the urban area. What calibers are used? About 50% of all firearm suicides use three calibers, the three I quoted (rifle .22 and two types of shotguns, 12 and .410 gauge). That’s very important, because Canadian law had formerly focused at controlling mostly handguns since 1938, but had always neglected long-guns because they were deemed not
to be easy to hide for criminal use, and as the purpose of the laws in the past was mostly “to get guns out of the wrong hands”, to prevent crime, it took the medical and public health and nursing community, to readjust things in such a way that the law now will also aim at controlling long-guns, that are found in the vast majority of firearm related deaths in Canada, Québec and Finland for that matter, and therefore focus on the rest of the iceberg instead of only the tip.

There are 17% to 23% of Québec households with at least a firearm, mostly .22 calibre rifles and .410 and 12 gauge shotguns. What was useful for policy making, was when we made a survey in Québec of how those guns are stored by law abiding responsible gun users: … over 33% were not stored according to safety rules, which means accessible to children, in other words 1 in every household with a gun in Québec stored its firearms in “like fly swatters”. They are not stored legally nor in a elementarily safe fashion. The other thing is that one of every two owners of a firearm in Quebec haven’t used their firearms for at least 12 months and perhaps years. The policy implication is to make it easier to get rid of one’s gun if it is un-used and harder to obtain for casual reasons (e.g.: to shoot a raccoon)

This is a graph you’ve seen so often, but has the interest to show that public health is mostly interested in the unit of the household, not in the number of guns that are being counted out there – like the disarmament crowd does – because in public health one gun in a home is enough to kill. Because in comparing provinces of Canada you can correlate household gun ownership with death rates per 100,000 population in that province. Look at graph 1 and 2 comparing several regions and countries, and notice the correlations. These graphs have the potential to help policy making and a national and regional level, by making laws to control firearms universal to all Canadian provinces and territories..

In epidemiology, a series of studies can be conducted from the weaker type to the most robust type. The weaker type ecological studies will compare two cities that you can control more or less all variables except the one that you’re studying. Our American neighbors have compared suicide rates in Seattle versus Vancouver where handguns have been registering with licensed owners for decades. In Seattle, Washington State handguns are very poorly controlled were handguns are the major cause of suicides. These studies generate the hypothesis, that controls can work to save lives.

In this particular study, perhaps its greatest interest was to underscore that in the 15 to 24 year age group - perhaps because suicides are more impulsive - there was no substitution to other means. So there is a real gain in Vancouver in controlling handguns for that age group. Same for homicides, and now with all types of firearms you can see the difference on this other slide comparing 2 cities for gun homicide rates.

The other factor that is very important because of the question of substitution but also
because we are physicians and we would like to save lives, is the lethality, the fatality rate of different means compared to attempted suicide. Firearms are lethal in 92% of cases in a Canadian study, there are few survivors. Compared to other means like even hanging strangulation and carbon monoxide poisoning and drugs that are less lethal means. So in fact, if there is no availability to a very lethal means like guns and there is substitution to drugs, we as physicians have far more chances of having somebody survive that we can bring to psychiatric or psychological help. The same thing with violence. In interpersonal violence, firearms are 12 times more lethal than any other means. This single argument for a physician or health worker is key.

A far more robust type of study in firearm epidemiology, are the case control studies, that Professor Cukier quoted this morning. It is very important for physicians to know what types of risk there are in a home with firearms compared to a home where there is none. The risk is increased by almost fivefold (5X) for suicides in a home where there is guns compared to one where there isn’t, and almost threefold (3X) for homicides. Now if you look at the guns accessibility, the risk goes up to 5.8 odds ratio - which is a form of relative risk for case control studies. If it’s loaded it goes up to 9. If it’s handguns it goes up to 5.8, and even if it’s locked just the presence of a locked gun in a home increases the risk of death - even though this relative risk is included in the confidence interval.

The risk of death in a household is 22 times higher than the risk of killing an intruder. And I’ll pass on the other studies you can see on this slide. Make no mistake, although knowledge can always be perfected, we currently know enough for preventive action, and as physicians, we must inform decision makers and push for policies that are effective in preventing injuries and “saving lives”.

The preventive approach is essentially – not to look at the problem as a suicide, a homicide, violence or a predictable “accident”, in a conflict zone or not, but to think all these events have one thing in common : a firearm is a deadly instrument that you don’t want to see discharged inappropriately. You have a much larger spectrum of measures you can implement through education - even though education is less effective than enforcement by legislation, which in turn is less affective than engineering by - for example - putting in-built automatic trigger locks on firearms like the Americans would like to try to do.

And obviously this slide shows why and how to store guns safely instead of like fly swatters. Trigger locks are available on the market to try to make firearms that are kept home to be as safe as drugs with child-proof closures. So in other words evidence has created a public policy that aims at making Canada a safer place to live in. The strategy has been to make owners responsible of what is done with their arms - just like drivers need licenses and registration for cars – we need a license to own a firearm and all firearms (hand and long-guns) must be registered. Therefore, useless guns should not be kept casually, they should be easy to remove during a crises (suicide, violence, intoxication) or
denied at the screening process to obtain the license, traceable if stolen or used in a crime, and stored safely if all other conditions allow responsible possession and legitimate use (e.g.: hunting, policing).

The conclusion to the role that we can bring to such a difficult debate, even if it’s not enormous, can have quite a significant impact as we saw in Canada. As long as we don’t hesitate to advocate better controls on firearms and small arms to reduce death, injury, suffering, and post traumatic shock syndromes. And the three following quotes, summarize I believe the courageous role we can play locally to globally, if we truly wish to do our job of “saving lives”.

" All scientific work is incomplete - whether it be observational or experimental. All scientific work is liable to be upset or modified by advancing knowledge. That does not confer upon us a freedom to ignore the knowledge we already have, or to postpone the action that it appears to demand at a given time.”

*Austin Bradford Hill (1965)*

" The solution to many of today's medical problems will not be found in the research laboratories but in our Parliaments. For the prospective patient, the answer may not be cure by incision at the operating table but prevention by decision at the Cabinet table."

*Sir George Young, Former British Health Minister under Prime Minister Margaret Thatcher*

" Medicine is a social science and politics nothing but medicine on a grand scale"

*Rudolph Virchow. Die öffentliche gesundheitspflege (The Public Health Service) Medizinische Reform. 1848 ; 5 :21-22*