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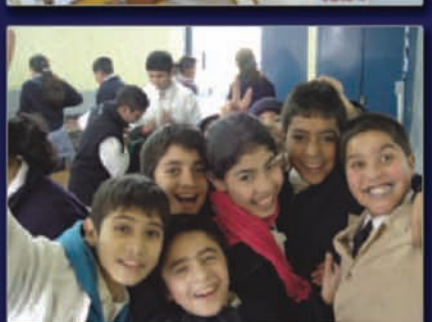

Childhood Obesity in Canada: A Societal Challenge in Need of Healthy Public Policy

SOME IMPLICATIONS FOR POLICY INTERVENTIONS ARISING FROM THE MCGILL HEALTH CHALLENGE, OCTOBER 2006, AND THE FOLLOW-UP KNOWLEDGE-TO-ACTION WORKSHOP, FEBRUARY 2007

A Document Prepared by the McGill Health Challenge Think Tank with the National Collaborating Centre for Healthy Public Policy

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1- McGill Health Challenge Think Tank

2- National Collaborating Centre for Healthy Public Policy

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Executive Summary

Introduction

In Canada and around the world, the childhood obesity pandemic poses a serious challenge, not only to the health community, but to society as a whole. It is increasingly recognized that the patterns of food over-consumption and inactivity that are driving the obesity pandemic are rooted in the way modern society operates. This relationship involves:

- the ways in which we – as individuals, families and communities – live, consume, invest and take care of our children;
- the ways in which we – as educational, health, media and business organizations – produce, promote, trade and provide goods and services to individuals, families and communities; and
- the ways in which we – as trade institutions, investment markets and governments – maintain the present health and economic divide that shapes the arena where individuals, families, communities and organizations evolve.

In this context, health organizations cannot continue to promote healthy lifestyles with insufficient means and limited power if individuals and all other societal actors passively maintain this relative status quo. To reach the scale and scope of change that is required to stop the progression of childhood obesity in the midst of other social and economic imperatives, health and public health organizations have to play a leadership role in galvanizing action by individuals and by all social and economic actors in society. This requires:

- that public health organizations develop the expertise and access the capabilities necessary to provide actors from education, agriculture, businesses, media, urban planning, transportation, etc., with guiding principles, frameworks for action and the best available evidence about potential health impacts of their policy and actions.
- a sophisticated understanding of the complex mechanisms, motives, success criteria, and data and information infrastructure that guide decision and action within each sector and at each level involved, as well as at the interfaces between these.
- breakthrough partnerships among scientists and decision-makers from all societal sectors.

McGill Health Challenge Think Tank and Knowledge to Action Workshop:

The 2006 McGill Health Challenge Think Tank (http://www.mcgill.ca/healthchallenge /2006/) and its follow-up 2007 Knowledge-to-Action (KTA) workshop (http://www.mcgill.ca/healthchallenge/2006/kt/) convened participants from all the domains mentioned above, including Canadian and international health professionals and agencies leading the fight against childhood obesity. The objective of the events was to help articulate a bolder notion of what can be done to more effectively prevent childhood obesity than prior efforts, deployed by the health community alone, were capable of achieving. The focus of the presentations and exchanges at the 2006 Think Tank was on global policy and action to fight childhood obesity, while the KTA workshop examined similar policy and action in the Canadian arena.

The Think Tank raised many critical issues, starting with the leadership role that government must play in setting the stage for the changes needed from all other actors in society. For policy makers in domains other than health, this makes the health impact assessment and the development of *healthy* public policy more urgent and important than ever. For policy makers in health, this points to challenges that they will have to face as they must, on one hand, develop bolder health policies than the existing ones that have thus far been unsuccessful; and, on the other, if they are to galvanize action rather than opposition, the new health policies against childhood obesity have to be as economically, socially and culturally sustainable as possible. Finally, the public health actors monitoring the health of the population are required to serve, more than even before, as catalysts for change.

This paper is intended to be a discussion paper contributing to the on-going agenda for policy changes in Canada in the fight against childhood obesity. We focus on a set of themes and questions, inspired by the Think Tank and KTA content, which we felt to be most relevant to the current Canadian policy context, and, more specifically, to initiatives designed to improve the health of children and youth.

Key Themes and Questions:

Convergence between Health and Economics in Canada

In economies such as Canada's, government objectives and priorities have typically had a divided focus between economic growth and productivity on the one hand, and the provision of healthcare and other social benefits on the other. Decisions concerning one side of the divide are typically ignored by the other. In addition, the degree of governmental interventions through market mechanisms is often limited to market failures, i.e., when market operations are harming society in significant ways. However, health professionals and neuroscientists attending the Think Tank suggested that overweight and obesity may very well be the "normal" response of brain and body to food in the present word of plenty. This is particularly true for children and adolescents whose abilities in self-control are immature. For this reason, Think Tank participants from both sides of the health/economic divide agreed that more convergence between health and economic consequences of alternatives has to be factored into decisions made by all societal actors – from individuals and families, through schools and communities, to businesses and governments. On the other hand, the debate was open as to whether actors in different fields would all accept responsibility to lead the changes or whether government intervention is needed.

The Role of Government in Addressing Obesity in Canada

The view emerging from the Think Tank on the role of governmental interventions was that governments must play a leadership role in shaping the socio-economic arena, so that individuals, families, businesses and other actors have the capacity and motivation to make the changes needed to stop the progression of the pandemic. The complexity of such governmental interventions commands an integrative, flexible approach, where economic and health objectives are jointly considered at all levels of government. This approach will incorporate health impact assessment in policy and investment decisions that are made in the intersecting domains of social and economic activity that define modern lifestyle; and it will acknowledge and address conflicts and synergies

as they arise. This new and more complex vision about governmental action sees governments as being able to engage other social and economic actors to support the action of health and public health organizations. This requires lowering barriers that restrain action and reinforcing cooperation, fairness, trust and reciprocity among the actors involved.

Strategies to Address Obesity

The Think Tank participants discussed strategies, developed and implemented under the leadership of health and public health organizations, which will help broad societal plans against childhood obesity actually *work* in terms of both policy and action. Based on research on Complex Adaptive Systems (CAS), they emphasized the need to identify and target precise and time-bounded objectives for all actors and for the system itself, and also to recognize the lever points while setting priorities.

Learning from Action

As the societal plan unfolds into policy and action change, the system has to learn from accumulated evidence, recognizing and supporting building blocks that drive changes and improve predictability of future policy and action. Participants further underlined the need to pursue many directions at once, all in building flexible mechanisms of participation, communication, decision, evaluation and accountability as the agenda and the system evolve.

The Importance of Partnerships and Collaboration

Participants also suggested that one of the most significant challenges facing governments and health and public health agencies – in their role leading changes sufficient in scale, scope and speed to stop childhood obesity –may be the conceiving of novel, healthy public policy capable of creating an environment where private and public sectors actors, civil society and communities are willing to combine skills and resources to fight childhood obesity. They argued that it is critical to develop and promote models where businesses, philanthropic organizations, NGOs and community organizations can find areas of common interest and common goals, in spite of potentially divergent missions and objectives.

Innovative Initiatives and Pragmatic Collaborations

Innovative initiatives born outside government and built upon pragmatic collaborations were presented at both the Think Tank and the KTA workshop. They reflected key changes in market mechanisms, as well as initiatives within business, social innovation and entrepreneurship that are able to foster greater health-economy-culture convergence and move society in a “health-friendly” direction. A promising area of development in healthy public policies may be the creation of a legislative and regulatory framework to promote and scale up such initiatives, so that they serve as a springboard to local and global movements. This could significantly improve the societal resources available to fight childhood obesity. This may call, however, for a new type of governance – multilevel, multisectoral and networked – involving pragmatic collaboration among government, agriculture, business, health and

social actors along the local and global food chains, and in society in general. Furthermore, if supported and scaled up by healthy public policies, these changes have the potential to build community capacity and provide communities with information, intervention and assessment structures that would allow local social and cultural considerations to emerge and "show up at grassroots levels," leading the way to context-specific solutions to obesity.

The Role of the Agri-food Sector

A large number of presentations and exchanges at the Think Tank and its follow-up KTA workshop focused on modern agri-food policies that are perceived as stumbling blocks for local and global efforts in fighting childhood obesity. *Healthy* agri-food policies are needed to shift food supply and demand in a direction that would make healthy eating the natural option for all children, in an economically sustainable manner for the agri-food, food processing, retail and food service sectors. Meanwhile, *economically, socially and culturally sustainable* health policy is equally needed to help move supply and demand towards healthy and pleasurable food. This convergence could facilitate a shift from the present orientation of the food chain, currently favouring low-priced, high-calorie foods toward more variety and diversity in food supply and demand.

Challenges await agriculture, as well as health, in shifting the drivers of supply and demand in a healthier direction. On the supply side, challenges to the agri-food sector are related to the nature, policies and practices of agricultural and industrial food innovation, production, distribution and consumption in school, home and restaurant contexts, as well as to trade and investment. On the demand side, the critical issues for the health and agri-food sectors pertain to advertising and communication strategies, labelling and product information, pricing and sales strategies, as well as consumer education on food, nutrition, physical activity, calorie balance, etc.

Striking the Right Balance between Health and Economy in Agri-Food Policy

For health, challenges lie in striking the appropriate balance between regulatory and policy controls – necessary for the prevention of threats to the health of individuals – and a flexible and innovative approach to food and food-service operations that would encourage economic actors to bring to market foods less energy-dense, but also flavourful, satisfying and available at an accessible cost. Relevant areas include food labelling, health claims related to food products, new ingredients and product approval processes, as well as advertising, and in particular, advertising to children.

The Canadian participants in the Think Tank and KTA suggested that Canada may be at a crossroads in this regard, and that the agriculture and agri-food sectors require major changes in their founding paradigms that will benefit the health of Canadians and, at the same time, spur innovation in these sectors. The KTA workshop participants examined change in policy and action that could ensure convergence between the new Food Guide and the *Agri-Food Policy Framework* that is currently being discussed for guiding the future policy and strategic investment agenda.

School-based Policy to Address Obesity

Turning to school health policy and action, participants observed that countries like the USA have privileged schools as intervention targets in the fight against childhood obesity. The U.S. Public Law 108-265, for instance, is meant to increase adoption of healthier food and physical activity policy by American school districts. The USA also has a healthy school index administered nationwide. Canada is waiting for similar measures, as current statistics suggest that health should be granted a higher level of strategic priority on schools' agenda. The recent creation of the Joint Consortium for School Health, endorsed by the education and health ministries, should help move the agenda forward and empower schools to play a powerful role in promoting healthier lifestyles to children and their families, as well as in building the capacity of communities to provide more effective support to individual and governmental efforts.

Building Capacity and Research

Finally, participants emphasized that the success of integrative multisectoral, multi-level governmental plans to fight childhood obesity is dependent upon the development of both human capital and a scientific basis to guide and support action. To empower public health organizations to play their leadership role, governments may have to devote important capacity-building resources to provide their professionals and organizations with the literacy and working conditions that will enable them to lead changes. Governments may also have to foster, in all sectors, integrative and innovative mindsets, knowledge and skills in order to increase convergence between health and economic decisions and actions of their professionals and organizations. In terms of research, it is more pressing than ever to develop an integrative framework to improve surveillance of the pandemic's evolution and to assess the effectiveness of interventions of different size and scale and by all actors involved, from family and community to global institutions.

Conclusion

Embarking upon the multi-level and multi-sector "healthy public policy" approach needed to fight childhood obesity is of the utmost relevance in Canada, particularly in the wake of the report "Healthy Weights for Healthy Kids" released by the Canadian Standing Committee on Health in 2007. It is also extremely timely on a worldwide basis given that the World Health Assembly, in its 2007 meeting, adopted a resolution that urges member states to "develop and implement a national multisectoral evidence-based action plan for prevention and control of noncommunicable diseases that sets out priorities, a time frame and performance indicators, provides the basis for coordinating the work of all stakeholders, and actively engages civil society, while ensuring avoidance of potential conflict of interests." The resolution further requests the WHO Director-General to elaborate such a plan at the global level. Canada can lead the way in developing the completely novel approach to health and public health that this calls for.

Introduction

In Canada and around the world, the childhood obesity pandemic poses a serious challenge, not only to the health community, but to society as a whole. Stopping its progression – before the present generation of children becomes the first to have a shorter life expectancy than their parents – demands creative thinking and sustained commitment and action from all stakeholders. This can happen in a timely manner only if it is supported by ambitious initiatives of actors from health, education, agriculture, transportation, urban planning and business, in both public and private sectors, and in academia. Curbing the pandemic also calls for breakthrough partnerships among scientists and decision-makers from all sectors of society. The 2006 McGill Health Challenge Think Tank and its follow-up 2007 Knowledge-to-Action (KTA) workshop convened participants from all these domains. This paper focuses on the implications of the information and ideas presented at the Think Tank and at its follow-up KTA workshop for ~~the~~ Canadian public health actors and policy makers.

The closing document of the 2006 Health Challenge Think Tank, the Montreal Call to Challenge "Business as Usual" on Childhood Obesity (http://www.mcgill.ca/healthchallenge/2006/the_montreal_call/), launched in the presence of the Mayor of Montreal, Mr. Gerald Tremblay, suggests that to reach the scale, scope and speed of change needed to stop the progression of the pandemic we may have to revisit some of the basic ways in which we operate in society. We may have to challenge the ways in which we – as individuals, families and communities – live, consume, invest and take care of our children; the ways in which we – as school, health, media and business organizations – produce, promote, trade and provide goods and services to individuals, families and communities; and the ways in which we – as trade institutions, investment markets and governments – shape the arena in which individuals, families, communities and organizations evolve.

The Think Tank raised many critical issues, starting with the leadership role that government may have to play in setting the stage for the changes needed from all other actors in society. For policy makers in domains other than health, this makes the health impact assessment and the development of *healthy* public policy more urgent and important than ever. For policy makers in health, this points to challenges awaiting them as they have, on the one hand, to develop bolder health policies than the existing ones that have thus far been unsuccessful, and, on the other hand, if they are to galvanize action rather than opposition, to elaborate new health policies against childhood obesity as economically-, socially- and culturally- sustainable as possible. Finally, the public health actors monitoring the health of the population are required to serve, more than even before, as catalysts for change.

It was precisely to address these issues that the 2006 Health Challenge Think Tank (http://www.mcgill.ca/healthchallenge/2006/) and its follow-up KTA workshop (http://www.mcgill.ca/healthchallenge/2006/kt/) convened leading experts and organizations from the health sector, together with their counterparts from other sectors that shape the environment in which children develop: food and agriculture, education, media, finance, management, law, politics and economics. The objective of the

events was to help articulate a bolder notion of what can be done to prevent childhood obesity in a more effective manner than prior efforts deployed by the health community have been able to achieve. The focus of the presentations and exchanges at the 2006 Think Tank was on global policy and action to fight childhood obesity, while the KTA workshop examined similar policy and action in the Canadian arena.

This paper is intended to be a discussion paper contributing to the on-going agenda for policy changes in Canada to fight childhood obesity. We focus on a set of themes and/or questions, inspired by the Think Tank and KTA content, which we felt to be most relevant to the current Canadian policy context. The paper is not, therefore, a summary report of these events[1].

The themes addressed are the following:

- Scope of the childhood obesity problem;
- Why governments may have to lead the change;
- The need for healthy public policy: Broad governmental plans to fight childhood obesity;
- The need for healthy public policy: Domain-specific policies;
- Private-public partnership and pragmatic collaboration;
- Individuals as agents of change;
- Effective policy levels and interventions. Information to back up policies and strategies.

Themes

Scope of the childhood obesity problem

Policy makers must justify the measures they propose. In public health, many justify strong interventions by pointing to the urgency and size of the obesity pandemic. Indeed, the speakers at the McGill Health Challenge looking at the scope of the problem agreed that childhood obesity has become one of the most critical global heath issues requiring immediate attention. Childhood obesity will also become very costly, given its chronic disease consequences.

The International Obesity Task Force's (IOTF) estimates, presented by Dr. Philip James, IOTF chair and co-chair of the Think Tank, suggest that, at the current rate of progress of the childhood obesity pandemic, nearly 287 million children could be overweight or obese by 2010 – 85% more than a decade ago. By 2015, the obese population of all ages could rise to 704 million, with the poorest segments of the population being the most affected, in both developed and developing countries.

[1] Summaries of the material presented at the two events and links to the web-recording of each presentation are available at http://www.mcgill.ca/healthchallenge/2006/summaries/

Data from the World Health Organization (WHO) reveal that in 2005, worldwide, approximately 1.6 billion adults were overweight and 400 million adults were obese. Furthermore, WHO estimates that if the current lifestyle trend in young and adult populations around the world persists the toll of obesity and chronic diseases will increase by a further 17% over the next 10 years. Estimates cited by the Canadian Standing Committee on Health (2007) suggest that obesity in the overall population currently costs Canada about $4. 3 billion annually in direct ($1.6 billion) and indirect ($2.7 billion) health care expenses, and that the burden is expected to increase.

Canadian statistics on childhood obesity[2] reveal that the combined overweight/obesity prevalence in youth aged 2 to 17 years raised from 15% in 1978 (12% overweight and 3% obese) to 26% in 2004 (18% overweight and 8% obese), with overweight and obesity rates displaying similar trends among boys and girls. The increase varied by age, with the combined rate remaining relatively the same over this period in children aged 2 to 5 years (around 21%) while doubling in the same period for the children aged 6 to 11 years (from 13% to 26%) and adolescents aged 12 to 17 years (from 14% to 29%).

Statistics[3] further reveal that, in 2004, the combined prevalence of childhood obesity/overweight varies to some extent across provinces but, even the lowest rate, observed in Alberta, was 22%. Quebec was the province with the second lowest rate at 23% while the highest (36%) was observed in Newfoundland/Labrador. Ontario and British Columbia had combined overweight/obesity rates respectively of 27% and 26%, while Prince Edward Isalnd had a rate of 30% and Saskatchewan 29%. New Brunswick (34%), Nova Scotia (32%) and Manitoba (31%) had overweight/obesity rates significantly above the national average of 26%.

Obesity is higher in poorer populations

It was emphasized very early in the Think Tank that obesity may be positively and strongly related to socio-economic disparities, noting however that the obesity pandemic runs through the whole spectrum. Childhood obesity prevalence is higher in poorer population segments not only in Canada and other developed countries[4,5,6], but also in the developing world soon after countries reach the survival level of economic development[7]. Sir Michael Marmot bluntly stated that poverty is bad for health, and his data describing a negative correlation between levels of education and BMI also support Drewnowski's conclusions. Drewnowski made this point equally forcefully, stating openly that in North America obesity rates and social class are closely linked and are correlated with income, behavioural risk data, and even neighbourhoods and real estate values. He further noted that, in order to target specific population sub-groups with a more effective choice of interventions and locations of service delivery, the level of analysis by geographical region is crucial in determining the extent of the

[2] Shields, M. Overweight Canadian children and adolescents, http://www.statcan.ca/english/research/82-620-MIE/2005001/pdf/cobesity.pdf
[3] Shields, M. Overweight Canadian children and adolescents, http://www.statcan.ca/english/research/82-620-MIE/2005001/pdf/cobesity.pdf
[4] Dietz, W., Health Challenge Think Tank 2006
[5] Drewnowski, A., Health Challenge Think Tank 2006
[6] Marmot, M., Health Challenge Think Tank 2006
[7] Monteiro, C.A., Health Challenge Think Tank 2006

incidence and rates of growth in obesity. Drewnowski's observations appear to be consistent with WHO findings indicating that different concentrations of population obesity reflect the consequences of other underlying social factors that are broader determinants of health, such as poverty and deprivation, living and working conditions, access to health facilities and services, and equity and gender[8].

Beyond contributing to a heavier burden through the numbers at the population level, the link between childhood obesity and socio-economic disparity, from a policy perspective, adds further to the scope of the problem for many reasons. Think Tank presenters offered many possibilities in this regard:

- One of the striking things about poverty is the coming together of multiple risk factors, physical, as well as social[9];

- A characteristic of poverty is chaos in various facets of the child's life: a high degree of unpredictability, lack of structure and routines, including eating together and at a regular time[10];

- The consequences of poverty related to obesity include low income children having more difficulty with self-regulation, feeling low mastery, having smaller social support networks and feeling less connected[11];

- Recommendations often ignore that healthy diets cost substantially more and the majority of people cannot afford them; a diet of added sugar, added fat and refined grains is cheaper than the recommended diet of vegetables and fruit[12];

- Food availability and food prices are two important environmental influences on food purchases and consumption, and they vary with income at neighbourhood and at household level[13];

- The epidemic of obesity in the last 20 years has absolutely everything to do with lower wages, the shift from manufacturing to service jobs, no pensions, no health coverage and jobs moving offshore[14].

The fact that childhood obesity is more prevalent and more complex in poorer population segments demands a comprehensive set of policies and interventions that span the health, social and economic domains. The need for comprehensive and integrated governmental action was emphasized by Marmot. He suggested that in such broad interventions we might want to see: universal polices rather than policies targeted to specific population segments; inequalities placed at the forefront of a comprehensive portfolio of health policies; and healthy public policies in domains other than health that are necessary to fight childhood obesity. Universalist interventions would take into consideration macro psycho-social and socio-economic variables such as social stratification, income inequity and health inequalities. This suggestion is based on Marmot's lifetime research on the socio-economic gradients of health, showing that, rather than comparing poor and rich, it is more useful to represent the poverty-health relationship as a gradient.

In sum, taking into consideration the full scope of the problem of addressing childhood obesity, in particular in the most vulnerable segments of the population, governments' policies, actions and investments in matters of

[8] Le Galès-Camus, C. Health Challenge Think Tank 2006
[9] Evans, G., Health Challenge Think Tank 2006
[10] Evans,G., Health Challenge Think Tank 2006
[11] Evans,G., Health Challenge Think Tank 2006
[12] Drewnowski, A., Health Challenge Think Tank 2006
[13] French, S., Health Challenge Think Tank 2006
[14] Drewnowski, A., Health Challenge Think Tank 2006

health and economy will probably need to show more convergence. In this regard, Adam Drewnowski warned that the present emphasis on the economic costs of healthcare consequences of obesity is only one side of the equation in policy debates. The other, in his view, is that "obesity may be the consequence of economic damage," i.e. the imperatives of economic efficiency may create conditions that encourage poverty and obesity.

Why governments may have to lead the change

In economies such as Canada's, government objectives and priorities have had, typically, a divided focus between economic growth and productivity on the one hand, and provision of healthcare and other social benefits on the other one. Decisions concerning one side of the divide are often ignored by the other. In addition, the degree of governmental interventions through market mechanisms is limited to market failures, i.e., when market operations harm society in significant ways.

However, Think Tank participants from both sides of the health/economic divide agreed that more convergence between health and economic consequences of alternatives have to be factored into the decisions made by all actors in society – from individuals and families, through schools and communities, to businesses and governments. On the other hand, the debate was open as to whether actors in different fields would all accept responsibility to lead the changes or whether government intervention is needed.

Phillip James, Think Tank co-chair, stated that the importance and urgency of the obesity epidemic make it a public health problem comparable to a typhoid epidemic, and that governments have the responsibility to intervene in the public interest. The analogy he drew with the classic public health story about John Snow and the cholera epidemic was used as a metaphor throughout the Think Tank. The analogy suggests that urgent and authoritative measures are called for, as long as they are effective. A competing view, prevailing in the USA in particular, was that strong governmental interventions are inappropriate regardless of their potential effectiveness, because they constitute a form of paternalism; conversely, individual freewill and market mechanisms should be left alone. The debate put into relief the relationship between social context and policy proposals in different countries around the world.

For Canadian policy makers, this is an important debate. It is true that Canada has a tradition that welcomes governmental intervention in many domains, but the view that refutes public intervention on social issues is also present in Canada. Such differences in assumptions often underlie debates on policy interventions. Laurette Dubé, Think Tank co-chair, concluded that only appropriate mixtures of governmental intervention, market mechanisms and individual action could achieve the scale, scope and speed of change needed to stop the progression of the pandemic. She further underlined that, in order to get all societal actors involved, governmental interventions may have to lead these changes adopting what Kahneman and other economists attending the Think Tank called "libertarian paternalism," a policy approach that, while preserving free choice for individuals and organizations, makes the choice of "healthy" courses of actions more natural.

The view emerging from the Think Tank about the role of governmental interventions was that governments must play a leadership role in shaping the socio-economic arena, so that individuals, families, businesses and other actors have the capacity and motivation to make the changes needed to stop the progression of the pandemic. Quebec's Health Minister, Philippe Couillard, exemplified this view: "Every state in the world with an entirely or partly public healthcare system is now tackling the issue of obesity, which is not only a prevention topic or a public health topic, but also an economic topic and a necessity for us in order to sustain the economy and, particularly, the healthcare system. We are bringing prevention to the centre of our society's capacity to sustain a healthcare system, and as a society we also try to keep a vibrant and active economy because chronic illnesses need a lot of attention, efforts and joint integrated approaches."

The complexity of governmental interventions designed to lead the changes required to stop childhood obesity calls for an integrative, flexible approach, where economic and health objectives are jointly considered at all levels of government. This approach will incorporate health impact assessments in policy and investment decisions that are made in the intersecting domains of social and economic activity that define modern lifestyle; and it will acknowledge and address conflicts and synergies as they arise. In sum, as suggested in the introduction, politicians and policy makers in domains other than health may have to place *healthy* public policy higher on their agenda, and those involved in shaping novel *health policies* against childhood obesity may have to make these as *economically, socially and culturally- sustainable* as possible. This new and more complex vision about governmental action sees governments not only as providers of public money, but also as able to engage other social and economic actors. This requires lowering barriers that restrain action and reinforcing cooperation, fairness, trust and reciprocity among actors involved.

The vision that emerged from the Think Tank to help government play its leadership role was to foster societies where healthy diets and physical activity are the norm, and where there is convergence between health and economic performance goals, social dynamism and cultural values. Furthermore, there are many types of governmental policy tools that can lead the changes needed to fight obesity, such as regulations, informational campaigns, capacity-building, health impact assessment and other forms of research planning and monitoring. An additional tool is the partnership which establishes multisectoral, multi-level relationships among governments, community organizations, industry and business.

The need for healthy public policy: Broad governmental plans to fight childhood obesity

The Think Tank exchanges focused on a societal plan against childhood obesity, developed at the global level by the Global Prevention Alliance, which also inspired the European Anti-Obesity Charter adopted by 53 health ministries, in November 2006, in Turkey, less than a month after the Montreal Think Tank. At the KTA workshop, participants discussed the societal plans developed in Canada by the provinces of Quebec and British Columbia.

The three societal plans vary in the degree of specificity of their goals and recommendations and illustrate the diversity of approaches used in the design of such broad-based interventions. The Global Prevention Alliance's societal plans, as well as the European Charter, set goals and timelines (e.g., The European Charter aims to stop the progression of the pandemic by 2012 and to reverse the trend by 2015), principles to guide actions, as well as a framework linking main actors, policy tools and settings to translate these principles into actions. The Quebec governmental plan aims to reduce, in youth and adults, the obesity prevalence rate by two percent, and the overweight prevalence rate by five percent, by 2012. A set of 75 actions along five main directions are proposed: namely, facilitate environmental conditions that support healthy eating and active living, promote supporting social norms; improve services to persons with weight problems; and foster research and knowledge exchange. ActNow British Columbia specifies in even greater detail the lifestyle change and obesity targets for 2010: increase the percentage of people eating at least five servings of fruits and vegetable every day by 20%, increase the percentage of people physically active by 20%, reduce the percentage of overweight or obese adults by 20%, and increase the number of women counselled about alcohol use during pregnancy by 50%.

If these and other broad governmental plans are to meet their target deadlines for stopping the progression of childhood obesity, they clearly have to affect in significant ways the policy agenda, not only in health, but also in welfare and social support, education, transportation, urban planning, media, agriculture, commerce, industrial and economic development, as well as any other domain that shapes lifestyle in society. Most importantly, these multisectoral healthy public policies must have sufficient traction to serve as catalysts for action for all actors involved, from the individual to society as a whole. Beyond the necessary conditions for high-level political will and leadership to mobilize different sectors, we propose the next key points for consideration in the design and implementation of healthy public policies.

Setting the agenda for a complex adaptive system

In keeping with the ecological approach – but in pushing its boundaries by viewing the system that produces health as a complex adaptive system (CAS) – Think Tank and KTA participants provided critical insight for policy and action. Holland, a pioneer in complex systems research, pointed out the need to identify and target the lever points in setting priorities (in CAS terminology, the lever points are simple, inexpensive interventions that produce significant and long-lasting effects). As the societal plan unfolds into policy and action change, the system has to learn from accumulated evidence, recognizing and supporting building blocks that drive changes and improve predictability of future policy and action. CAS further emphasizes the need to pursue many directions at once. It also promotes the building of flexible mechanisms of participation, communication, decision and accountability as the agenda and the system evolve.

Reporting on the CAS-inspired societal plan against childhood obesity of the State of Indiana, US, Kolbe affirmed: "We have completely re-envisioned, reformulated what public health is. Public health is now defined as the collection of activities implemented by any society to improve the conditions in which people can be healthy. It is a very simple definition, but it reorients entirely the definition of public health." This view is similar to the Canadian approach to population and public health. Indeed, in the context of Quebec's obesity

plan, Poirier stressed the value of treating childhood obesity prevention in such an integrative manner since physical activity and good nutrition are necessary and beneficial for managing numerous other health conditions besides childhood obesity. Many of the issues that affect obesity levels also affect other public health challenges.

A life course perspective

Le Galès-Camus emphasized that the timing of interventions to prevent childhood obesity and subsequent adult obesity should be considered during pregnancy, as well as later in life, since there seems to be a link between under-nutrition *in utero* and in early childhood, and problems of overweight later in life. These observations led the WHO to urge that obesity be treated from a life course perspective, with close attention paid to pre-natal, infant and early childhood feeding practices. Bertini further emphasized the importance of governmental policies and programs that support maternal care, particularly in the less privileged segments of the population. She reminded us that, while the mother is the single most important person who influences the life of a child, we do not pay enough attention to her needs and the wellbeing during pregnancy and beyond.

The cultural context

KTA participants stressed the importance of recognizing the cultural values of a society with both guiding principles and concrete sets of action. Culture encompasses beliefs, myths, dogmas and codes of conduct that are embodied both in the everyday behaviours of individuals and practices of organizations and society. For instance, Daniel Kahneman observed that the 'culturally appropriate' degree of governmental intervention built into any plan would be related to the prevailing notions of the centrality of free will, freedom of choice and individual responsibility, and to the rules of conduct by which individuals, organizations and governments are willing to abide.

Constant focus on economic disparities

André Chagnon, Adam Drewnowski, Gary Evans, Catherine Le Galès-Camus and Sir Michael Marmot all emphasized the need for a constant focus on economic disparities. Le Galès-Camus underlined that a small child living in poverty generally eats what his/her parents can afford to provide, and is physically active to the extent to which the disadvantaged circumstances where s/he lives allow it from a safety perspective. Often neither is optimal, and they are certainly not at the discretion of the child. She expressed strong support for policy change at the societal level in order to assist parents to help their children. Bertini reasserted the view that mothers are a key point of intervention in this regard.

Multisectoral and Multi-Level Institutional Mechanisms and Governance

If participants in the Think Tank, including those from the USA, did not challenge the potential leadership role of government in adopting some form of a societal plan to fight childhood obesity, nevertheless, different views existed as to the best governance model to ensure the multisectoral and multi-level action necessary to foster successful and timely completion of these plans. Interestingly, the three societal plans that were discussed reflect such diversity. The European Charter, for instance, was signed by health ministers of different countries,

as leaders in society calling for multisectoral action. Quebec's governmental plan, also under health leadership, goes further in building a multisectoral nature into its governance. It was developed and signed by seven ministries, the process being spearheaded by the ministers of health and finance. In addition to a special budgetary envelope to support business and social innovation promoting physical activity and healthy eating as a core component of the plan, specific programs targeted against childhood obesity are developed and funded as part of the core strategic agenda of these ministries.

The BC program goes even further in promoting multisectoral mechanisms and governance. The premier established a minister of state, building a shared leadership role between the health ministry and the Ministry of Tourism, Sports and Arts. The latter markets the province while also engaging in the sports and recreational infrastructures within every community. According to Duffel, the greatest arm of ActNow BC is a body of non-for-profit organizations active in the prevention of cancer, cardio-vascular and other chronic diseases and the skills, ability and experience they bring in developing strategies to move forward. All ministries contribute to the goals and objectives, and the programs are designed and delivered in cooperation with more than 70 partners from other levels of government, NGOs, industry associations and the private sector. A premier's ActNow council has been established, convening some leading figures in BC, all of them individuals to whom people listen and pay attention. In an effective attempt to harmonize some of the work across government, 19 ministers meet monthly. ActNow does not have its own budget but is financed from the Government's budget.

While the three plans differ in the degree to which multisectoral collaboration is built into their governance model, it is important to note that, beyond mentioning the need for complementarity of action, from individual, to family, community, state, country and global levels, none of them articulates concretely how such multi-level governance should look. Yet, single and multisectoral actions addressing many of the factors that shape lifestyle in society are initiated at all these levels, and the fight against childhood obesity would benefit from more convergence across levels of intervention, and similarly, from cross-sector convergence. Drager, senior advisor at WHO, emphasized that the challenge of childhood obesity requires not only multisectoral collaboration between health and other sectors, but also that responses must be at community, regional, national and global levels. "Domestic action alone is no longer sufficient to ensure population health. Ministries of health have to look across borders, at opportunities and risks originating in other countries. National plans, whether for communicable or noncommunicable diseases, should include an international component to address some of the public health global issues," underlined Drager.

Challenges and success elements in making broad societal plans work

Reviewing the experience of Quebec and British Columbia in implementing broad governmental plans against childhood obesity provides insights for others crafting similar strategies. During the KTA workshop, Bertrand, Tremblay, Duffel and others outlined some challenges in building local societal plans which could be also relevant at a global level. Beyond the formal adoption of plans by the implicated ministries, the first challenge is to recruit the involvement of professionals and organizations operating in different sectors and at different levels. This challenge will set a high communication imperative for those in charge of coordinating the implementation.

The second challenge, achieving the integration needed for successfully implementing broad societal plans, may require revisiting the processes, practices and governance in the sectors involved, starting with health. An additional challenge is to counter the lack of a solid empirical basis for the mechanisms and outcomes of the plans and their components.. Challenges also arise in educating and persuading a public that remain to some extent unconvinced about the importance of placing prevention on personal and social agendas. Finally, a core challenge to be faced by health ministries may be to devote important capacity-building resources to provide their professionals and organizations with the literacy and working conditions that will enable them to lead changes. In fact, as KTA participants suggested, government may have to foster, in all sectors, integrative and innovative mindsets, knowledge and skills in order to increase convergence between health and economic decisions and action of professionals and organizations.

The KTA workshop participants also underscored success elements that facilitate the implementation of broad governmental plans. Bertrand and Duffel were the first to mention government's political will and determination to take action on the matter and demonstrate public support. Consultation with stakeholders in design and implementation is a further key to success. Beyond providing necessary input to decisions and action, it also promotes joint ownership of the plan. The role of a facilitating legislative framework was also discussed in the context of the section 54 of the Quebec Public Health Law. This article, one of the first of this kind in the world, requires that laws and regulations, adopted in all domains of activity by the Quebec Government, take into consideration their potential impact on health. If Quebec's immediate implementation strategy relies more on multisectoral, multi-level partnerships and innovative action than on strict regulation, the value of this legislative tool – as a support for the long-term adoption of healthy public policies in all domains that contribute to healthy eating and physical activity – is certain. Active support from community leaders and key community organizations in terms of motivation, skills, logistics and finances was also judged to be critical for moving forward. Media and opinion leaders willing and able to help individuals and audiences understand and support the governmental plan represent another critical success factor. Finally, a high visibility event (e.g. The 2010 Olympic Games in B.C.) may be a galvanizing force, helping to rally resources, stakeholders and audiences to support the project.

The need for healthy public policy: Domain-specific policies

This section offers insights derived from the Think Tank with regard to the development of healthy public policies in specific domains that contribute to children's lifestyle. A large number of presentations and exchanges at the Think Tank and its follow-up KTA workshop focused on modern agri-food policies that are perceived as stumbling blocks for local and global efforts in fighting childhood obesity. We therefore address this domain of healthy policy first, and then move on to fiscal, school and health policies.

Agricultural and Food Policy

While many speakers decried the nefarious consequences of inexpensive energy-dense foods in general terms, James and Fresco provided a variety of specific historical data that demonstrated the significant changes in

agricultural and agri-food policies, and the consequent increase in low cost fats and carbohydrates. While the initial impact of these changes in food-related policies significantly improved the health status among certain populations (primarily lower socio-economic groups – James), and was followed by improved food security levels at the country level, the long term effect has been rising obesity levels among all age groups. According to Yusuf, modern food policies are a consequence of under-nutrition, but collectively we may have overshot the mark. Modern agricultural policies – price and income supports – reward the overproduction of energy-dense foodstuffs – primarily meat, dairy and sugar – while providing few horticultural production incentives.

These agricultural policies and their subsequent impact on the dynamics of food value chains significantly shape the caloric content of what is on plates, restaurant menus and supermarket shelves. This may have contributed to major distortions in the prices and availability of specific food products in relation to actual health needs and health benefits. Drewnowski reported that during 1985-2000, while the real price of soft drinks declined by 23%, the real price of fruits and vegetables increased by nearly 40%. Subsidization equally affects consumption patterns, influencing the price and the availability of agricultural products, not only for immediate consumption, but also as raw material for various actors in the local and global food chains, and in particular food processors, manufacturers and producers.

The principal implications for Canada fall in two areas: trade through imports of fresh fruits and vegetables, and agricultural production for export, primarily in grains and livestock, which are the cornerstones of its agricultural sector. The former consideration implies that Canada will have a long-term interest in international trade policies aiming at increasing production of lower cost fruits and vegetables. The latter consideration is of greater economic concern. Speakers were largely condemnatory of the relatively low cost production achievements of the feedlot system, and of the unhealthy consequences of over-consumption of refined grains. However, just as replacements will have to be found if sugar becomes highly unpopular, similar market and economic adjustments will have to be made for Canada's meat, dairy and grain producers if consumption patterns of these commodities change significantly.

Governments and actors along the local and global food chains, as well as public heath experts, realize that in order to eliminate the present distortion in prices and availability of specific food products, according to actual health needs and benefits, it is urgent to engage in major institutional reform and infrastructure investment that target a better convergence between health, technological and economic considerations in agriculture and food related industries, in both policy and action. Healthy agri-food policies are needed to shift food supply and demand in a direction that would make healthy eating the natural option for all children and adults alike, in an economically sustainable manner for the agri-food, food processing, and retail and food service sectors. Meanwhile, economically, socially and culturally sustainable health policy is equally needed to help move supply and demand toward healthy and pleasurable food. This convergence could facilitate a shift away from the present orientation in the food chain that favours low-priced, high-calorie foods towards more variety and diversity in the food supply and demand.

Challenges await agriculture, as well as health, in shifting the drivers of supply and demand in a healthier direction. On the supply side, the challenges to the agri-food sector are tied to the nature, policies and practices involved in agricultural and industrial food innovation, production, distribution and consumption in school, home and restaurant contexts, as well as tied to issues related to trade and investment. On the demand side, critical issues for the health and agri-food sectors relate to advertising and communication strategies, labelling and product information, pricing and sales strategies, as well as consumer education on food, nutrition, physical activity, caloric balance, etc.

For health, challenges lie in striking the appropriate balance between regulatory and policy controls – necessary for the prevention of threats to the health of individuals – and a flexible and innovative approach to food and food service operations. Such an approach would entice economic actors to bring to the market foods that are less energy-dense, flavourful, satisfying and available at an accessible cost, regardless of the socio-economic, geographical or ethnic background of the consumer. Areas where such a balance is demanded include food labelling, health claims related to food products, new ingredients and product approval processes, as well as advertising, and in particular children-targeted advertising. Summarizing group discussions at the KTA workshop, Finegood said: "One area that surfaced among the diverse dialogues that we had was around the issue of health claims and food labelling…One of the challenges is that for most Canadians…the first place they turn for information about food is in food labels. The National Institute of Nutrition has done work that demonstrated that food labels are really important in what people think about the food that they eat. We also know that for food companies Canada is a very difficult, complicated place to sell their food and label their food in a way in which they can advertise the health benefit of the food that they have, because in Canada we have fairly restrictive health claims legislation." During the Think Tank extensive discussions addressed a similar need for more convergence between health and economic considerations in children-targeted advertising and school food programs.

Lussier and Marcotte suggested that Canada may be at a crossroads in this regard. Both envisioned major changes in the founding paradigms of the health and agri-food sectors, changes that would benefit the health of all Canadians and simultaneously spur innovation, productivity and competitiveness. Lussier emphasized that efforts to promote health along the food chains that ignore economic considerations would fail in reaching the scale and scope of changes needed to stop the progression of the obesity pandemic. Marcotte pointed out that, as Canadian producers have difficulties earning a living on commodity prices resulting from old policies concentrating solely on affordable end prices, and as consumers now demand food that is more nutritious, fresher, better tasting, safer, affordably priced and convenient, it may be the right moment for a major paradigm shift in agriculture. This shift would be from feeding everybody at a low cost to feeding everybody with respect to his/her needs and requirements. The shift is further justified by the rapid increase of low cost/high volume competition stirred by developing, low cost, low subsidy producers such as Brazil, Russia and China. Their rapidly expanding production of commodities – like wheat – drives prices down, and Canada risks falling behind. Thus, Canadian companies have to innovate continuously, and the value of health as a source of competitive advantage should be a strong reason to motivate them.

KTA participants suggested that the vision that could jointly be pursued by health and agri-food policy makers and actors is to make healthy nutritious food cheaper and more easily available than energy-dense, nutrient-poor food – i.e. the very opposite of today's *status quo*. We have already addressed above some of the changes in agriculture and food policies that have yet to occur. Beyond these, industry participants at the KTA workshop suggested that it would be important to revisit the present health policy and programs that relate to food and nutrition, in an attempt to eliminate boundaries that may prevent farmers, processors, supermarkets and other actors in the value chain, place health as the frontrunner, as it could be a source of competitive advantage in Canada and on the international markets. In this regard, it is reassuring to observe how the 2007-2012 strategic plan of Health Canada's Health Products and Food Branch promotes health through a modernized food regulatory system with a more proactive, international and flexible approach,aiming to contribute simulataneously to the health of invidivuals and competitiveness of Canadian businesses.

The KTA workshop participants examined change in policy and action that could ensure convergence between the new Food Guide and the *Agri-Food Policy Framework* that is currently under review, for guiding future policy and strategic investment agenda in both sectors. The new Guide provides, for the first time, tailored information on the amount and types of food by age, gender and food preferences, and includes more culturally relevant foods from a variety of ethnic cuisines. This could also have the effect of shaping food demand more effectively. Recommending a careful selection of foods – along with physical activity – the Guide encourages Canadians to focus on vegetables, fruit and whole grains; to include milk, meat and their alternatives with moderation; and to limit foods that are high in calories, fat, sugar and salt. This clearly has the potential to set an agenda for joint work with the agri-food sector for more convergence between health and economy, an agenda that may very well appeal to both parties.

In spite of the promising moves towards more convergence between health, economy and culture in policy development in the health, agriculture and food domains, it would be naïve to expect an easy road towards a fully fledged healthy agriculture and food policy. The major changes in subsidization policy mentioned above that are necessary to switch, for instance, the price differential between fresh produce and soft drinks, have yet to come. They entail a fight between powerful political factions. They would also require a major cultural shift given that, in Canada, the US and many countries around the world, agricultural support, and social and economic support to rural development are entangled, and that farming and agriculture have deep roots in our economy and society. Similarly, high political and cultural stakes are at play when policies related to children-targeted food advertising are under discussion.

Healthy Fiscal Policies

A long-time hot topic in society, the use of taxation and other fiscal policies in the fight against obesity was also the focus of debate during the Think Tank. Examples of fiscal policy options included: levying higher income tax~~es~~ on obese individuals in order to cover societal costs of the healthcare consequences of obesity; establishing consumption taxes for high-caloric food; raising the price of high-caloric food as disincentives to their purchase;

and providing funds for subsidies to low-caloric alternatives. Participants at both events cited lessons derived from the anti-tobacco campaign where increased levels of taxation led to high prices of cigarettes. These, in turn, persuaded many smokers to quit or at least reduce smoking.

A parallel with the tobacco example would appear to support the introduction of taxes on high-caloric food as an effective fiscal option. Philip James cited a simulation study in Denmark, based on historical analyses of the price elasticity of food, which suggested that changing the level of VAT on certain groups of food produces considerably altered purchase patterns, especially among poor families. By reducing taxes on vegetables, fruits and whole grains, and by increasing taxes on butter, cheese, beef, pork and fatty meats, results of this simulation suggest that the food choices among families could be improved considerably, while the overall tax revenue of the Danish Government would remain unchanged.

In countries such as Canada, where groceries are not taxed evenly, these data may support arguments for other policy changes that would have the same effect – such as reducing the prices of so-called healthy foods and increasing the prices of unhealthy foods. For example, subsidies for the beef or dairy industries help keep the cost of these products relatively low. In an effort to change the price imbalance between "healthy" and "non-healthy" foods, such subsidies could be altered and new incentives could be provided to the horticultural industry.

Yet, in spite of their intuitive appeal, taxes on high-caloric food have been adopted by only a few countries. Part of this state of affairs may be owing to the lack of strong political will to confront organizations negatively affected by these taxes. However, part of it is no doubt tied to features of the food domain, such as the difficulty of defining junk food and the perceived inequity in raising the price of a commodity purchased disproportionately by the poor. In the food domain, participants at both the Think Tank and the KTA brought forth fiscal policies such as tax breaks to promote and support research and innovation in the private or social sectors, and help move the food market in a direction that would be less calorie-dense.

The Canadian federal government recently introduced fiscal measures to facilitate access by children and youth to physical activity and recreation programs. The Children's Fitness Tax Credit, on fees of up to $500 per child for enrolment in eligible physical activity programs, was implemented on 1 January 2007. Questions on the motivational power of such fiscal incentives for parents, and on its impact, were raised during the Health Challenge – questions that emphasize the need to evaluate such interventions.

Healthy School Policy

Kolbe and Cohen pointed out that schools, with families and immediate communities, are the place where children not only spend a large share of their time, but also learn lifetime patterns of behaviour. Therefore, one would expect the healthy school policy to be one of the first domains of governmental intervention in the fight against obesity. Formal school health policies are indeed adopted progressively around the world and WHO included a school health initiative in its strategy against childhood obesity. Nevertheless, existing broad societal

plans still devote considerably more attention to agriculture and food polices than to school policies. These would need to be adopted at a more aggressive pace to give health a sufficiently central position among the schools' numerous priorities and imperatives in order to stop the progression of childhood obesity by the target deadlines.

Some countries like the USA have privileged schools as intervention targets in the fight against childhood obesity. The U.S. Public Law 108-265, for instance, is meant to increase adoption of healthier food and physical activity policy by American school districts. The USA also has a school healthy index administered nationwide. Canada is waiting for similar measures as current statistics suggest that health should be granted a higher level of strategic priority on schools' agenda. In Canada, data from the Healthy Weight for Healthy Children report show than less than one in five children has daily physical education in school[15]. Only Quebec requires physical education in its curriculum until graduation. In all other provinces, physical education becomes optional as early as grade 8[16]. In Canada, the average time devoted in a school week to physical education is under one hour. This is among the lowest in the world and represents less than 40% of the 150 minutes recommended to meet the standards for Quality Daily Physical Education (QDPE). Less than 5% of Canadian schools meet QDPE standards[17]. The recent creation of the Joint Consortium for School Health, endorsed by the education and health ministries, should help move forward the intersectoral approach to health issues on the schools' policy and action agenda.

The Healthy Weight for Healthy Children report further suggests that policy and practices on food and beverages, sold by school vending machines and in cafeterias in Canada, cover the full spectrum, from *laissez-faire* to a complete ban of high-caloric food. Participants in the Think Tank and KTA analyzed what could be the best position along this continuum since a solid evidence basis is yet to be developed. As usual, neither extreme was viewed as optimal. On the ban side, Minister Couillard cautioned against such policy interventions: "There is also the question of banning junk food in schools. If you ban something with a 15 year old, you can be pretty sure that the next thing s/he is going to do is to go across the street and get that thing, because it must be very interesting if you, with your grey hair, are banning this. This is the first thing they will want to do: we saw this with tobacco quite clearly." However, Kaare Norum from Norway and other participants did not share this concern and strongly supported the complete ban approach. Here again, the social and cultural context is to be taken into consideration, and, for both approaches, evaluations of relative effectiveness would be helpful.

Healthy transportation and urban design policies

Transportation and urban design also shape lifestyle. Therefore, they should also be a focus for healthy policies. Three quarters of the planet's inhabitants will live in the urban environment by 2030. Past transportation and urban policies have created a physical environment that makes exercising difficult. Recent initiatives to improve the walkability and safety of neighbourhoods and to reduce urban sprawl have been reported in Canada and in other countries. This view, that the development of healthy transportation and urban policies may be as

[15] Healthy Weights or Healthy Kids, Report of the Standing Committee on Health, 2007
[16] Overweight and Obesity in Canada: A Population Health Perspective (2004) Canadian Institute for Health Information
[17] Overweight and Obesity in Canada: A Population Health Perspective (2004) Canadian Institute for Health Information

important as that of food and agriculture, is coherent with Yusuf and other Think Tank participants whose work focuses on countries at different stages of urbanization. Think Tank and KTA participants addressed the need to place health on the public policy agenda in these domains as well.

In Canada, the vast majority of the existing recreational infrastructure was built between the 1950s and 1970s, according to the Standing Committee on Health. In addition, urban planning and renewal in the 1970s and 1980s resulted in downtown and suburban communities with few or distant general grocery stores, but with multiple fast food outlets. Furthermore, municipal governments have limited fiscal capacity to produce the revenue needed to cover these infrastructure deficits[18]. As a result, sport and community activity infrastructure programs often fall toward the bottom of the municipal priority list. However, some sport and recreational infrastructure has received funding through the Canada Strategic Infrastructure Fund and through the Municipal Rural Infrastructure Fund[19]. Participants emphasized the need to develop healthy transportation and urban design policies and investments at all levels of intervention, and to build synergy between investments made at different levels all in targeting the same areas and population.

Private-public partnership and pragmatic collaboration

One of the most significant challenges for governments wishing to lead changes to stop childhood obesity that will be sufficient in scale, scope and speed, may be the conceiving of novel, healthy public policy capable of creating an environment where private and public sectors actors, civil society and communities are willing to combine skills and resources to fight childhood obesity. Many Think Tank participants argued that it is critical to develop and promote models where businesses, philanthropic organizations, NGOs and community organizations can find areas of common interest and common goals, in spite of potentially divergent missions and objectives. Innovative initiatives, born outside of government and built upon pragmatic collaborations, were presented at both the Think Tank and the KTA workshop. A promising area of development in healthy public policy may be the creation of a legislative and regulatory framework to promote and scale up such initiatives, so that they serve as a springboard to local and global movements. This could significantly improve the societal resources available to fight childhood obesity. We review below some of these initiatives, highlighting key features for healthy public policy.

Philanthropy-led partnerships

The Fondation Lucie et André Chagnon in the province of Quebec and the Robert Wood Johnson Foundation in the USA, which announced early in 2007 a $500 million initiative against childhood obesity, have both taken major leadership roles in the fight against this pandemic. We focus here on the Fondation Lucie et André Chagnon, the largest private foundation in Canada and a catalyst in creating and sustaining novel partnerships able to assemble resources needed to fight childhood obesity in Quebec. One of the earliest partnerships is *Quebec en Forme*, an initiative that supports local communities in facilitating a healthy and active lifestyle. In

[18] Healthy Weights or Healthy Kids, Report of the Standing Committee on Health, 2007
[19] Healthy Weights or Healthy Kids, Report of the Standing Committee on Health, 2007

partnership with the provincial Education, Leisure and Sport Ministry and the Health and Social Services Ministry, *Quebec en Forme* supports a network of 600 local community partners meant to facilitate a healthy and active lifestyle for children aged 4-12 years, primarily in underprivileged areas of Quebec. According to Chouinard, during 2004-2005, the number of children reached was close to 36,000: they received 1.8 hours/week of additional physical activity through the project. Funding averaged 200,000 dollars per community in *Quebec en Forme*, and about 80% of this amount went on coordination efforts or to the direct support of children and families.

The Fondation Lucie et André Chagnon recently created, with the Quebec government, a partnership agreement announced simultaneously with the launch of the Quebec's societal plan against obesity that was mentioned earlier. The agreement aim to develop and maintain protected budgets to help actors in the fields in the development of programs to promote healthy diet and active living. This agreement has enabled the creation of a fund of $400 millions over 10 years, jointly fed and managed by the Foundation and the Government. Any actor in society, i.e., local communities, schools, school boards and businesses, can apply for funding initiatives focusing on youth – in line with the objectives and activities of the societal plan. The Think Tank participants underscored the potential of such collaborative models for galvanizing action by all actors in society and creating a novel platform for healthy policy interventions.

NGO-led initiatives

A second type of initiatives combating childhood obesity that was featured at the Think Tank consisted of initiatives led by NGOs that build upon competencies, resources and networks developed in other health domains. Here we examine two initiatives led by the American Heart Association (AHA) and the Heart and Stroke Foundation of Canada respectively. As reported by Eckle, the immediate past president who led the initiative, AHA enrolled President Clinton – also a bypass surgery patient – and his philanthropic organization as core partners in the Alliance for a Healthier Generation (AHG). The idea behind this alliance was to develop a ten-year initiative to prevent childhood obesity and create healthier lifestyles for the USA's youth. Through AHG's involvement, 90% of the vending machines in the US schools are going to be substantially modified prior to the beginning of the 2009-2010 school years. The joint venture between AHA and the Clinton Foundation also successfully impacted the snack foods industry, and thus some 60% of snack foods provided in schools are going to be modified. Finally, AHG works with paediatricians and family practitioners to modify the way they deal with families and children in their office practices, in terms of modifying risk even before obesity develops.

Turning to the Heart and Stroke Foundation of Canada, a major actor in the fight against childhood obesity in Canada, we examine the Health Check Program (HCP) and underscore specific mechanisms through which players in different domains can build synergy that can be supported by healthy public policy. According to Samis, the program was developed to help Canadians find healthy food products in groceries stores. These products must respect strict nutrition criteria, and many companies have reformulated or developed new products to meet these criteria. HCP is based on Canada's Food Guide and, in the seven years since its launch, has

endorsed over 1200 products. Working with food companies and in stores gives HFSC a tremendous opportunity to bring health information to Canadians at the point-of-purchase. HCP also works with the food service industry which receives 40% of the food dollars spent in Canada: the workplace and school cafeterias are particular targets.

Social entrepreneur-led initiatives

Social entrepreneurs are individuals or organizations which, akin to their business counterparts, develop a social value proposition and bring inspiration, creativity, direct action and courage to put it into practice, thereby ensuring a better future for a targeted disadvantaged group, and even for the whole society. Bornstein argued that, so far in the fight against childhood obesity, the catalyst potential of social entrepreneurs appears to have been neglected to a large extent. At the concrete action level, the experience of social entrepreneurs proves that behavioural change is possible. Furthermore, they have the ability to reach populations that are quasi unreachable by traditional interventions. Consequently, these structures are very well suited for implementing change. However, they are under-funded because governments do not take them into consideration when creating partnerships or agreements.

An example of social entrepreneurship discussed at the Think Tank was Free the Children, the world's largest organization of children helping children, which works with a million children around the world and 350,000 in Canada. Through its Life and Action Program, the organization trains young people to become ambassadors of healthy living. They then train other young people on how they need to put this issue at the forefront of their thinking, according to Kielburger. "Children first learn about healthy issues in youth friendly ("cool") ways then they make healthy choices by helping others. They work by getting involved in the obesity issue by helping others who have nothing – namely, kids who are literally starving. For example, instead of drinking a can of coke they donate a loonie," explained Kielburger.

Industry-led initiatives

Participants in the Think Tank and KTA mentioned a diversity of initiatives by industry actors which contribute to the fight against childhood obesity. Dietz presented the example of Disney, which feeds ten million children a year on its properties and uses its cartoon characters in the promotion of a large variety of food products and services. He explained: "Via the nutritional quality of food served by its food service operations and through purchasing policies, Disney can 'force' from suppliers a response in a healthier direction, using a push-mechanism. In fact, in 2006, Disney adopted explicit guidelines on calories, sodium, fat, saturated fat and sugar. Thus, trans fats will be eliminated from food by the end of 2007 and, by the end of 2008, from licensed and promotional products. The guidelines, implemented in a first phase only in the US, put a cap on calories in order to deliver appropriate kid-sized portions. In the US, Disney parks and resorts, vegetable and milk are the default choices for kids' meals, so that fries are not automatically part of the child's menu."

University-led initiatives

Centres of research and education, universities have enormous potential and resources to use in the fight against obesity. Two illustrative initiatives were discussed at the KTA workshop: the Coordinated Approach to Child Health (CATCH) program and Active Healthy Kids Canada. The first was initiated by researchers from four US universities, and the latter involves researchers from several Canadian universities.

Encompassing almost half of the Texas schools and about one million kids yearly, CATCH is a coordinated school health program which builds an alliance of parents, teachers, child nutrition personnel, school staff, and community partners to teach children and their families how to be healthy for a lifetime, explained Kelder. The program has four components that reinforce positive healthy behaviours throughout a child's day and make it clear that good health and learning go hand in hand. The outcomes of CATCH include: reduced total fat and saturated fat content of school lunches; increased moderate-to-vigorous physical activity during physical education classes; and improved students' self-reported eating and physical activity behaviours. Besides schools, the program was adopted for parks and recreation services, churches, and for children with special needs and middle schools, said Kelder.

Active Healthy Kids Canada focuses on making physical activity a priority in the everyday lives of Canadian families and one of the ways to achieve this is through the production of the annual National Physical Activity Report Card. Tremblay reported that in 2006, Canada's overall grade was D, and suggested that this indicates that Canadians do not realize to what point physical activity is a crucial contributor to the healthy physical, social and emotional development of children and youth. This grade is not a surprise, as it is consistent with surveys showing that parents often misperceive the seriousness of their children's situation – only 9% believe they have an obese child, compared to 28% who have one and 30% report performing physical activity, but measured data show that less than 5% do so, added Tremblay.

What does this suggest for novel multilevel and multisectoral healthy public policy? Many of the initiatives listed above reflect business and social innovation and entrepreneurship that build upon market mechanisms to foster greater health-economy-culture convergence and move society in a "health-friendly" direction. As Dubé suggested, scaling up these initiatives may call for a new type of governance, multilevel, multisectoral and networked, involving pragmatic collaboration among government, agriculture, business, health and social actors along the local and global food chains, and in society in general. Furthermore, if supported and scaled up by healthy public policies, these changes have the potential to build community capacity and provide communities with information, intervention and assessment structures that would allow local social and cultural considerations to emerge and "show at grassroots levels," thereby leading the way to context-specific solutions to obesity. This is coherent with what Swinburn and other Think Tank and KTA participants deem to be necessary to reach the scale and scope of changes needed to stop the progression of the childhood obesity pandemic.

Individuals as agents of change

After a long period of focus where interventions to build awareness among and provide health education to individuals seemed to have little impact, health professionals and organizations appear to have now recognized the limits of the effectiveness of individual intervention. Many participants overtly challenged the appropriateness of targeting individual behaviour as the primary focus for change while acknowledging that health benefits accrue at the level of the individual.

Drewnowski, for example, was critical of a public health model driven by elites who educate or direct disadvantaged individuals to change their behaviour, given that disadvantaged individuals often lack the social and economic capacity to change their situation. Evans made a similar argument against building policy solutions whose focus is modifying the behaviour of individuals. Such policies risk relying too heavily on inappropriate errors of attribution in which the bias is to attribute fault for health status, in this case obesity, to the person, regardless of the individual's capacity to control external factors that may contribute to the individual becoming obese.

The emphasis on the responsibility of the individual was considered especially misplaced when the individual is a child. Challenging the rational actor approach – everyone equally well informed and able to act on that information in his/her own best interests – Krugman observed that these conditions do not apply in matters of health. Particularly, they do not apply to children who "under no circumstances, are expected to be able to make long-term, rational decisions for themselves".

As an alternative to a focus on individuals, proponents of an environmental approach prefer to focus on the creation of supportive living, schooling and working environments that facilitate healthy lifestyles to all, instead of relying on education and self-control. The dominant view at the Think Tank and KTA was that an individual-environment debate that treats decisions made by individuals and other societal actors as independent of the environment is unproductive. The point was made forcefully by Finegood at the KTA workshop: "The debate whether obesity falls within the responsibility of individuals or of society is superficial because ultimately the individual, in his/her environment, is going to make choices. What the society can do, when a problem is complex, is to either increase the capacity of the individual to deal with the complexity or decrease the complexity. In the case of obesity, this translates into making the healthy choice first possible and then easy." In this view, environmental interventions – including these aiming to change social norms and those targeted to the physical and commercial environment-- are designed to help healthy choices become the natural option of individuals. The Think Tank and KTA participants discussed how individuals and environment - in all their complexity – could be single and joint targets of policy intervention.

Evidence basis to guide effective policies and strategies

No one contests that decreased energy intake and increased energy expenditure are causally linked to reduce BMI. Available evidence reliably points to a portfolio of behavioural changes able to foster a neutral caloric balance: increase low energy dense foods and reduce sugar-sweetened beverages and portion sizes; increase daily physical activity; reduce inactivity; and increase breastfeeding. For these behavioural change strategies, reviewed by Dietz, scientific evidence – some derived from longitudinal or ecological studies, some from intervention studies – will very likely provide the most powerful type of data. The evidence basis looks much weaker, however, when it examines the relationships between these behavioural changes and the decisions made by actors at different levels of intervention and in different sectors of activity that affect the proximal and distal environment in which individuals make choices. These ultimately determine how simple or difficult it is to engage in these healthy behaviours - in comparison with their less-healthy alternatives – and, therefore, these relationships are at the core of our ability to stop the progression of the childhood obesity pandemic.

However – and in contrast to sophisticated data infrastructure and modeling techniques available to prevent, manage and monitor other pandemics – such critical guides for decision and action are quasi non-existent for obesity and chronic diseases. Yet stopping the progression of the obesity pandemic and promoting a lifetime pattern of healthy eating and physical activity – that can curb the constant increase in the prevalence of diabetes and other chronic diseases – require an appropriate scientific foundation and information infrastructure to support policy, action and surveillance to back up the comprehensive and multisectoral approaches needed.

KTA workshop participants addressed the urgent need to develop multilevel and multisectoral surveillance systems for obesity prevention. They examined the possibility of using the most recent technological and conceptual development in the Geographic Information System to facilitate the development of a cross-disciplinary, multilevel and multisectoral knowledge platform to guide policy and practice change at the level of communities and countries, and at the global level. The development of such an integrative platform could allow not only the surveillance of childhood obesity, but also provide a scientific base to demonstrate the significance of the problem, influence advocacy, and to examine the single and joint effectiveness and underlying mechanisms of the portfolio of interventions needed to guide further policy development.

Dietz emphasized the need for such a multilevel and multisectoral approach in developing the scientific basis to guide policy, using the tobacco example: "Funded programs, that became the bases of the efficacy and effectiveness research, led to funded interventions, largely in the case of tobacco driven by the Tobacco Dollar Settlement, and we do not have the analogy of that present in obesity." At the Think Tank, both Poirier and Swinburn advocated for a developmental, almost organic, approach to learning about and acting on what works. Poirier pointed out that what is known about "success conditions" for general public health programs evolves, as more information becomes available and is evaluated. Public health interventions should not, therefore, wait until "all the evidence is in," since evidence and related knowledge are constantly accumulating.

Poirier, echoed by Swinburn, urged for on-going evaluation of policies and programs to document learning and to guide further action. Swinburn took this approach to evaluation further and advocated for the growth of knowledge-sharing networks that would provide information tools and mechanisms to support effective obesity management approaches. This opinion was supported by Robinson who advised not to wait for confirmation of causation before developing solutions. He advocated for what he calls a "solution-oriented paradigm," which, analogous to other recommendations made during the Think Tank and KTA, suggests basing interventions to stop the progression of childhood obesity on the best available evidence, in a timely manner, while designing research protocols able to capture health outcomes, as well as the multi-level and multisectoral mechanisms these outcomes entail.

Conclusion

Our ability as society to stop the progression of the childhood obesity pandemic lies in transforming healthy diets and physical activity into norms for individuals and guiding principles for organizations that contribute to the creation of lifestyle. It also lies in ensuring more convergence, in all sectors and at all levels of action, between health and economic performance goals, social dynamism and cultural values. This is critically dependent upon the development of both the human capital and scientific basis to guide and support action. To empower health and public health organizations to play their leadership role, governments may have to devote important capacity-building resources to provide their professionals and organizations with the literacy and working conditions that will enable them to lead changes. In fact, as KTA participants suggested, governments may have to foster, in all sectors, integrative and innovative mindsets in order to increase convergence between health and economic decisions and actions of professionals and organizations. In terms of research, it is more pressing than ever to develop an integrative framework to accumulate and model the existing and future empirical basis necessary to ensure simultaneously the surveillance of the pandemic's evolution and the effectiveness of single and combined interventions by all actors involved, from family and community to global institutions.

This is of the utmost relevance at the federal level in Canada, particularly in the wake of the report "Healthy Weights for Healthy Kids" released by the Canadian Standing Committee on Health in 2007. It is also extremely timely on a worldwide basis given that the World Health Assembly, in its 2007 meeting, adopted a resolution that urges member states to "develop and implement a national multisectoral evidence-based action plan for prevention and control of noncommunicable diseases that sets out priorities, a time frame and performance indicators, provides the basis for coordinating the work of all stakeholders, and actively engages civil society, while ensuring avoidance of potential conflict of interests." The resolution further requests the WHO Director-General to elaborate such a plan at the global level. Canada can lead the way in developing the completely novel approach to health and public health that this calls for.

Appendix 1

Health Challenge and KTA Participants

Health Challenge 2006 Participants

Chairs

Laurette Dubé, Management Co-Chair
Philip James, Medicine Co-Chair

Steering Committee

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Claude Bouchard: Executive Director, Pennington Biomedical Research Center. Chair George A. Bray Chair in Nutrition,. President, International Association for the Study of Obesity, USA.

Adam Drewnowski: Professor, Epidemiology; Director, Nutritional Science Program, School of Public Health and Community Medicine, University of Washington. Director, Center for Public Health Nutrition, USA.

Diane Finegood: Scientific Director, Canadian Institutes of Health Research, Nutrition, Metabolism and Diabetes Institute; Professor, School of Kinesiology, Simon Fraser University, Canada.

Moderator

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David Bornstein: Author of "How to Change the World: Social Entrepreneurs and the Power of New Ideas," "The Price of a Dream: The Story of the Grameen Bank."

Philippe Couillard: Minister of Health and Social services, Quebec.

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John H. Holland: Author of "Emergence: From Chaos to Order" and "Hidden Order: How Adaptation Builds Complexity." Professor, Electrical Engineering and Computer Science; Professor, Psychology, University of Michigan, USA.

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