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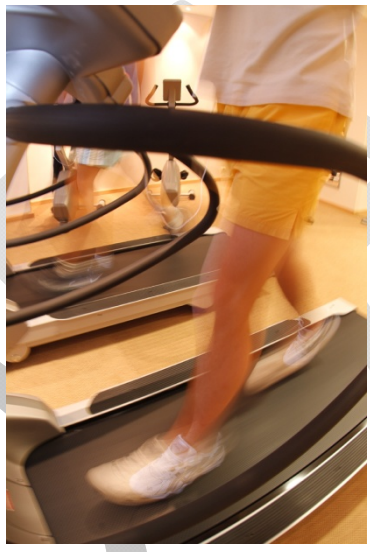
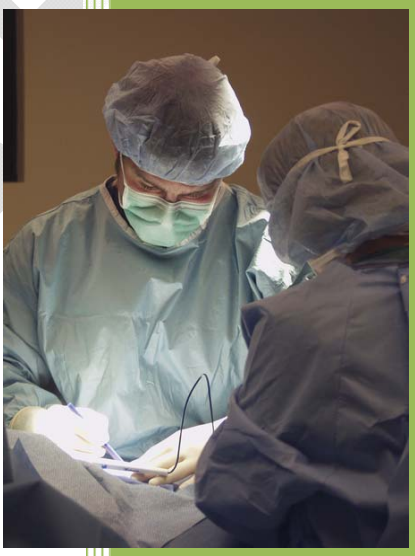
Developing a Research Agenda to Support Bariatric Care in Canada Workshop Report





CIHR Institute of Nutrition Metabolism and Diabetes and The Canadian Obesity Network

December 8-10, 2010

Montreal, Quebec

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Arya Sharma	Scientific Director, Chief Executive Officer, Canadian Obesity Network

DEFINITIONS

Bariatric Care

The term ‘bariatric care’ was used at the workshop and throughout this report, and it includes lifestyle interventions, surgery, pharmacotherapy, behavioral and cognitive therapy, rehabilitation care and health services..

Obesity

The discussions at this workshop and in this report focused on moderate, severe and very severe obesity as defined by the World Health Organization (WHO). The findings and recommendations in this report are relevant to all three classes. The term ‘severe obesity’ is used throughout this document, and it is encompasses all three classes of obesity as defined by the WHO.

EXECUTIVE SUMMARY

The following is a report on the Canadian Institutes of Health Research (CIHR) Institute of Nutrition, Metabolism and Diabetes (INMD) and the Canadian Obesity Network (CON) Workshop: *Developing a Research Agenda to Support Bariatric Care in Canada held on December 8 to 10th, in Montreal, Quebec.*

The workshop objectives were to:

- define strengths, gaps, and opportunities in Canadian bariatric care research;
- develop a Canadian bariatric care research agenda that will ultimately improve health services available to severely obese patients;
- identify opportunities for international collaboration in the area of bariatric care;
- engage potential research funders that can support an emerging bariatric care research agenda in Canada.

Approximately 40 participants gathered for two days and a preceding evening reception. To set the stage and ground the discussions, two patients shared their personal journeys of dealing with severe obesity.

The workshop was structured into four consecutive sessions, each with plenary presentations and brief discussion periods, followed by subsequent small group work to identify research priorities. Six small groups were created, with individuals pre-assigned to ensure a balance in terms of discipline and research focus.

Four sub-topics related to bariatric care were covered:

- The evidence base on interventions in bariatric care
- Bariatric health care services in Canada
- Innovations in technology and equipment for bariatric care
- Weight bias and discrimination in bariatric care

Participants responded to four questions within each small group. These questions were posed to stimulate discussion related to: research gaps, knowledge translation needs, and Canadian research community strengths in the area of bariatric care.

Groups reported their feedback verbally, taking note to build upon the previous report, and then passed on their notes for a summary of key themes. Information was synthesized by the workshop facilitator and presented back to participants in the final portion of the workshop for additional clarification, final discussion, and group synthesis.

Priorities that were identified fell into three categories:

- priorities for research to fill knowledge gaps (i.e., topic areas);
- priorities for building research capacity/processes;
- priorities for knowledge translation.

The following were the top three research priorities identified in terms of knowledge gaps for bariatric care:

- *Intervention research*: understanding variation in response to treatment, matching treatment to patient need; phenotyping; complications of care; role of co-morbidities. Topic areas include research on both children and adults.

- *Health Services and Health Policy research*: understanding optimal systems of care focused on continuity of care and integration of pediatric and adult services (i.e., cradle to grave); medical/surgical/rehabilitation/mental health/self-care; primary care, including collaborative models and intervention strategies for practitioner and practice change.

- *Access and barriers to treatment:* understanding what brings people to treatment and what are the major barriers, including gender differences; weight bias and discrimination, including causal factors, impact, and interventions; evaluation of wait-list management strategies and decision rules for access to bariatric surgery; understanding factors driving demand; forecasting models based on need and demand analyses and projections.

The following were the top three priorities identified in terms of building Canadian research capacity:

- *Research consortia/collaborations*: includes a shift in emphasis to multi-site, collaborative studies; database development and other capacity building for longitudinal studies.

- *Outcome and cost assessment*: includes broader understanding of metabolic and health outcomes beyond weight reduction, such as effects on blood pressure and glucose levels, non-cardiometabolic problems like sleep apnea, musculoskeletal problems, cancer, and mental health; longer-term outcomes including economic impact assessments of both intervention and systems research.

- *Qualitative/participatory research*: required for an exploration of patients' lived experiences, empowerment, knowledge base and satisfaction with health services delivery and health service models.

The following were the three themes identified in terms of priorities for knowledge translation:

- *National strategy and standardization of care*: decision-trees for access to medical treatments and bariatric surgery; assessment and outcome measures; waiting list prioritization; guidelines for bariatric care multidisciplinary team size and composition; accreditation and evaluation; and remuneration of health care providers for delivery of obesity care.

- *Environmental scans*: assessing "what is out there", who is doing what beyond surgery; level of collaboration and partnerships; building upon the national pediatric and adult weight management services scans undertaken by CON-RCO members.

- *Engaging policy makers*: improving access to existing data; engaging earlier in the research process; providing better costing data for the development of relevant business cases, including cost effectiveness of treatment interventions (health costs, productivity).

Strengths and opportunities for Canadian bariatric care research were identified, including:

- The Canadian national health care system, which provides administrative data for tracking trajectories and outcomes
- The spirit and experience of collaboration in Canada, including CON and regional bariatric care networks
- Obesity is on the political agenda; with the potential for funding opportunities
- Some provincial registries are available to build upon
- Research funding available for cross-sectoral collaborations (eg. Partnership for Health Systems Improvement (PHSI))

I. SETTING THE CONTEXT FOR BARIATRIC CARE RESEARCH

The workshop began with an opening dinner and a brief welcome by the two workshop co-chairs: Dr. Philip Sherman, Scientific Director, of the CIHR-Institute of Nutrition, Metabolism and Diabetes, and Dr. Arya Sharma, the Scientific Director and CEO of the Canadian Obesity Network and an international expert in obesity-related research, including bariatric care.

Dr. Sherman noted the goal-oriented nature of the workshop aimed at helping the INMD set a research agenda in the area of bariatric care. He noted that the workshop agenda will focus on "seeking solutions" and stated emphatically that while biomedical science (Pillar 1) was not the focus of the workshop, it remains fundamentally important. A recent workshop held in Laval, Quebec focused on the basic science of healthy weight and obesity was seen as fortuitous and complementary. He noted the importance of including Dr. Richard's evening presentation on advances in the basic science aspects of bariatric care and obesity-related research.

Dr. Sharma highlighted the prevalence of severe obesity in Canada and its associated economic burden. Thousands of Canadians are currently waiting for bariatric care, while many more have lost hope of ever accessing services. In contrast, bariatric surgery is now the second most common form of elective abdominal surgery in the United States. While prevention of obesity needs to be a key element of the government's overall strategy to reduce its prevalence, something must also be done to help the thousands of people already affected. He emphasized that bariatric surgery is much less costly than treating the complications of obesity, and that more clinical and health services research is needed to optimize care. There is an urgent need to reduce reliance on ineffective commercial weight loss programs, while at the same time improve the evidence base for medical management of severe obesity and its complications.

Although CIHR has already made significant investments in obesity-related research, Dr. Sharma emphasized that there is more to be done in areas of treatment and health services research to impact on health outcomes. Consequently, this workshop is viewed as a positive step forward for bariatric care.

Several questions were posed to participants: What is the best treatment? How can we improve accessibility to evidence-based treatment? What lessons can be learned from the stories of individuals and their families who are affected by severe obesity?

BARIATRIC /METABOLIC SURGERY: HOW IT INFLUENCES ENERGY BALANCE REGULATION.

Dr. Denis Richard
Université Laval

The Merck-Frosst /CIHR Research Chair held its 13th Annual International Research Symposium in November 2010. It focused on mechanisms by which bariatric surgery influences energy balance regulation. The meeting was divided into two sessions and involved eight speakers who are among the most renowned people in the field of bariatric surgery. Dr. Karine Clément (Paris) had the task of speaking on severe obesity and the pathophysiology of obesity, and stressed the importance of gene-environment interaction in the development of severe obesity. Dr. Philip Schauer (Cleveland) presented a comprehensive description of the various procedures used in bariatric surgery. Dr. Blandine Laferrère (New York) reported on the important role of incretins in diabetes remission after bariatric surgery. Dr. Paul Burton (Melbourne, Australia) provided a comprehensive critical review on laparoscopic adjustable gastric banding. Dr. Carel Leroux (London) emphasized the stimulating effects of the Roux-en-Y gastric bypass on energy expenditure. Dr. Hans Berthoud (Baton Rouge) summarized the effects of the Roux-en-Y gastric bypass on the food reward functions. Darleen Sandoval (Cincinnati) focused on the metabolic effects of the vertical sleeve gastrectomy. Dr. Lee Kaplan (Boston) presented his latest results obtained employing a mouse model of Roux-en-Y gastric bypass, and demonstrated the positive effects of the surgery on brown adipose tissue thermogenesis. Altogether the speakers and the Chairs [Drs. Keith Sharkey (Calgary) and Frédéric-Simon Hould (Québec)] presented a comprehensive update the latest mechanisms whereby obesity surgery exerts its effects on the complex controls of food intake and thermogenesis, ranging from animal to human studies.

Ms. Louise Samson
Bariatric care patient

Ms. Samson elegantly recounted her story of suffering from severe obesity and of having a family history of obesity, both her father and grandfather weighing over 500 pounds. Prior to bariatric surgery, Louise suffered from diabetes, obstructive sleep apnea, and was severely restricted in her ability to travel. She attributed the process of accessing bariatric surgery to the support of a new physician who was more knowledgeable and open to working with individuals with obesity. Although placed on a long wait list for surgery, Louise tackled this challenge by writing an appeal about her

condition to a surgeon. Her persistence paid off and she not only had the surgery, but she became an advocate for obesity-related care at the same hospital where she was treated. Since then, she has started a support group for patients suffering from severe obesity. Following surgery, Louise lost 208 pounds. After 11 years, she is still adjusting to her identity, and she knows that her fight with obesity will continue. While much has been done to improve health and quality of life for people living with disabilities, Ms. Samson noted that things are only just starting to improve for persons living with severe obesity.

M. Jean-Guy Felteau
Bariatric care patient

Mr. Felteau spoke of his lifelong tendency to be overweight and how he eventually became severely obese despite being very physically active in his youth. Indeed, as a teenager, Jean-Guy was a member of the Canadian national weight lifting team. Two critical accidents then changed his life, and his prolonged rehabilitation involved long periods of physical inactivity. He eventually reached a weight of 377 pounds. Like Louise who spoke before him, Jean-Guy described his good fortune of having a family physician who was knowledgeable and willing to take the time to put him in touch with a bariatric care team. He described the importance of a patient-centred care approach, and also the struggles he experienced to keep weight off. Jean-Guy lost more than 100 lbs by changing his lifestyle to include regular activity and by adopting a calorie-restricted diet. Jean-Guy closed his presentation by noting that individuals with obesity are not glamorous in the eyes of politicians, which presents challenges since political will is required to make a difference. He also stressed the importance of addressing the issue of childhood obesity.

Dr. Sharma thanked both presenters and acknowledged the importance of their personal stories. These testimonials remind us that obesity is a painful chronic disease, not only physically, but psychologically and emotionally, with impacts on family members and society at large.

WELCOME

Dr. Philip Sherman, Workshop Co-Chair and Scientific Director, Institute of Nutrition, Metabolism, and Diabetes, CIHR

Dr. Sherman extended a formal welcome to participants and thanked everyone for their contributions to organizing the event and making it a success. The workshop facilitator (Dr. Brian Rush) was introduced. Dr. Sherman then noted that CIHR uses the workshop process to identify research gaps for developing targeted research initiatives. The outcome of the workshop will be a report summarizing the proceedings and identified research priorities. The report will be finalized early in 2011 and posted on the INMD website. The report then will be presented to the INMD Institute Advisory Board for input on the next steps, which will include funding opportunities.

The relationship between the workshop objectives and the research priorities of the CIHR Research Roadmap were then described, in particular, the need to enhance patient-oriented care and health outcomes through clinical research, and integrating the findings into health care systems through implementation science. The workshop also fits closely with one of the four newly identified strategic priorities for INMD; specifically, "seeking solutions for obesity and healthy weight". In this context, it was emphasized that the workshop objectives cover more than bariatric surgery, including the full continuum of bariatric care.

Dr. Sherman returned to the need for solution-focused research on obesity and healthy body weight, including improving the evidence-base for clinical practice guidelines. The growth in the past decade in CIHR funding of research related to obesity and healthy weight was summarized. The need for a shared approach to support a research agenda focused on bariatric care was highlighted. Dr. Sherman noted the importance of building collaborative relationships with partners, such as other CIHR Institutes, the voluntary health sector, and industry. He closed by acknowledging the support of industry partners for this workshop.

SESSION ONE: WHAT IS THE EVIDENCE BASE SUPPORTING BARIATRIC CARE? WHAT WORKS? FOR WHOM? AND IN WHAT CONTEXT?

Moderator: Dr. Jean-Pierre Chanoine, University of British Columbia

Effectiveness of Non-Surgical Interventions on Weight Loss and Metabolic Complications in Morbidly Obese Patients

Dr. Denis Prud'homme
University of Ottawa

Lifestyle interventions that combine diet and exercise and interventions based on medical management (including pharmacotherapies) demonstrate a moderate effect in the short-term - averaging 7 kg weight loss for diet and exercise and about 5 kg for medical management. However, the challenge remains to effectively and consistently maintain significant weight loss beyond two years of intervention.

A series of individual studies that focused on diet and/or exercise-based interventions with increasingly more rigorous research designs was then described. To date, few randomized trials have been published that focus on patients with severe obesity. The general conclusion from these studies is consistent with the results of previously described meta-analyses. Non-surgical interventions can be effective (average weight loss 10-20%), but maintenance of weight loss remains a major challenge. Limitations of these studies were also noted, including short durations of follow-up of a relatively small number of subjects. In summary, while about 33% of individuals with severe obesity obtain some benefit from lifestyle interventions, the challenge remains to identify the profile of those who will be successful, even in the short-term. The development of biomarkers will prove useful in this regard.

A research priority was identified to phenotype and genotype the responders, so that such low cost bariatric care medical interventions can be directed to them. More research is also needed on patient adherence, retention and weight loss maintenance especially with longer-term, multi-site clinical trials and with a focus on marginalized, high risk populations. Knowledge gained from such research will serve to guide primary health care approaches for the management of patients with severe obesity that are safe, efficacious, and cost-effective.

SURGICAL INTERVENTIONS, REHABILITIATION, AND SELF MANAGEMENT

Dr. Simon Marceau
Université Laval

Preventing obesity at the population level is absolutely necessary and must be a key goal of healthy public policy. However, preventing obesity does not help the thousands of people already suffering from severe obesity. Furthermore, data alone does not adequately describe the personal suffering of those living with severe obesity, which, at least at the present time, can only be effectively treated with surgical interventions.

Bariatric surgery is continuously evolving and future strategies will pose different advantages and risks. Current surgical options fall into two broad categories – restrictive and malabsorptive types of interventions. None of the current options for bariatric surgery are free of side effects. The benefits and risks of a surgical approach need to be clearly explained to patients. In general, data indicates that the risks of bariatric surgery outweigh the risks of disease complications from remaining severely obese. NIH guidelines state that the risks of surgical intervention are acceptable for those with a body mass index (BMI) over 40 (or over 35 with co-morbidity) and under the following conditions: unsuccessful medical treatment, no cancer or psychiatric instability; and the ability to follow-up with post-surgical care. The guidelines are said to be debatable for those over the age of 65 years. More randomized trials with adults and adolescents, longer-term cohort studies with patients of all ages, and more research on better matching patients with different types of surgery are urgently needed.

OBESITY MANAGEMENT – A TEAM AFFAIR

Dr. Marie-France Langlois
Université de Sherbrooke

Approximately 60% of Canadians are overweight or obese, and many have co-morbidities, meaning that specialty care alone is insufficient. A team approach is essential that combines primary and specialist health care with a chronic disease management approach. An integrated care model can make bariatric care more cost-effective and, therefore, more accessible. The model can include clinical intervention by an inter-disciplinary team, with patients seen 8-9 times per year for the first year for lifestyle modification, pharmacotherapy, and referral for bariatric surgery interventions, as

indicated. Results were presented showing a major reduction in health care costs, and positive weight loss outcomes, based on this stepped care approach.

Dr. Langlois went on to describe barriers to working with severely obese patients in the primary care setting, which highlights the need for improved training of health care physicians. An evaluation of a preceptor training/capacity building program in bariatric care was described. The evaluation focuses on changes in attitudes, confidence in managing bariatric patients, and practice behaviour. A future study will compare preceptor training to the implementation of clinical practice guidelines alone.

SESSION TWO: BARIATRIC HEALTH CARE SERVICES IN CANADA

Moderator: Dr. Brian Rush

BARIATRIC HEALTH CARE SERVICES IN ALBERTA

Ms. Angela Estey
Alberta Health Services

Alberta is developing a new obesity strategy. If approved, it will be rolled out in the next 5-7 years. The key components include health promotion and prevention, primary care and specialty care for adults and children. The plan calls for standardized program pathways, decision-making tools, and a strong research component as well as a comprehensive evaluation framework to monitor success in the short, medium, and longer-term. This strategy provides a unique opportunity for research and knowledge translation. The proposal stresses strategic links between health care providers that cross the care and age continuum. Currently, there are over 100 university-based researchers in the province involved in overweight/obesity research.

Many challenging questions need to be addressed in order to successfully implement this plan. What is the optimal service model for Alberta's diversity and geography? How best to integrate delivery of services across the lifespan and what are the best indicators of success? Going forward, more information is needed on the long-term benefits of obesity-related interventions, as is a better understanding of who will benefit most from bariatric surgery. Consideration is also needed regarding "promising" and "good practices" versus "best practices" to allow for the recognition of broader social determinants of health. Research is also needed to inform best practice approaches in primary care for adults and in children and youth.

BARIATRIC HEALTH CARE SERVICES IN ONTARIO

Ms. Brenda Gluska
Ontario Ministry of Health and Long-Term Care

Concerns regarding patient care and escalating costs for out-of-country bariatric surgeries and managing post- operative complications were driving factors that motivated Ontario to implement its Bariatric Services Strategy. Out-of-province bariatric surgery increased from fewer than 10 in 2002/03 to nearly 900 in 2007/08. The broad vision of the Bariatric Services Strategy calls for a provincial network of bariatric centres grounded in a multi-disciplinary approach, behavioural intervention programs, and bariatric surgery. Education and training in primary care are important sub-goals to improve bariatric care throughout the province.

The Ontario Bariatric Network (OBN) comprises four Centres of Excellence and four Regional Assessment and Treatment Centres (two for adults and two for pediatrics). The number of bariatric surgeries is rapidly increasing: 900 cases in 2009-10 and over 1,600 projected for 2010-11. Meanwhile, out-of country interventions are currently fewer than 30 per month. The cost savings have been equally dramatic. As the program continues to grow, the OBN works collaboratively to develop provincial standards and to quickly share innovations that serve to address the many new challenges arising, including wait times from unanticipated referral volumes and the pre-surgical medical work-up. The newly launched Bariatric Registry includes a central referral portal, which enables better wait time management.

Research on matching patient type to surgical approach; longer-term follow-up regarding outcomes of lap banding; and determining the optimal model of medical-behavioural treatment are front and center in the minds of decision makers.

BARIATRIC HEALTH CARE SERVICES IN QUEBEC

M. Christian-Marc Lanouette
Ministère de la santé et des services sociaux Quebec

Many people feel that Quebec has been well ahead of the other provinces in regard to bariatric care, but Mr. Lanouette noted that Quebec also struggles to keep up with the demand even though the number of bariatric surgeries has increased in the last 5 years

from 650 to 1,300 cases per annum. Approximately 250,000 people in Quebec suffer from severe obesity and could potentially benefit from surgery.

In Quebec, bariatric care falls under the mandate of two directions within the Ministry of Health: prevention initiatives are led by Public Health and bariatric surgery is the responsibility of the 'Direction générale des services de santé et médecines universitaires different ministries'. A commissioned report in 2005, *'Le traitement chirurgical de l'obésité morbide, par l'agence d'évaluation des technologies et des modes d'intervention en santé',* concluded that bariatric surgery , including gastric banding, was effective, and recommended the creation of a provincial action plan, quality assurance standards, and a national registry. One of the significant difficulties with the current situation, from the perspective of Health Ministry, is the inability to get complete and current data on wait times for bariatric surgery.

Mr. Lanouette's priority questions for research are focused on better understanding wait times, establishing the long-term effectiveness of bariatric care surgery, and tailoring strategies to help people better manage their weight while waiting for surgical treatment. Other challenges include increasing the number of people accessing appropriate bariatric care; maximizing surgery services; developing inter-disciplinary teams; setting up of a registry to follow patients over longer periods of time, and securing an optimal financing model.

SESSION THREE. BARIATRIC CARE INNOVATIONS IN TECHOLOGY AND EQUIPMENT

Moderator: Dr. Raj Padwal, University of Alberta

ENVIRONMENTAL AND TECHNOLOGICAL CONSIDERATIONS IN BARIATRIC TREATMENT AND REHABILITATION

Dr. Lili Liu
University of Alberta

Rehabilitation science plays an important role in the management of obesity: assessing assistive devices, designing mobility aids, and advising on how to retrofit hospital rooms. There are many implications related to the provision of bariatric care for facility design and architecture, an obvious example being door width. There is also a strong relationship between design and patient perceptions of stigma.

Technology is playing a pivotal role in rehabilitative care of people with severe obesity and will continue to do so in the future. Technological supports include digital cameras, internet connectivity, portability, cell phone connectivity, and motion sensors.

Smartphone technology can be used to increase adherence with, and the effectiveness of, behavioral weight management strategies. Wireless technology is also playing an increasing role, such as the use of wireless weight scales, pedometers, and pill boxes with electronic reminders and remote monitoring. Overall, rehabilitative care is resource intensive; in the bariatric care setting, it is even more intensive and complex.

Important research questions include: do "bariatric" suites in acute care, rehabilitation, and residential care facilities result in more efficient care, safer work environments, and enhanced client satisfaction? How do specialized bariatric environments contribute to or mitigate stigma experienced by patients? To what extent can therapeutic environments for bariatric patients be "universally" designed to accommodate the majority of clients, yet be cost-contained? More research is needed to examine key factors that impact on the use of technology, including issues of accessibility, usability, adaptability, and privacy.

PROVIDING SAFE AND EFFECTIVE ENVIRONMENTS OF CARE: BIOMECHANICAL CONSIDERATIONS AND DEVICES FOR BARIATRIC PATIENTS

Dr. Mary Forhan
McMaster University

Severe obesity poses many biomechanical challenges for patients, occupational therapists, and the entire health care team. Devices often need to be customized and interventions tailored to fit the patient as he/she loses weight. Adapting conventional equipment and therapies is a niche area, maintaining patient autonomy, safety and self- esteem are paramount and challenging issues in the provision of bariatric care.

Biomechanical considerations include loads on joints and muscle power. Activities such as walking, transfers, and positioning can require a customized wheelchair and, due to weight considerations, this is not usually covered under the manufacturer's general provisions for safe use. Biomechanical research *is* mostly done with normal weight patients. Existing evidence is usually published by industry and identifies risk factors associated with severe obesity. Barriers to using devices include the perceptions of patients that devices are a symbol of disability. Patients may feel that they are not entitled to such resources. This reinforces the belief that patients with severe obesity are lazy and helpless.

Research challenges include the limited number of clinician scientist positions currently available in rehabilitation medicine and the lack of space for bariatric devices. Certain vendors are willing to collaborate, but institutions are sometimes hesitant because of costs, potential risks, and issues related to precedence setting. Relevant outcome measures validated for use in bariatric populations are urgently needed.

SESSION FOUR: WEIGHT BIAS AND DISCRIMINATION IN BARIATRIC CARE

Moderator: Dr. Caroline Davis, York University

BARIATRIC CONTROVERSIES – PATIENT SELECTION AND OUTCOMES IN BARIATRIC SURGERY

Dr. Valerie Taylor
McMaster University

Psychiatric illnesses and the medications used to treat these diseases have significant impact on weight gain that is rarely acknowledged in bariatric care trials. Approximately 75% of patients seeking bariatric surgery meet criteria for having at least one mental health disorder. Psychiatric medications are now the most commonly prescribed medications in the world, and the majority of these drugs are known to cause weight gain. Considering the prevalence of depressive disorders in people seeking bariatric surgery and the effect of psychiatric drugs on weight gain, it is likely that research studies performed to date have unrecognized biases.

There are also physiological links between diet and mental health that are not discussed in weight loss trials; for example, carbohydrate intake and its effect on serotonin. Serotonin is a neurotransmitter that is closely connected to depressive states. Research has demonstrated that a reduction in carbohydrate intake negatively impacts mood and this mood shift is likely contributing to study drop-out rates.

The need for more attention to measuring and sub-typing mental conditions in bariatric research is clear. NIH criteria for patient selection for bariatric surgery emphasize the need for psychiatric screening and assessment. Clearly, discrimination against those with mental disorders by excluding them from surgical interventions is unwarranted and probably unethical. However, obesity must be looked at through a mental health lens, which leaves room for developing important research questions; in particular, evaluating how mental health impacts on obesity treatment outcomes.

OK, I AM BIASED: NOW WHAT?

Dr. Michael Vallis
Dalhousie University

The evidence is clear: society is biased against people who suffer from severe obesity. Research findings also indicate that this stigma affects a person's mental health, their interpersonal relationships, educational achievement, employment opportunities, and access to health care. The media has been described as playing a major role in fostering bias and discrimination against individuals with severe obesity. Overweight characters are significantly under-represented in the media, while underweight characters are overrepresented, especially female characters. The manner in which weight loss programs are presented in the media also encourages negative attitudes toward people who suffer from severe obesity. Bias is evident also in media that is focused on children.

More studies describing bias and discrimination are not needed. Instead, research is needed on how to reduce bias and translate this knowledge into improved health care. The lack of high quality studies that assess the impact of interventions to reduce bias has been noted, resulting in a call for more salient, theory-driven interventions which take into consideration the media and social networks. The reliability and validity of various tools to assess bias should also be strengthened.

Mr. Hugh O'Reilly
Cavalluzzo Hayes Shilton McIntyre & Cornish
Barristers and Solicitors

Is obesity a disability? How are the courts dealing with obesity discrimination? Are the courts treating obesity discrimination the same way as other forms of discrimination?

Rulings on these questions are evolving quickly. Human Rights tribunals are recognizing obesity as a disability. Courts of Law are also being asked to comment on inter-provincial differences related to how obesity is treated. Increasingly, the origins of the disability are seen as irrelevant by courts and tribunals. Both are citing the science around obesity in decision making.

Certain provinces still require that for a condition to be designated as a disability it must be caused by something. While this creates certain problems for obesity-related claims, obesity is now more likely to be recognized as a disability because of case law. The trend to look at disability-related issues from a functional perspective rather than bias *per se* has also been noted; for example, in a decision against an airline that policies limited functional access of people suffering from severe obesity to their services. In short, functional limitations require accommodation. For obesity, there is a need to break through the focus on functional limitation and focus on bias. This change will expand the interpretation related to human rights violations and investigations.

Private insurance is also an important area to consider when thinking about discrimination. Employers' insurance companies are cautious on what they will cover because of cost, risks, and setting of precedence. This reluctance can create discrimination. Examining the harmful impacts of such policies; for example, whether limits on access to certain benefits in a drug plan have the potential to cause harm. If obesity treatments or medication are excluded, this can give rise to human rights claims. In the future, more rulings on obesity are to be expected because people will be demanding more services and coverage from both Government and Private Insurance sources to treat obesity.

II. SETTING PRIORITIES

The two days were structured into four consecutive sessions, each with plenary presentations and brief discussion, followed by subsequent small group work to focus on the implications for setting of research priorities. The following four questions were asked:

1. What are the research gaps concerning bariatric health services? (These gaps may be particular gaps in knowledge/research questions, or gaps with respect to research capacity or knowledge translation (KT))

2. What will be required to address these gaps? (Again thinking of gaps in knowledge/research questions, research capacity and/or KT).

3. What strengths and opportunities currently exist to address these gaps and how can they be built upon?

4. Considering your answers to points 1-3, what would you suggest as the immediate priority, or priorities, going forward?

Small groups reported their feedback verbally, taking note to build upon the previous report, and then passed on notes for a summary of key themes. Information was then synthesized by the workshop facilitator and presented back to participants in the final part of the workshop for additional clarification, discussion, and synthesis. This included a synthesis with key points made by the presenters as well as the subsequent question and answer period.

Priorities identified fell into the following three broad categories:

- priorities for research to fill knowledge gaps
- priorities for building research capacity/processes
- priorities for knowledge translation

KNOWLEDGE GAPS

The top three research priorities identified in terms of knowledge gaps for bariatric care were:

- Intervention research
- Systems research
- Access and barriers to treatment

One of the strongest themes to emerge from this workshop is the need to better understand the responses to obesity-related interventions through *intervention research***,** including pharmacotherapy, behavioural, and surgical approaches, for patients with particular clinical and psychosocial profiles. This tailoring to individual patient profiles is referred to as "phenotyping". Research in this area is viewed as particularly challenging given multiple etiologies and the high level of associated co-morbidities. Participants also emphasized the need to address the matching question for both adult and adolescent populations. With respect to intervention research, broad-based ecological and multi-disciplinary assessments were emphasized, as well as the need for a broader range of outcome measures, such as functional measures and mental health considerations.

Several discussion points converged on the general theme of *health services and policy* research. This included strong opinion on formulating a cradle-to-grave approach to the planning and delivery across the care continuum; that is, research should support a closer integration of pediatric and adult bariatric care services. More evidence is also needed in support of a multi-disciplinary, more coordinated approach with optimal care pathways involving medical, surgical, rehabiliation, nutrition, mental health, and other disciplines. Optimization of self-care and family support was also noted in this context. The issue of the integration of the medical and surgical silos was raised several times. The need for more evidence in support of better transitions between primary and tertiary care was also identified (including issues such as triage and long-term follow-up).

Other points raised related to the need to build more capacity in primary care generally, and research in support of a stronger role of primary care practitioners. This research should include evaluating how to improve skills and attitudes and the impact of various compensation models on the provision of bariatric care. Within this general theme of systems research, the need to develop and evaluate care models that transverse a number of chronic diseases (e.g., obesity, diabetes, chronic pain, mental health, and addictions) was expressed. The role of private health care was also raised several times, including the impact of financing and insurance options.

Another major theme identified is the need for a better understanding of factors associated with *access and barriers to treatment.* The eloquent presentations by two former bariatric care patients – Ms. Louise Samson and Mr. Jean-Guy Felteau – on the first evening of the workshop, provided a springboard for many questions and points raised in the question-and-answer periods following the expert presentations and in the small group discussions.

Topic areas cited for more research included the need to better understand factors driving demand for bariatric care, including issues related to weight bias and discrimination; factors underlying gender differences in help-seeking (girls/women being more likely to access services); decision rules for access to surgery and relevant ethical issues; factors associated with drop-out and patient compliance; cultural and diversity related issues; and access for hard-to-serve or vulnerable populations, including those living in poverty, shut-ins, and people residing in rural and remote communities.

Additional knowledge gaps needing more research, but less frequently mentioned were:

- *Family involvement*: engagement in a comprehensive treatment continuum;
- *Mental health*: relationship to weight bias and discrimination, help-seeking, team competencies, mediating/moderating outcome, and outcome measures;
- *Policy change*: understanding factors that impact on policy change;
- *Prevention*: understanding optimal prevention strategies.

RESEARCH CAPACITY

The top three research priorities identified in terms of research capacity for bariatric care were:

- Increased collaboration
- Broadened outcome and cost assessments
- Enhanced qualitative and participatory research

Three main themes arose in relation to building Canadian research capacity, the most salient being the need for *increased collaboration*. There are several inter-related threads within this theme. In particular, this collaborative approach should support larger, more longitudinal follow-up studies given the current state of knowledge of intervention effectiveness (based largely on short-term follow up studies) and the multiple complications that can arise in the provision of bariatric care. A multi-centre, consortium model is viewed as a vehicle for launching such long term studies, and for building both clinician-research capacity and larger databases for primary and secondary analyses. Such databases would, for example, serve to address the phenotyping issue raised earlier, as well as support more real world effectiveness studies that serve to complement the important, but tightly controlled, efficacy trials. The value of more natural experiments was also noted in this regard; for example, allowing for useful comparisons of various health service delivery models across Canada. Participants advocated for reducing the number of smaller scale research projects, in favour of large studies that will address broader questions of cost and cost-effectiveness and offer better control of confounders.

Another theme that emerged regarding research capacity related to broadening *the scope of outcome measurement* beyond weight reduction and metabolic indicators, and giving more emphasis to *costing and economic evaluations*. Regarding outcome measurements, there is a need to better document the real life experiences of patients beyond biomedical outcomes, and that these outcomes should be developmentally appropriate across the lifespan. Psychosocial-related outcomes and measures of functional impairment are examples of going beyond biomedical indicators.

Discussion points concerning better costing and economic evaluations included the importance of assembling better cost data to support a business case for investments in bariatric care. Data on both direct and indirect economic benefits (including increased productivity and reduced health care costs) are particularly lacking for adolescents, where one goal is to define the potential benefits related to earlier surgical intervention. Other cost-related issues concern the need for more cost-effectiveness studies (such as comparing outcomes of alternative interventions that vary in cost), as well as cost-comparisons of alternative models of health service delivery. Financing and compensation models are also research topics of high interest.

A third major theme regarding research capacity is the need for more *qualitative and participatory research* to better understand and capitalize on the lived experience of people with obesity and those who have experienced various aspects of the bariatric care continuum. Incorporating the family perspective and family-related outcomes are particularly important, including children and adolescents.

Qualitative studies focused on patient empowerment are needed, including in the broader context of understanding and seeking to mitigate weight bias and discrimination. Qualitative research is relevant to identified knowledge gaps regarding coordination

across the health care continuum and assessing the value of an inter-disciplinary bariatric care approach from different perspectives.

Additional topic areas for building research capacity, but less frequently nominated were:

- *Clinical research capacity*: team development for collaboration; training and support.

- *Learning from other diseases and models*: strategies to prioritize care (knee, hip, retina); chronic care models that cut across other diseases such as diabetes, mental health disorders, and addiction.

- *Bench research*: targeted laboratory-based research to inform bariatric care and decision-making.

KNOWLEDGE TRANSLATION

The following three themes were identified as priorities for knowledge translation:

- National strategy/standardization
- Environmental scan
- Engaging policy makers

The first and most salient knowledge translation theme concerns the need for a *national strategy and standards development.* The call for standards comes up in several areas; for example, defining wait lists and the use of the term "bariatric"; decision-trees to manage access to bariatric surgery; and an outcome measures to allow better comparisons across Canadian studies.

The need for updated guidelines related to bariatric care team size and composition was highlighted, as well as the development of industry standards for medical equipment. It was also noted that initiatives underway across Canada to develop best practice guidelines would benefit from more standardization in terminology, definitions, and outcome measures. Research on whether standards make a difference in costs and outcomes is also needed. The discussion of more standardization was placed in the context of needing a national strategy, building upon a comprehensive environmental scan (considered in more detail below). The strategy must also address issues related to accreditation and evaluation, financing models, remuneration of health care providers of obesity care, and important links between obesity prevention/public health with the full continuum of bariatric care.

A second, and closely related, theme is the need for a comprehensive *environmental scan* for bariatric care in Canada, building on two weight management services scans undertaken by CON members, which can be found on the CON website. These assessments describe bariatric care services, including financing and compensation; the scope of work integrated with surgical interventions; and opportunities for collaboration between researchers, clinicians, and decision-makers.

The third major theme in the area of knowledge translation is *engaging policy makers*. This includes the development of optimal study questions and research design. Several discussion points linked the need to involve decision makers to the issue of weight bias and discrimination. This includes research to better understand and ameliorate the bias and discrimination of decision makers themselves, as well as to enlist their support to reduce bias and discrimination through effective legislation and policy (including, for example, financing of bariatric care and required assistive devices). More work with media was also cited in this context.

Another theme related to the engagement of decision makers for sharing information across institutions, provinces and territories. This could include, for example, the development of standards and best practices. Several participants also noted the importance of engaging decision makers as a strategic element for effective implementation of evidence-based clinical care. This may be required, for example, in garnering support for training in the delivery of bariatric care (including compensation for health care providers to attend continuing medical education events) and making available the use of specific clinical tools and techniques. The need for decision makers to have better access to, and synthesis of, outcome and costing data in support of the business case for bariatric care, including surgical interventions, was highlighted.

Strengths and opportunities for Canadian Bariatric Care Research

In addition to the multiple themes identified above, several strengths and opportunities for Canadian bariatric care research were noted, including:

- The Canadian national health care system, which provides administrative data for tracking trajectories and outcomes
- The spirit and experience of collaboration in Canada, including CON and bariatric care, research, and training networks
- Obesity is on the political agenda, with the potential for new funding opportunities arising as part of different health care promotion strategies
- The availability of some local and provincial registries to build upon
- Access to research funding available for cross-sectoral collaboration (including the PHSI program at CIHR)

CLOSING REMARKS: ARYA SHARMA AND PHIL SHERMAN

Drs. Sharma and Sherman thanked all of the speakers, and highlighted the rich input of participants and presenters. They both commented on the diversity of the group of workshop participants, and reflected on the value of involving two patients as presenters.

Dr. Sherman stressed the desire of INMD to partner with other research funders to advance the research agenda identified at this Workshop, and emphasized benefits that can be achieved through partnering. There is a need to reach out to the provinces and territories, and increase opportunities for research interactions with Ministries of Health. Dr. Sharma reiterated CON's expertise in the area of networking and knowledge translation, and looks forward to working with the INMD on the next steps. The workshop report will be made available in 2011.

APPENDIX I

List of workshop participants

Name	Affiliation
Geoff Ball	Director, Pediatric Centre for Weight and Health University of Alberta / Stollery Children's Hospital
André Carpentier	Department of Medicine Université de Sherbrooke
Jean-Pierre Chanoine	University of British Columbia
Sheila Chapman	Senior Ethics Policy Advisor, Ethics Office Canadian Institutes of Health Research (CIHR)
Tony Chetty	Medical Director, Bariatric Medical Clinic Hamilton General Hospital
Maisie Cheung	Marketing Manager, Surgical & Energy-Based Devices Covidien
Paul Cheung	Clinical Affairs Manager, Johnson and Johnson Medical Products
William Colmers	AHFMR Medical Scientist, Leader, the CIHR Team on the Neurobiology of Obesity Department of Pharmacology, University of Alberta
Carol Ann DaSilva	Market Access/ Government Relations Manager Allergan Inc.
Caroline Davis	York University
Robert Dent	Medical Director Weight Management Clinic and Bariatric Surgery Program, Ottawa Hospital
Anne-Cécile Desfaits	CIHR Institute of Human Development, Child and Youth Health
Tony Dickenson	Manager, Optifast Canada, Nestle Health Care Nutrition
Angela Estey	Alberta Health Services

Name	Affiliation
Jean-Guy Felteau	Bariatric Care Patient
Mary Forhan	McMaster University
Brenda Gluska	Ontario Ministry of Health and Long-Term Care
Jill Hamilton	Division of Endocrinology, Hospital for Sick Children
Andrea M. Haqq	Division of Pediatric Endocrinology, Department of Pediatrics, Alberta Health Services
Leah Jurkovic	Canadian Institutes of Health Research - Institute of Health Services and Policy Research
Marie Lambert	Medical Genetics Division, Department of Pediatrics CHU Sainte-Justine and Université de Montréal
Christian-Marc Lanouette	Ministère de la Santé et des Services sociaux Quebec
David Lau	President, Obesity Canada; Editor-in-Chief, Canadian journal of Diabetes; Professor of Medicine, Biochemistry and Molecular Biology, U of Calgary
Lili Liu	University of Alberta
Simon Marceau	Université Laval
Marie-France Langlois	Université de Sherbrooke
Cindy McLean Leone	Product Manager, Bariatrics; Ethicon Endo-Surgery, Johnson & Johnson Medical Products
Katherine Morrison	Department of Pediatrics, McMaster University
Hugh O'Reilly	Cavalluzzo Hayes Shilton McIntyre & Cornish Barristers and Solicitors
Raj Padwal	University of Alberta
Cheryl Pim	Marketing Manager – Health Division – Allergan Canada

Name	Affiliation
Denis Prud'homme	University of Ottawa
Denis Richard	Université Laval
Louise Samson	Bariatric Care Patient
Elizabeth Sellers	Dept. of Pediatrics and Child Health/University of Manitoba
Arya Sharma	Workshop Co-Chair and Scientific Director and CEO Canadian Obesity Network
Philip Sherman	Workshop Co-Chair and Scientific Director of CIHR Institute of Nutrition, Metabolism, and Diabetes
Jean-Eric Tarride	Department of Clinical Epidemiology and Biostatistics, McMaster University
Valerie Taylor	McMaster University
Michael Vallis	Dalhousie University
Claude Warren	National Director, Health System Solutions, Covidien
Sean Wharton	Internal Medicine Specialist, Hamilton Health Sciences, The Wharton Medical Clinic and Weight Management Centre
Heather Wile	Director Medical Affairs Nestle HealthCare Nutrition

APPENDIX II

Agenda

Developing a Research Agenda to Support Bariatric Care in Canada

Wednesday December 8th, 2010

6:00 pm	Registration, networking, and refreshments	La Truteau Room
6:30 pm	Opening Dinner and Welcome/ Setting the Context for Bariatric Care Research Workshop Co-Chairs*:* Philip M. Sherman Scientific Director Institute of Nutrition, Metabolism, and Diabetes Arya M. Sharma Scientific Director and CEO Canadian Obesity Network *Bariatric/Metabolic Surgery: How It Influences Energy Balance Regulation.* Denis Richard Université Laval	La Truteau Room
7:00 pm	Dinner	La Truteau Room
8:00 pm	*Living with Obesity: The Patient Perspective on Bariatric Surgery* Louise Samson *Living with Obesity: The Patient Perspective on Lifestyle Interventions* Jean-Guy Felteau	
9:00 pm	Session Closing Remarks Arya Sharma	

Thursday December 9th, 2010

8:00-8:30am	Breakfast	Alexandra and Victoria Room
8:30-8:40am	Welcome: Philip Sherman	Alexandra and Victoria Room
8:40-10:00am	PLENARY What is the evidence base supporting bariatric care? What works? For Whom? And in what context?	Alexandra and Victoria Room
Moderator : Jean-Pierre Chanoine		
Effectiveness of Non-Surgical Interventions on Weight Loss and Metabolic Complications in Morbidly Obese Patients Denis Prud'homme University of Ottawa		
Surgical Interventions, Rehabilitation, and Self-management Simon Marceau Université Laval		
Obesity Management – A Team Affair Marie-France Langlois Université de Sherbrooke		
10:00-10:10am	Introduction to Small Group Discussions Facilitator: Brian Rush	
10:10-10:30am	Health Break	
10:30-12:00pm	Small Group Discussions and Report Back	

12:00-1:00pm	Lunch	Mezzanine
1:00-2:30pm	Bariatric Health Care Services in Canada	
Moderator : Brian Rush		
Bariatric Health Care Services in Alberta Angela Estey Alberta Health Services		
Bariatric Health Care Services in Ontario Brenda Gluska Ontario Ministry of Health and Long-Term Care		
Bariatric Health Care Services in Québec Christian-Marc Lanouette Ministère de la santé et des services sociaux Québec		
2:30-2:50pm	Health Break	
2:50-4:00pm	Small Group Discussions and Report Back	
4:00-5:00pm	Bariatric Care Innovations in Technology and Equipment	
Moderator : Raj Padwal, University of Alberta		
Environmental and Technological Considerations in Bariatric Treatment and Rehabilitation Lili Liu University of Alberta		
Providing Safe and Effective Environments of Care: Biomechanical Considerations and Devices for Bariatric Patients Mary Forhan McMaster University		
5:00 pm	Adjournment-Free time	

Friday December 10, 2010

7:30-8:00am	Breakfast	Alexandra and Victoria Room
8:00-9:30am	Weight Bias and Discrimination in Bariatric Care	Alexandra and Victoria Room
Moderator : Caroline Davis, York University		
Bariatric Controversies - Patient Selection and Outcomes in Bariatric Surgery Valerie Taylor McMaster University		
Ok, I am Biased: Now What? Michael Vallis Dalhousie University		
Hugh O'Reilly Cavalluzzo Hayes Shilton McIntyre & Cornish Barristers & Solicitors		
9:30-10:30am	Group Discussions and Report Back on Ethical, Legal, and Gender Barriers to Bariatric Care	
10:30-10:45am	Health Break	
10:45-12:00pm	Defining a Research Priority Plan Facilitator: Brian Rush	
12:00-12:15	Closing Remarks- Arya Sharma and Philip Sherman	