

# Barriers and Facilitators to Implementation of a Metabolic Monitoring Protocol in Hospital and Community Settings for Second-Generation Antipsychotic-Treated Youth

Rebecca Ronsley BSc<sup>1</sup>; Kamini Raghuram BScEng<sup>2</sup>; Jana Davidson MD, FRCPC<sup>3</sup>; Constadina Panagiotopoulos MD, FRCPC<sup>4</sup>

## Abstract

**Objective:** 1) Assess perceived barriers associated with metabolic monitoring in second-generation antipsychotic (SGA)-treated youth; and 2) Propose a metabolic monitoring protocol (MMP) and implementation strategies. **Method:** Online surveys were created for community mental health teams (CMHTs) and BC Children's Hospital (BCCH) with questions designed to evaluate knowledge of physical health care, confidence, communication with primary care, and practical issues. **Results:** 26/50 (52%) of CMHT and 44/111 (40%) of BCCH surveys were completed. While both groups agreed that monitoring is their responsibility, 26% of CMHTs and 35% of BCCH professionals agreed that providing information about SGA side-effects would influence medication adherence. CMHTs reported lower overall confidence and more practical issues as monitoring barriers. While higher overall confidence was reported at BCCH, there was still a substantial proportion (23%) of hospital professionals who reported not knowing what parameters to monitor and how frequently. Communication with primary care, including inadequate systems for sharing results and identifying responsibility for acting on abnormal results, appear to be common barriers shared by both settings. **Conclusions:** Barriers to metabolic monitoring were more frequently reported by CMHTs who had limited access to nursing staff. We propose hands-on training, educational resources, pre-printed orders, and regular quality assurance evaluation as facilitators to promote MMP uptake.

**Key words:** atypical antipsychotics, children, adolescents, efficacy, metabolic monitoring

## Introduction

In British Columbia, the prevalence of mental illness in children and adolescents ( $\leq 18$  years old, collectively referred to as 'youth') is 15%, and many are treated with second-generation antipsychotics (SGAs or 'atypical antipsychotics', including risperidone, quetiapine, olanzapine, ziprasidone, aripiprazole and clozapine) (Pharmacare, 2009). In fact, the prevalence of mental illness that may result in the prescription of an SGA is 8.5% (Waddell, 2002). In youth, these medications are used for a wide variety of diagnoses including schizophrenia, bipolar disorder and disruptive behaviour disorders (Panagiotopoulos et al., 2010).

The atypicality of SGAs is conferred by their 5-HT<sub>2</sub>/D<sub>2</sub> receptor blockade activity (Scarlota, Harvey & Aloyo, 2010). Compared to the older first-generation antipsychotics, SGAs have a weaker binding affinity to the D<sub>2</sub> receptors on the post synaptic membrane, resulting in a decreased risk for some adverse events often seen with older antipsychotic treatment, specifically extrapyramidal side effects (Preskorn, 2009). Conversely, the strong binding affinity of SGAs to the 5-HT<sub>2</sub> serotonin receptor may result in metabolic adverse events that were not previously seen with first-generation antipsychotics.

In adults, the literature has shown for some time that these medications may precipitate serious metabolic effects like weight gain, dyslipidemia, dysglycemia, fatty liver disease and hypertension (Cohen, 2004; Henderson, 2002; Melkersson, Hulting

<sup>1</sup> Medical Student, University of Toronto, Toronto, Ontario; Research Assistant, Department of Pediatrics, British Columbia Children's Hospital, Vancouver, British Columbia

<sup>2</sup> Medical Student, University of Toronto, Toronto, Ontario

<sup>3</sup> Clinical Associate Professor and Head, Child & Adolescent Psychiatry Program, Department of Psychiatry, University of British Columbia; Medical Director, Mental Health & Addiction Programs, British Columbia Children's Hospital, Vancouver, British Columbia

<sup>4</sup> Assistant Professor, Department of Pediatrics, University of British Columbia and Endocrinologist, British Columbia Children's Hospital, Vancouver, British Columbia

Corresponding email: dpanagiotopoulos@cw.bc.ca

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& Brismar, 2000; Meyer & Koro, 2004; Nasrallah & Newcomer, 2004; Newcomer, Nasrallah & Loebel, 2004; Shirzadi & Ghaemi, 2006; Tandon & Halbreich, 2003; Wu et al., 2006). There is also increasing evidence that suggests that these metabolic complications affect children and adolescents to an even greater degree than they affect adults (Correll et al., 2009). In addition, recent evidence has highlighted that early screening for metabolic side-effects allows for early treatment and potential mitigation of long-term adverse outcomes from this pharmacological treatment (Meyer et al., 2008).

Unfortunately, even with our knowledge about these potentially serious complications, only a small proportion of SGA-treated youth undergo metabolic monitoring. The American Psychiatric Association and the American Diabetes Association developed joint guidelines for metabolic monitoring in SGA-treated patients in 2004 (American Diabetes Association et al., 2004). Although recommended for all ages, these guidelines have had minimal uptake in youth (Haupt et al., 2009), likely due to the limited data supporting their use in the pediatric population at the time of publication. Of note, a study conducted from 2005–2007 at our hospital revealed that only 32–37% of SGA-treated inpatients received metabolic monitoring (Panagiotopoulos, Ronsley & Davidson, 2009). Similarly, recent studies have shown poor uptake (10% – 27%) of these recommendations in the adult population (Morrato et al., 2010).

We have recently developed a metabolic monitoring protocol (MMP) specifically for the pediatric population (e-Figure 1; *Metabolic Assessment, Screening & Monitoring Tool* also available for download at [http://www.cacap-acpea.org/en/cacap/Volume\\_20\\_Number\\_2\\_May\\_2011\\_s5.html?ID=670](http://www.cacap-acpea.org/en/cacap/Volume_20_Number_2_May_2011_s5.html?ID=670)) following a comprehensive review of the literature (Panagiotopoulos et al., 2010) and consultation with various medical professionals in both the community and hospital setting, and are in the process of implementing it in various inpatient and outpatient psychiatric units in British Columbia, Canada.

However, given the poor uptake of adult recommendations (Morrato et al., 2010), we sought to obtain feedback from mental health professionals about barriers that may be associated with implementation of metabolic monitoring before disseminating our MMP. In addition, recent studies (Walter et al., 2008) have urged that when evaluating opinions of mental health professionals related to metabolic monitoring, it is important to include healthcare workers from both the community and hospital settings. Therefore, our objectives were to assess the perceived barriers associated with metabolic monitoring in SGA-treated youth in both the community and hospital setting, and to present our MMP and strategies for implementation. We hypothesized that there would be fewer

barriers associated with implementation of a MMP within the tertiary care hospital setting than within the secondary care community mental health team setting.

## Methods

This project was approved by both the BC Children's Hospital Research Review Committee and the University of British Columbia Behavioural Research Ethics Boards. Informed consent was obtained from all study participants prior to beginning the survey.

### Participants

Study participants were mental health professionals (including counselors, psychologists, social workers, nurses and physicians) working with youth at either a Vancouver Coastal Health (VCH) community mental health team (CMHT) or at British Columbia Children's Hospital (BCCH). In British Columbia, CMHTs provide secondary level care, and BCCH provides tertiary level care. While the types of health professionals (i.e. physician, nurse, counselor, social worker, psychologist) working at each VCH CMHT vary, each team has one or more physicians who attend regular clinics, but very few have a nurse on-site.

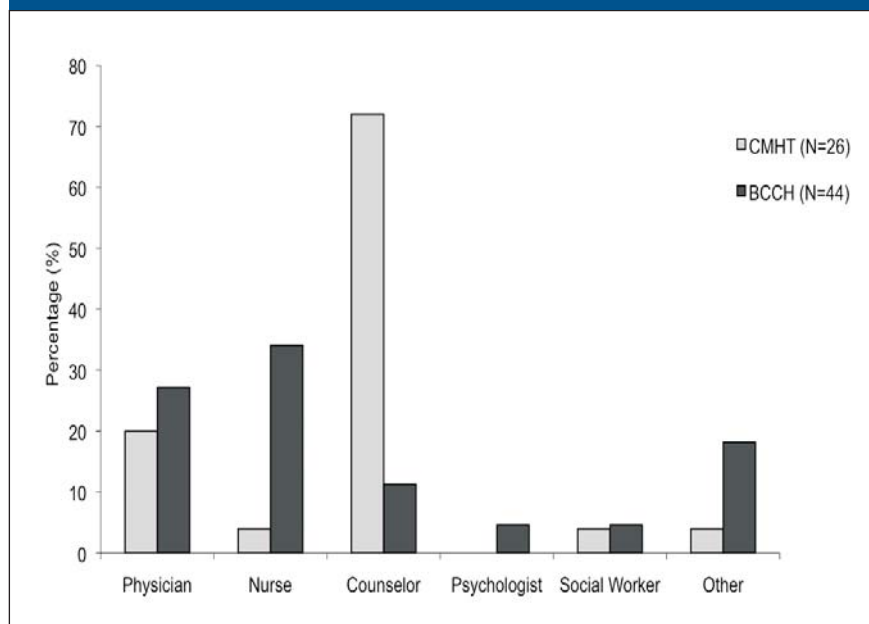
### Procedures

Invitations to participate in surveys through an online link were provided to all health professionals employed at each site through VCH and BCCH administrators. Separate surveys were created for CMHTs and for BCCH professionals using *surveymonkey*, a web-based company (Portland, Oregon) that allows users to create and distribute surveys via an online link. The online survey was distributed to CMHT professionals in November 2008, prior to implementation of our MMP at these sites in January 2009. Survey content was based on a survey initially developed for the purpose of assessing needs in adult community mental health clinics in the United Kingdom (Barnes et al., 2007). The questions utilized a 5-point Likert scale and were designed to evaluate knowledge of physical health care, metabolic monitoring, and the relationship between primary and secondary/tertiary care. Questions were also included that assessed the professionals' opinion about their confidence in completing metabolic monitoring, about whose responsibility it is to do monitoring and about whether the necessary training and equipment is present at their sites for monitoring to take place (Barnes et al., 2007). The survey questions are presented in Table 1.

A slightly modified survey that included questions about whether the professional works in inpatient or outpatient settings was distributed to hospital-based mental health professionals in February 2009. All answers to survey questions were kept anonymous.

**Table 1. Survey questions administered to staff members at Community Mental Health Teams (CMHTs) and BC Children's Hospital (BCCH)**

	% Agree		% Disagree		% No consensus	
	CMHTs	BCCH	CMHTs	BCCH	CMHTs	BCCH
<b>Physical health care</b>						
Physical health (as well as mental health) is our responsibility	83.3	90.9	8.3	6.8	8.3	2.3
In our team, physical health problems are given the attention they deserve	78.2	72.1	8.6	16.3	13.0	11.6
We have concerns about reducing adherence to antipsychotics if we raise awareness of possible metabolic side effects	26.0	34.9	52.1	41.9	21.7	23.3
<b>Confidence about monitoring physical health</b>						
We know what should be monitored and when	50.0	77.5	40.9	12.5	9.1	10.0
All relevant team members are able to use all the necessary equipment	17.4	64.1	73.9	15.4	8.7	20.5
We know how to interpret the results of any monitoring undertaken	26.0	67.5	69.6	20.0	4.3	12.5
We understand what action to take in response to abnormal results	30.4	70.0	60.8	15.0	8.7	15.0
<b>Interface with primary care</b>						
We have a clear system for delegating responsibility for monitoring of clients between primary and secondary care	22.7	41.7	54.5	41.7	22.7	16.7
We have reliable systems in place (e.g., electronic prescribing) to remind us that physical health checks are due for our clients	9.1	16.7	77.3	58.4	13.6	25.0
We have a clear system for sharing results between primary and secondary care	27.2	44.4	59.1	36.1	13.6	19.4
There is a clear understanding between primary and secondary care about who is responsible for acting on abnormal results	14.3	33.3	57.2	50.0	28.6	16.7
<b>Practical Issues faced by mental health teams</b>						
We have enough time to undertake physical health monitoring	27.3	77.1	59.1	14.3	13.6	8.6
We are clear who, within the team would be responsible for ensuring adequate monitoring is undertaken	40.9	68.6	45.5	25.7	13.6	5.7
We have access to an accurate weighing scale	95.5	88.5	0.0	5.7	4.5	5.7
We have access to a suitable waist circumference tape measure	63.6	77.2	18.2	6.6	18.2	14.3
We have access to a blood pressure machine and appropriate sized cuffs	68.1	82.9	18.2	11.4	13.6	5.7
We have access to a clinic room with an examination table	36.3	97.1	45.4	0.0	18.2	2.9
We know whose responsibility it is to maintain equipment	18.2	44.1	59.1	32.3	22.7	23.5
We have a clear, reliable system for accessing lab request forms	81.8	82.9	9.1	5.7	9.1	11.4
It is easy to retrieve investigation results from the laboratory	54.5	75.7	13.6	3.0	31.8	21.2
Results of investigations are readily available in case notes in time for the next outpatient clinic attendance	28.6	55.9	33.3	2.9	38.1	41.2
Agree = subjects who answered "agree" or "somewhat agree", Disagree = subjects who answered "disagree" or "somewhat disagree", No Consensus = subjects who neither agreed or disagreed						

**Figure 2. Distribution of mental health professionals**

CMHT: community mental health team, BCCH: British Columbia Children's Hospital  
Other: pharmacist, dietitian or team coordinator

### Data analysis

SPSS version 17.0 (Chicago, IL) was used to perform statistical analysis of collected data. All surveys, including those with only partial data available, were included in the analysis. For the purposes of analysis, subjects were defined as having "agreed" with the statement if they responded "somewhat agree" or "agree". Likewise, subjects were defined as having "disagreed" with the statement if they responded "somewhat disagree" or "disagree". "No consensus" was defined as subjects neither agreeing nor disagreeing with the statement. Descriptive analyses included the frequency of mental health profession in each of the groups (CMHTs and BCCH) and frequency of each Likert -scale rating for each of the survey questions. To compare responses between community and hospital professionals, an independent samples *t*-test was conducted for the mean Likert score on specific survey questions. To account for multiple *t*-tests,  $p=0.01$  was considered statistically significant.

### Results

Fifty surveys were distributed to CMHT professionals (responses collected from November 26, 2008 to June 6, 2009), and 111 surveys were distributed to BCCH professionals (responses collected from February 2 to March 23, 2009). While the response rate was slightly higher from the CMHTs (26/50; 52%) than from BCCH (44/111; 40%), there was a higher absolute number of responses from BCCH. The

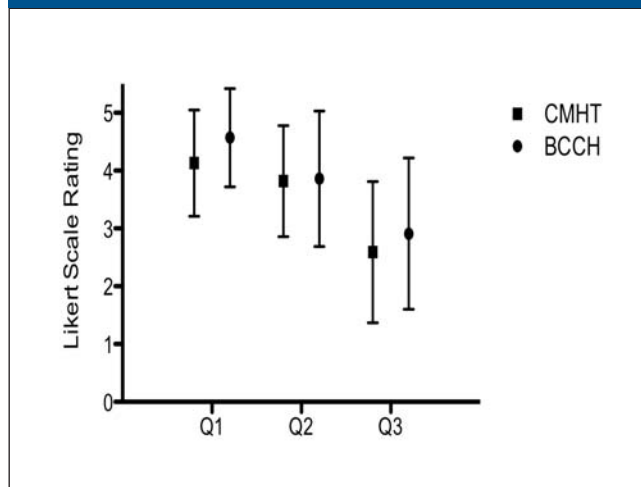
breakdown of the professions for the two groups is presented in Figure 2. The proportion of professionals represented by physicians was similar in the CMHTs (23.1%) and in BCCH (27.3%). There was a higher proportion of counselors from the CMHTs (69%) than from BCCH (11.4%); conversely, the proportion of nurses was higher from BCCH (34.1%) than from CMHTs (3.8%). Of the BCCH mental health professionals surveyed, 20/44 (45.5%) work in inpatient programs, 8/44 (18.2%) work in outpatient programs, and 16/44 (36.4%) work in both settings. A summary of the responses received from CMHT and BCCH staff to the survey questions is presented in Table 1.

### Physical Health Care

Survey responses to questions related to physical health care are presented in Table 1 and Figure 3. Responses from staff members in both groups were consistent for all three questions. The majority of mental health care professionals agreed that the monitoring of physical health care is their responsibility [CMHT: 20/24 (83.3%); BCCH: 40/44 (90.9%)], and that currently, adequate attention is given to physical health care concerns at their sites [CMHT: 18/23 (78.2%); BCCH: 31/43 (72.1%)]. Of note, 26% of CMHT and 35% of BCCH professionals agreed that providing information about SGA side-effects to their patients would influence adherence to the medication. Of the professionals that voiced this concern, 67% were doctors or nurses.

### Confidence with Monitoring Physical Health

Survey responses to questions related to confidence in monitoring physical health are presented in Table 1 and Figure 4. CMHT staff members reported significantly lower confidence in knowing what should be monitored and when compared to BCCH staff members (mean Likert score  $3.1 \pm 1.36$  vs.  $3.9 \pm 0.98$ ,  $p=0.01$ ). Of the CMHT staff members, a large proportion (73.9%) reported that they were not trained to use all of the equipment needed for metabolic monitoring compared to 15.4% of BCCH staff (mean Likert score  $1.7 \pm 1.12$  vs.  $3.6 \pm 1.16$ ,  $p<0.0001$ ). CMHT staff also reported lower confidence than BCCH staff in interpreting the results of monitoring undertaken (mean Likert score  $2.0 \pm 1.34$  vs.  $3.6 \pm 1.19$ ,  $p<0.0001$ ), and in understanding what action to take in response to abnormal results (mean Likert score  $2.4 \pm 1.40$  vs.  $3.7 \pm 1.15$ ,  $p<0.0001$ ). Of note, all respondents from BCCH that "agreed" that they were trained to use the equipment and

**Figure 3. Physical health care**

CMHT: community mental health team; BCCH: British Columbia Children's Hospital

Q1: Physical health (as well as mental health) is our responsibility.

Q2: In our team, physical health problems are given the attention they deserve.

Q3: We have concerns about reducing adherence to antipsychotics if we raise awareness of possible metabolic side effects.

understood what response to take in response to abnormal laboratory tests were nurses or physicians.

### Interface with Primary Care

Survey responses to questions related to the interface with primary care are presented in Table 1 and Figure 5, and mean responses are similar in both groups. Very few CMHT (9.1%) and BCCH staff (16.7%) agreed that they had reliable systems in place to remind them of physical health check time points for their patients (mean Likert score  $1.6 \pm 1.03$  vs.  $2.4 \pm 1.17$ ). Responses between the two groups were similar when asked about systems for sharing laboratory results, in that, only 27.2% of CMHT and 44.4% of BCCH staff reported having a clear system for sharing physical health care results between providers (mean Likert score  $2.3 \pm 1.31$  vs.  $3.2 \pm 1.28$ ). Finally, only 3/21 (14.3%) CMHT staff and 12/36 (33.3%) BCCH professionals (mean Likert score  $2.2 \pm 1.27$  vs.  $2.9 \pm 1.20$ ) reported having a clear understanding between primary care and themselves about responsibility for actions related to abnormal laboratory results.

### Practical Issues Faced by Teams

Survey responses to questions related to the practical issues faced by CMHT and BCCH staff are presented in Table 1 and Figures 6a and 6b. Overall, CMHT staff reported more practical barriers to completing monitoring than BCCH staff. Just over a quarter (27.3%) of CMHT staff agreed that they had enough time to undertake physical health monitoring

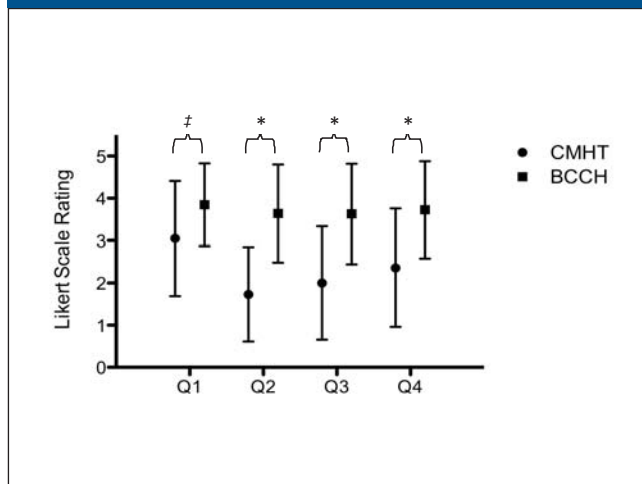
compared to over three-quarters (77.1%) of BCCH staff (mean Likert score:  $2.5 \pm 1.17$  vs.  $4.0 \pm 1.20$ ,  $p < 0.0001$ ). A significant proportion of both CMHT staff (45.5%) and BCCH staff (25.7%) reported that they did not know who, within their team, was responsible for completing monitoring. In addition, almost half of CMHT staff reported that they did not have access to examination rooms in their clinical setting compared to none of the BCCH staff (mean Likert score:  $2.7 \pm 1.49$  vs.  $4.8 \pm 0.49$ ,  $p < 0.0001$ ). Finally, a lower proportion (18.2%) of CMHT than BCCH staff (44.1%) reported knowing whose responsibility it is to maintain equipment (mean Likert score:  $2.2 \pm 1.21$  vs.  $3.3 \pm 1.36$ ;  $p = 0.003$ ).

### Strategies for Implementation

To address the barriers identified in our surveys, we have developed protocols to help facilitate the implementation of our MMP (e-Figure 1, also available for download at <http://bit.ly/9yxHwe>) both at BCCH and in the community. To address concerns with equipment and exam room availability at the CMHTs, we assisted them in purchasing appropriate measurement equipment and in setting up examination rooms at each site. Because staff expressed low confidence in their ability to conduct anthropometric measurements, both BCCH and community-based staff received a standardized measurement protocol (<http://bit.ly/9yxHwe>) at the time of implementation of our MMP. This included an in-service and site-based instruction by a research coordinator on proper measurement of height, weight, waist circumference and blood pressure in children. In addition to working towards professionals gaining confidence in conducting metabolic monitoring, this protocol will also help to ensure consistent and continuous care as youth are transferred between care settings. To address concerns that implementing metabolic monitoring may affect medication compliance, families were provided with a handout (<http://bit.ly/9yxHwe>) explaining treatment and prevention measures for metabolic side effects associated with SGA-treatment.

In response to the concern that some staff did not know which laboratory tests needed to be ordered and to assist physicians in comprehensively assessing all metabolic laboratory parameters simultaneously, pre-printed order sheets were created for both BCCH (<http://bit.ly/9yxHwe>) and the CMHTs. Preliminary feedback suggests that these pre-printed orders have helped to reduce the amount of time that monitoring takes from the regular appointment within both clinical settings, while also eliminating the need for the child to return to the laboratory for another venipuncture because the health care provider forgot to order required laboratory tests with the initial bloodwork.

After staff expressed concern in their ability to interpret results of monitoring and organize appropriate follow-up, all

**Figure 4. Confidence about monitoring physical health**

‡ $p < 0.01$ ; \* $p < 0.0001$

CMHT: community mental health team; BCCH: British Columbia Children's Hospital

Q1: We know what should be monitored and when.

Q2: All relevant team members are able to use all the necessary equipment.

Q3: We know how to interpret the results of any monitoring undertaken.

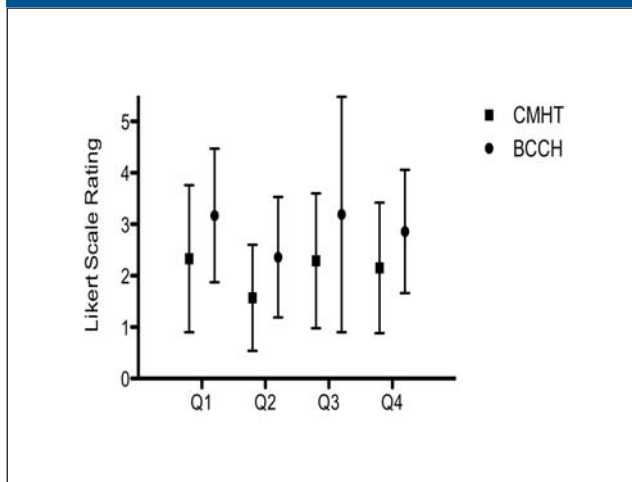
Q4: We understand what action to take in response to abnormal results.

professionals were provided with electronic and paper references for metabolic monitoring in youth. This resource (<http://bit.ly/9yxHwe>) includes blood pressure, waist circumference, and body mass index norms for the pediatric population, as well as clinical information about screening and the diagnostic criteria for diabetes and the metabolic syndrome. As well, psychiatry residents received teaching about metabolic monitoring and assessment at the beginning of their child psychiatry rotation and were also provided with these paper and electronic references. To keep track of metabolic monitoring time points for each youth, reminders were sent regularly to physicians and mental health clinicians about approaching blood work time points. Finally, quality assurance measures including regular chart reviews were put in place at BCCH and CMHTs to evaluate uptake of the protocol and additional barriers associated with its components.

## Discussion

To our knowledge, this is the first North American study where community and hospital-based healthcare professionals were surveyed about barriers associated with metabolic monitoring in SGA-treated youth.

Our overall survey response rate of 70/161 (43.5%) is consistent with a similar survey study conducted by Walter and colleagues (Walter et al., 2008) in Australia where the response rate was 42%. Our surveys provide insight about several barriers to metabolic monitoring in SGA-treated youth in both

**Figure 5. Interface with primary care**

CMHT: community mental health team; BCCH: British Columbia Children's Hospital

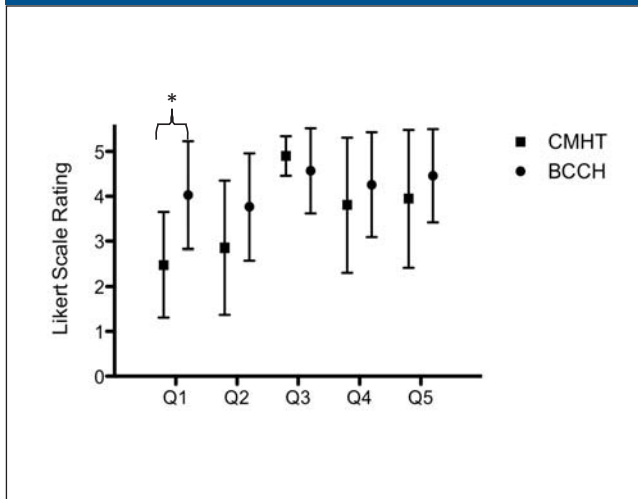
Q1: We have a clear system for delegating responsibility for monitoring of clients between primary and secondary care.

Q2: We have reliable systems in place (e.g. electronic prescribing) to remind us that physical health checks are due for our clients.

Q3: We have a clear system for sharing results between primary and secondary care.

Q4: There is a clear understanding between primary and secondary care about who is responsible for acting on abnormal results.

the community and hospital setting. In spite of published recommendations for metabolic monitoring available since 2004 (American Diabetes Association et al., 2004), half of community-based and almost one-quarter of CMHT professionals reported that they did not know what parameters needed to be monitored and at what time intervals. In our survey, CMHTs more often reported barriers to effective metabolic monitoring than BCCH, particularly related to low confidence and practical issues. Of concern, more than three-quarters of CMHT staff reported that they did not know how to use the equipment needed to conduct metabolic monitoring. This may be a result of the lower proportion of doctors surveyed in CMHTs compared to BCCH, and the fact that nurses are not commonly part of the CMHT infrastructure in British Columbia. As well, there was general concern at both BCCH and CMHTs about problems with communication between different levels of care (primary-secondary-tertiary); specifically, common barriers identified included inadequate systems in place for delegating responsibility for monitoring, sharing and acting on laboratory results. For example, one CMHT professional wrote that the electronic records system used with outpatients does not currently have a place for tracking measurement changes and blood work from previous hospital stays. Of note, in our survey, one-third of hospital-based staff,

**Figure 6a. Practical issues faced by mental health teams**

\* $p < 0.0001$ ; CMHT: community mental health team; BCCH: British Columbia Children's Hospital

Q1: We have enough time to undertake physical health monitoring.

Q2: We are clear who, within the team would be responsible for ensuring adequate monitoring is undertaken.

Q3: We have access to an accurate weighing scale.

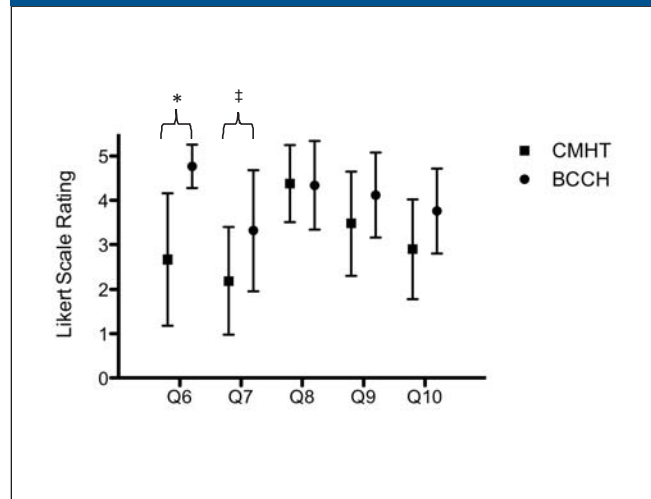
Q4: We have access to a suitable waist circumference tape measure.

Q5: We have access to a blood pressure machine and appropriate sized cuffs.

and one-quarter of CMHT staff were concerned that providing information about metabolic side-effects to patients would reduce SGA-adherence. Although beyond the scope of our study, the evaluation of the impact of MMP implementation on medication prescription practices as well as patient adherence will be important as protocols are implemented.

Our results are consistent with a study (Barnes et al., 2007) surveying mental health clinicians working with adults where staff reported uncertainty about each team members' responsibility in metabolic monitoring, limited access to appropriate equipment and low confidence in interpreting abnormal blood results as the main barriers to conducting metabolic monitoring. In addition, a recent study conducted with child psychiatrists found that the most commonly reported barriers to metabolic monitoring were lack of time and patient compliance with blood work (Walter et al., 2008). Together with our findings, these data emphasize the importance of addressing common issues faced by mental health professionals in monitoring physical health in conjunction with MMP implementation to facilitate uptake.

Previous studies have shown that regular monitoring can identify previously undiagnosed cases of diabetes, hypertension and dyslipidemia (Meyer et al., 2008). The implications of inadequate screening in youth may result in catastrophic

**Figure 6b. Practical issues faced by mental health teams**

\* $p < 0.0001$ ; ‡ $p = 0.003$

CMHT: community mental health team; BCCH: British Columbia Children's Hospital

Q6: We have access to a clinic room with an examination table.

Q7: We know whose responsibility it is to maintain equipment.

Q8: We have a clear, reliable system for accessing lab request forms.

Q9: It is easy to retrieve investigation results from the laboratory.

Q10: Results of investigations are readily available in case notes in time for the next outpatient clinic attendance.

outcomes associated with cardiovascular disease morbidity and mortality. Thus, it is imperative that mental health professionals have access to the proper skills and training to accurately monitor metabolic outcomes in SGA-treated youth.

## Strengths and limitations

The results of this study need to be interpreted within its limitations. The main limitations of this study were that our results reflect a larger absolute number of BCCH than CMHT professionals, and responses were from an unequal distribution of health care professions. Nevertheless, the distribution of respondents is consistent with the total population of community and hospital professionals, and our response rate is consistent with previous surveys conducted in similar populations in other countries (Barnes et al., 2007; Walter et al., 2008). In addition, our results reflect the opinions of only urban professionals. Further studies that include the opinions of more mental health professionals from rural and remote teams are needed to determine barriers to metabolic monitoring in these populations. While we have proposed many practical solutions to the barriers identified, studies are currently underway by the authors to assess the impact of these initiatives.

## Conclusions

There appear to be more barriers associated with implementation of a MMP in a community-based than in a hospital-based setting. Community-based teams report lower overall confidence in performing metabolic monitoring and face more practical issues related to inadequate time and lack of access to examination rooms. These findings may be related, in part, to the limited access to nursing staff at CMHTs. While higher confidence is reported in the hospital setting, there is still a substantial proportion of health professionals that do not know what parameters to monitor and how frequently. Communication with primary care, including inadequate systems for sharing results and identifying responsibility for acting on abnormal results appears to be a common barrier shared by both community and hospital-based settings. In response, we propose that hands-on training, educational resources for professionals and families, pre-printed orders, and regular quality assurance evaluation must accompany MMPs at implementation to promote improved uptake. Consistent and appropriate monitoring practices between inpatient and outpatient settings as well as good communication between levels of care will help ensure appropriate continuity of care for this population of youth.

## Acknowledgements / Conflicts of Interest

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