

**A School-based Integrated Pathway to Care Model  
Mental Health Identification and Navigation (MH-IN) Pilot Project at Forest Heights  
Community School and South Shore Region, Nova Scotia  
By: Yifeng Wei and Stan Kutcher**

## **Background**

Neuropsychiatric disorders comprise the largest single category of medical disability and contribute the greatest burden of illness globally and nationally in young people. In Canada, it is estimated that one in five young people suffer from a mental disorder that requires professional intervention (Health Canada, 2002; Waddell, Offord, Shepherd, Hua, & McEwan, 2002). Mental disorders are strong, independent risk factors for early death (often through suicide and accidents) and for a variety of later onset of physical disorders such as cardiovascular disease and diabetes. In Canada suicide is the second leading cause of death following motor vehicle collisions for youth aged 10 to 24 years in Canada (Statistics Canada, 2004). Mental disorders are strongly associated with poor academic performance, early school leaving and poor occupational success (Kessler, Foster, Saunders, & Stang, 1995). Early identification and effective treatment of mental disorders and the promotion of positive mental health may improve both population and personal well-being, may be effective in prevention of disorders or disability and may substantially improve outcomes in a cost-effective manner (Santor et al., 2009).

Traditionally, schools have been identified as an ideal venue to address health topics. Numerous school based health initiatives, such as nutrition, active living and smoking cessation programs, have been implemented in the school setting and some have proved to be effective. Recently, schools have started to realize that mental health is an essential part of health. Programs, policies and research have been directed to enhance mental health agenda in the school setting both nationally and internationally (National Research Council and Institute of Medicine, 2009; Canadian Council on Learning, 2009). Young people who spend most of their day time at schools make schools a convenient and cost efficient place to promote mental health, early identify at-risk students and refer to health care providers in collaboration with community services, parents and families.

Locally, greater attention has been contributed to youth mental health in both education and health sectors. Research and practices have been undergoing in local research institutions and groups. For example, Sun Life Financial Chair in Adolescent Mental Health (the Chair Team) has dedicated itself to translate and transfer best evidence based scientific knowledge into practice and has identified school mental health as its focus since its establishment in 2006. The Chair Team has developed and implemented a wide range of youth mental health programs involving students, educators, health professionals, parents/families and other relevant community services. It has brought together five government departments to develop a school mental health framework for Nova Scotia schools. The Chair (Dr. Stan Kutcher) has been invited by local schools and communities to present on various topics of youth mental health. In addition, there are also programs developed or adopted by schools locally and provincially, such as PEBS and YOO magazine. YOO magazine is a health/mental health promotion product, lead by Dr. Alexa Bagnell of the IWK, specifically directed at junior high and secondary school students. Through working with various groups of stakeholders, the need has been identified for a holistic

approach to address youth mental health in collaboration with local education and health, and other related service providers. MH-IN is the response of the Chair to that identified need.

The pilot project, Mental Health Identification and Navigation (MH-IN), takes as its first step the premise that mental health literacy is fundamental to improving youth mental health and approaches mental health promotion from that perspective. The rest of MH-IN builds on that component and includes a number of contextualized mental health/mental disorder training programs for teachers, educators, school staff, health providers and members of the community (including parents). MH-IN is a pathway to care model that uses all the above components to address mental health needs of young people.

This report provides a summary of the pilot project to test an integrated pathway to care model as it was applied at Forest Heights Community School, South Shore Region of Nova Scotia in the fall/winter of 2009 and spring of 2010. It describes every stage of the project, including project development, implementation, data collection and analysis, implication for future research and practice. Lessons learnt will provide informative data to refine the model to best serve youth mental health needs.

## **Preamble**

The MH-IN pilot project began with a mental health workshop that the Chair (S.K) created and delivered to educators, school staff, administrators, health professionals and community services at South Shore Region in April 2009. The workshop was requested by South Shore School Plus, a collaborative interagency group dedicated to supporting the whole child and family, operated under the auspices of the Nova Scotia Department of Education. South Shore School Plus had identified a gap between youth mental health needs and availability of mental health care resources in the region, and therefore approached Nova Scotia Department of Education for advice. The Chair was invited to develop strategies in collaboration with additional partners to address this issue including the IWK Health Centre, the Department of Psychiatry (Division of Child and Adolescent Psychiatry), the Department of Health Promotion and Prevention, South Shore Regional School Board and South Shore Regional Health District. An oversight committee was formed by members from partners group. It was agreed that a one day “gatekeeper” training should be provided to school administrators, teachers, guidance councilors, school psychologists and health professionals. The program was developed by the Chair team together with the Department of Education and the South Shore Mental Health Specialty Services. The program is a mental health literacy program built on pedagogical principles that include critical analysis, conceptual understanding, contextualized information and applied knowledge. This program includes: information on brain functions, mental health, stigma, mental disorders, case identification strategies, referral process and cultural competencies. It aims to educate participants to effectively identify, intervene with and appropriately refer students identified as “at-risk” for mental illness or suicide. The committee also identified parental engagement as an essential component and agreed on an individual information session for parents and families following the training. A training program for primary care providers was also scheduled to link health care providers with schools for appropriate referral. A knowledge base evaluation was designed to test participants’ knowledge acquisition pre and post the training session.

The training took place on April 02, 2009 at Oak Island Inn, South Shore Region. The training invitation was extended to the community and the coordinator, School Plus, received requests from groups beyond education and health sectors, such as from RCMP and community services. Thirty people participated in the training, including school staff from Forest Heights Community School, Chester Area Middle School, and New Ross Consolidated School; staff from South Shore Regional School Board, Mental Health Services of South Shore Regional Health Authority, Addictions Services, and RCMP school safety officers and other community members. The training was delivered by Drs. Stan Kutcher, Alexa Bagnell, and Ms. Rola Abihana from the Department of Education. Pre and post knowledge test were not administered due to time constraints, however, workshop evaluation was conducted among participants.

Feedback from the workshop evaluation (see table 1 and 2) shows that participants thought information provided was excellent and comprehensive and they enjoyed the workshop and learnt a great deal. Participants also took this training as an opportunity to meet with other groups of professionals to seek possible collaborations in the future. Suggestions for improvement were identified, including:

#### Program goals, objectives, plans

1. Need to state precise/clear goals, objectives, plans of the workshop at the start of the workshop
2. Need to ensure that the professionals are not to request extra work for teachers in the classroom, but to enhance the work teachers are already doing;
3. An additional cultural piece would have been advantageous; Need to include more information about First Nation/Aboriginal and African Nova Scotians .
4. Need more time for the content- two day workshop is more appropriate (strongly suggested); Need the second day to address further application of the knowledge.

#### Multi-agency cooperation/collaboration

5. Need to identify key players, involve community services, social work and other related agencies
6. Need to deliver this program to all teachers and continue building connections between education and the other care providers in the community
7. Need to provide a contact list of people in attendance, and what their role is in the mental health process.

#### Workshop structure and presentation format

8. Need more discussions and interactions between the audience and the speakers;

Participants also expressed the need for a more precise and continuous model to address youth mental health in collaboration with related agencies in the community.

Table 1.

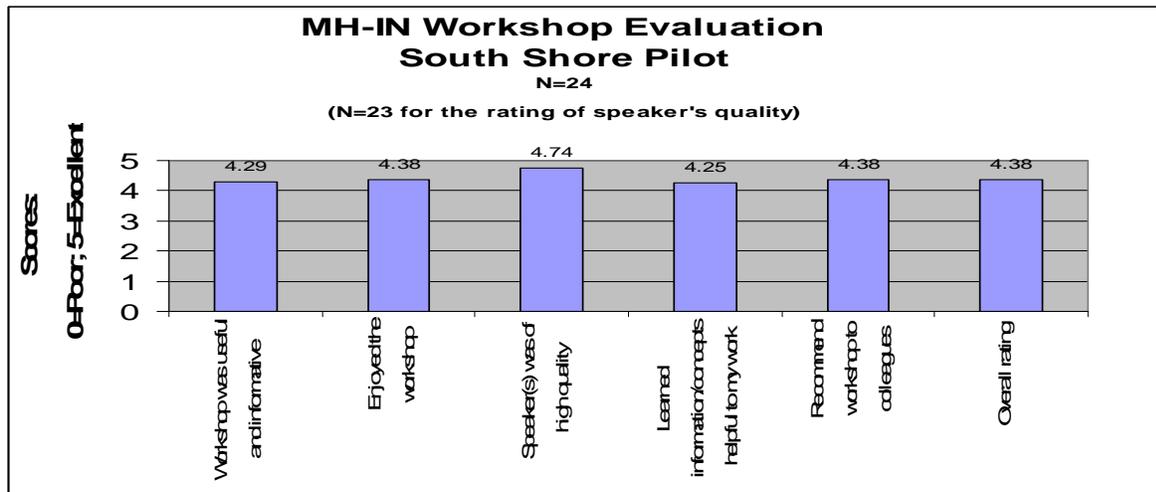
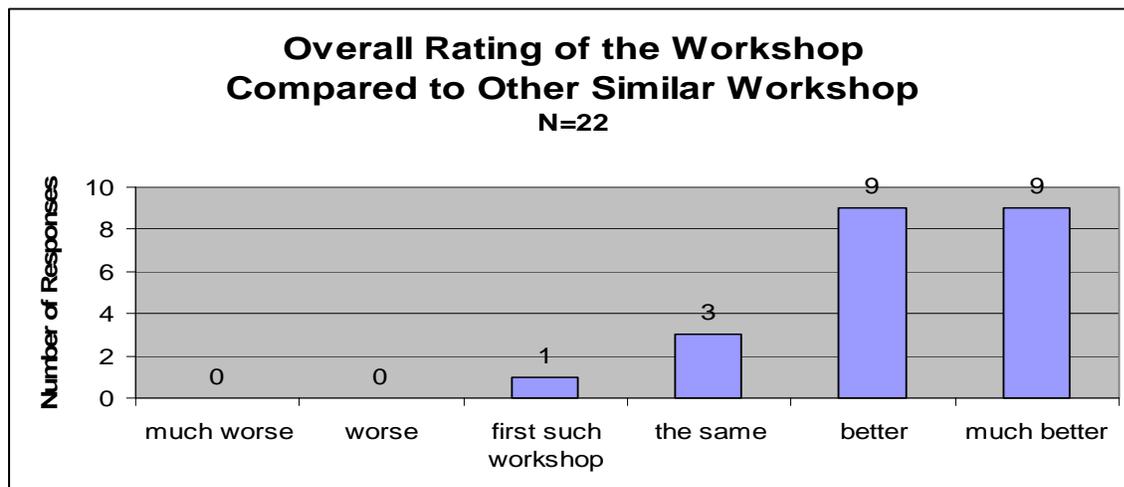


Table 2.



## MH-IN Pilot Project Development and Implementation

### Working group

Based on the feedback from the workshop, the oversight committee members met in July and October 2009 to reconfigure the project. Discussions revolved around themes such as: defining pilot project and purpose; identifying gaps/barriers inhibiting the promotion of youth mental health in the region; collaborating with existing resources and agencies; integrating promotion, prevention, intervention and continuing care; developing evaluation framework. A small working group was established as a result of the two meetings to develop a proposal addressing the identified issues. The working group consists of members from local Health Promoting Schools initiative (Shelly Moran), mental health services (Val MacDonald), the Chair Team (Stan Kutcher, Yifeng Wei), and regional school board (Shirley Burris, Steve Prest, and Marla Rafuse). The proposal was finalized and approved by the committee.

## **Project goals and the integrated pathway to care model**

Informed by the feedback from the participants in the workshop and discussions with committee members, a school based integrated pathway to care model (Appendix 1) was designed by the Chair Team to address youth mental health in collaboration with related stakeholders. The goals of the model are to support mental health literacy and promotion among youth in the school setting, to enhance early identification and triage of youth at risk of developing mental health problems and disorders, to link schools with appropriate health care providers for effective intervention, and facilitate on going mental health care when youth return to school. The model proposes to bring together all related stakeholders, including students, educators, school support staff, parents/families, health care providers and other related community services, to improve youth mental health in a unified manner. Embedded in the model are the components applied to each groups of stakeholders. These components encompass: a mental health literacy program for students (Mental Health and High School Curriculum Guide), a training program for classroom teachers; a training program for school support staff; information for parents; knowledge upgrading for mental health services and training for primary care providers. Through model implementation, an integrated pathway to care is built to promote mental health literacy among all participants, identify students with mental health problems, refer them to appropriate health services and facilitate their return to schools in a seamlessly manner.

The committee agreed that a pilot should be conducted to test the model strengths and weaknesses in order for it to best serve youth mental health needs. The pilot was titled as “Mental Health Identification and Navigation” (MH-IN). Forest Heights Community School was chosen initially as the potential pilot school. An action plan was developed together with the pilot school. (Appendix 2)

## **Pilot of the MH-IN model**

### *Pilot school and participants*

Forest Heights Community School (FHCS) is a rural high school serving grade 10-12 students, located in Chester Basin of South Shore Region, Nova Scotia. The school requested assistance for mental health resources that are lacking in their school to address students mental health needs. The school was contacted by the School Plus coordinator and a meeting was held to introduce the project to the school staff. Confirmation was obtained for the school to be part of the pilot. All grade 10 students were designated as the target population of the pilot on the basis of discussion amongst team members, educators that included a focus group of teachers. Reasons provided for this choice included: that they are in a transition stage from junior high; better understanding about mental health may help them succeed through high school to university not only emotionally but also academically; and educators are concerned about high level of adjustment and mental health problems in grade 10.

### *Model component 1 - classroom teacher training*

As teachers are front line education professionals, they are essential to help promote student mental health. The “Mental Health and High School Curriculum Guide” (the Guide) was applied as the key resource for grade 10 classroom teachers. The guide was developed by the Chair team in partnership with Canadian Mental Health Association (CMHA) national office. The guide

used for the pilot was the second version. It consists of a teacher self-study module and six modules for students. The self study module provides basic information about mental health and strategies to identify at-risk students and link them with health providers. The other six modules for students address a wide domain of mental health including 1) stigma; 2) understanding mental health and mental illness; 3) specific mental disorders that onset during adolescence; 4) lived experiences of mental illness 5) help-seeking and support; and 6) the importance of positive mental health.

FHCS introduced the pilot and the curriculum guide to its school staff at a meeting on November 20, 2009. A one-pager of background information about the pilot (See appendix 2) was distributed to the staff. They reviewed the curriculum guide and requested a training session by Dr. Kutcher to review the material and answer their questions so that they were better prepared to teach the content. The training session was held on Feb 08, 2010 and all grade 10 teachers (n = 6) participated. The training followed the flow of the self-study module, then reviewed the curriculum class modules, and added practical cases to exemplify.

#### *Model component 2 - curriculum for students*

Following the classroom teacher training, grade 10 teachers met together and developed tactics to implement the materials in the classroom. They decided to prepare class materials together and teach them in groups of two teachers with each group teaching two modules. The curriculum was delivered after March break in 2010 in one week duration and each module took one hour of the regular classroom time. Teachers implemented classroom activities suggested by the guide and added additional activities to fit into the school culture.

#### *Model component 3 - training for the core team and mental health services*

The training was based on the observation that in each school, there exist a group of teachers who students trust and seek help from when possible. The concept was confirmed and expanded by the school team by adding other student support staff such as guidance councilors. This group was defined as the core team by the school. The committee decided to conduct a needs assessment among the core team to identify important topics for the training. The South Shore mental health services also requested to be involved in the assessment and the training.

The needs assessment was conducted on Dec 15<sup>th</sup>, 2010 at FHCS and hosted by Drs. Kutcher and Bagnell. The FHCS core team, South Shore Mental Health services, South Shore School Plus, South Shore Primary Care participated in a focus group interview. Participants also received a one-pager of project information. The focus group reported that depression, anxiety, eating disorders, substance abuse were common mental health problems among students. These disorders caused serious consequences such as low self esteem, social conflicts with peers and family members, absenteeism, and poor academic performance in the school. Although respondents thought that there were some programs available to address parts of these needs (School Plus, VOICES, Addiction counseling, RCMP), there was a consensus that very few (<1%) students who needed help actually received it. According to the focus group, this low rate was attributable mostly to teachers' lack of mental health knowledge and understanding of referral mechanism, stigma around mental illness, parent cooperation, transportation challenges to access services and poverty.

Informed by the focus group, the Chair team and South Shore mental health services designed the core team training materials using best evidence-based information. They used the training program Dr. Stan Kutcher delivered in April 2009 as the base material and modified it to meet the needs of FHCS. The draft material was shared with the rest of the committee members and the school, and finalized by the Chair team.

The training for the core team and mental health services took place on March 01, 2010. It was presented by a group of mental health experts. It included case examples, activities and interactive discussions. The training covered a wide range of topics, including:

- Introduction about the project (purpose of the pilot and roles for each partner)
- Clarification about core team's role for understanding and early identification, not for diagnosing
- Introduction about basic concepts in mental health (e.g difference between distress and disorder, case examples) and the integrated pathway to care model
- Introduction about specific mental disorders, identification keys and treatment strategies
- Framework about referral mechanisms, including what constitutes emergencies;
- Process to link schools and the health system;
- Introduction about local mental health resources, how to connect these resources, and how to change practice with the knowledge base, and how to link mental health with addictions services

At the end of the training, participants received an information package regarding the pathway to care.

#### *Model component 4 - training for primary care providers*

In alignment with other components of the model, the primary care providers are considered as a key connector for schools to link with the health care system. As general practitioners are often a youth's first health contact it is essential that they feel comfortable with being able to properly diagnose and treat mental disorders in young people. Discussions with primary care health providers identified the need for training programs designed to enhance their competencies in this domain. Consequently, the Chair team began to modify primary mental health care training materials developed by Dr. Kutcher to address this need.

In order for the training to fit into the local context, the pilot invited a local child and adolescent psychiatrist (Dr. Gerald Gray) and the director of primary care (Todd Leader) at South Shore to attend a primary care provider needs assessment in December 2009. The school provided a list of family doctors grade 10 students usually visited as potential target population for the training. However some of the physicians identified practice outside of the South Shore Region and it was not logistically possible to recruit them for the training. As a result, the committee agreed to invite general practitioners at South Shore Region to participate the pilot. A needs assessment with 8 general practitioners was held on January 13, 2010. Rising from the focus group was the imperative need for training on five areas, including depression, social anxiety disorder (social phobia), panic disorder, obsessive compulsive disorder (OCD), and attention deficit/hyperactivity disorder (ADHD). Subsequently, the Chair team designed an evidence-based training program to address these five topics with an addition of treatment strategies and evaluation tools. The draft materials were reviewed by the Dr. Gerald Gray (Child and Adolescent Psychiatrist) and Laurie Macneil (Pediatrician). The training is scheduled in fall 2010.

#### *Model component 5 - engaging parents and families*

Strategies to involve parents and families were discussed throughout the pilot process. It was suggested that a combination of online information and face-to-face information sessions would facilitate the understanding of mental health and enhance knowledge uptake by parents and families. The Chair team proposed to provide information on the pilot school website, send fact sheets to parents through emails, and hold three information sessions in three areas (Aspotogan, Chester, and New Ross). The online materials will be adapted from the brochure “When Something is Wrong” developed by Canadian Psychiatric Research Foundation. These strategies will be implemented when appropriate. An additional parent education and outreach tactic was the creation of materials pertaining to normal adolescent development that could be used in both face-to-face interactions or hosted on the Chair website. These materials were developed by the Chair team in the summer of 2010.

#### *Model component 6 - building referral mechanisms*

Through the implementation of the above components, the pilot project will help participants understand how health services work, how the referral happens between the school and the health system, and how the referral process can be improved in order to facilitate and enhance the triage of at-risk students and assist them back to school seamlessly.

In this pilot, the core team at the pilot school was trained about the general referral process at South Shore Region – Mental Health Services. Educators and health care providers were brought together for strategies to facilitate more effective referral. However, a substantial lack of communication was found between the education and health sectors that historically inhibited referral through the school. First, it was found that a student identified by the school as being at risk of mental health problems cannot be referred to health services without parental consent. This limits the ability of educators to link with health providers to refer students to care in a timely manner. Second, it was found that confidentiality regulations limit information sharing between the education and the health sectors. For example, the health sector requires students’ written consent to share information with the school, but there was no system in place to routinely ask for that consent. Thus, the school was not aware if a student who has been identified as in need of mental health support is receiving it, resulting in a disconnect that reduces the education team’s ability to support the student and meet his or her needs.

The committee realized that only a higher level of conversation between the education and health sectors may help to address the above barriers. Meetings with the Departments of Education and Health found that the school policy regarding referral from schools to services with parental consent is not a Departmental policy. Instead, it varies from board to board. The meetings resulted in decisions for the Department of Education to work with all school districts to reach a consensus on school referral in Nova Scotia. Furthermore, representatives from the Department of Health agreed to initiate a meeting with the School Plus program to address issues around information sharing. All these processes are still undergoing with different groups of stakeholders.

In addition, the mental health services team suggested bringing mental health services into schools to deal with students with mental health problems so that they do not have to travel to a

new and intimidating environment. They further discussed the possibility of having first assessment on site for half day every month to build good relationship with students in need of help, thus facilitating smooth referral to mental health services. However, these strategies were not applied in the pilot due to the limited number of mental health professionals in the region. Instead, the school counseling service staff and mental health professionals got together to discuss the cases school submitted and agreed that the school guidance councilor visit the clinic for a better understanding about how health services work. They also stressed the importance of a school psychologist to liaison in between the two systems. The communication between the school and health services is still undergoing modifications to improve referral mechanisms.

#### *Development of evaluation framework*

Each component of the pilot was implemented and evaluated using the KAB (knowledge, attitude, and behavior) model. The purpose of the evaluation is to identify participants' knowledge level, attitudes change, and to observe whether if students in need of care receive it through appropriate referral. The evaluation package was drafted by the Chair team and revised by the rest of the committee members. It consists of three components: : 1) knowledge and attitude assessment questionnaire for students, classroom teachers and core team members; 2) referral process assessment of students who are referred, attend appointments and are treated in primary care setting; and 3) focus group to gather participants' experiences of training and the model.

Grade 10 students and classroom teachers shared the same questionnaire that focuses on mental health knowledge and attitudes. The core team questionnaire also covers mental health knowledge and attitudes with additional questions on identification tips and referral process. The evaluation of referral process was documented on tracking forms and administered by the core team, primary care providers, and mental health services individually. These forms aim to track the number of students through the referral process and document what students are identified with mental health problems, where they go for help, and what interventions occur. Focus groups were designed to enhance data from the questionnaire. Questions for students and teachers revolve around what they think of the curriculum guide, what they have learnt, and how the curriculum can be improved. Questions for the core team and health professionals seek opinions about the model and how it changes their way of dealing with students mental health needs. The evaluation package encompasses parents/family component, however it has yet to be configured based on the information that is still under development.

### **Data Collection and Analysis**

#### **Quantitative data**

##### *Students*

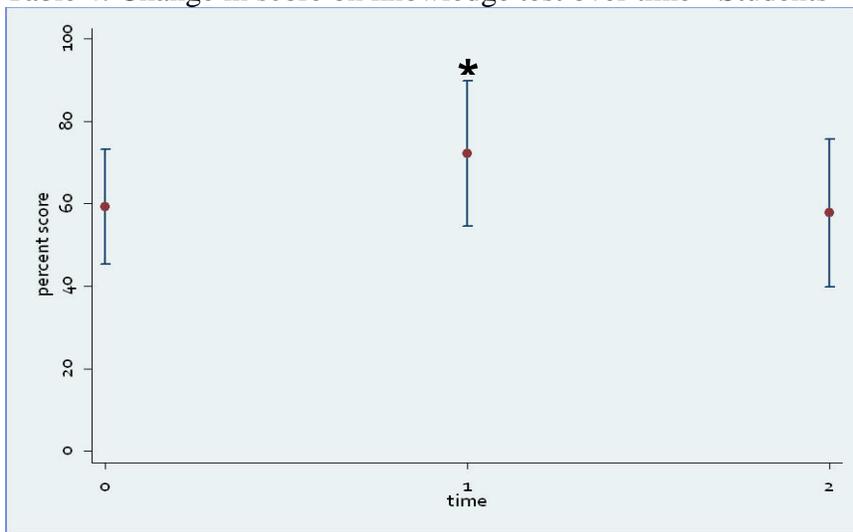
Students were tested on the curriculum content. The curriculum was delivered to all grade 10 students (n=74). All grade 10 students were tested on mental health knowledge and attitudes at baseline (t0=pre test), immediately after the curriculum was taught (t1=post test), and at 3 months following (t2=post test at 3 month follow up). Only one student failed to take the t2 test. Student data was imported into statistical software (STATA) for analysis. Participants mean

scores were calculated (table 3) and compared (table 4), using t test (Table 5). z test is also applied to compare the results from the t test (Table 6).

Table 3: MH-IN Knowledge test – Students

Time	n	Mean	SD	Median
t0	74	59.3	13.9	60.0
t1	74	72.2	17.7	78.3
t2	73	57.8	17.9	60.0

Table 4: Change in score on knowledge test over time - Students



\*p value < 0.001

Table 5: T test - students

Time	n (combined)	H0	p-value
t0 vs. t1	148	t1>t0	<0.001
t1 vs. t2	147	t2<t1	<0.001
t0 vs. t2	147	t2>t0	0.7167

Table 6: Wilcoxon-Mann-Whitney Test – Students

Time	n (combined)	Z-score	p-value
t0 vs. t1	148	-4.607	<0.001

t1 vs. t2	147	4.781	<0.001
t0 vs. t2	147	0.226	0.8215

Data analysis shows students' knowledge about mental health increased significantly (pre test mean=59.3; post test mean=72.2;  $p<0.001$ ) immediately after the curriculum delivery. However, students mean score dropped from 72.2 on t1 to 57.8 on t2, indicating that knowledge was not retained over the time of 3 month period ( $p<0.001$ ). Data shows no significant change in knowledge between t0 (mean=59.3) and t2 (mean=57.8). z test demonstrates similar results as t test. Knowledge level increased substantially at t1 compared to t0, however decreased at t2. No significant change was found between t0 and t2.

### ***Classroom teachers***

Pre test (t0) on mental health knowledge was administered to all educators (n=29) in the pilot school. Mental health training was delivered to 6 classroom teachers who taught the curriculum in grade 10 classroom. All 6 teachers received a post test (t1) immediately following the training and another test (t2) at 3 month follow up. Teachers mean scores were computed and compared before and after the teacher training (Table 7). Data shows teachers' knowledge acquisition is greater at t1 (mean=88) and t2 (mean=89.4) in comparison with t0 (mean=76). Statistical analysis was not performed with the teacher group due to the limited number of participants (n=6).

Table 7: MH-IN knowledge test – teachers

<b>Time</b>	<b>n</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>
t0	29	76	7.9	76
t1	6	88	3.6	88
t2	6	89	8.4	92

### ***The core team***

The core team (n=6) received an in-depth training to facilitate deeper understanding about mental health, early identification and student referral to health providers. They were all assessed at baseline (t0) about mental health knowledge. The same test was administered to all participants immediately after the training (t1) and at 3 month follow-up (t2). The mean scores of the core team were also calculated and compared (Table 8). Data shows mental health knowledge among the participants has improved from baseline test (t0 mean=77.3), after the training (t1 mean=86.5), and at 3 month follow-up (t2 mean=80.6).

Table 8: MH-IN knowledge test – core team

<b>Time</b>	<b>n</b>	<b>Mean</b>	<b>SD</b>	<b>Median</b>
t0	6	77	10.8	82

t1	6	87	6.7	86
t2	6	81	12.9	83

## Qualitative data

### *Students*

Focus group interviews with students about the curriculum informed the pilot in a number of ways. Generally, students found the curriculum was new, informative and important. It took away a lot of the myths. The brain information was fascinating and helped to understand how it affected senses and emotions. There was general consensus that the video of youth talking about their experience brought home the point that it could happen to anyone, thus destigmatizing mental illnesses.

The focus group found student usually seek help from parents, trusted teachers, and the internet. However, they noted that parents/grand parents usually were not educated on mental health so they sometimes receive misinformation from them. They felt some teachers were well prepared to answer their questions while others were not. They appealed for consistent and more competent teachers and trained health staff in the health centre.

Attitudes and stigma are one of the key topics of the discussion as well. While most students learnt that having a mental illness doesn't mean you can't live a normal life, and people with mental illness are not necessarily dangerous, they were confused about what stigma actually means. They stated that they would deal with people with mental illness based on their past experiences with them.

Students also shared their perspectives on the content and format of the curriculum

### Content

Students would like more detailed information on: 1) the difference between being stressed and clinically depressed, 2) signs of symptoms so that they can tell if someone has a mental disorder, 3) genetics of mental disorders to address questions, such as "If my mom is bipolar, does that mean I will be too?", 4) PTSD and OCD, 5) treatment not just medical/psychological treatment.

### Video/power point

Some students had the impression from the video that people with disorders need medicine or else they are going to go crazy. Video with light side (people who aren't as serious) will be encouraging and alleviate the negativeness of mental disorders.

### Format

Classes are not long enough to cover all information. For example, teachers didn't finish the videos and slide shows within the allocated class time. More vibrant classroom activities would help content up taking. They may include: animation, games, group work and role playing, hands on activities and notes taking. A good example is that using crossword puzzle to learn about definitions. Another example is that coloring different parts of brain and role playing how they function. Furthermore, instead of classroom teachers delivering the content, integrating the curriculum into biology and health classes would have better outcomes. Inviting people with

mental illness to share their personal stories would have a better impact. Students all agreed that it is necessary to have an exam and accredit this course to retain knowledge.

### ***Classroom teachers***

Teachers felt the curriculum is important to provide background information. Information about the brain in youth changes the way they parent and teach. They found students were engaged and attentive in the class. The curriculum has raised interest from other grades as well.

Teachers' feedback also stressed the areas for improvement. A preamble/introduction on why this curriculum is important is necessary. An introduction about brain can work as a key to get buy-in from both students and teachers. Neuroscience information can be further stressed and prevention topic should be added. Feedback on curriculum format and layout shows that some teachers thought the content is clinical and not very youth friendly. They noted each module should be labeled (including DVD presentations) and Module 1 and 2 should be reversed; classes should be extended to cover all information, and some slides can be cut (myths and reality) to reduce redundancy. In their opinion, teacher training should also cover local resources and provide more comprehensive information about brain education, and classroom activities should be more interactive and involve local services (Laing house, school psychologists and guidance counselors).

When asked about the how the pilot linked them to school support staff in discussions about students' mental health problems, they stated confidentiality issues and parental consent prevented communications between them and school support staff..

### ***The core team***

Focus group with the core team identified the training program as positive and holistic. The training presented by different groups of professionals provides a whole view of how systems work. Educators felt more confident to deal with students with mental health problems and willing to communicate and share information with other professionals as a result of the training. On the other hand, the core team requested more in depth training that integrates comprehensive information about psychological basis and system navigation. Furthermore, extended training to the entire school staff was considered as beneficial to students. The core team also stated the need for a resource toolkit following the training. It could be in a magazine format (such as a course syllabus) or direction to relevant websites for more information if necessary.

In terms of their experience with the health system regarding referral, they were happy that the pilot initiated a dialogue with health care providers, however they indicated policies could have accommodated youth mental health needs through more appropriate referral process.

## **Discussion and Implications**

The MH-IN pilot project was initiated by the School Plus program at the Department of Education in collaboration with the Sun Life Chair Team (IWK/Dalhousie). The pilot model was designed to unify endeavors from education and health sectors and the wider community to address youth mental health in a coordinated manner. The model components were evaluated on knowledge, attitudes and referral process, using KAB model. Data analysis provides rich

information to guide the next phase of the model evaluation and inform future research and practice in youth mental health.

Student data demonstrates that the curriculum was well received immediately after its implementation and knowledge increased significantly following the teaching of the curriculum. However, this knowledge was not retained at the 3 month follow up. This implies that there may be alternative ways for the curriculum to be delivered that will improve long term knowledge retention. Time allocation and interactive classroom activities were considered as key strategies to engage students. A re-examination of the knowledge test found that questions could be presented in a more youth friendly way and could be more related to the materials. The student focus group confirmed the significant role of these strategies and also suggested accreditation of the course (to be part of the academic grades) as additional strategies useful for improving knowledge retention.

The data shows the teacher training component was successful. Teachers' knowledge level improved and retained well. Qualitative data indicates that teachers were happy to have built a mental health background through the pilot. Their confidence level on talking about mental health to students has increased as a result of the training. Their advice on the curriculum will be integrated into future studies of the model. A re-analysis of the pre and post test found questions can be improved to better relate to training materials.

Similarly, training for the core team was proved to be positive as well. However their knowledge was not retained as well as the classroom teachers. This may indicate that there was insufficient time for the information to be integrated. Importantly, the core team members did not receive a resource guide as teachers, which made it difficult for them to repeat learning by referral to educational materials.

Engagement of parents/families and training for primary care providers have yet to be completed. The process for the preparation of these two components took more time and human resources than originally planned.

Evaluation of referral mechanism shows that half of the referrals of young people to Mental Health Services came from the school. However, it is unknown if the mechanism built in the pilot has enhanced school referrals due to the lack of historical comparison information from mental health services. One significant contribution of the pilot is the identification of policies or regulations pertaining to confidentiality and parental consent as potential barriers for schools to connect with health care providers to address youth mental health problems. Future effort should focus on how to improve policies to better serve students mental health needs.

The MH-IN pilot at South Shore region demonstrates that the integrated pathway to care model is a plausible approach to address youth mental health. The model can be revised and enhanced to best serve youth mental health needs with the following strategies:

- Allocate adequate time for the implementation of each model component. Content can be delivered in a designated chunk of time or over the span of an academic term.

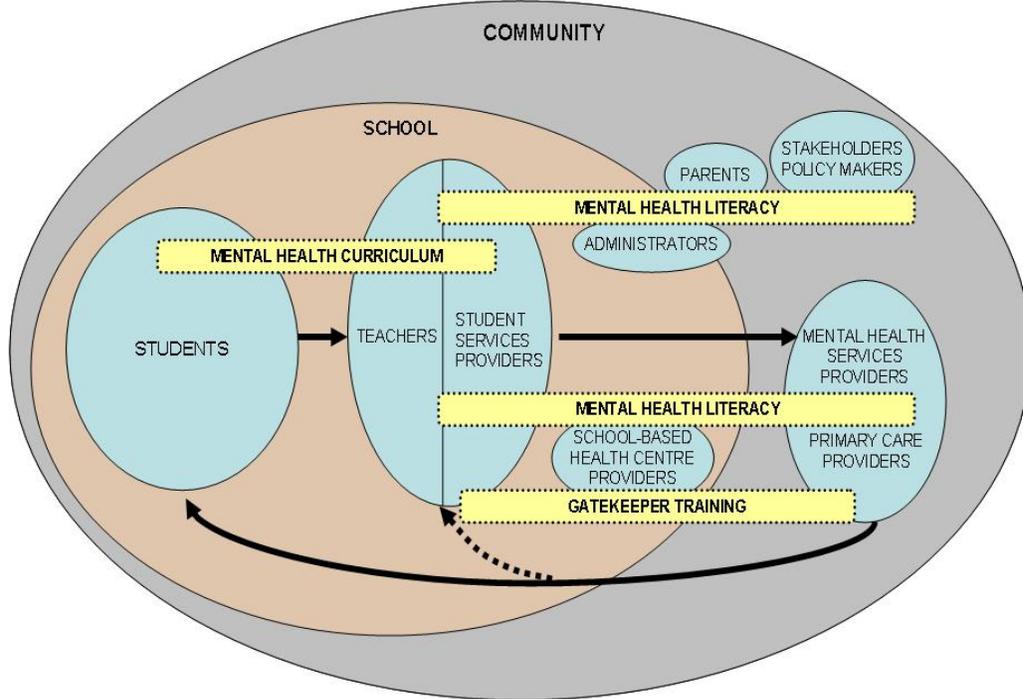
- Implement the model in a flexible manner to fit into school and community needs. Schools can choose to implement all or selected model components depending on school needs.
- Design interactive activities to engage participants, especially students to enhance knowledge acquisition. In preparation of content delivery, teachers can brainstorm activities that are most suitable for their classes. Training programs can be enhanced by hands on case studies and integration of local resources.
- Refine and further validate questionnaires for evaluation. Evaluation questions can be divided into three sections to inquire about knowledge, attitudes and behaviors individually.
- Develop effective strategies to involve parents/families and primary care providers. Examples can be borrowed from evidence-based parenting programs to proactively attract parents' participation. Primary care providers should be invited at the start of the project for a consistent conversation between education and health sectors.
- Obtain support from administrative level to influence policy regarding referral.
- Provide adequate human resources for project management to manage each component of the model.
- Facilitate efficient and timely communications among each party during model implementation.

The experience at South Shore region sets a cornerstone for more advanced delivery and research of the model. It facilitates a deeper understanding about how to mobilize efforts from the whole community to address youth mental health with a focus on the school setting. Should the model prove to be successful in a further research endeavor, it has potentials to provide quality resources and programs for youth, and furthermore to provide a comprehensive framework to guide school mental health activities locally, nationally and internationally, and thus improve youth mental health in the long run.

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Appendix 1. MH-IN Pathway to Care Model



Schematic of the comprehensive school mental health model, its targets, components, and processes. Circles indicate target groups within the educational system; boxes indicate evidence-based mental health literacy and training programs developed to meet the needs of target groups; and arrows indicate integrated pathway to care for both students in general and students at risk of mental health problems

## Appendix 2 MH-IN Action plan

Lead person/group	Timeline	Action
Shirley Burris to contact Forest Heights for meeting	The week of July 23 <sup>rd</sup> 2009	Forest Heights meetings to create tactics, process evaluation, possible behavioral evaluation; parent and family literacy and liaison strategies
Stan Kutcher and Yifeng Wei	By December 1, 2009	Develop student pathway database flow
Marla Rafuse	When appropriate	Facilitate to create tools for student services
Val MacDonald for mental health; Shirley Burris for school staff and other agencies	By December 1, 2009	Needs assessment for training
Val MacDonald	The week of July 30, 2009	Explore opportunities to add fields to intake form to support data tracking
Shelley Burris connect; Yifeng Wei set up meeting	The week of July 30, 2009	Meeting to be planned with primary health care workers to discuss their involvement (through Todd Leader)
Stan Kutcher; Yifeng Wei	By December 1, 2009	Create knowledge pre and post test
All parties (the working group) meet together at Forest Heights School	November, 2009	MH-IN planning at Forest Heights School
Forest Heights School staff	November, 2009	Introducing the curriculum guide to school staff
Forest Heights School staff	December, 2009	Needs assessment on training
Forest Heights School staff	January, 2010	Training for classroom teachers and core team/“go-to” teachers
The committee and the pilot school	After March break until June 2010	Pilot project execution
Primary care providers	TBD based on teacher training	Training sessions
Parents/families	TBD	Information sessions