Alberta Health Services

Alberta Addiction and Mental Health Research Partnership Program

Alberta Centennial
Addiction & Mental Health
Research Chairs Program

Dr. Jean Addington – Annual Report

June 30th 2012

Dr. Jean Addington

Alberta Centennial Mental Health Research Chair
Inaugural Chair in Child and/or Adolescent Mental Health

EXECUTIVE SUMMARY

Psychotic disorders, including schizophrenia and affective psychotic disorders are common, affecting about 5% of the general population. Development of these disorders usually results in significant disability, and psychotic disorders rank among the top 10 causes of disability worldwide. Psychosis is "brewing" long before its manifestation as a diagnosable illness and there are identifiable signs and symptoms that precede the development of frank psychotic symptoms. Over the last decade there has been a worldwide movement to develop comprehensive early intervention programs for schizophrenia. However there is now compelling evidence that in the pre-psychotic phase the formation of symptoms and disability changes have already begun. My work focuses on early detection of psychosis at both the pre-psychotic i.e. period of clinical high risk, and at the first episode.

A major focus of my work is participating in the NAPLS consortium. NAPLS represents a collaboration of eight clinical research centers based at Emory, Harvard, North Carolina, UCLA, UCSD, Yale, Zucker Hillside Hospital and myself first in Toronto and now in Calgary. In a prior phase of our consortium, NAPLS 1, we pooled clinical and psychosocial data obtained on a large sample of individuals (N=291) who had been ascertained using a standardized set of operational diagnostic criteria for being at clinical high risk of developing psychosis. Risk for onset of psychosis in this population was 35% after 2 and 1/2 years of follow-up, with a decelerating rate of conversion over this period. Moreover, prediction algorithms incorporating baseline clinical and psychosocial variables dramatically improved positive predictive power (~80%) compared with the prodromal criteria alone, but achieved only modest sensitivity (~40%). Our goal is in NAPLS 2, which runs until 2013, to improve upon these prediction algorithms by incorporating biological measures with clinical measures and to test the possible differential course of change in biological indicators in those who convert to psychosis.

The potential utility of biological assays in elucidating predictors and mechanisms of psychosis in the prodromal or at risk population is thus far based exclusively on analyses of data collected at individual sites with small samples. For example, it has been demonstrated that there is a significantly steeper rate of gray matter reduction in prefrontal cortical regions in prodromal patients who convert to psychosis compared with those who do not over a 1-year follow-up period. This pattern of accelerated change in prefrontal regions is mirrored in a sample of first-episode schizophrenia patients compared with age- and gender-matched healthy controls over a 2-year follow-up period. Together, these data suggest that during the prodromal and early phases of schizophrenia, there is an exaggeration of the regressive neuromaturational processes (programmed cell death, synaptic pruning) normative to late adolescence and early adulthood, changes that may participate in the pathophysiology of psychosis onset. To test this model rigorously, while at the same

time accounting for the marked heterogeneity in outcomes among prodromal and early psychosis patients, will require sample sizes many times larger than those available in any single site. In addition, ideally, any investigation into the course of gray matter reduction in the prodromal phase of psychosis would incorporate information from other assessment modalities (genomics, proteomics) that can reveal molecular mechanisms for the steeper rate of change in the converting group.

In addition to those at clinical high risk we are adding samples of young people who are at genetic high risk of schizophrenia to determine if an in-depth study of this population can further elucidate variables that may predict transition to psychosis.

These putatively prodromal or clinical high risk young people are help-seeking individuals who require help for their presenting concerns as well as interventions to delay or prevent the onset of the psychotic illness. Medication trials have suggested positive outcome in terms of reducing current symptoms and possibly delaying onset. Concerns with side effects of medication and the limited number who are willing to try this treatment make a psychological intervention appealing; the potential value of psychological interventions is only supported by preliminary evidence. Thus, the potential third phase in this work is to test effective treatments to prevent and/or delay the onset of a psychotic illness. These treatments would be based on the outcome of the ongoing NAPLS project and from pilot work testing current available treatments. Thus, we are have added treatment trials to our work. We are completing a trial of a family intervention, and have recently started a randomized controlled trial of OMEGA 3 fatty acids. We have recently been funded for a feasibility study of an exercise intervention. Finally, we are developing a proposal for a social skills training project to address the often observed poor social functioning.

As these projects progress, the next step will be to move to early detection of serious mental illness in youth. This involves not only expanding our focus from psychosis to including bipolar disorder but to increase the population under study to youth who are at increased risk of developing serious mental illness.

<u>The overall objectives of my current research are:</u>

1. to determine the predictors of psychosis
2. understand the mechanisms of conversion to psychosis
3. determine means to identify young people in the earliest stages of psychosis
4. develop effective treatments for the earliest stages of psychosis

DEVELOPMENT OF RESEARCH PROGRAM

During this fifth year we have continued to expand and develop an active research program. Since May 2010 we have been part of the newly established Mental Health Research and Education Centre which was officially opened in 2012 and is now the Mathison Centre for Mental Health Research and Education. In this Centre we have excellent space for all the research staff, post doctoral fellows and students. We have specific lab space for neurocognitive testing and electrophysiology assessments. Since my research program has to exist in conjunction with a clinical service, we continue with our efforts with the PRIME Clinic

which is a specialized clinic for individuals at risk for psychosis that operates under the Early Psychosis Treatment Service at Foothills Hospital. To ensure that we are able to recruit study participants, we continue to be responsible for maintaining recruitment efforts (fliers, posters for the clinic); screening all potential referrals to the clinic and arranging clinic appointments.

We continue to actively recruit for post doctoral fellows and graduate students. The research staff is funded from the Chair and from other ongoing funded projects.

OVERVIEW OF ONGOING RESEARCH

NAPLS 2 is an ongoing 8 site 2 year project called "Predictors and Mechanisms of Conversion to Psychosis" which was funded in September 2008 for 5 years by the National Institute of Mental Health (NIMH). Although this is an 8 site study where each site conducts an identical study, each site is independently funded. This study will have 720 clinical high risk for psychosis subjects (CHR) and 240 controls with 90 CHR subjects and 30 controls coming from Calgary. In terms of psychosis prediction, we seek to determine whether biological abnormalities preceding psychosis onset contribute to prediction of psychosis independently from that of the best performing clinical algorithms and whether they can be combined with the clinical measures to enhance predictive utility. Clinical areas include psychopathology, neuropsychology, social functioning and social cognition. Biological areas include imaging, electrophysiology, genetics and cortisol. All sites follow identical protocols but each site is the lead in terms of designing and supervising one of the areas under study. Calgary is responsible for the psychopathology, risk factors and social cognition and for the data management. This study began in October 2008 and will end in September 2013. Recruitment is underway and we have recruited 120 clinical high risk participants and 30 normal controls and are ahead with recruitment. Our education campaign is ongoing. We are beginning to analyze the initial data and develop publications.

RAISE is a contract study that was funded by NIMH in September 2009 for approximately $20 million. Funding was awarded to Dr. John Kane of Zucker Hillside Hospital with Dr. Jean Addington as one of the lead co-investigators. The purpose of this study is to develop a comprehensive treatment for first episode patients that include both pharmacology and psychosocial interventions. This treatment will be such that it can be delivered in regular mental health centres in the USA as opposed to specialized first episode programs by regular mental health staff with minimal training and supervision. Working with the US and NIMH to develop such a treatment will allow the later possibility of testing the same treatment in Alberta. The study is currently underway. My group at the University of Calgary has played a role in the development of the treatment manual and is actively involved in the supervision of the project directors at both the treatment and the control sites. There has been discussion of whether this is a project that can be tested in Canada.

PREDICT is a completed 3 site (Toronto, University of North Carolina, Yale) NIMH 5 year funded study of 260 clinical high risk individuals and 100 help seeking controls examining predictors of

conversion to psychosis. This study has been completed. Calgary has taken responsibility for cleaning all of the data and preliminary data analyses. The development of publications is underway and there is the expectation of a range of publications over the next year. This will also give current students the opportunity for co-authored as well as first author publications from this large data set. We have already presented some of this data at international research meetings as well as submitted several abstracts for presentation. We have three publications in preparation and one has been accepted.

ADAPT was one of the first randomized trials of cognitive behavior therapy versus supportive therapy conducted by JA. Papers have all been completed from this data set (2 published, one under review) that was conducted in Toronto. This study ended as Dr. Addington moved to Calgary. The data has been analyzed and the project has been completed. This resulted in numerous international presentations and four publications.

Preventing Morbidity Study is an NIMH funded study with Dr J Kane of Hillside Hospital as the PI. This is an investigator driven study of metabolic side effects comparing the effectiveness of risperidone vs aripiprazole. This project includes a genetics and structural imaging component. We have now started this study with an excellent beginning to recruitment.

Understanding Symptom Content Past literature has examined influences and themes in the positive symptoms of schizophrenia patients. However, there has been no examination of symptom content in the prodromal population of schizophrenia. Such a study could improve our understanding of the development of first attenuated positive symptoms and later full blown psychotic symptoms. To date our team has done an in-depth literature review in the area of symptom content of first episode and chronic schizophrenic patients using Pubmed and Medline search engines. Articles focusing on themes of positive symptoms in the former populations have been used to develop an initial codebook. This codebook, developed from first episode and chronic schizophrenia populations, has been tested on vignettes written based on the experiences of a population at clinical high risk of psychosis. This process involved three independent raters coding the vignettes and reaching a standardized level of inter-rater reliability. This will allow the team to determine if the symptom content of individuals with an established schizophrenia illness is similar or different to that of a clinical high risk for psychosis population and to modify the codebook as needed. We have completed the codebook and published the paper describing its development.

The first study using this manual has been completed as part of an honors thesis from Erin Falukozi, a psychology student supervised by J Addington. The student, Erin Falukozi has recently published this paper which demonstrated that there was preliminary evidence of a relationship between the content of symptoms and early trauma. We are now beginning the process of using this codebook in a sample of 500 clinical high risk subjects. This is a large scale project. Data collection will be completed by August 2012 and over the next year we will begin data analysis and publications.

Cognitive Remediation Project for NAPLS. This began as an open pilot study of cognitive remediation in a sample of individuals at clinical high risk for psychosis, led by Dr Piskulic, post

doctoral fellow. Dr Piskulic was awarded a NARSAD young investigators grant in January of this year to conduct a randomized control trial of cognitive remediation in those at clinical high risk. This study is ongoing with 70% of the sample having been recruited.

Prevention Trial of Family Focused Treatment in Youth at Risk for Psychosis. This is an add-on randomized controlled trial to the NAPLS project. It is testing the effectiveness of a 6 month family treatment package versus 3 sessions of education for families of those at clinical high risk of developing psychosis. Recruitment for this project ended January 31st 2012. We will complete our treatment in July with follow-up assessments being completed by December 2012.

fMRI in those at Clinical High Risk for Psychosis. This is an add-on study to the NAPLS imaging component. This involves assessing brain functioning in those at clinical high risk compared to healthy controls while completing several cognitive tasks. We completed our final scan at the end of April and data analysis will be completed before the end of 2012.

Social Risk Factors in those at Family High Risk of Psychosis. Only a portion of those (approx 5%) who have genetic risk go on to develop psychosis. In the NAPLS project we have individuals who have a family history of psychosis but also meet criteria for being at clinical high risk for psychosis. We are adding to the NAPLS project individuals who are at family risk but do not have any early signs or symptoms. The purpose of this project is to determine if there are differences in those at family high risk who have early risk signs of psychosis versus those who do not. In particular we are predicting that individuals with a family history of psychosis who evidence early attenuated psychotic symptoms have experienced more social risk factors such as early trauma. The pilot work for this study was part of the master's thesis of J Stowkowy. Ms Stowkowy has completed her research and will defend her thesis in September 2012. We will be applying to CIHR in September 2012 for funding for the larger project.

Development of a new measure of social functioning for those experiencing a first episode of psychosis. In conjunction with Dr Tania Lecomte of the University of Montreal we are testing the validity of a new scale to measure functioning in a young first episode of psychosis population. We have completed data collection.

RESEARCH PLANNING CURRENTLY UNDERWAY

CBT pilot project for NAPLS will be a pilot study of a group CBT for social skills versus supportive therapy in a sample of individuals at risk of psychosis in Calgary. Proposal is developed, we are waiting on ethical approval and staff has been trained and practicing with a first group of young people. We are doing this in conjunction with Dr Eric Granholm from the University of San Diego. Dr Granholm has been to Calgary on two occasions to conduct training programs not just for my staff but for other mental health staff in Alberta.

A Study of Additional Risk factors in those at Genetic High Risk of Psychosis. As described above we have started this pilot project and will be submitting a full study to CIHR in September 2012.

Help-seeking and Screening for Psychosis. This project will encompass several components. The first is to try to understand why young people do not seek help for mental health issues. A second component would be to consider the possibility of screening. This would involve a comparison of the effectiveness of different screening methods for early signs of psychosis. Screening will be conducted in normal and clinical populations. Sensitivity and specificity of different screening measures will be tested. Outcome will determine the effectiveness of early screening and the most useful screening measures. To date we have conducted several reviews of this area and are completing one review for publication.

Exercise in Psychosis Study

Based on the article "Hippocampal Plasticity in Response to Exercise in Schizophrenia" Pajonk et al., Arch Gen Psychiatry. 2010;67(2):133-143, we designed a pilot study that aims to test the feasibility of a 16 week exercise intervention for young people at high risk of psychosis. The major study would aim to examine any changes that may occur between baseline and follow-up (post exercise) assessments using clinical and neurocognitive evaluations, metabolic and physiological measures, and MRI imaging. Potential outcomes of interest in this population include improvements in cognition and decreased negative symptoms, enhanced metabolic measures (insulin, triglycerides etc.), increased hippocampal volume, as well as secondary health benefits to be expected from increased exercise such as weight loss, improved fitness, decreased risk of cardiovascular disease etc. We have just been awarded pilot funding to test the feasibility of conducting an exercise program from the Clinical Research Unit of the Hotchkiss Brain Institute. This will begin in September 2012. This will be done in collaboration with faculty members in the Faculty of Kinesiology.

Trajectories and outcome of youth at Risk of Psychosis and Bipolar Disorder

This is a large project that I am developing. The first step is to submit a letter of intent in August 2012 as a Collaborative Research and Innovation Opportunities Team grant to AIHS.

KNOWLEDGE TRANSFER ACTIVITIES

Knowledge transfer activities within Alberta have continued to focus on education about early detection in the pre-psychotic period.

EDUCATION FOCUS

The purpose is to educate health care providers and families that there are research clinics and experimental treatments underway for those young people who are at risk of developing psychosis. The education effort began in February 2009 with a mass mail out of PRIME clinic information to all possible referral sources in Calgary. The goal was to increase awareness of

the PRIME clinic and the Clinical High Risk state. During the spring and summer of 2009 a new PRIME website was developed with an emphasis on providing educational content that was suitable for youth, family and health care providers. At this time other educational materials were created including a Clinical High Risk symptom assessment chart, case studies and a NAPLS brochure to be distributed at presentations for mental health professionals. A NAPLS brochure for a general audience been completed, as has an information handout for new PRIME clinic clients. These materials are available on request.

The schedule for presentations was divided into three phases. The initial phase commencing September 2009 primarily targeted counseling staff at the secondary and post secondary level. Other essential referring sources that had contact with the 12 to 30 age group were also educated about PRIME and NAPLS. The next two phases of presentations — education of family physicians and the general public – began in the fall of 2010 and are ongoing.

Presentations

2011

- Youth Addictions Services – July 15th 2011
- Rockyview Hospital Day Treatment Program – September 27th 2011
- Calgary Urban Project Society – September 28th 2011
- Adolescent Mood and Anxiety Clinic – October 26th 2011
- Alberta Children's Hospital – December 15th 2011

2012

- Unit 24, Foothills Medical Centre – February 17th 2012 (early psychosis staff visiting from Edmonton)
- University of Calgary Health Services/Counselling – March 7th 2012

Development of Educational Materials

- Psychosis Research Group Newsletter – August 2011
- Psychosis Research Group Newsletter – February 2012

Educational Packages – Mail Out

2011

- Adolescent Mood and Anxiety Clinic
- Child and Adolescent Addiction and Mental Health Program (NW Clinic)

2012

- Psychiatric Emergency – Alberta Children's Hospital
- Unit 47, Inpatient Psychiatry, Rockyview General Hospital
- Psychiatric Consultation Clinic, Rockyview General Hospital
- Child Development Centre, Alberta Children's Hospital
- Mount Royal University Counselling Services

LOCAL ACTIVITIES

I have an appointment in the Clinical program of the Department of Psychology. This should allow for new collaborations in the next academic year. I am collaborating with a young investigator in psychology, Dr Vina Goghari, and acting as her mentor through the Hotchkiss Brain Institute. I have 2 honors students, one from the Department of Psychology and one from the Neuroscience program, for the academic year 2012-2013. I have been teaching in the undergraduate neuroscience course. For the summer of 2012 I have two students from the Department of Neuroscience who both received AIHS summer studentship awards. One is studying cyberbullying and the other exercise needs. I have two other summer students – one from Dalhousie University and one from the University of Montreal. I have taken the leadership in setting up the Psychosis Research Group in the Department of Psychiatry at the University of Calgary. This group consists of other department members who are also participating in research into psychosis. We have started to consider potential collaborative projects.

PAN-ALBERTA COLLABORATION

Discussions around potential common areas of interest have continued with the University of Alberta. I am actively involved in the development of the Campus Alberta Neuroscience and am participating in the group with a focus on mental health, in particular youth mental health. The CRIO application will involve several academics in Alberta as well as a range of mental health professionals.

PUBLICATIONS
(JULY 2011 –JUNE 2012)

1. **Addington, J.**, & Piskulic, D. (2011). Social cognition and functional outcome are separate domains in schizophrenia. *Schizophrenia Research*, 127, 262-263. PMID: 20471225

2. **Addington, J.**, Epstein, I., Liu, L., French, P., Boydell, K.M., & Zipursky, R.B. (2011). A randomized controlled trial of cognitive behavioral therapy for individuals at clinical high risk of psychosis. *Schizophrenia Research*, 125, 54-61**,** PMID: 21074974

3. **Addington, J**., Cornblatt, B., Cadenhead, K., Cannon, T., McGlashan, T., Perkins, D., Siedman, L Tsuang, M., Walker, E., Woods, S., &. Heinssen, R., (2011). At clinical high risk for psychosis: outcome for the non-converters*. American Journal of Psychiatry, 168, 800-805,*

4. Piskulic, D, & **Addington, J.** (2011). Social cognition and negative symptoms in psychosis. *Psychiatric Research,* 188, 283-285, PMID: 21571376

5. Piskulic, D, & **Addington, J.,** Auther, A., & Cornblatt, B.A. (2011) Using the global functioning social and role scales in a first-episode sample. *Early Intervention in Psychiatry,5, 219-223*

6. Menon, M., Schmitz, T.W., Anderson, A.K., Graff, A., Korostil, M., Mamo, D., Gerretsen, P., **Addington, J.,** Remington, G., Kapur, S. (2011) Exploring the neural correlates of delusions of reference. *Biological Psychiatry, 70 1127-33*

7. Menon, M., **Addington, J**. & Remington, G. (in press) Examining cognitive biases in patients with delusions of reference. *European Psychiatry*

8. Stowkowy, J. & **Addington, J**. (2012). Maladaptive schemas as a mediator between social d**efeat and positi**ve symptoms in young people at clinical high risk for psychosis. *Early Intervention in Psychiatry, 168 800-5*

9. Marshall, C., **Addington, J**., Epstein, I., Liu, L., Deighton' S., & Zipursky, R.B. (2012) Treating Young Individuals at Clinical High Risk for Psychosis. *Early Intervention in Psychiatry*,6, 60-8

10. **Addington J**., Marshall, C., & French P. (2012) Cognitive behavioral therapy in prodromal psychosis. *Current Pharmaceutical Design*, 18, 558-65

11. Addington, J., Heinssen, R. (2012) Prediction and prevention of psychosis in youth at clinical high risk. *Annual Review of Clinical Psychology*, 8, 269-289

12. Gee DG, Karlsgodt KH, van Erp TG, Bearden CE, Lieberman MD, Belger A, Perkins DO, Olvet DM, Cornblatt BA, Constable T, Woods SW, Addington J, Cadenhead KS, McGlashan TH, Seidman LJ, Tsuang MT, Walker EF, Cannon TD (2012) Altered age-related trajectories of amygdala-prefrontal circuitry in adolescents at clinical high risk for psychosis: a preliminary study. Schiz. Res , 134, 1-9

13. Cornblatt, B., Carrion, R.F. **Addington, J**., Seidman, L., Walker, E., Cannon, T., Cadenhead, K., McGlashan, T., Perkins, D., Tsuang, M., Woods, S., Heinssen, R., & Lencz, T. (In press). Risk factors for psychosis: Impaired social and role functioning. *Schizophrenia Bulletin,*

14. Mizrahi, R., **Addington, J.**, Rusjan, P.M., Suridjan, I., Nq, A., Boileau, I., Pruessner, J.C., Remington, G., Houle, S., Wilson, A.A., (2012). Increased stress-induced dopamine release in psychosis. *Biological Psychiatry,71, 561-567*

15. Stowkowy, J, Addington, D, Liu, Lu, Hollowell, B, **Addington, J** (I2012) Predictors of Disengagement from Treatment in an Early Psychosis Program, *Schizophrenia Research, 136, 7-12*

16. Boydell, K, Volpe, T, Gladstone, B, Stasiulis, E, **Addington, J.** (2012) Youth and Ultra High Risk for Psychosis; Using the Revised Network Episode Model to Examine Pathways to Mental Health Care. *Early Intervention in Psychiatry,*

17. Piskulic, D., **Addington, J**., Cadenhead, K., Cannon, T., Cornblatt, B., Heinssen, R., , Perkins, D., Siedman, L Tsuang, M., Walker, E., Woods, S., & McGlashan, T, (in press) Negative symptoms in individuals at clinical high risk of psychosis, Psychiatry Research

18. Brummitt, K, Addington, J (in press) Treatment Possibilities for Individuals at Clinical High Risk of Psychosis. *Early Intervention in Psychiatry*

19. Stowkowy, J, Colijn, M, Addington, J (in press) Pathways to Care for those at Clinical High Risk of Developing Psychosis, *Early Intervention in Psychiatry*

20. **Addington, J.,** & Lecomte, T., (2012) Cognitive Behavior Therapy for Psychosis. *F1000 Med Rep*

21. Marshall, C., Falukozi, E., Albertin, M., Zhu, H., & **Addington, J**. (In press). The development of the content of attenuated positive symptoms codebook for those at clinical high risk of psychosis. Psychosis.

22. Falukozi, E. & **Addington, J.** (In press). Impact of trauma on attenuated psychotic symptoms. Psychosis.

23. Fusar-Poli, P., Borgwardt, S., Bechdolf, A., **Addington, J.,** Riecher-Rössler, A., Schultze-Lutter, F. et al., (in press) The Psychosis High Risk State, Archives of General Psychiatry

24. **Addington, J**. (in press) Identifying a cohort with a risk of psychosis that can be treated. *Can J Psych*

25. Suridjan, I., Rusjan, P., **Addington, J.,** Wilson, A.A, Houle, S., & Mizrahi, R. (in press) Dopamine D_2 and D_3 binding in clinical high risk for schizophrenia, antipsychotic naïve and healthy volunteers while performing a cognitive task. J of Psychiatry and Neuroscience

26. **Addington, J**., Piskulic, D., Perkins, D.O., Woods, S.W., Liu, L., & Penn, D.L. (in Press) Affect Recognition in People at Clinical High Risk of Psychosis, Schiz Res.

Book Chapters

1. Addington, J., & Lewis, S.W. The prodrome of schizophrenia (2011) in Weinberger, D.R. & Harrison, P. (Eds) *Schizophrenia, 3rd Edition.* New Jersey*:* Wiley-Blackwell

2. Pinkham, A., Mueser, K.T., Penn, D.L., Glynn, S.M., McGurk, S.R., & **Addington, J.** (2011). Social and functional impairments in Lieberman, J.A., Stroup, T.S., & Perkins, D.O. (Eds.), *Essentials of Schizophrenia.* Washington: American Psychiatric Publishing

3. McGorry, P.D., & **Addington J**. (2012). Detection and Management of Early Psychosis in Lieberman, J.A, & Murray, R.M. (Eds.), *Comprehensive Care of Schizophrenia: A textbook of clinical management* (2nd Edition). Oxford, United Kingdom: Oxford University Press.

4. **Addington, J**., (in press). Depression and Suicidality in Keefe, R. (Ed) Guide to Assessment Scales in Schizophrenia, London, UK. Springer healthcare

5. **Addington, J**., & Piskulic (in press) Social Cognition Early in the Course of the Illness in D. Roberts & D.Penn (eds) Social Cognition in Schizophrenia, Oxford University Press

Published Abstracts

1. Piskulic D., & **Addington, J**.(2011) Negative symptoms and social cognition in schizophrenia. *Schizophrenia Bulletin*, v37, supplement 1, p249-250

2. Marshall, C**., Addington, J.**, Epstein, I., Liu, L., Deighton, S., & Zipursky, R.B. (2011). Clinical outcome from a prodromal clinic. *Schizophrenia Bulletin*, v37, supplement 1, p272-73

3. Stowkowy, J., & **Addington, J**.(2011) Maladaptive schemas in young people at clinical high risk for psychosis. *Schizophrenia Bulletin*, v37, supplement 1, p282-283

4. **Addington, J** (2011) Clinical presentation of and social risk factors in young people at clinical high risk for psychosis. *Biological Psychiatry,* v69, p106s

5. Cadenhead, K., **Addington, J**., Cannon, T., Cornlatt, B., McGlashan, T., Perkins, D., et al., (2011) Greater prepulse inhibition prior to the onset of psychosis. Findings from the North American Prodrome Longitudinal Study, *Biological Psychiatry,* v69, p13s

6. **Addington, J.** (2012) Predictors of good functional outcome Schiz. Res, 136, p s14-15

7. **Addington, J.** (2012) Clinical and social risk factors and conversion in young people at clinical high risk for psychosis. Res, 136, p s36

8. Stowkowy, J, Addington, D, Liu, Lu, Hollowell, B, **Addington, J.** (2012) Predictors of Disengagement from Treatment in an Early Psychosis Program, *Schiz. Res*., 136, s346-7

9. **Addington, J**., Piskulic, D., Perkins, D., Woods, S.W., Liu, L. & Penn, D. (2012) Affect recognition in people at clinical high risk of psychosis. *Schiz Res*., 136, s149-150

10. Stowkowy, J. & **Addington J** (2012) Family history of psychosis, social risk factors and risk of developing psychosis. *Schiz Res*, 136, S177

11. Colijn, M., Barbato, M., Keefe, R.S.E. Perkins, D., Woods, SW, & **Addington J**. (2012) At risk for psychosis: the role of cognition *Schiz Res*, 136, s237

12. Piskulic, D., Barbato, M. & **Addington, J** (2012) Effects of cognitive remediation on cognition in young people at clinical high risk of psychosis. *Schiz. Res,* 136, S245-246

Presentations and Invited talks

1. Social Cognition in those at Clinical High Risk for Psychosis". Presentation at Connecting the Social Brain to the Social World, Radcliffe Institute for Advanced Study at Harvard University. March 25th 2011

2. "Psychosocial Interventions in Youth at Clinical High Risk for Psychosis" Presentation at the International Prodromal Research Network Symposium. Colorado Springs, April 2nd 2011 "At Clinical High Risk for Psychosis: A research and clinical perspective. The Next Frontier in Mental Health. The Graham Boeckh Foundation, Toronto, April 24th 2012

3. At clinical high risk for psychosis: research and clinical issues, presentation at the Clinical Psychology program, University of Montreal, Montreal Canada, February 24th 2011

4. Conversion to psychosis and those who do not convert. .Sebastian Littman Research Day, University of Calgary Department of Psychiatry, February 25th 2011

About the Alberta Addiction and Mental Health Research Partnership Program

The *Alberta Addiction and Mental Health Research Partnership Program* is comprised of a broad-based multisectoral group, representing service providers, academic researchers, policy-makers and consumer groups, working together to improve the coordination and implementation of practice-based mental health research in Alberta.

The mission of the Research Partnership Program is to improve mental health outcomes for Albertans along identified research priority themes, by generating evidence and expediting its transfer into mental health promotion, prevention of addiction and mental illness, and innovative service delivery.

The Research Partnership Program sets out to increase Alberta's excellence and output of addiction and mental health research findings, and to better translate of these findings into practice improvements.