Alberta Addiction & Mental Health Research Partnership Program

Alberta Centennial Addiction and Mental Health Research Chairs Program

Dr. Jean Addington – Final Report

June 30th 2011 - for website

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 patients (N=291) who had been ascertained using a standardized set of operational diagnostic criteria for a "prodromal" risk syndrome. 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 of this program of research 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. We have begun to develop pilot projects of various treatments that we will be testing over the next two years.

Finally, a comprehensive approach to early intervention requires not only the development of an effective treatment but also establishing that it is being offered to those who need it. This necessitates understanding more fully two relatively neglected areas: the pathways to care and the target population. These are areas in which we will also be developing projects over the coming year.

<u>The overall objectives of my 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 third year we have continued to expand and develop an active research program. As of May 2010 we are now part of the newly established Mental Health Research and Education Centre. In this new centre we have adequate space for the first time 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. In order 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. Throughout the 3rd year of the Chair program we have continued to hire and to train new staff. The current staff includes:

Aaron Peterson, BSc (July 2010)
Neuropsychology tester; ERP rater
Sona Sandhu, BA (July 2010)
Neuropsychology tester; ERP rater
Jacque Stowkowy, BA (April 2009)
Part-time study coordinator and clinical rater
Catherine Marshall, MA (October 2008)
Clinical rater, CBT and family therapist
Lisa McGregor, BSc, MSc, BN (January 2009)
Recruitment for NAPLS project & educator for early psychosis
Lu Liu MSc (August 2009)
Data Manager & Statistician
Nora MacQuarrie MEd (Jan 2010)
Clinical rater, CBT and family therapist
Erin Falukozi (Jan 2010)
Part- time Research Assistant
Lianne Legere BA (March 2010)
Research Assistant
Angie Kumar BSc (July 2010)
Recruitment and Education for Early Psychosis
Nicole McKenzie MSc (Jan 2011)
Research Manager

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 77 clinical high risk participants and 30 normal controls and are right on target with recruitment. Our education campaign is ongoing.

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 includes 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 have played a role in the development of the treatment manual and are actively involved in the supervision of the project directors at both the treatment and the control sites.

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 for 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 give current students and fellows the opportunity for co-authored as well as first author publication from this large data set.

ADAPT was one of the first randomized controlled trials (RCT) of cognitive behavior therapy (CBT) 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. Two papers have been published and two are in progress.

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. We have started this study with an excellent beginning to recruitment. In addition we have been invited to participate in an MRI component to this study and the proposal for this component is currently under ethical review.

Understanding Symptom Content. Although limited, past literature has attempted to examine 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 schizophrenic populations, has been tested on vignettes written based on the experiences of a prodromal population. 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 those with schizophrenia is similar or different to that of a population at clinical high risk of developing psychosis and to modify the codebook as needed. We are in the final stages of preparing the codebook for publication and for submitting a comprehensive paper for peer review describing the development of the codebook.

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 next goal is to use the finalized codebook based on prodromal participants to code the symptom content of a larger sample of prodromal participants, which would include the entire sample of NAPLS participants from all eight sites. This will be a large scale project.

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 2011 to conduct an RCT of cognitive remediation in those at clinical high risk.

Prevention Trial of Family Focused Treatment in Youth at Risk for Psychosis. This is an add on randomized controlled trial that is added on 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.

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 completed several cognitive tasks.

Social Risk Factors in those at Family High Risk of Psychosis. Only a portion of those (approx 5%) who have a genetic risk of schizophrenia 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 difference in those at family high risk who have early risk signs of psychosis versus those who do not. More specifically, 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 will be part of the master's thesis of J Stowkowy.

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

KNOWLEDGE TRANSFER ACTIVITIES

Knowledge transfer activities within Alberta have continued to focus on education about early detection in the pre-psychotic period. This work has been led by Lisa McGregor, BSc, MSc, BN, RN and Angie Kumar, BSc.

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 on 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 recently been completed, as has an information handout for new PRIME clinic clients. We have attached all of our materials to this report.

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 referral sources that have 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.

Presentations

July 1- December 31st 2010

- Bow Valley College Counselling — September 24th 2010
- Annual Conference for the Alberta Family School Liaison Workers — September 30th 2010
- Psychosis Day presentation — October 22nd 2010
- Calgary Distress Centre — October 27th 2010
- Calgary Catholic School Board counsellors — December 2nd 2010
- Sunridge Adult Community Mental Health Centre — December 14th 2010

January 1st - June 30th 2011

- Schizophrenia Society — January 26th 2011
- Addiction & Mental Health Outreach Resource Fair — February 1st 2011
- Mobile Response Team (MRT) — April 7th 2011
- Calgary Board of Education — April 8th 2011 (two sessions)
- Youth Probation Officers — April 12th 2011
- Child & Adolescent Mental Health — April 26th 2011
- Airdrie Mental Health Clinic — May 3rd 2011
- Chestermere/Strathmore Mental Health Clinics — May 4th 2011 (two sessions)
- ACCESS Mental Health — May 26th 2011
- South Calgary Health Centre urgent mental health care staff/South MRT team —June 2nd 2011
- Unit 26 Young Adult Program, Foothills Medical Centre —June 9th 2011
- Okotoks Addictions and Mental Health — June 14th 2011
- High River Mental Health Clinic — June 16th 2011
- Bow Valley Addiction & Mental Health Services (Canmore/Banff/Lake Louise) — June 30th 2011

Development of Educational Material

- Creation of information document for new NAPLS Clinical High Risk participants
- Creation of NAPLS brochures for professional and general audience
- Creation of Clinical High Risk screening chart for referral sources
- Creation of Schizotypal Personality Disorder screening chart for referral sources
- Creation of NAPLS poster for professional audience
- Creation of Clinical High Risk case studies to be disseminated at presentations to referral sources
- Creation of NAPLS advertisement targeting the Clinical High Risk population to be posted on transit, the internet, newspapers and areas throughout the city
- Creation of NAPLS advertisement for young male healthy control volunteers

LOCAL ACTIVITIES

I have received an appointment in the Clinical program of the Department of Psychology beginning in the 2009-2010 academic year. 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 (HBI). I had two honors students from the Department of Psychology for the academic year 2010-2011. I have been teaching in the undergraduate neuroscience course and had two students who worked with me for the summer of 2010 and four for the summer of 2011 who were funded by the Department of Neuroscience. 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 met with Faculty at the University of Lethbridge and did a lunchtime presentation on our current research. 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.

ACADEMIC RESEARCH TEAM

TEAM LEADER

Name	Role	Awards
Dr. Jean Addington	Alberta Centennial Mental Health Research Chair in Child and/or Adolescent Mental Health	• National Institutes of Health (U.S.) • Alberta Heritage Medical Scientist

POST DOCTORAL FELLOWS

Name	Level	Projects involved in
Danijela Piskulic	Post-doctoral fellow Arrived from the University of Melbourne April 2009	• NAPLS - cognition, social cognition & ERP components • NAPLS pilot cognitive remediation • Social Cognition

STUDENTS

Name	Level	Projects involved in
Jacque Stowkowy	Masters in Medical Science	• NAPLS • Genetic High risk
Mark Colijn	Masters in Neuroscience	• Neurocognition
Nachum Abraham	Masters in Neuroscience	• Neuroimaging
Erin Falukozi	Honors in Psychology	• Understanding Symptoms
Kali Brummitt	Honors in Psychology	• Treatment choices for those at Clinical High Risk
Monica Albertin	Neuroscience summer student (2010 & 2011)	
Stephanie Deighton	Neuroscience summer student (2010 & 2011)	
Alison Barneto	Neuroscience summer student (2011)	
Kiara Reddy	Neuroscience summer student (2011)	

TEAM MEMBERS/OTHER COLLABORATORS

Name	Position/Organization	Projects involved in
Team Members		
Dr. Thomas Raedler	Associate Professor, Dept. of Psychiatry, University of Calgary	• NAPLS
Dr. Neelan Pillay	Associate Professor, Dept. of Neurology, University of Calgary	• NAPLS
Dr. Richard Frayne	Professor, Depts of Radiology & Neuroscience, University of Calgary	• NAPLS • Hillside FE study
Dr. Brad Goodyear	Assistant Professor, Depts of Psychiatry, Radiology, Clinical Neuroscience, University of Calgary	• NAPLS • Hillside FE study
Dr. Vina Goghari	Assistant Professor, Dept Psychology, University of Calgary	
Collaborators		
Dr. James Kennedy	Professor, University of Toronto and CAMH	• PREDICT • NAPLS
Dr. Katherine Boydell	Associate Professor, University of Toronto	• ADAPT
Dr. John Kane	Professor & Chair, Zucker Hillside Hospital New York	• RAISE • Hillside FE study
Dr. Delbert Robinson	Associate Professor, Zucker Hillside Hospital New York	• RAISE • Hillside FE study
Dr. Diana Perkins	Professor, University of North Carolina	• PREDICT • NAPLS
Dr. Scott Woods	Professor, University of Yale	• PREDICT • NAPLS
Dr. Barbara Cornblatt	Professor, Zucker Hillside Hospital New York	• NAPLS
Dr. Larry Seidman	Professor, University of Harvard	• NAPLS
Dr. Ty Cannon	Professor, UCLA	• NAPLS
Dr. Kristen Cadenhead	Professor, UCSD	• NAPLS
Dr. Elaine Walker	Professor & Chair, Emory University	• NAPLS
Dr. Thomas McGlashan	Professor, University of Yale	• NAPLS
Dr. Ming Tsuang	Professor, UCSD	• NAPLS
Dr. Kim Mueser	Professor, University of Dartmouth	• RAISE
Dr. David Penn	Professor, University of North Carolina	• RAISE
Dr. Sue Estroff	Professor, University of North Carolina	• RAISE

PUBLICATIONS
(JULY 1ST 2010 –JUNE 30TH 2011)

1. Seidman. L., Giuliano, A.J., Meyer, A.C., **Addington, J**., Cadenhead, K.S., Cannon, T.D., McGlashan, T., Perkins, D.O., Tsuang, M.T., Walker, E.F., Woods, S., Bearden, C.E., Christensen, B.K., Hawkins, K., Heaton, R., Keefe, R.S.E., Heinssen, R., Cornblatt, B.A. (2010) Neuropsychology of the Prodrome to Psychosis in the NAPLS Consortium: Relationship to Family History and Conversion to Psychosis. *Archives of General Psychiatry, 67, 578-588*

2. Cadenhead, K.S., **Addington, J**., Cannon, T.D., Cornblatt, B.A McGlashan, T., Perkins, D.O., Seidman. L., Tsuang, M.T., Walker, E.F., Woods, S., & Heinssen, R. (2010) Treatment History in the Psychosis Prodrome: Characteristics of the North American Prodrome Longitudinal Study Cohort. *Early Intervention in Psychiatry, 4, 220-226*

3. **Addington, J.,** Piskulic, D., & Marshall, C. (2010). Psychosocial treatments for schizophrenia. *Current Directions in Psychological Science*, *19,* 260-263.

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

5. **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

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

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

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

9. Menon, M., Schmitz, T.W., Anderson, A.K., Graff, A., Korostil, M., Mamo, D., Gerretsen, P., **Addington, J.,** Remington, G., Kapur, S. (in press) Exploring the neural correlates of delusions of reference. *Biological Psychiatry*

10. Stowkowy, J. & **Addington, J**. (in press). Maladaptive schemas as a mediator between social defeat and positive symptoms in young people at clinical high risk for psychosis. *Early Intervention in Psychiatry.*

11. Marshall, C., Addington, J., Epstein, I., Liu, L., Deighton, S., & Zipursky, R.B. (in press) Treating Young Individuals at Clinical High Risk for Psychosis, Journal of Early Intervention in Psychiatry,

Book Chapters

1. **Addington, J**., Mancuso E., Haarmans, M. (2010). Cognitive Behaviour Therapy and Early Intervention. In Douglas Turkington, Roger Hagen, Torkil Berge & Rolf.W.Gråwe (Eds.), The CBT treatment of psychosis - a symptomatic approach (chapt. 7). Routledge.

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

3. 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

4. McGorry, P.D., & **Addington J**. (in press). 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.

Published Abstracts

1. Piskulic, D., **Addington, J**., Auther, A., & Cornblatt, B. (2010). Using the global functioning social and role scales in a first episode sample. *Early Intervention in Psychiatry*, 4(Supp.1), 72.

2. Piskulic, D., & **Addington, J.** (2010). Negative symptoms and social functioning in those at clinical high risk for psychosis. *Early Intervention in Psychiatry*, 4(Supp.1), 107.

3. Piskulic, D., **Addington, J**., Cadenhead, K., Cannon, T., Cornblatt, B., Heinssen., R., Perkins, D., Siedman, L., Tsuang, M., Walker, E., Woods, S., & McGlashan, T. (2010). Apathy and its relationship to social and role functioning in clinical high risk for psychosis*. Early Intervention in Psychiatry,* 4(Supp.1), 107

4. Seidman, LJ., Woodberry, K., Giulano, AJ., Meyer, E., **Addington, J**., et al. (2010) Method and results from an individual classification approach to neuropsychological data in clinical high risk individuals in the NAPLS consortium, *Early Intervention in Psychiatry* (4(suppl 1), 43

5. Auther, A., Cornblatt, B., **Addington, J**., Cadenhead, K., Cannon, T., McGlashan, T., Perkins, D., Siedman, L., Tsuang, M., Walker, E., Woods, S., & Heinssen, R. (2010). Comparison of long versus short duration of attenuated positive symptoms of psychosis*. Early Intervention in Psychiatry,* 4(Supp.1), 91

6. Cornblatt, B., Lencz, T., **Addington, J**., Cadenhead, K., Cannon, T., McGlashan, T., Perkins, D., Tsuang, M., Walker, E., Woods, S., & Siedman, L. (2010). The role of functional deficits in psychosis*. Early Intervention in Psychiatry,* 4(Supp.1), 27

7. **Addington, J.** & Piskulic, D. (2010). Social cognition and social functioning in early psychosis; are they related? *Early Intervention in Psychiatry*, 4(Supp.1), 28.

8. **Addington, J**., Cornblatt, B., Cadenhead, K., Cannon, T., Heinssen, R., McGlashan, T., Perkins, D., Tsuang, M., Walker, E., Woods, S., & Siedman, L. (2010). Conversion to psychosis and the not to be forgotten non-converters*. Early Intervention in Psychiatry,* 4(Supp.1), 1

9. **Addington, J**., Cornblatt, B., Cadenhead, K., Cannon, T., Heinssen, R., McGlashan, T., Perkins, D., Tsuang, M., Walker, E., Woods, S., & Siedman, L. (2010). Conversion in NAPLS: those who do not convert to psychosis*. Schizophrenia Bulletin*, v37, supplement 1, p1

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

11. 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

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

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

14. 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

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

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

ONGOING FUNDING

Name of Agency:	National Institutes of Health
Date of Award:	2008-2013
Project Title:	Predictors and Mechanism of Conversion to Psychosis
PI:	Addington, J.
Name of Agency:	UCLA Centre for Cognitive Neuroscience
Date of Award:	2009-2012
Project Title:	Prevention Trial of Family Focused Treatment in Youth at Risk for Psychosis – Multi-site Study
Site PI:	Addington, J.
Overall PI:	Cannon, T., UCLA
Name of Agency:	UCLA Centre for Cognitive Neuroscience
Date of Award:	2009-2013
Project Title:	fMRI in those at Clinical High Risk for Psychosis
Site PI:	Addington, J.
Site Co-investigator:	Goodyear, B.
Overall PI:	Cannon, T., UCLA
Name of Agency:	Schizophrenia Research Endowment
Date of Award:	2009-2011
Project Title:	Early Identification and Detection of Individuals at risk of developing Psychosis
PI:	Addington, J.
Name of Agency:	National Institutes of Mental Health (NIMH)
Date of Award:	2009-2014
Project Title:	Recovery after the Initial Schizophrenia Episode
PI:	Kane, J.,
Co-Investigator(s):	Robinson, D., Schooler, N., Mueser, K., Addington, J., Penn, D., Brunette, M., Correll, C., Estroff, S., Rosenheck, R.
Total Amount for Calgary	$125,841 awarded as a contract to JA
Site PI:	Addington, J.
Name of Agency:	Ontario Mental Health Foundation (OMHF)
Date of Award:	2009-2011
Project Title:	Cross-Sensitization between Cannabis and Stress in Subjects at clinical high risk for psychosis
PI:	Mizrahi, R.
Co-Investigator:	Addington, J.

Name of Agency:	Canadian Institutes of Health Research
Date of Award:	2008-2011
Project Title:	Stress induced dopamine release in subjects at clinical high risk for psychosis: A [11c]-(+) PHNC PET study
PI:	Wilson, A., Mizrahi, R.
Co-Investigator(s):	Addington, J., Houle, S., Rusjan, P.

Name of Agency:	Canadian Institutes of Health Research
Date of Award:	2011-2012
Project Title:	Facial emotion recognition and temporal lobe abnormalities associated with the genetic vulnerability for schizophrenia
PI:	Goghari, V.
Co-Investigator(s):	Addington, J

Name of Agency:	NARSAD Young Investigator
Date of Award:	2011-2013
Project Title:	Effects of Cognitive Remediation on Cognition in Young People at Clinical High Risk of Psychosis
PI:	Piskulic, D.
Co-Investigator(s):	Addington, J

HERITAGE MEDICAL SCIENTIST AWARD

July 1st 2010 I was awarded a Heritage Medical Scientist Award for salary support

SUMMARY OF FELLOW AND STUDENT RESEARCH TRAINING AND ACTIVITIES

DANIJELA PISKULIC PHD, POST DOCTORAL FELLOW

In the last 12 months, I was granted an investigator-initiated research funding support from the non-profit entity, the Brain and Behavior Research Foundation (NARSAD) for the randomized control trial of cognitive remediation in those at clinical high risk of psychosis (CHR). The study is on the effectiveness of a cognitive remediation program, the Brain Fitness, at reducing cognitive deterioration and improving cognition among youths at CHR for psychosis. Additionally, I am interested to investigate if improvement in cognition is concomitant with improved functional outcome in this population. The recruitment for this study commenced in February of this year, after it was approved by the ethical review board, and to date I have recruited 12 participants into the study.

In January of this year, I was awarded a fellowship fund from the Alberta Innovates-Health Solutions (AIHS) for the duration of 12 months. Additionally, I have authored and co-authored three research papers, one educational knowledge note for the Alberta Addiction and Mental Health Research Program and four abstracts, which were presented at the International

Conference on Early Psychosis (IEPA) in Amsterdam and at the at the International Congress of Schizophrenia Research (ICOSR) in Colorado Springs, US (please see the List of Publications and Presentations below for details). Furthermore, I was an invited guest lecturer for the Abnormal Psychology graduate class and a speaker for the Neural Systems and Behavior Progress Rounds at the University of Calgary where I presented research on early psychosis and on cognitive remediation in people at CHR of psychosis respectively.

I have recently co-authored a book chapter with Dr. Jean Addington which is currently under revision, and I am currently in the process of authoring two research manuscripts from both existing and recently collected data sets, which should be completed in the next month.

Papers:

1. **Piskulic, D.,** & Addington, J. (in press). Social cognition and negative symptoms in psychosis. *Psychiatry Research.*
2. **Piskulic, D.**, Addington, J., Auther, A., & Cornblatt, B. (in press). Using the global functioning social and role scales in a first episode sample. *Early Intervention in Psychiatry.*
3. Addington, J., & **Piskulic, D.** (2011). Social cognition and functional outcome are separate domains in schizophrenia. *Schizophrenia Research,* 127 (1-3), 262-263.

Abstracts:

1. **Piskulic, D.,** & Addington J. (2011). Social cognition and negative symptoms in psychosis. *Schizophrenia Bulletin*, 37 (Suppl.1), 249. *13th International congress on Schizophrenia Research, Colorado Springs, US.*
2. **Piskulic, D**., Addington, J., Cadenhead, K., Cannon, T., Cornblatt, B., Heinssen, R., Perkins, D., Siedman, L., Tsuang, M., Walker, E., Woods, S., & McGlashan, T. (2010). Apathy and its relationship to social and role functioning in clinical high risk for psychosis. *Early Intervention in Psychiatry*, 4 (Supp.1), 107. *7th International Conference on Early Psychosis (IEPA), Amsterdam, Netherlands*
3. **Piskulic, D**., Addington, J., Auther, A., & Cornblatt, B., (2010). Using the global functioning social and role scales in a first episode sample. *Early Intervention in Psychiatry*, 4 (Supp.1), 72. *7th International Conference on Early Psychosis (IEPA), Amsterdam, Netherlands*
4. **Piskulic, D.,** & Addington, J. (2010). Negative symptoms and social functioning in those at clinical high risk for psychosis. *Early Intervention in Psychiatry*, 4 (Supp.1), 107. *7th International Conference on Early Psychosis (IEPA), Amsterdam, Netherlands*

Other:

1. **Piskulic, D**. (2011). Remediation of cognitive functioning in schizophrenia. Knowledge Note 10. *Alberta Addiction and Mental Health Research Program*.

Talks:

1. **Piskulic, D**. (2011). Remediation of cognitive functioning in persons at clinical high risk of psychosis. Neural Systems and Behavior Progress Rounds. *Hotchkiss Brain Institute, Department of Psychiatry, University of Calgary,* June 2011.
2. **Piskulic, D**. (2010). Clinical high risk for psychosis. Abnormal Psychology Graduate Class. *Department of Psychology, University of Calgary*, September 2010

Awards:

1. NARSAD Young Investigator Award 2011-2013 for Effects of Cognitive Remediation on Cognition in Young People at Clinical High Risk of Psychosis, $51,522
2. Alberta Heritage Foundation for Medical Research, Post Doctoral Fellowship Award, January 1st - December 31st 2011.

JACQUE STOWKOWY BA, MSC CANDIDATE

I began the masters program in Medical Science July 1st 2010. My research focuses on investigating the role of social risk factors in the development of psychosis among a group of individuals with a family history of psychosis. In the past 6 months I have successfully defended and submitted my research proposal for this project, and recruitment has begun. To date we have recruited 17 individuals with a first degree family member with psychosis and research assessments are underway. In April 2011, I attended and presented a poster at The International Conference on Schizophrenia Research. I have also recently received notification that a paper for which I am first author on was accepted for publication in the Journal of Early Intervention in Psychiatry. For further information on other presentations, papers and awards please see below.

Papers:

1. **Stowkowy, J**. & Addington, J. (in press). Maladaptive schemas as a mediator between social defeat and positive symptoms in young people at clinical high risk for psychosis. *Early Intervention in Psychiatry.*
2. *P*exman, P. M., Rostad, K. R., McMorris, C. A., Climie, E. A., **Stowkowy, J**., & Glenwright, M. R. (2010). Processing of Ironic Language in Children with High-Functioning Autism Spectrum Disorder. Journal of Autism and Developmental Disorders, DOI: 10.1007/s10803-010-1131-7.

Presentations:

1. **Stowkowy, J**. & Addington, J. (April 2011). Maladaptive schemas as a mediator between social defeat and positive symptoms in young people at clinical high risk for psychosis. Poster session presented at the International Congress on Schizophrenia Research, Colorado Springs, CO.
2. **Stowkowy, J**. & Addington, J. (May 2011). Maladaptive schemas as a mediator between social defeat and positive symptoms in young people at clinical high risk for psychosis. Poster session presented at the Hotchkiss Brain Institute Research Day, Calgary, AB.
3. **Stowkowy, J.,** Fiest, K., McChesney, J., & Vallerand, I. (December 2010). Metacognition in people at high risk for psychosis. Poster presented at Biostatistics 643.01 presentation day, Faculty of Medicine, Calgary, AB.
4. **Stowkowy, J** & Addington, J. (October 2010). NAPLS, North American Prodrome Longitudinal Study. Posted presented at Psychosis Research Day, Calgary, AB.

Awards:

1. David Johnston Research Travel Award
2. Medical Science Program Specific Award, Travel
3. Medical Science Program Specific Award, First Author Publication

NACHUM ABRAHAM BSC, MSC CANDIDATE

I began the masters program in Neuroscience September 1st 2009 working in the area of stem cell research with Dr Samuel Weiss. In May 2011 I transferred to the supervision of Dr Addington so that I could pursue research in neuroscience that was directly related to psychopathology. My intent is to focus on functional imaging with those at risk of psychosis. I am currently developing a draft proposal.

MARK COLIJN, BSC, MSC CANDIDATE

I began the MSc program in Neuroscience September 1st 2010. My research involved using data from the multisite study PREDICT. In cooperation with the other participating sites, I was involved in cleaning all of the data and preparing it for analysis. Using this data set, my research focused on cognition in clinical high risk patients. Specifically I studied cognitive change over time in this population; both in those individuals who ultimately converted to psychosis and in those who did not. I plan to submit the results of this research for publication in the next month. Through the North American Prodrome Longitudinal Study (NAPLS) I have been trained to administer a very similar cognitive battery and I have collected a substantial amount of cognitive data for NAPLS. Additionally, I have completed a comprehensive literature review of clinical high risk studies that include cognitive assessments.

Presentations:

Colijn, M. The Course of Cognitive Functioning in Individuals at Clinical High Risk for Psychosis. Oral presentation at Progress Rounds in Human Subjects Research, the University of Calgary. June13, 2011.

Colijn, M. The Course of Cognitive Functioning in Individuals at Clinical High Risk for Psychosis. Oral presentation at Neuroscience Research Day, the University of Calgary. May 3, 2011.

Awards:

Queen Elizabeth II Award

M**asters Thesis:** June 23rd 2011, I successfully defended my master's thesis which was entitled " The Course of Cognitive Functioning in Individuals at Clinical High Risk For Psychosis".

ERIN FALUKOZI, BSC, PSYCHOLOGY HONORS STUDENT

Completed Thesis entitled "Impact of Trauma on Attenuated Psychotic Symptoms"

KALI BRUMMITT, BSC, PSYCHOLOGY HONORS STUDENT Completed Thesis entitled "Treatment Possibilities for Individuals at Clinical High Risk of Psychosis".

About the Alberta Mental Health Research Partnership Program

The *Alberta 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 mental illness, and innovative service delivery.

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