

**Early intervention for psychosis: A Canadian Perspective**

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**Abstract:** This paper provides an overview of early intervention (EI) services for psychosis in Canada. We describe a leading Canadian EI program's approach to enhancing access (via early case detection, open referral, and rapid response) and providing specialized phase-specific treatment. Learnings from this program's research/evaluation indicate that EI can significantly improve service user and family engagement. Achieving and maintaining symptom remission (particularly negative symptoms) may be important for better social and occupational functioning in first-episode psychosis (FEP). Our program demonstrates the feasibility of establishing and sustaining an open referral, rapid-response system to address the chronic systemic problems of long waiting lists and barriers to access. We argue that an integrated clinical-research program based on specialized EI guidelines can significantly improve outcomes and advance FEP research.

**Key Words:** Early intervention; first-episode psychosis, schizophrenia, Canada, youth mental health.

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## INTRODUCTION

Psychotic disorders are considered to be among the most serious mental disorders. The term ‘psychosis’ refers to any of a group of conditions characterized by the presence of positive symptoms such as hallucinations, delusions and disorganized thoughts and behavior; negative symptoms such as avolition, apathy, and anhedonia (Andreasen, 1983; Andreasen, 1984); and significant impairment in functioning (Iyer et al., 2008). Although schizophrenia is the most common psychotic disorder, psychosis may be part of a number of other diagnosable conditions such as bipolar disorder, schizoaffective disorder, major depression, drug-induced psychosis and psychotic disorder not otherwise specified.

Historically, persons with psychosis have faced bleak prospects — frequent hospitalizations, a life of various impoverishments and the nihilism of treatment providers. In the mid-1990s, the idea emerged that the outcomes of psychosis in its early years significantly predict its long-term course (Birchwood et al., 1997; Harrison et al., 2001; Malla et al., 2005). This, along with evidence that longer durations of untreated psychosis negatively influence clinical prognoses (Marshall et al., 2005; Norman and Malla, 2001), spurred the development of early intervention (EI) to minimize relapse risks and maximize recovery potential within the first 2 to 5 years of illness onset. In addition to intervening as early as possible after the onset of psychosis, EI has also come to refer to the illness (Birchwood and Macmillan, 1993; Malla et al., 2003; McGorry et al., 1996). In other words, there is more to early intervention than simply intervening early (Malla and Norman, 2001). Sparking optimism among clinicians, researchers, patients, and their families, EI services have generated significant interest, particularly in the last 15 to 20 years. At least three randomized controlled studies (Bertelsen et al., 2008; Craig et al., 2004; Garety et al., 2006) and one meta-analysis (Harvey et al., 2007) have shown that specialized EI services yield better outcomes than standard care. Along

with a few other countries, Canada has been at the forefront of EI service development and research (Iyer et al., 2015; Iyer and Malla, 2014). This paper provides a brief overview of EI in Canada; a detailed description of a leading Canadian EI service, the Prevention and Early Intervention Program for Psychosis (PEPP-Montreal); and a summary of published data from PEPP, particularly around outcomes.

## **EI in Canada**

In Canada, specialized EI services emerged in the late 1990s. Although EI services exist in most provinces, much remains to do on the policy front to make them universally available to Canadians. Many Canadians, especially those in rural and remote areas, still cannot access EI services as many are based in urban academic institutions. Canada also lacks national-level policy/funding commitment to EI services. This is in stark contrast to the UK's policy-driven scaling up of EI services to cover the entire population (Joseph and Birchwood, 2005) and Australia's federal government commitment to following Britain's lead (Commonwealth Department of Health and Aged Care, 2000). Only three Canadian provinces (British Columbia, Ontario, and Nova Scotia) have prioritized EI for psychosis in their mental health policy and have provincial EI service guidelines (Canadian Mental Health Association, 2004). Between and within these provinces, EI services vary greatly in availability, delivery models, and policy/funding commitment. In Quebec, for instance, very few of the 16 first-episode programs offer the full spectrum of high-end therapeutic interventions that EI guidelines recommend for psychosis (Nicole et al., 2007).

## **DESCRIPTION OF PEPP-MONTREAL**

PEPP was established in 2003 under the leadership of Ashok Malla. It was modeled after an EI program bearing the same name that Malla and his colleagues had created in London, Ontario in 1997 (Malla et al., 2003). PEPP is an integrated clinical, research and teaching program based in the

largely francophone city of Montreal at the Douglas Mental Health University Institute, a hospital affiliated to McGill University. Per guidelines (International Early Psychosis Association Writing Group, 2005), PEPP targets persons with first-episode psychosis (FEP) in general rather than those with a specific diagnosis of schizophrenia. It serves 14- to 35-year-olds with a diagnosis of affective or non-affective psychosis who have had no more than 1 month's previous antipsychotic treatment; without organic brain damage, a pervasive development disorder, an IQ below 70 or epilepsy; and do not have substance-induced psychosis. A comorbid diagnosis of substance abuse is not an exclusion criterion. Being the only FEP service in its catchment area of Southwest Montreal (population 400,000), PEPP serves a nearly complete incidence sample. This increases the generalizability of PEPP's evaluation/research findings.

PEPP comprises two essential elements — early, easy, rapid access to treatment, which aims to reduce treatment delays and improve the accessibility of specialized EI services; *and* enhanced, phase-specific, treatment. The enhanced treatment element comprises services that are sensitive to both the illness phase (quick response and high sensitivity to medication side effects) and the developmental phase (youths challenged by mental illness at stage that entails the pursuit of educational, social and occupational milestones). PEPP's commitment to accessibility and treatment quality traces its origin to the critical period hypothesis (Birchwood et al., 1998) that highlights the importance of the first 5 years after illness onset for determining future trajectories and posits that interventions during this period are likely to yield maximal impact on future course.

### **Early, Easy and Rapid Access**

To reduce treatment delay, overcome barriers, and provide welcoming, rapid access to appropriate care, PEPP conducts early case identification interventions (often missing in many EI services: Iyer and Malla, 2014); operates an open referral system; and responds rapidly.

*Early case identification:* Individuals suffering from FEP experience lengthy delays before seeking and receiving appropriate treatment. Overall DUP, defined as the time between the onset of psychotic symptoms and the commencement of adequate treatment, is the traditional metric of this delay. Although many experience delays of only several weeks, DUPs of 6 months or more have also been reported (Birchwood et al., 2013). Some delays occur because affected individuals and their families may not recognize psychotic experiences as deserving attention, or lack knowledge of where to seek care (Anderson et al., 2013a). This initial delay between the onset of psychosis and seeking help is referred to as “help-seeking DUP.” Subsequently, there is often an additional delay until appropriate care is available. This “referral DUP” is often systemic, with health care professionals failing to recognize or being unable to adequately treat FEP. In a PEPP qualitative study, help-seekers retrospectively reported much frustration from multiple referrals to unsuitable treatment providers (Anderson et al., 2013a). Since its inception, PEPP has sought to reduce DUP (particularly, referral DUP) by proactively promoting early case identification through outreach to the general community. A structured, validated interview, Circumstances of Onset and Relapse Schedule (Norman et al., 2004), is conducted with all PEPP clients to estimate the DUP and map their pathway. These indices serve to inform outreach efforts (Anderson et al., 2010; Lloyd-Evans et al., 2011; Tanskanen et al., 2010). For instance, upon finding that first help-seeking contact with a non-medical professional was associated with longer referral delays (Bechard-Evans et al., 2007), we expanded outreach to professionals in educational settings. Other activities have included promoting awareness about psychosis and PEPP among catchment area health care providers and community organizations.

PEPP’s strong links with the emergency department of its own hospital have resulted in the prompt referral of all individuals presenting with FEP. This tie-in with the emergency department helps prevent potential inpatient hospitalizations; minimize loss to follow-up reduce treatment delay;

and minimize the potentially traumatic impact of encountering mental health care through emergency or inpatient services.

*Easy, rapid access:* PEPP deploys a quick-response protocol and an open referral system. Youth and their families can refer themselves; no health care professional referrals are needed; no forms are required; and all referrals are responded to within 72 hours. A trained intake clinician responds to all referrals and conducts an initial evaluation to verify that PEPP services are appropriate. Within a week, a psychiatrist conducts a full assessment to establish a diagnosis and initiate or adjust pharmacological treatment.

As the first point of contact, PEPP's intake clinician plays a critical role in securing engagement early on. Whenever possible, the referred individual's family is involved in the initial assessment conducted, depending on the client's preference, at PEPP's clinic, the client's home, or school, or even at a neutral venue like a café. Individuals who do not meet all PEPP criteria are referred to and linked with appropriate services in the community. Some clients may meet criteria for being at ultra-high risk for psychosis, as defined by the Comprehensive Assessment for At-Risk Mental States (Yung et al., 2005). Such clients are referred to the Clinic for Assessment of Youth at Risk (CAYR), a clinical-research program within PEPP.

### **Specialized, phase-specific treatment**

*Overview and philosophical orientation:* Following consensus guidelines (International Early Psychosis Association Writing Group, 2005), PEPP's philosophical orientation is similar to specialized EI services in various parts of the world (Australia, United Kingdom, Denmark, Hong Kong, Singapore, etc.). Consistent with this orientation, PEPP provides specialized, phase-specific, developmentally informed, comprehensive treatment for the first 2 years after diagnosis. Like many of these EI services, PEPP's treatment protocol (see Fig. 1) is centered on intensive case management, an adaption of the Assertive Community Treatment model (Dixon, 2000; Malla et al.,

2003). Throughout their 2 years at PEPP, clients are followed by the same core team, comprising a case manager and a psychiatrist, who provide a comprehensive approach, including intensive psychosocial and medical management. Depending on individual needs, nurses, therapists, employment counselors, nutritionists, or other professionals from PEPP's multidisciplinary team are also involved.

PEPP is aligned around the socio-developmental needs and priorities of its young clients and their families (Iyer and Malla, 2014). PEPP stresses therapeutic alliance; close partnerships with families; shared decision-making; and flexible, individually tailored treatment (e.g., by using modalities and venues that patients and families find most acceptable or convenient). Throughout treatment, fostering and sustaining service engagement is emphasized (Doyle et al., 2014) to prevent premature dropout, engender active participation, and promote future engagement with mental health services if required. Firmly opposed to casting clients in a chronic sick role, PEPP relies on community resources instead of hospital-type resources, discourages housing through special group homes, and seeks to avoid the availing of long-term disability benefits. Along with psychotic symptoms, comorbid concerns like substance use, depression, and anxiety are addressed early on. Beyond seeking a reduction of psychopathology, PEPP aims to help service users resume or even enhance all developmentally normative aspects of their lives, especially school, work, and relationships. Evidence suggests youths availing EI services may subjectively regard these as more important treatment goals than simple symptom reduction (Bond et al., 2014; Iyer et al., 2011a; Romano et al., 2010).

*Case Management:* Case managers play a key role in providing and coordinating individualized assessment and care throughout treatment. This facilitates therapeutic alliance and continuity of care, which are known to influence service engagement and outcomes (Flückiger et al., 2012; Gulliford et al., 2006). They maintain regular contact with service users (at least twice per week in



the first 2 months; no less than at least once per month at any point in follow-up) and in partnership with families, help them achieve their personal and vocational goals; and facilitate their recovery. Case managers also provide individualized psychoeducation and supportive therapy. They help clients and families create meaningful illness narratives and negotiate life post psychosis. Case managers hail from backgrounds in nursing, social work, psychology, and allied disciplines. Their caseload, 20 to 25 patients at various stages of treatment, is comparable to other Canadian EI services (Nolin et al., 2014); higher than those in typical Assertive Community Treatment teams (Tyrer, 2000) and some EI services such as the OPUS group in Denmark (usually 10) (Nordentoft et al., 2006); and much lower than other EI services such as the EASY program in Hong Kong (Tang et al., 2010; Chen et al., 2012).

*Medication Management:* Please refer to Figure 2 for the PEPP medication protocol.

Antipsychotic medication is chosen in collaboration with the service user and his/her family, following shared decision-making and risk-benefit principles (Gordon and Green, 2013).

Psychiatrists meet service users in the presence of their case manager, who often supports the service user in communicating and/or advocating for his needs and perspectives. Service users who want to discontinue pharmacological treatment can disclose their desire and make an informed decision based on risks and benefits. Clients refusing pharmacological treatment continue receiving other services in addition to support and education and are closely monitored for early warning signs of a relapse. Every year, a review meeting is held to assess fidelity to the medication protocol and update the protocol based on new evidence.

*Family Interventions:* PEPP emphasizes the involvement of family or loved ones in treatment because of strong evidence connecting family involvement and improved service engagement (Conus et al., 2010); medication adherence (Compton, 2010; Rabinovitch et al., 2009); and clinical, functional and occupational outcomes (Addington and Burnett, 2004; Norman et al., 2005; Windell

et al., 2006). More importantly, social support and family relations are an integral part of the subjective perceptions of recovery among individuals with psychosis (Corrigan and Phelan, 2004; Liberman and Kopelowicz, 2002).

*PEPP Family Psychoeducation Program (Iyer et al., 2011a).* It consists of three workshops focused on the common concerns of families, including an overview of psychosis; medication and side effects; psychosocial challenges and guidelines for dealing with them; as well as testimony from a PEPP client on his/her story to inspire hope and share common concerns.

*Multiple-Family Group Treatment (McFarlane et al., 1995).* Service users are paired with their respective family members for this structured problem-solving group activity (Breitborde et al., 2009; Fjell et al., 2007) offered by trained therapists.

*Family Support Group:* Families discuss concerns, share ideas, and support new families coping with psychosis. This group is coordinated by a family peer support worker and run by families themselves with no staff involvement.

*Psychosocial Interventions:* Individual interventions offered include cognitive-behavior therapy, Individual Placement and Support (Bond et al., 2001), and Art/Drama expression sessions. PEPP also offers a range of group activities in a peer-supported environment, including:

1. Recovery through Activity and Participation (RAP) group (Malla et al., 2003). It aims to provide structure to patients and enhance their ability to work toward goals through low-stress activities, games, or sports.
2. Group Cognitive-Behavioral Therapy for Social Anxiety: This 14-week group focuses on reducing the symptoms of social anxiety. Developed by PEPP researchers, preliminary data (Montreuil et al., 2012) indicates that this could be a promising intervention for social anxiety in FEP.
3. Youth Education and Support (YES) Group (Malla et al., 2004): This intensive group intervention focuses on relapse prevention and the resumption of roles relevant to their level of psychosocial development. This group has been shown to improve remission rates and negative symptoms (Malla et al., 2005).

4. **Work Preparation Group:** This group promotes recovery and return to work via acquisition of job-related, cognitive, and social skills. Participants have reported increased interviews and employment following the group (unpublished data).

*Physical health interventions:* Individuals with psychosis have a reduced life expectancy owing in large part to cardiovascular disease (Saha et al., 2007) and are at high risk for weight gain and metabolic risk syndrome (Curtis et al., 2011). PEPP has adopted various approaches to address this challenge and to promote physical health. A metabolic monitoring protocol has been established, including repeated assessments of weight, waist circumference, blood pressure, fasting plasma glucose, and fasting lipid panel. Individuals meeting risk criteria for metabolic syndrome are referred to our internist and nutritionist. Additional interventions, such healthy and affordable food preparation workshops; subsidized gym memberships through a partnership with YMCA; a walking club; and an incentive program whereby service users can win a gift card after completion of health-promoting activities are also offered.

*The PEPP housing project:* This subsidizing housing project seeks to provide safe, affordable and high-quality independent housing. In addition to the usual compendium of PEPP services, participants receive occupational therapy and Individual Placement and Support to foster the acquisition of independent living skills and gainful occupation.

*Integration of assessments into care and program evaluation:* The PEPP assessment protocol includes measures of symptoms, functional outcomes, neurocognitive functioning, quality of life, side effects, client/family perspectives, and satisfaction with services. In the last 10 years, PEPP has achieved a unique integration of clinical and research/assessment activities, and each service user is assigned a trained evaluator who conducts and coordinates evaluations throughout the treatment. This is reflected in our consent procedure whereby consent is sought from service users and families for care, assessments, the integration of assessments into care, and the use of aggregated data from

assessments for program evaluation and research. Examples of the integration of assessments into care include basing decisions to switch medication on structured psychiatric assessments and using of quality of life assessments to set goals for treatment. This unique clinical-research integration drives the pursuit of clinically significant research questions and facilitates the translation of findings into better, evidence-based care. Since 2011, PEPP has held a Sharing Knowledge Day where our research findings are shared and discussed with service users and families. Although we have not formally tested the benefits of this integrated approach, we believe that it has yielded a more responsive, quality oriented, evolving EI service, consistent with research showing that feedback improves performance at individual and group levels ( Sapyta et al., 2005; Seidman et al., 2010).

## **RESULTS: EVALUATION OF PEPP-MONTREAL**

From 2003 to December 15, 2014, a total of 1734 referrals were made to PEPP (a range of 98 to 203 referrals per year). Of these, 634 (36.56%) met our inclusion criteria. Notably, 90% of those accepted since 2003 have signed PEPP's integrated assessment and treatment consent form. In the section below, we will summarize findings from our program pertaining to its two essential components — early, easy, rapid access to treatment and specialized, phase-specific care (see Table 1). Several of these findings are from PEPP's research publications, which can be consulted for greater detail.

### **Early, Easy, Rapid Access to Treatment**

*Early case identification:* To reduce DUP, we carried out and evaluated a Canadian Institutes of Health Research-funded early case identification intervention targeting all potential referral sources (Malla et al., 2014), from January to June 2006. Treatment delay indices for a 3-year period after the intervention were compared with those from a 3-year historical control group (January 2003 to December 2005). The intervention aimed to inform mental health professionals and service providers about the clinical presentation of FEP and the advantages of EI. It was based on

principles of academic detailing, a method of educational outreach set in the targeted professional's environment and catering to his/her knowledge and needs (Naughton et al., 2007; Simon et al., 2007). Each 60- to 90-minute session was facilitated by PEPP staff using purpose-produced short films featuring actors depicting behaviors suggestive of FEP within a family context. Films were presented in English and French and served as a starting point to discuss FEP case identification. The intervention was carried out with many potential referral sources (hospital services, school health and counseling services, community health and social service centers, church services, etc.) in our catchment area. Participants recruited in the third phase (June 2006 to May 2009) were compared with the historical control group from the first phase. During this phase, booster sessions on FEP and EI were given to referral sources every 6 months. The intervention resulted in an increase in the number of referrals of people from lower-middle and lower socioeconomic backgrounds (53.2% pre and 71.4% post) and a decrease in the number of upper-middle and upper-class individuals being referred (46.8% pre and 28.6% post). A greater number of individuals experiencing affective psychosis received treatment post intervention (17.4% pre and 28.5% post), whereas the number of treated individuals with non-affective psychosis remained unchanged. There was no difference in the age of onset of psychosis, marital status, sex, immigrant status, and education level between the individuals receiving treatment pre- and post-intervention. DUP did not significantly change as a result of the intervention (means of 124 days pre and 109 days post). The intervention shortened the referral DUP for individuals whose last contact before PEPP had been PEPP's parent institute's emergency service compared with those with other last contacts.

*Rapid access:* 100% of the 1734 referrals were responded to within 72 hours. The mean number of days from referral to entry into the program is 11 days (SD = 17.7 days).

*Pathways to care:* Because a major focus of EI services is reducing treatment delay and access via potentially more traumatic pathways to care (e.g., ER), care pathways have been investigated in

many studies at PEPP (Anderson et al., 2013a; Anderson et al., 2013b; Bechard-Evans et al., 2007). Their findings suggest that, in our context, few socio-demographic or clinical factors predict negative pathways to care. The exception is that individuals of African and Afro-Caribbean origin were more likely to be referred from the emergency department compared with those from the Middle East and North Africa, but not compared with white Anglophone or Francophone service users with Canadian-born parents. The median number of help-seeking contacts between the onset of psychosis and eventual contact with PEPP was 3 and most of the service users entered PEPP after contact with the emergency department. This may be attributable to the fact that many persons in Quebec, especially those with a psychiatric history, do not have a designated primary care physician. Being in contact with primary care reduced the likelihood of police or ambulance involvement (i.e., more negative care pathways) but increased DUP, suggesting the need for better training for primary care practitioners. Individuals who contacted non-physicians (e.g., counselor) had longer DUPs than those contacting physicians and emergency services. These findings draw attention to the need for capacity building so that primary care systems can better recognize and perhaps even treat psychotic disorders.

### **Specialized, Phase-Specific Treatment**

*Course/outcomes:* As part of an in-depth examination of the predictors of functional outcomes at Years 1 and 2 (Jordan et al., 2014), we analyzed complete data from 208 service users who had completed 1 year of treatment and 159 service users who had completed 2 years of treatment. At entry, 74.86% of the Year 1 and 76.10% of the Year 2 samples met SCID-IV criteria for schizophrenia-spectrum psychosis. At entry, 24.5% of the Year 1 and 23.9% of the Year 2 samples met criteria for affective psychosis. Our previous work (Pope et al., 2013) shows that primary psychotic disorder diagnoses remain stable from entry to a year after treatment. Median DUP was

16.57 and ranged from 0 (in cases where individuals, followed at CAYR for an ultra-high-risk state, converted to psychosis and were offered PEPP services immediately) to 1011.57 weeks.

To define remission, we used well-accepted consensus criteria (Andreasen et al., 2005) defined as a score of  $\leq 2$  (mild or less) simultaneously on the Schedule for Assessment of Positive Symptoms (Andreasen, 1983) items of delusions, hallucinations, positive formal thought disorder, and bizarre behavior and the Schedule for Assessment of Negative Symptoms (Andreasen, 1984) items of affective flattening, alogia, avolition-apathy and anhedonia-asociality. At Year 1, 62 participants (30%) were in total positive and negative symptom remission for a mean of 2.4 (SD = 3.25) months. 141 Year 1 participants (67.8%) were in positive symptom remission for a mean of 7 months (SD = 4.17) and 69 (33.2%) were in negative symptom remission for a mean of 2.9 (SD = 3.55) months. 66 participants (41.5%) were in total remission by Year 2 for a mean of 5.7 months (SD = 6.57). 110 participants (69.2%) and 77 (48.4%) were in positive and negative symptom remission for a mean of 13.9 (SD = 7.91) and 6.79 (SD = 7.31) months, respectively.

On the social adjustment and occupational functioning sub-scales of the Strauss-Carpenter Scale (Strauss and Carpenter, 1974), the maximum combined rating is 8 with higher scores indicating better functioning. On this scale, participants had a mean of 4.49 (SD = 2.06) at Year 1 and of 5.24 (SD = 2.26) at Year 2. There was a substantial improvement in functioning compared to baseline;  $F(2,109) = 14.85$  ( $p < 0.01$ ). We had also earlier observed (Iyer et al., 2010) significant improvements in social and occupational functioning from baseline to 1 year after treatment, with relatively high functioning at 1 year (mean of 66.27, SD = 11.54) on the Social and Occupational Functioning Assessment Scale (Goldman et al., 1992). These results support a large body of evidence indicating a vast improvement in functional outcomes among persons receiving specialized EI.

*Predictors of outcomes:* We examined (Jordan et al., 2014) the relative contributions of positive and negative symptom remission and neurocognitive functioning to employment and social

outcomes. The number of consecutive months of negative symptom remission was the strongest predictor of functional outcomes at Year 1. At Year 2, negative symptom remission was still the strongest predictor of functional outcomes. Positive symptom remission and premorbid adjustment emerged as significant but weaker predictors of Year 2 functioning. Cognitive functioning (verbal memory and global cognition) was not a significant predictor of functional outcomes at Years 1 and 2.

In other studies, we have demonstrated the role of verbal memory as a specific and stable marker of symptom remission status (Benoit et al., 2014; Bodnar et al., 2008) and of persistent negative symptoms (Hovington et al., 2013) in FEP. Taken together, these findings suggest that the contribution of neurocognitive functioning to functional outcomes may be through their influence on whether or not individuals achieve symptom remission. It is unlikely that this influence of cognition on symptom remission is via medication adherence as neurocognitive functioning was not associated with medication adherence in our sample (Lepage et al., 2010).

Studies at PEPP have also examined other predictors of clinical and functional outcomes. Self-esteem at the onset of treatment, independent of factors like depression, was a predictor of functioning at 6 months (Vracotas et al., 2010). Sociocultural context may also influence outcomes. In a preliminary study, we showed that FEP patients in India had lower negative symptoms and higher functioning at Year 1, compared to their Canadian counterparts (Iyer et al., 2010). This cross-cultural difference in outcomes is being systematically investigated along with the role of families as a mediator of these differences in a larger 5-year NIH-funded project (Iyer et al., 2014a).

Finally, a key question pertains to differences between persons with non-affective and affective psychosis. Our work suggests that individuals with non-affective and affective psychosis may have different profiles of pre-psychosis early signs and symptoms; specifically, varying levels of pre-psychosis depression and disorganization/mania (Iyer et al., 2008). Individuals with affective



psychosis were also more likely to have a 'mood-related' sign and symptom as their first psychiatric change. An evaluation of diagnostic stability between baseline and 1-year follow-up revealed the most stable diagnosis was schizophrenia (92.1% received the same diagnosis at both time points), followed by bipolar disorder with psychotic features (84.2%) and major depressive disorder with psychotic features (66.7%) (Pope et al., 2013). No other significant differences in course/outcomes between these two diagnostic groups have been found.

*Uptake of EI and interventions:* Starting in 2003, 465 (82.2%) out of 566 service users who should have received a year of treatment remained engaged at Year 1. Out of 496 service users who should have received 2 years of treatment, 345 (69.6%) remained engaged at Year 2. In an examination (Anderson et al., 2013b) of the predictors of service disengagement in a sample of 324 individuals who entered PEPP between 2003 and 2010, 28% disengaged before completing 2 years and the median time to dropout was 5 months. Older age (hazard ratio = 1.10, 1.02 -1.19) and Black ethnicity (hazard ratio = 2.10, 1.19 -3.70) were associated with an increased risk of disengagement. Living away from family (hazard ratio = 0.46, 0.21 -1.00) was associated with a reduced risk of disengagement. Of note, pathways to care did not influence future service engagement. Overall, PEPP's service engagement rates are comparable to estimates from other EI services (Conus et al., 2010; Schimmelman et al., 2006; Turner et al., 2007), which tend to be generally higher than those reported for non-specialized psychosis services (O'Brien et al., 2009). Additional analysis on the dataset used in the Jordan et al., (2014) study was conducted to examine medication prescription and adherence patterns. At Years 1 and 2, most of the patients (97.4% and 95.3%, respectively) of patients were treated with second-generation antipsychotics including clozapine (3.1% and 5.6%, respectively) and long-acting injectable formulations (14.8% and 18.7%, respectively). First-generation antipsychotics were prescribed to 2.5% and 4.6% of participants at Years 1 and 2, respectively. 31% and 16% of participants were medication non-adherent (calculated as taking less

than 75% of prescribed medication) at Years 1 and 2, respectively. With respect to family involvement, only 14 of 147 service users (9.52%) who entered PEPP between March 2013 and November 2014 had no family involvement in their treatment (Iyer et al., 2014b). We have also specifically examined the uptake of family psychoeducation (Iyer et al., 2011b). Out of a total of 217 service users who entered PEPP between November 2005 and May 2010, family members of 29 clients lived outside Montreal and families of 23 clients could not be invited for psychoeducation because of their early dropout of services. Of the remaining, family members of 111 clients (67.27%) attended at least one of the three family psychoeducation workshops. To summarize, the proportion of family members involved in treatment is very high. In comparison, the proportion of families participating in specific interventions is relatively low but may still be higher than in regular care for psychosis.

## **CONCLUSION**

EI services were created to address the specific needs of young persons in the early phases of psychosis and brought about a shift in philosophies of treating psychosis from nihilism to optimism. EI services may be more relevant to young people and their families, as reflected by PEPP's strong patient and family service engagement figures and may yield a range of symptomatic, social and functional benefits. The availability of an EI service that effectively collaborates with referral sources and has a direct, rapid-response referral system may be associated with a short delay in treating psychosis. The median DUP at PEPP is only 13 weeks, which is significantly lower than the 6 months to 1 to 2 years DUP that has been reported for an EI service in Birmingham (Birchwood et al., 2013) and in Denmark (Bertelsen et al., 2008). This may be attributable to a large proportion of referrals to the Birmingham and Denmark EI services coming from within the larger mental health care system. Overall, changing care pathways may be complicated as they can be

influenced by systemic factors (e.g, the limited availability of designated primary care practitioners in Quebec).

Another factor to which PEPP's successes may be the integration between its research and clinical activities. Integrated clinical-research EI services have the distinct advantages of being able to generate knowledge, apply it to improve care and use improved care to generate pertinent knowledge in a sort of virtuous scientific circle.

Most EI services are set up for 1 to 2 years, which may be inadequate. Denmark's OPUS study found that most clinical and functional gains seen after 2 years of EI were not sustained at Year 5 once patients transferred to routine healthcare (Bertelsen et al., 2008). To sustain and enhance symptomatic, social and functional gains, an extension of EI services to 5 years may be needed. We are testing this proposition with a randomized controlled trial comparing clinical and functional outcomes between patients receiving 5 years of specialized EI (experimental condition) and patients receiving 2 years of specialized EI followed by regular care (Lutgens et al., 2015). This study will also examine the cost-effectiveness of extending EI.

Despite the mounting evidence for and the enthusiasm around EI services, much remains to be done on the policy front to make EI services widely available in Canada. Particularly in Canada, EI services have been significantly driven by advocacy. In Ontario, advocacy from families, clinicians, and researchers was instrumental in securing provincial investment in EI. Continued advocacy from service users and families may help secure more substantial and sustain commitments to EI in Canada and worldwide.

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| <b>Table 1: Main aspects of EI studied at PEPP</b> |  |
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| <b>Aspect of EI</b>                                | <b>Key Indicators Studied</b>  |
| <b>Early Case Identification</b>                   | Effects of early case identification interventions on various treatment delay indices such as DUP, help-seeking DUP, referral DUP; influences on treatment delay indices (e.g., socioeconomic status). |
| <b>Rapid Access</b>                                | Time to process referral request; number of days from referral to PEPP to onset of treatment.  |
| <b>Pathways to Care</b>                            | Type and number of help-seeking contacts prior to referral to an EI service; influences on care pathways (e.g., ethnicity)   |
| <b>Course/Outcomes</b>                             | Social and occupational functioning; positive and negative symptom remission; diagnostic stability   |
| <b>Predictors of outcomes</b>                      | Positive and negative symptom remission; premorbid adjustment; verbal memory; global cognition; self-esteem; sociocultural context; affective vs. non-affective psychosis.                             |
| <b>Services uptake</b>                             | Number of individuals who complete 2 years of follow-up; who drop-out; who participate in interventions; time to service disengagement; predictors of service engagement (e.g., living alone)          |

Figure 1: The PEPP-Montreal treatment protocol centered on case management

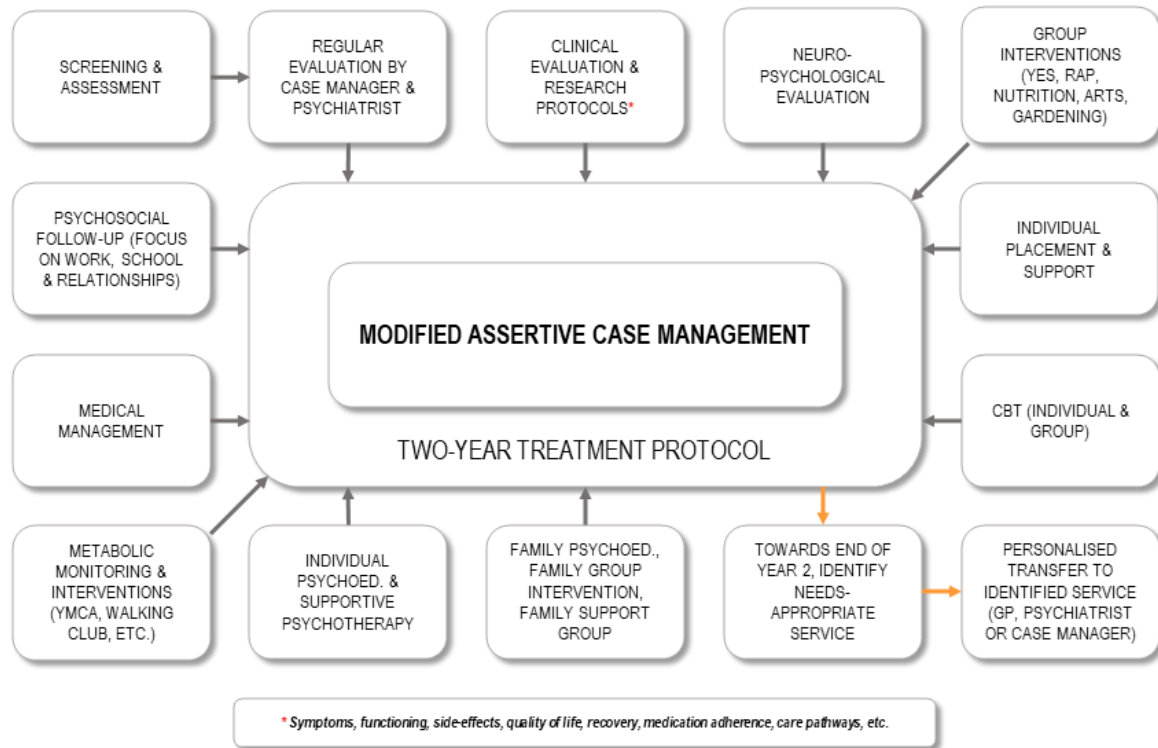


Figure 2: The PEPP-Montreal medication protocol

