Is early intervention in psychosis effective?

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SUMMARY. **Aims** – Psychosis is a traumatic experience for both sufferers and their families. The morbidity and mortality associated with psychosis may be improved by an assertive, specialised, multidisciplinary approach to care, provided at the earliest opportunity. Early Intervention in Psychosis (EIP) uses such approach to improve the individual's short and long-term symptomatic and functional outcome, as well as quality of life. However, there is still controversy about whether this type of intervention is effective enough to justify its associated costs. **Methods** – We reviewed evidence from the literature on EIP for schizophrenia spectrum and non-affective psychoses, with particular attention to evidence on its effectiveness in reducing the duration of untreated symptoms, preventing relapses and reducing admission rates, reducing suicide rates, and reducing treatment costs. **Results** – There is preliminary evidence that EIP may be effective in delaying transition to psychosis, reducing DUP, preventing relapses, reducing admission and suicidal rates, and reducing treatment costs. **Discussion** – EIP remains a stimulating multidisciplinary approach to psychosis and a demanding commitment for mental health professionals and service developers.

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Psychosis can be considered an umbrella term for an array of heterogeneous disorders characterized by thought, perceptual and behavioural disturbances. Psychosis can be enduring, and it can have a devastating impact on an individual's ability to function across multiple domains. Since psychosis usually has its onset at a young age, it often interrupts an individual's developmental trajectory, making swift treatment all the more critical to restore normal adolescent and early adult development, and to reduce lifetime consequences.

The onset of psychotic symptoms and the experience of the first episode of a psychosis are traumatic experiences for both sufferers and their families (Addington *et al.*, 2005). Worse still, individuals typically experience 12 to 24 months of distressing symptoms before presenting to services and receiving treatment (Wyatt & Henter, 2001). A prolonged time between the first manifestation of psychotic symptoms and receiving adequate antipsychotic/effective treatment (defined as Duration of Untreated Psychosis, or DUP) has been identified as a poor prognostic indicator for psychosis (Marshall *et al.*, 2005; Perkins *et al.*, 2005). DUP, along with poor premorbid adjustment and the presence of residual psychopathology seem to be the main factors related to a long-term poor quality of life (Marshall & Rathbone, 2006; Malla & Payne, 2005; McGorry, 1998). Furthermore, a higher rate of completion of suicide is frequent amongst suffers, particularly in those with better premorbid functioning, better insight, and in those most socially isolated (Harkavy-Friedman, 2006).

It has been proposed that early detection and effective treatment of psychosis may maximise the chances of interrupting or ameliorating ongoing pathological, social and functional decline, thus promoting recovery. In fact, there is preliminary evidence suggesting that morbidity, and even mortality, in psychosis may be lessened by an assertive, specialised, multidisciplinary approach to care, provided at the earliest opportunity (Melle *et al.*, 2004; 2006). Early Intervention in Psychosis (EIP) uses such approaches, in both schizophrenia spectrum psychoses and other non-affective psychoses, to improve the individual's short- and long-term symptomatic and functional outcome, as well as quality of life (Wyatt & Henter,

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2001). Although there is growing evidence that teams delivering specialised care for patients with early psychosis are superior to standard care, there is still controversy about whether this type of intervention is effective enough to justify its greater associated costs (Killackey & Yung 2007; Garety *et al.*, 2006; Craig *et al.*, 2004).

This paper aims to introduce the readers to the EIP paradigm, and to discuss evidence on EIP effectiveness.

INTRODUCTION TO THE EIP PARADIGM

The Kraepelinian concept that chronic course and poor outcome in schizophrenia were validating criteria, despite initial psychopathology (Kraepelin & Lange, 1927), has dominated the twentieth century (Green, 2007). It is to the wide acceptance of this concept that delay in prevention and treatment of early psychosis have often been ascribed (McGorry, 1998). The introduction of antipsychotic medication in the mid 1950s started to change this concept. More recently, awareness that antipsychotics are only partially effective in schizophrenia nourished the hope that prevention and early intervention could change the course of the disorder. Premised on this idea, EIP has developed into a well established therapeutic approach, part of routine clinical practice in many Western countries (United States, Canada, Australia, New Zealand, United Kingdom, Germany, Denmark and Norway), delivered in the context of standard care or through specialised EIP team, both in urban and rural areas (Kelly *et al.*, 2007). It has been estimated that, at present, there about 200 EIP centres worldwide, and more are being developed (McGorry *et al.*, 2007).

EIP is based on the premise that reducing the length of the untreated psychotic symptoms can improve clinical and psychosocial outcome (Singh, 2007). As such, it focuses on two main phases. The first phase focuses on the detection of prodromal symptoms, or the so called "At-Risk-Mental-State" (ARMS) (McGorry, 1998; Yung & McGorry, 1997). This term refers to the period preceding the active phase of a psychosis, in which there is a clear deterioration from the previous level of functioning, or the presence of attenuated psychotic symptoms. It represents the period of primary intervention in EIP, where intervention aims to delay or prevent the transition to a florid psychotic episode (Cornblatt & Auther, 2005; Gleeson *et al.*, 2005). In contrast, the second phase is the first episode of a psychosis, characterised by the presence of overt psychotic symptoms. This is considered the "target episode" and represents the period of secondary intervention in EIP (Schaffner & McGorry, 2001). In both phases, EIP aims to empower individuals to manage their illness whilst instilling hopefulness (Killackey & Yung, 2007; Malla & Payne, 2005; Häfner *et al.*, 2004; McGorry, 1998; McGlashan, 1996; Birchwood & MacMillan, 1993).

Evidence that EIP is effective is not yet definitive nor convincing, and it remains unclear if early detection, phase-specific treatments, and the establishment of early intervention teams are indeed effective (Marshall & Rathbone, 2006).

SIX INDICATORS OF EIP EFFECTIVENESS

In looking at EIP effectiveness, we have focused our attention on the following six indicators: identifying individuals at high risk of developing psychosis; preventing or delaying of transition to psychosis; reducing the duration of untreated psychosis; preventing relapses and reducing admission rates; reducing suicide rates; and reducing treatment costs.

Identifying individuals at high risk of developing psychosis

The phenotype of psychosis at the earliest or prodromal phase is heterogeneous. The majority of clinicians and investigators involved in detecting the prodromal state (or ARMS) use a combination of different risk indicators (Cannon *et al.*, 2008; Yung *et al.*, 2003; Yung & McGorry, 1996). These include risk factors such as a family history psychosis, the presence of attenuated prodromal symptoms such as sleep disturbance, anxiety, irritability, depressed mood, suspiciousness and paranoia, loss of motivation, apathy, inappropriate affect, odd bizarre ideas, passivity experiences and a decline in social and personal functioning (Malla & Payne, 2005; Häfner *et al.*, 2004). Other criteria used include the presence of personality traits such as schizoid, passive-dependent, and schizotypical (Ruhrmann *et al.*, 2005; Tyrer & Johnson, 1996). Finally, poor social adjustment and lower academic performance in childhood and early adolescence, accompanied by neurocognitive deficits (poor attention and short-memory performance, detectable long before clinical symptoms emerge), have been considered reliable indicators of either an early psychosis or of a risk of conversion to psychosis (Malla & Payne, 2005; Cornblatt, 2002). In addition, alcohol and cannabis misuse have also been considered as factors that can precipitate the onset of a psychosis (Arseneault *et al.*, 2002; Hambrecht & Hafner, 2000).

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Studies that have used the above criteria have consistently reported a non-satisfactory power in predicting which individuals do transition to a florid psychosis. For example, studies using different approaches, such as the Australian Ultra High-Risk (UHR) criteria or the German and Schneiderian Basic Symptoms criteria (BS), have revealed transition rates ranging between 9.4 and 70% (Häfner *et al.*, 2004; McGorry *et al.*, 2003). Such a wide range highlights the intrinsic risk of treating false positives (individuals who do not go on develop a psychosis) if intervention is put into place in the prodromal phase (Killackey & Yung, 2007; Larsen *et al.*, 2001). In fact, the criteria used to predict the transition to psychosis have shown a high sensitivity but a low specificity, and a low discriminative power (for example, a diagnosis of depression instead of psychosis) (Table I). In an attempt to minimise the risk of false positives, a number of structured interviews for the assessments of psychosis in the prodromal phase have been developed, and others are being developed, to be used in adolescence or young adulthood (Borgmann-Winter *et al.*, 2006) (Table II).

Table I – *The phenotype of the early stages psychosis (Häfner H et al., 2004).*

Most frequent initial symptoms in schizophrenia and depression	
1. Delusional mood	6. Loss of energy and slowness
2. Loss of self-confidence	7. Depressed mood
3. Worrying	8. Anxiety
4. Social withdrawal and suspiciousness	9. Nervousness and restlessness
5. Delusional misinterpretation and delusion of reference	10. Difficult of thinking and impaired concentration
Most frequent prodromal symptoms in non-affective psychosis	
Pre-psychotic prodromal stage or early prodromal state	Early psychotic stage or late prodromal state
1. Thought interference	1. Idea of reference
2. Thought perseveration	2. Odd belief or marginal thinking
3. Thought pressure	3. Unusual perceptual experiences
4. Thought blockages	4. Odd thinking and speech
5. Disturbance of receptive language	5. Suspiciousness or paranoid ideation
6. Decreased discrimination between ideas and perception, fantasies and memories	and/or
7. Unstable ideas of reference	
8. Derealisation	1. Hallucinations
9. Visual perceptive disturbances	2. Delusions
10. Acoustic perceptive disturbances	3. Formal thought disorder
	4. Gross disorganized behaviour
Plus 30% reduction in GAF	5. Catatonic behaviour

Table II – *Scales commonly used to assess high risk individuals.*

Sclae Name	**Reference**
Structured Interview Prodromal Symptoms (SIPS) and Scale of Prodromal Symptoms (SOPS)	Miller *et al.*, 2004
Scale of Prodromal Symptoms (SPS)	McGlashan *et al.*, 2001
Bonn Scale for Assessment of Basic Symptoms (BSABS)	Klosterkotter *et al.*, 1996
Retrospective Examination of Onset of Schizophrenia (REOS)	Häfner *et al.*, 1992
Premorbid Adjustment Scale (PAS)	Cannon-Spoor *et al.*, 1982

Preventing or delaying the transition to psychosis

Intervention in the prodromal phase aims to prevent, or at least delay, the transition to a proper psychosis. It also aims to treat comorbid disorders, such as depression or anxiety, drug or alcohol abuse.

Five randomised controlled trials (RCT) have examined the effectiveness of various strategies. In the Personal Assessment and Crisis Evaluation (PACE) study, high-risk patients between the ages of 16 and 30 years were randomised to treatment with low dose risperidone plus Cognitive Behavioural Therapy (CBT) versus needs-based-intervention, for a 6-month period (McGorry *et al.*, 2002). Subjects allocated to the risperidone plus CBT arm showed a lower rate of transition to psychosis compared with patients who received a needs-based intervention (9.7% vs 35.7%). However, this difference became non significant 6 months later, when risperidone was discontinued. The effectiveness of CBT has also been compared with standard treatment on UHR

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patients for 6 months (Morrison *et al.*, 2007; 2004). Over a 12-month follow-up, the CBT group showed a significant reduction (between 94-96%) in the odds of making a transition to psychosis, of receiving antipsychotic medication, and of meeting DSM-IV criteria for a psychotic disorder. At the 3 year follow-up, the CBT group continued to show a reduced likelihood of making a transition to psychosis. A 2-year follow-up study on first-contact patients diagnosed with a schizotypal disorder compared an integrated treatment (modified assertive community approach plus social skills training plus psycho-education) with standard treatment (Nordentoft *et al.*, 2006). Results showed a lower proportion of subjects transitioning to a psychotic disorder in the group that received the integrated treatment (25.0% vs 48.3%). Finally, in the Prevention Through Risk Identification, Management, and Education (PRIME) study, high-risk patients were treated with low dose of olanzapine for a 12-month period (McGlashan *et al.*, 2006). This group showed a reduction in rates of transition to psychosis, when compared to the placebo group (16.7% vs 34.5%). However, this difference was not significant and it was lost when treatment was discontinued in the second year.

These studies suggest that intervention in the prodromal phase may have some effect in preventing and delaying the transition to psychosis in the short term. However, they do not provide evidence as to whether these effects are maintained in the long-term.

Reducing the Duration of Untreated Psychosis (DUP)

Despite methodological and theoretical discrepancies in defining DUP, and inconsistencies in findings, reducing DUP is still considered a pivotal target in EIP, on the basis of its association with poorer clinical and functional outcome (McGorry *et al.*, 2007; Ruhrmann *et al.*, 2005; Norman *et al.*, 2005). This association has been confirmed by two recent meta-analyses, which also took into account potential confounders such as poor premorbid functioning (Singh, 2007; Marshall *et al.*, 2005). On these grounds, EIP has been considered an appropriate strategy to reduce DUP, with a view to improving outcome in the symptomatic and functional domains (McGorry *et al.*, 2007; Schaffner & McGorry, 2001; Larsen *et al.*, 2001; Yung & McGorry, 1997).

Few studies have specifically investigated the potential of EIP to reduce DUP. In their review, Wyatt & Henter (2001) reported that a significant reduction in DUP was obtained following the introduction of educational and anti-stigmatizing campaigns about the early signs and symptoms of psychosis. These campaigns were targeted at health care providers, educators, families and public (McGorry *et al.*, 1996; McGlashan, 1999). In a critical review, Larsen *et al.* (2001) report a non significant reduction in DUP in the Early Psychosis Prevention and Intervention Center (EPPIC) study, where DUP changed from a median of 60 weeks in the pre-EPPIC group, treated with the standard approach, to 52 weeks in the EPPIC group. This study also showed that the effect of treatment was stronger for patients with a shorter DUP (Carbone *et al.*, 1999). The Norwegian Treatment and Intervention in Psychosis (TIPS) study has evaluated the effect of both an early psychosis detection program and a community education campaign in reducing DUP (Johannessen *et al.*, 2005). The authors found a reduction in DUP (median between 5 and 16 weeks in two different study groups) compared with an historical control group, although the difference was significant for women only. This study also reported more symptom reduction, functional recovery, and a reduction in suicidality rate within the group that received the educational campaigns.

Evidence on the effectiveness of EIP in reducing DUP remains weak. This may be due to the fact that EIP services mainly intervene when patients present to the services with an overt psychosis, and do not target individuals at the early stages of a psychosis but not yet in contact with services, or individuals at risk of an incipient psychosis (Singh, 2007). In this respect, a reduction of DUP in individuals at incipient risk of psychosis may be achieved through different strategies: establishing specialised services, new referral systems, early detection programs, community-wide education campaigns, and community-based early detection programs (Joa *et al.*, 2008; Power *et al.*, 2007; Malla *et al.*, 2005).

Preventing relapses and reducing admission rates

Achieving a reduction in relapse rates is a key aim of EIP services. The process of reducing relapse rates begins at the time of first contact. Various approaches can be used, including minimising treatment non-adherence by careful choice of medication, use of lowest doses, close medical monitoring, early treatment of comorbid disorders and substance misuse, and psychoeducation of patients and their carers.

Studies of first episode psychosis patients have shown that remission rates in the early years following illness onset are low, and approximately 80% of subjects go on to experience further psychotic episodes (Robinson *et al.*, 2004). The frequency of relapses after a first psychotic

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episode reaches a peak during the early years (from 30% in the first year to 80% by year 5), and often results in multiple hospitalisation (Malla *et al.*, 2005). A study by Sipos *et al.* (2001) showed that 53% of subjects required hospital admission within one week from first presentation, and that over a 3-year period, only 19% of individuals did not require an admission.

The question remains, how effective are EIP services in reducing relapses and re-admission rates? A study in the United Kingdom (UK) compared first episode psychosis patients treated with EIP with those treated with standard community care (Agius *et al.*, 2007). This study reported that patients under the care of the EIP service were less likely to suffer a relapse and to be re-hospitalised, and less likely to be admitted to hospital involuntarily. A further study compared first episode psychosis outcomes, before and after the introduction of an EIP service, finding that EIP patients experienced significantly fewer admissions and made fewer contacts with the hospital emergency department (Goldberg *et al.*, 2006). The Parachute Project in Sweden compared EIP service outcomes (clinical, functional, and economic) with outcomes of both an historical group of patients treated with standard care, and with that of a prospective control group of first episode psychosis patients (Cullberg *et al.*, 2002). This prospective control group was subject to a conservative approach to medication, similar to the EIP group, but did not receive any specific psychological or family treatments. Furthermore, in the inpatient setting, first episode patients in this control group were exposed to more chronic patients. Outcomes were measured at 1, 2 and 3 years. In the first year, the EIP group had significantly fewer inpatient bed days than the other groups. This difference was not present at 2 and 3 year follow up. However, this study did not distinguish between inpatient days due to subsequent relapses over the 3 year follow up, and inpatient days due to the first episode itself. A further study in the UK compared outcomes from a newly established EIP service with those of standard treatment (Craig *et al.*, 2004). This study reported a significant advantage of the EIP team in reducing readmissions and service drop-outs. However, the initial finding of a reduced relapse rate was no longer significant when potential confounders were taken into account.

So far, outcome studies investigating the effectiveness of early intervention in reducing relapses and admission rates are limited. However, existing studies do indicate some advantage of EIP services over treatment as usual. Nevertheless, EIP services continue to face a huge, but important, challenge in reducing relapse rates and facilitating remission. Relapse prevention is an area that is now attracting more attention and further randomised studies evaluating these specific outcomes across EIP and standard care are needed (Gleeson *et al.*, 2005; Birchwood & Spencer, 2001).

Reducing suicidal rate

Suicidal behaviour is a cause of high mortality at the time of the first psychotic episode. This is significantly associated with drug misuse and is predicted by a history of suicidal behaviour, lower positive symptoms, longer duration of psychotic symptoms and hospital admission, continuing substance misuse and risk of readmission (Verdoux *et al.*, 2001). Approximately 10-15% of individuals suffering from schizophrenia commit suicide, 20-40% attempt suicide, and up to 25% of patients with prodromal symptoms have suicidal thoughts (Harkavy-Friedman, 2006). EIP may potentially and positively affect suicide rate. Unfortunately, only few studies have specifically addressed this issue.

The lifeSPAN program established within the Early Psychosis Prevention and Intervention Centre (EPPIC) in Australia compared, in a randomised controlled trial, the effects of a suicide risk monitoring system versus a CBT oriented strategy at baseline, after the intervention, and 6 months later (Power *et al.*, 2003). Both treatment and control group improved on suicidal ideation and number of suicidal attempts. Differences were not statistically significant, although the treatment group improved more on measures of suicidal ideation and quality of life. A study conducted in Canada assessed the prevalence of suicidal behaviours prior to, and during, the first year of an EIP comprehensive treatment program (Addington *et al.*, 2004). Amongst the subjects who completed the program, only 2.9% (n=7) made an attempt during the observation period, and 0.4% (n=1) committed suicide, despite the fact that 15.1% of them had attempted suicide prior to program entry. There were no clinical differences at baseline and after 12 months between groups (previous parasuicide, parasuicide in the first year, no parasuicide), except for a higher level of depression amongst subjects with previous parasuicide. Finally, Melle et al. (2006) compared the effect of an early psychosis detection program with community standard care. Patients in the early psychosis detection program showed lower suicide rates. In particular, in this group 39% reported some suicidal behaviour versus 56% in the group receiving standard community care. The authors concluded that the early detection program promoted a significant decrease in rates and severity of suicidal behaviour.

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Preliminary data show lower prevalence rates of suicide attempts in patients receiving integrated treatment specifically targeted at individuals at their first psychotic episode (Addington *et al.*, 2004; Nordentoft *et al.*, 2002). This type of intervention includes regular and frequent evaluation of mental state, including depressive symptoms and suicidal thinking, as well as psychoeducation, optimised pharmacological intervention, and social skills training (Edwards & McGorry, 2002; Nordentoft *et al.*, 2002). Further studies can better ascertain the efficacy of EIP in implementing predictive and preventive strategies, particularly in the recovery phase, to reduce suicidal behaviour.

Reducing treatment costs

As discussed above, the EIP paradigm promotes the concept that early intervention in psychosis improves outcome, decreases disability and reduces costs (Yung *et al.*, 1997). Whilst EIP services seek to offer more assertive treatment than standard care, and prioritise community treatment whenever possible, it has been argued that EIP services divert valuable resources from standard services (Pelosi & Birchwood, 2003). Clarification of the cost effectiveness of EIP is an extremely complex task, since so many factors need to be considered in the analysis. The variety of methods used to measure cost effectiveness has recently been discussed (McCrone & Knapp, 2007). These should include measures of direct costs, such as costs of the team itself or of in-patient care, and also measures of indirect costs associated for example with time taken off work or school/college or reduced productivity at work. However, most studies have focused on evaluating the effectiveness of EIP in terms of reducing the costs of inpatient care.

Results from the Australian EPPIC program suggested that when the pre-EPPIC treatment care costs were compared with those of patient care under the EPPIC program, EIP services can be cost saving (Mihalopoulos *et al.*, 1999). This initial cost saving was reported to be maintained at 8 year follow up, and was related to reduced inpatient costs (Mihalopoulos *et al.*, 2007; McGorry *et al.*, 2007). Further evidence suggesting that EIP services may be cost-saving derives from the Swedish Parachute project, which found that the total direct costs of EIP (inpatient plus outpatient) care in the first year were significantly lower than those of their prospective control group (Cullberg *et al.*, 2006; 2002). These initial savings were mainly due to reduced inpatient costs, given that the emphasis of early intervention models is upon reducing inpatient care. In contrast, there were no significant differences in the direct cost estimates in the second and third years of the project.

Two EIP services in the UK are currently evaluating their cost effectiveness: one in London (the Lambeth Early Onset [LEO] team) and one in the West Midlands (the EDEN project) (McCrone & Knapp 2007). Indeed, the LEO service intends to examine both its early detection service for prodromal individuals, and its early intervention program for patients at their first psychotic episode. The results of such studies are eagerly awaited to help clarify this important question. In the meantime, the evidence available so far suggests a financial benefit in favour of EIP services, mainly due to the reduced expense of inpatient care.

DISCUSSION

EIP is still an open and challenging frontier for psychiatry. Existing evidence suggests that EIP may be effective in delaying transition to psychosis, reducing DUP, preventing relapses, reducing admission and suicidal rates, and reducing treatment costs. However, evidence on its effectiveness is not yet conclusive, possibly because of a lack of clear methodological and operational definitions for this approach (Malla *et al.*, 2005).

Although is not yet possible to draw a definitive conclusion about its effectiveness, EIP is considered "an opportunity to make major positive changes in psychiatric practice" (Marshall & Rathbone, 2006). EIP remains a stimulating multidisciplinary approach to psychosis and a demanding commitment, not only for mental health professionals but also for service developers (Patton *et al.*, 2007; Killackey *et al.*, 2006). Population studies have estimated that approximately one-third of patients suffering from schizophrenia never seek help or treatment (Thornicroft, 2008; Larsen *et al.*, 2001). General practitioners and family doctors are in a favourable position to identify patients at risk of developing psychosis, and in some countries guidelines for these practitioners have been published (Turner *et al.*, 2004). McGorry *et al.* (1996) reported that half of the patients with schizophrenia see their family doctor, but only 5% of them are referred to a mental health specialist. Family doctors play a key-role not only in the early identification of psychotic symptoms, but also on monitoring the physical health of these individuals, who are at increased risk of metabolic dysregulation and cardiovascular disorders because of both psychotropic medication and a chaotic lifestyle (Brown *et al.*, 2000). Furthermore, they are placed in an

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ideal position to provide advice and support to distressed carers, who are themselves at increased risk of depression and other disorders. EIP teams seek to work closely with family doctors, who often accept direct responsibilities for the aftercare of patients with psychosis, which in turn alleviates pressure from general psychiatric services, whilst promoting recovery and reducing stigma for the individual (Schomerus & Angermeyer, 2008).

A joint effort to establish good communication between EIP teams, family doctors, families, patients' social network, and other social agencies might eventually prompt individuals with psychotic symptoms to seek help at the earliest stage of their psychosis (Kelly *et al.*, 2007; Gleeson *et al.*, 2005; Bryden *et al.*, 2003). On this basis, family support, diverse group interventions, educational and vocational support, psychoeducation, and community education programs are important strategies to increase public awareness of psychotic disorders and of treatments available, and to lessen the stigma associated with mental illnesses. On the other hand, a better outcome for established patients and a better psychological adjustment for their carers can be achieved by enhancing accessibility to services, optimizing treatment approaches, improving compliance though assertive intervention and practical support, and better addressing substance misuse (Addington *et al.*, 2005; Clarke & O'Callaghan, 2003).

Finally, the issue remains that when individuals at risk for developing psychosis have been identified and have engaged with an EIP service, intervention should be least invasive because of the risk of false positives. In both prodromal and first episode psychosis services, a combination of psychotherapy (CBT intervention), psychosocial intervention (social skill and vocational training), and pharmacotherapy (low dose of atypical antipsychotics) may be considered the best form of intervention. This can be delivered in the context of a "clinical staging model", which includes an increasing level of treatment if symptoms progress or further psychiatric disorder develops (Killackey & Yung, 2007; Häfner *et al.*, 2004; Cornblatt, 2002).

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