



Early Intervention in the Real World

'Programma2000': a multi-modal pilot programme on early intervention in psychosis underway in Italy since 1999

Anna Meneghelli,¹ Angelo Cocchi¹ and Antonio Preti²

Abstract

Aim: The aim of this study was to describe a service operating in Milan, Italy, that provides early intervention for young people aged 17–30 years at the onset and at high risk of psychosis.

Method: Following 2 years of preliminary study and organization, Programma2000 was launched in Milan in 1999. This programme was targeted at early detection and intervention in subjects at the onset of, at risk of, or showing 'prodromal' signs of psychosis. This paper contains data on the organization and activities of Programma2000.

Results: The service has been active since its launch and has received 378

referrals as of March 2009, 342 of which were thoroughly evaluated. At entry, patients undergo a detailed evaluation of their psychopathology, personal and social role functioning, and cognitive status, with repeated testing over time in order to multidimensionally assess outcome. Treatment involves cognitive-behavioural psychotherapy, structured and unstructured psychosocial interventions, and pharmacotherapy when deemed necessary. Treatment appears effective in reducing morbidity and improving social functioning.

Conclusion: A team dedicated to the early identification and treatment of young people with early psychosis is a feasible and sustainable extension of the traditional methods of care for people with mental disorders in Italy.

¹Azienda Ospedaliera, Ospedale Niguarda Ca' Granda, Dipartimento di Salute Mentale, Centro per l'individuazione e l'intervento precoce nelle psicosi-Programma2000, Milan, and
²Centro Medico Genneruxi, Cagliari, Italy

Corresponding author: Dr Anna Meneghelli, A.O. Ospedale Niguarda Ca' Granda, Programma2000 – Via Livigno, 3, 20128 Milan, Italy.
Email: annameneghelli@tiscali.it

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INTRODUCTION

Early detection and phase-specific early interventions for people with psychosis, resulting in a decrease in the duration of untreated psychosis (DUP), correlate with a better outcome for individuals with a psychotic disorder, leading to improvement in psychosocial functioning, as well as a higher likelihood of recovery.^{1–4}

Nevertheless, in Italy, despite the substantial change in the mental health system architecture that followed the 1978 Reform Law,⁵ which resulted in an integrated system of community-based mental health services,⁶ early interventions in psychosis are less widespread than in other European^{7–9}

and non-European countries.^{10–14} The only specific and comprehensive programme targeted at the early detection of, and early intervention with, subjects at the onset of psychosis operating in Italy was established in Milan in 1999 (Programma 2000), following 2 years of preliminary study and organization.

The team involved in Programma2000 offers both interventions aimed at the early recognition and intensive care of subjects affected by an evolving psychotic illness, and simultaneously administers protocols for assessment and treatment to those showing 'prodromal' signs of psychosis, or otherwise, identified at high risk of developing symptoms of psychosis.^{15,16}

This paper describes the structure and organization of Programma2000, now entering into its 11th year of activity.

METHODS

Staff and organization

Programma2000 was established in a health-service catchment area of inner Milan (Italy) servicing approximately 200 000 inhabitants. It has a dedicated separate Community Mental Health Center, and is open 9 h a day, 5 days a week, throughout the year.^{15,16} At present, the project staff comprises four psychiatrists on a rotational scheme (each 1 day a week), four part-time clinical psychologists, and a clinical psychologist who coordinates the project in collaboration with a senior consultant psychiatrist (the team leader).

The main inclusion criteria are the following:

- Aged between 17 years and 30 years
- First contact with any public mental health service of the catchment area for a first episode of psychosis (FEP) (DUP \leq 24 months), or suspected emerging psychosis, and subsequent referral to Programma2000.

All patients who are referred to Programma2000 undergo a comprehensive, multidimensional evaluation (described below).^{15,16} The main criterion for the inclusion of an FEP is a diagnosis of schizophrenia or related syndromes (F20-29 in International Classification of Diseases—10th edition (ICD-10) according to both ICD-10¹⁷ and Diagnostic and Statistical Manual of mental disorders-IV edition criteria.¹⁸

Patients in the high risk of psychosis (HRP) group are included after exclusion of a past or present diagnosis of psychosis in the spectrum of schizophrenia; when they have a score of \geq 12 on the 17-item Early Recognition Inventory Retrospective Assessment of Symptoms – Checklist¹⁹; as well as evidence of positive symptoms on the 24-item Brief Psychiatric Rating Scale (BPRS),^{20,21} or the Health of the Nation Outcome Scale (HoNOS)²² – even though in an attenuated form – associated to signs of social withdrawal on the Global Assessment of Functioning (GAF).²³

In both the FEP and HRP patients, affective psychosis (bipolar disorder, or unipolar disorder with psychotic features) is an exclusion criterion, as is a comorbid persistent substance-use dependent disorder, although substance use/abuse without dependence is not. The service accepts both professional and self-referrals.

The intervention package

Assessment results for each patient are discussed during a thorough team consultation, after which a comprehensive and flexible intervention package is proposed and reviewed on a regular basis (Fig. 1).

Proposed tailored interventions include individual psychoeducational and motivational interviewing sessions, cognitive-behavioural psychotherapy, individual family psychoeducation and support, therapeutic group activities (e.g. anxiety management, assertive and problem-solving training, and substance-abuse prevention), various social group activities (e.g. musical group, multimedia group, computer-training sessions, language courses and empowerment group) and supportive interventions (on employment, school, compliance with medication and planning of recreational activities). The team devotes specific attention to the participation of patients' families in the programme of care, as family psychoeducation favours better outcome at follow-up.²⁴

Medications, when necessary, are prescribed by the treating psychiatrist. Medicines are prescribed on an 'as-needed' basis to control symptoms of severe or disrupting anxiety, depression and insomnia, and to control hallucinations and delusions. The rules of prescription comply with the most recent guidelines.^{25,26}

Comorbidity is treated by an assertive protocol of care, particularly in the case of substance abuse.²⁷ Intensive and personalized school support, vocational (re)habilitation and skills training complete the treatment package.²⁸ All these interventions are free of charge to patients and are covered by the Lombardy Regional Authority.

Statistical analyses

Data were analysed using the Statistical Package for Social Science for Windows, version 11. Treatment effectiveness was evaluated by calculating changes on both the HoNOS and the BPRS. Reliable change index (RC) refers to the extent to which an observed change falls beyond the range attributable to the measurement error: on the HoNOS, RC was set at 7, according to Parabiaghi *et al.*²⁹ According to the Remission in Schizophrenia Working Group,³⁰ a patient is considered as being in remission at 1 year when he/she scores 'mild' or better (BPRS \leq 3) simultaneously on all seven items of BPRS, which represent the core symptoms of psychosis: grandiosity, suspiciousness, unusual thought content, hallucinatory behaviour, conceptual disorganization, mannerism/posturing and blunted affect.

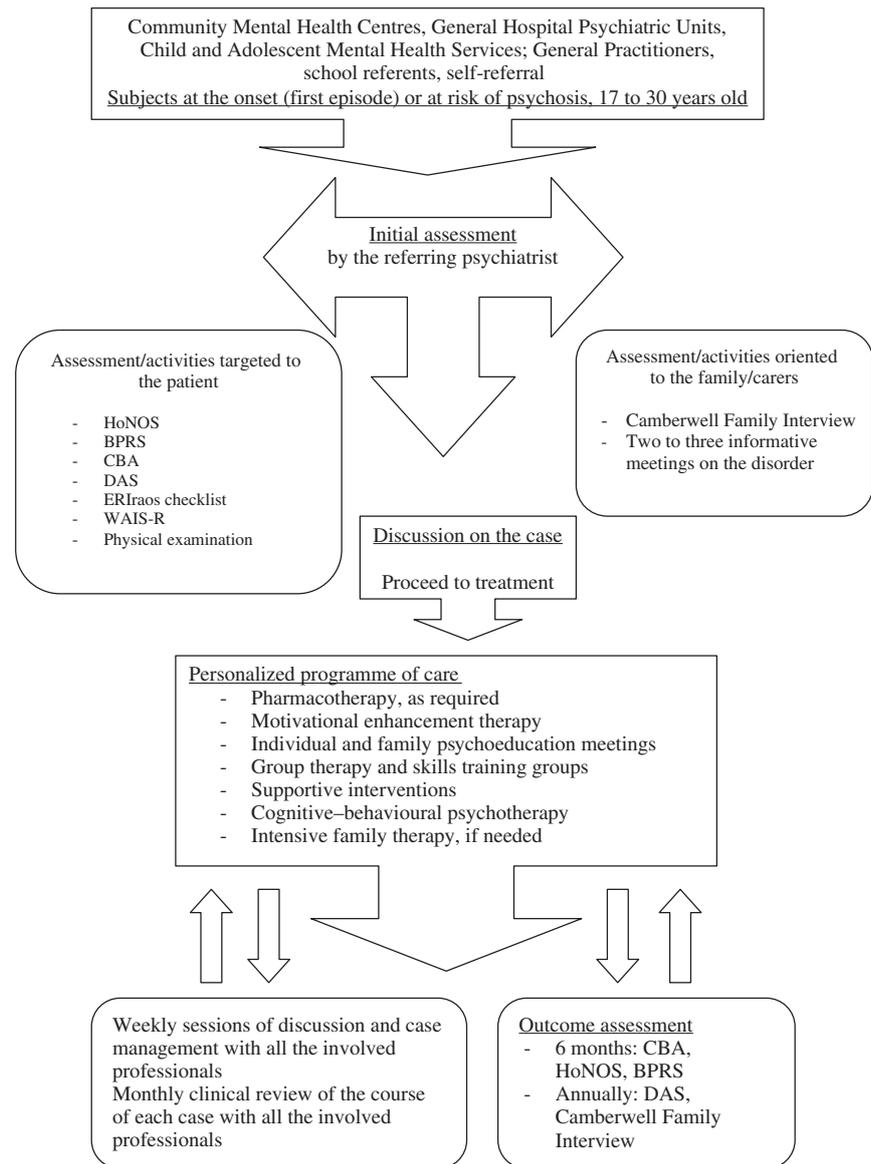


FIGURE 1. Service delivery model for referral and assessment, Programma2000. BPRS, Brief Psychiatric Rating Scale; CBA, cognitive-behavioural assessment; DAS, Disability Assessment Schedule; ERlraos, Early Recognition Inventory Retrospective Assessment of Symptoms; HoNOS, Health of the Nation Outcome Scale; WAIS-R, Wechsler Adult Intelligence Scale-Revised.

RESULTS

Number of referrals and characteristics of the patients

The Programma2000 service received 378 referrals from 1999 through March 2009, 342 of whom were evaluated and 168 were included in treatment, while 43 subjects were referred to local services (e.g. patients living a long distance from the centre who could not afford regular travel). The excluded cases ($n = 116$) were either not in their FEP, had a DUP >24 months ($n = 48$) or were considered not at risk of psychosis ($n = 68$); 15 subjects declined the proposed treatment. All received appropriate assessment and referral for their treatment needs.

Referrals increased over time to an average of 60 patients per year, with 20 subjects enrolled per year. The majority of referrals came from public psychiatric services.

Males are the majority in both patient groups. A large fraction of patients had a first- or second-degree relative diagnosed with a mental disorder (Table 1).

At referral, the most frequent symptoms were anxiety (78.2% among FEP patients and 78.2% among HRP subjects) and depressed mood (69.0% and 81.5%, respectively); about one in four patients had a history of substance use (the majority, 90%, involving cannabis use); criteria for substance abuse were met by 9.2% in FEP and 6.2% in HRP patients.

TABLE 1. Baseline characteristics of patients enrolled in Programma2000 (data refer to individuals in treatment until March 2009)

Variables of interest	First-episode psychosis, <i>n</i> = 87	High-risk subjects, <i>n</i> = 81
Age at entry	22.6 (3.8)	22.3 (3.6)
Gender (<i>n</i> , % of males)	<i>n</i> = 70 (80.5%)	<i>n</i> = 57 (70.4%)
Age of males	22.3 (3.7)	22.0 (3.7)
Age of females	23.7 (4.3)	23.0 (3.5)
Education		
College graduate or higher	6 (6.9%)	4 (4.9%)
High school diploma	37 (42.5%)	40 (49.4%)
Lower than high school diploma	44 (50.6%)	37 (45.7%)
Marital status		
Single	86 (98.9%)	80 (98.8%)
Married	1 (1.1%)	1 (1.2%)
Family psychiatric history		
Yes	58 (66.7%)	50 (61.7%)
First/second-degree relative with psychosis	16 (27.5%)	9 (18.0%)
First/second-degree relative with affective disorder	27 (46.5%)	24 (48.0%)
First/second-degree relative with substance abuse	6 (10.3%)	8 (16.0%)
First/second-degree relative with personality disorder	4 (6.9%)	6 (12.0%)
Unspecified/Unclassified	5 (8.6%)	3 (6.0%)
None	29 (33.3%)	31 (38.3%)
Duration of untreated psychosis (days)	168.8 (217.5)	–
Duration of untreated illness (months)	28.4 (20.4)	29.9 (21.9)
Exposure to traumatic events	11 (12.6%)	7 (8.6%)
Clinical characteristics at entry		
ERlraos-C	26.3 (8.3)†	18.1 (7.6)
HoNOS, total score	15.2 (6.7)	13.0 (4.9)
BPRS, total score	53.3 (16.9)	44.8 (11.4)
Functional level at entry		
GAF	43.7 (8.9)	52.9 (9.6)

All data: mean (standard deviation) or no. (%).

†Only 77 subjects underwent ERlraos-C evaluation.

BPRS, Brief Psychiatric Rating Scale; ERlraos-C, Early Recognition Inventory Retrospective Assessment of Symptoms – Checklist; HoNOS, Health of the Nation Outcome Scale; GAF, Global Assessment of Functioning.

Treatment and outcome at 1 year

Patients were prescribed a variety of medications. Typical antipsychotic drugs were rarely used (25% among FEP and none among HRP patients, respectively), whereas second-generation antipsychotic compounds were prescribed to 92% of FEP and 42% of HRP patients. Antidepressants were also used and consisted mainly of selective serotonin re-uptake inhibitors (15% and 57%, respectively). Lithium was prescribed to one patient in each group. Other mood stabilizers were prescribed to nine patients with FEP and five with HRP. Benzodiazepines were used in about 40% of patients, whereas hypnotics were less often used (in 7% and 16% of cases, respectively). Severe side-effects requiring a change in either the dose or the prescription of additional pharmacotherapy were rare (17 FEP and 7 HRP patients) and involved principally extrapyramidal symptoms.

As of March 2009, information on the effectiveness at 1-year follow-up is available for 58 patients in the FEP group and for 57 patients in the HRP group. In the FEP group there was a statistically significant decrease on the HoNOS (Hedges' $g = 0.91$ (95% confidence interval – CI = 0.53–1.30); Wilcoxon signed-rank test, $z = -5.57$, $P = 0.0001$) and BPRS (Hedges' $g = 0.85$ (95% CI = 0.47–1.23); Wilcoxon signed-rank test, $z = -5.15$, $P = 0.0001$) scores from assessment to 1-year follow-up. In the HRP group, scores on both the HoNOS (Hedges' $g = 1.22$ (95% CI = 0.82–1.62); Wilcoxon signed-rank test, $z = -5.31$, $P = 0.0001$) and BPRS (Hedges' $g = 1.44$ (95% CI = 1.03–1.85); Wilcoxon signed-rank test, $z = -5.95$, $P = 0.0001$) significantly decreased as well at 1-year follow-up. Overall, 28 patients in the FEP (48.3%) and 28 in the HRP group (49.1%) did surpass the RC threshold on the HoNOS at 1-year follow-up.

At 1-year follow-up, 39 FEP patients (67.2%) were in remission according to the criteria specified by the Remission in Schizophrenia Working Group. Scores on the GAF also changed (Wilcoxon signed-rank test, $z = -6.43$, $P = 0.0001$), with an increase from 44.2 (standard deviation = 1.2) to 57.4 (standard deviation = 1.52). After 1 year, seven HRP patients (12.3%) were positive for the core symptoms of schizophrenia, as measured on the BPRS, with only two receiving a formal diagnosis of schizophrenia during treatment, which equates to a transition rate to schizophrenia of 3.5%.

DISCUSSION

Simultaneous focus on both the early phase of psychosis onset and the high-risk period of derailment, withdrawal and role functioning decay that precedes the onset of full-blown psychosis is the most characteristic feature of Programma2000, and the natural evolution of the project, which is aimed at intervening as early as possible on schizophrenia in its very initial phase, the most critical period for intervention when damaging cognitive changes can occur.³¹

Over time, Programma2000 was able to attract an increasing number of patients in need of treatment, and over the last 2 years of the programme, 12 new cases with first-episode psychosis were treated each year, on average, as part of the service. However, with a catchment area of 200 000 people, the service is unable to identify and treat all the emerging cases. The yearly incidence rates (median value) of schizophrenia were calculated as 15 per 100 000,³² and the service still misses a substantial fraction of patients with psychosis. In Italy, the private sector competes with public facilities in providing treatment for mental disorders, including the most severe disorders,^{6,33} thus making it likely that some patients are treated at private mental health facilities until they become severe enough to be referred to the public service and, as a consequence, no longer in the early phase (DUP >24 months).

The major limitation of the service is that time lost waiting for other mental health teams to assess and refer the patient drastically reduces the opportunity to intervene on the DUP. To overcome these pitfalls, Programma2000 team has continually focused on increasing the number of referrals coming directly from primary care by developing public education campaigns aimed at schools and families, and establishing programmes for the training of general practitioners and other people involved in youth services, in order to detect cases of emerging psychosis.

Both FEP and HRP patients significantly improved in the short term, although the lack of a control group substantially hampers the implications of these findings. Overall, in the FEP patients, we detected a remission rate of 67% at 1-year follow-up, which is a very limited period of time and compares well with the findings of the OPUS trial, where in the medium term (5 years), 43% of recovered psychotic patients were treated in the standard care system as opposed to 41% in the intensive early intervention programme.³⁴ Clearly, more data are needed to evaluate how long the benefits of intensive early intervention last once treatment has finished. Nevertheless, early treatment response is repeatedly reported as the main predictor of long-term outcome.^{35,36}

In the sample of people treated within Programma2000, the transition rate in HRP subjects in the first year of care is 3.5%. This very low transition rate observed in our sample might depend on the application of very conservative criteria for enrolment, leading to the inclusion of many people that were not actually at HRP.³⁷ In naturalistic studies, the transition rates in samples of subjects at HRP vary from 9% to 54%, depending on the length of follow-up.³⁸

The major goals of the Programma2000 are to promote and consolidate recovery, offering treatment, over 5 years, in the patients' own environment, whenever possible, and maximizing the chance of effective social and occupational functioning, without neglecting the needs and difficulties experienced by relatives. Although supportive of the experience, health managers and political authorities require proof of effectiveness to ensure periodic project refinancing. Nevertheless, preliminary evidence from the first 10 years of activity indicates that a team dedicated to the early identification and treatment of young adults with early psychosis is a feasible and sustainable extension of traditional care for people with mental disorders in Italy.

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