

# OUTCOMES OF THE EARLY PSYCHOSIS INTERVENTION PROGRAMME (EPIP), SINGAPORE

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## ABSTRACT

**Psychoses are serious and potentially chronic mental disorders with a profound impact, in terms of economic cost and human suffering, on patients, their families and society. Early detection and treatment, through reducing the duration of untreated psychosis, however, could lead to a better outcome. In 2001, the Early Psychosis Intervention Programme (EPIP), Singapore was started with the following key strategies: (1) early detection of psychosis through outreach to and network with the community and our partners; (2) provision of clinical treatment that is evidence-based; and (3) conducting clinically relevant research to evaluate our service to be accountable to the stake-holders and to ensure cost-effectiveness. A myriad of structure, process and outcome measures offering a multi-dimensional evaluation were chosen to make us accountable to a broad range of stakeholders, from our funders, other service providers, to our patients and their families. EPIP has shown good outcomes in terms of number of patients accepted into the programme, as well as our clinical service provision. Such outcomes are achieved with our community partners playing an important role. General Practitioners, in particular, are vital not only in the detection, management of such individuals, but also in the re-integration of our patients back to community.**

## Keywords:

**First episode psychosis; Singapore; Outcomes; Clinical response; Remission; Functioning; General practitioners; Stakeholders**

## INTRODUCTION

### What is psychosis?

Psychosis is a condition that causes disturbances in the brain and people suffering from psychosis lose touch with reality. It affects their way of thinking, perceiving and/or behaving. The

symptoms are broadly categorised into hallucinations, delusions and disorganised thinking and behaviour.

Hallucinations are sensory experiences (whether through sound, touch, sight, taste or smell) in the absence of the external stimuli. Delusions are beliefs that are firmly held and unshakeable, such as thinking that someone has hatched a plot to harm the individual. Disorganised thinking could take the form of circumstantiality or tangentiality. Age of onset is typically in the late adolescence and early adulthood and affects both males and females equally.

### Burden of psychosis

Worldwide, psychosis is ranked third amongst the most disabling condition, following quadriplegia and dementia and ranking higher than blindness and paraplegia (NHS Executive, 1996). The illness generates an enormous burden in both economic cost and human suffering. The British National Health System (NHS) conducted a study on the financial impact of chronic diseases<sup>1</sup> and found that psychosis was the most costly illness to treat.

In Singapore, our Ministry of Health conducted a study in 2004 to find out the leading causes of disability: schizophrenia, a form of psychosis, was ranked top three in the leading causes of disability-adjusted life year (DALY) for Singaporeans aged between 15-44 years old<sup>2</sup>. According to the World Health Organisation (WHO), DALYs is defined as the sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.

### Early intervention of psychosis

In view of the high costs to treat psychosis, as well as the extensive disability associated with it, a movement for early intervention of psychosis started in the late 1980s with the Early Psychosis Prevention and Intervention Centre (EPPIC) from Melbourne, Australia led by Prof Patrick McGorry. The premise behind the provision of such a clinical service is to reduce the duration of untreated psychosis (DUP). DUP is defined as the time between the onset of the first psychotic symptoms and the first adequate treatment. A recent meta-analysis<sup>3</sup> showed that a shorter DUP is related to a greater response to treatment and functional outcomes.

The concept of early intervention for psychosis garnered much support from the international community as provision of such a service could improve the outcomes for someone who suffers from psychosis. Buoyed by the potential to intervene early for better outcomes in psychosis as well as findings from the research studies, the notion of early intervention for psychosis

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quickly gained momentum. Many early intervention sites began to develop worldwide: in the UK [Lambeth Early Onset (LEO) Service, London; REDIRECT, Birmingham], Norway (TIPS), Canada [The Prevention and Early Intervention Program for Psychoses (PEPP), Ontario; Early Psychosis Program, Calgary], Hong Kong (Early Assessment Service for Young People with Early Psychosis Programme) and Japan (Early Intervention Centre Tokyo Youth Club).

### **Early Psychosis Intervention Programme (EPIP), Singapore**

In 2001, the Early Psychosis Intervention Programme (EPIP) was started as a Health Service Development Programme (HSDP) under the auspices of the Ministry of Health (MOH), Singapore. Based in the Institute of Mental Health, EPIP is a comprehensive, integrated, and patient centred programme led by a multidisciplinary team of psychiatrists, psychologists, case managers, social workers, nurses and occupational therapists. It is one of the first few programmes in Asia to introduce an early intervention service, and a pioneer in the use of case management in a psychiatric setting. Details of our service provision have been described elsewhere<sup>4</sup>.

EPIP's aims are to:

- raise awareness of and reduce stigma associated with psychosis;
- establish links with primary health care providers and collaborate in the detection, referral, and management of those with psychosis; and
- improve the outcome of our patients and reduce the burden of care for their families.

In order to improve the outcomes of individuals with psychosis, it is important to focus not only on the timing of intervention but also its quality. Our key strategies are to:

- outreach to and network with the community and our partners, thus focusing on early detection of psychosis;
- provide clinical treatment that is evidence-based; and
- conduct clinically relevant research as well as evaluate our service to be accountable to the stake-holders and to ensure cost-effectiveness.

In April 2007, EPIP came under the National Mental Health Blueprint. Drawn by MOH together with stakeholders, the Blueprint aims to promote mental health and where possible, prevent the development of mental health disorders as well as reduce the impact of mental disorders. The Blueprint has four main thrusts: mental health promotion, integrated mental health care, developing manpower and, research and evaluation. All programmes under the Blueprint are evaluated regularly on performance indicators established a priori so as to be accountable to our stakeholders, as well as for the monitoring and evaluation of these initiatives. These indicators

are mutually set by the individual programme directors and MOH and incorporated a myriad of structure, process and outcome measures to offer a multi-dimensional evaluation of the programmes.

### **METHOD**

Patients accepted to EPIP since April 2007 were included in this analysis. EPIP's inclusion criteria are: age between 16 and 40 years, first episode psychotic disorder, and psychosis was not secondary to substance abuse or medical problems. Patients accepted into EPIP are followed up for a period of two years before being discharged to downstream services.

EPIP has built in an evaluation component to our clinical programme by administering clinical assessments at regular intervals as well as generating operational statistics from our hospital's data systems. In our discussions with MOH, the following a priori indicators were agreed upon and the targets were set based on the experience of first five years of our service, as well as the outcomes recommended within the international consensus statement on early psychosis<sup>5</sup>:

#### **Outreach and network**

- Number of patients screened and accepted into EPIP.

#### **Clinical treatment**

- Average Length of stay in the hospital.
- Proportion of patients with an improvement in their symptomatology at the end of 2 years.
- Proportion of patients with an improvement in their level of functioning at the end of 2 years.
- Levels of satisfaction with the EPIP service by patients.
- Proportion of patients who remained engaged with EPIP and did not default.
- Suicide rate within first 2 years of diagnosis.

Data such as the number of patients screened and accepted, and length of stay in the hospital was obtained by the hospital's data systems. The other clinical data was obtained through the systematic assessments by the EPIP team (psychiatrists and case managers): on first presentation (baseline), 3 months, 6 months, 1 year and 2 years later. Severity of psychopathology was assessed by Positive and Negative Scale for Schizophrenia (PANSS) 6; a higher score indicates more severe symptoms. Clinical response was defined as at least 20% reduction in their PANSS total score from baseline to 1 year and at the end of 2 years 7. The Global Assessment of Functioning (GAF) was used to assess level of functioning<sup>8</sup>; a higher score indicates higher level of functioning. Recovery was defined as a score of 60 or more on the GAF Disability subscale, which indicates some difficulty in social, occupation or school functioning but generally functioning well, with some meaningful interpersonal relationships. The case managers also used a semi-structured socio-demographic questionnaire to assess if our patients were

employed or engaged in age-appropriate roles (for example, student or homemaker).

Patients rated their satisfaction with the service provided by EPIP on the Client Satisfaction Questionnaire 8 (CSQ-8) (9). Engagement with EPIP was rated by the case managers using a semi-structured scale (1 = not a defaulter, 2 = telephone contact with patient + / - family, 3 = telephone contact with family only, 4 = no contact). Engagement was defined as face-to-face or phone contact with the patients, or phone contact with their families. Suicide rate was established when the team was notified of patients' suicides through their caregivers or through police investigations.

Proportions of patients who achieved clinical response, recovery and remained engaged with EPIP's services were calculated as total number of patients meeting the criteria over total number of available data sets.

## RESULTS

Between April 2007 to March 2011, EPIP has screened 1293 individuals and accepted 815 into our programme. Data was available for 803 patients for our current analysis; as 12 (1.5%) of them had missing data. The sample comprised of 388 females (48.7%) and 408 males (50.8%) with a mean age of 27 years ( $\pm 6.5$  years) and ranged between 15 to 41 years. The socio-demographic data for this sample is presented in Table 1.

**Table 1: Socio-demographic characteristics of sample (n = 803)**

Variable		N (%)
Gender	Male	411 (51.2)
	Female	392 (48.8)
Race	Chinese	592 (75.1)
	Malay	109 (13.8)
	Indian	62 (7.9)
	Others	25 (3.2)
Highest educational level	No education	9 (1.2)
	Primary	87 (11.2)
	Secondary and Pre-University	316 (40.6)
	Vocational	99 (12.7)
	Tertiary	262 (33.6)
	Others	6 (0.8)
Referral source	Relatives, Friends or Self	369 (47.3)
	Hospital	110 (14.1)
	General Practice or Polyclinic	103 (13.2)
	Police or Court	98 (12.6)
	Counsellor from welfare organisation or school	28 (3.6)
	Private Psychiatrist	8 (1.0)
	Others (MINDEF, MCYS, school staff, religious organisations)	64 (8.2)
First presentation status	Inpatient	448 (55.8)
	Outpatient	355 (44.2)

Mean length of stay per admission in the hospital, calculated as number of days of hospitalisations divided by number of admissions, was 16.6 days (2693/378). 86.1% (198/230) had at least 20% reduction in their PANSS total score from

baseline to 2 years. At the end of 2 years, 84.2% (197/234) of our patients scored 60 or more on the GAF Disability. 76.4% (230/301) of them have returned to performing age appropriate roles (back to school or gainfully employed). The baseline and 2 year symptomatology and functional data is shown in Table 2.

**Table 2: Clinical characteristics of sample (n = 803)**

Variable	Baseline	2 years
	Mean (SD)	Mean (SD)
PANSS Total	66.7	39.0
	N (%)	N (%)
GAF Disability score $\geq 60$	75 (9.5)	197 (84.2)
In age-appropriate roles	193 (54.4)	230 (76.4)

At the end of 2 years, 94.9% (187/197) of our patients who completed the CSQ-8 rated our service as "good" or better. 93.4% (281/301) remained engaged with EPIP services (outpatient attendances and/or maintaining phone contact). To our knowledge, we had 8 patients who committed suicide within 2 years of diagnosis – giving the suicide rate of 0.89% (8/898).

## DISCUSSION

Through our active outreach and networking, there was a steady increase of the number of patients seen by our service. We have also provided quality clinical service as shown by our clinical outcomes in terms of response and recovery, as well as the high level of service satisfaction, and high proportion of patients who did not default. We have kept the length of stay per admission in the hospital at 16.6 days and none of the patients to date has subsequently been transferred to the chronic wards of Woodbridge Hospital. The suicide rate is also lower than the 1% target contained in the international consensus statement on early psychosis<sup>5</sup>.

A limitation of this analysis is the missing data from patients who have completely defaulted their contact with EPIP or have chosen not to fill up some of the self-rated questionnaires. Also, we did not have adequate data to conduct a cost effectiveness analysis.

### Importance of role of General Practitioners

Before the start of EPIP, around two-thirds of patients with first episode psychosis had sought the help in the primary health care sector<sup>10</sup>. As shown in Table 2, 13.2% of our patients continued to be referred from general practice and polyclinics even after the establishment of EPIP, thus reinforcing primary care as an important source of referrals to our service. One of EPIP's foci is to equip primary healthcare providers with the knowledge to detect psychosis, to inform of EPIP as a specialised resource and to provide assistance in the referral process.

To make the treatment continuous and seamless, it is vital for GPs to be engaged not just in detecting unwell individuals early, but also to collaborate in the management of these patients. EPIP's recognition for the need to move towards community management of psychosis is in line with the MOH's recent initiative to manage more chronic illnesses using community primary health services. In recent years, the IMH-GP Partnership Programme (which was first initiated as part of the EPIP) has been implemented to involve GPs in the care and management of stable individuals and right-site the care within the community. A select group of GPs have already been trained by us. This is an ongoing collaboration with the specialists in the hospital and the GPs in the community.

Thus, in addition to being an important source of referral, general practitioners also play an important role in the re-integration of our EPIP patients back to society. Such collaboration allows our patients to resume their previous social roles and still access the appropriate medical care they require.

### New services

Having established EPIP as a leader in the detection and treatment of early psychosis in Singapore and Asia, we have pushed the envelope further with an initiative for indicated prevention by focusing on individuals with at-risk mental state (ARMS), that is, where there are some features present which place this person at high risk for the development of psychosis or other mental disorders. By providing treatment to such individuals, we can minimise the disability of a possible mental illness, prevent or delay the onset of mental illness, and rapid detection and timely commencement of treatment if needed. This service which is the Support of Wellness Achievement Programme (SWAP) was launched in March 2008 to focus on individuals between the ages of 16 to 30.

### CONCLUSION

EPIP has articulated a range of process and outcome indicators which evaluate the various aspects of our service such as service delivery and patient and caregiver outcomes. This makes the service accountable to stakeholders which include not only our funders, other service providers but also our patients and their families.

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