

NOVA UNIVERSITY OF LISBON – FACULTY OF MEDICAL SCIENCES



A description of the Australian Early Psychosis Intervention Model and
a proposal to establish a Pilot Early Psychosis Intervention Program in
Santa Cruz de la Sierra, Bolivia.

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Masters Dissertation in International Mental Health Policy and Services

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and a proposal to establish a Pilot Early Psychosis Intervention
Programme in Santa Cruz de la Sierra, Bolivia.

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ABSTRACT

In 2011, the World Psychiatric Association launched a programme of research fellowships for early-career psychiatrists from low- or lower-middle income countries, within this programme, the author was selected to a research fellowship at the Centre for Youth Mental Health/Orygen Youth Health Research Centre at University of Melbourne.

Orygen, is the world's leading research and knowledge translation organization focusing on mental ill-health in young people. The traineeship was based on Early Psychosis Prevention and Intervention Centre (EPPIC), which is part of Orygen. EPPIC provides comprehensive, integrated, community-based treatment program for first-episode psychosis.

This dissertation describes the EPPIC model, and its core components and factors which are necessary to a right service implementation.

Additionally, a proposal to establish a pilot early psychosis intervention programme is discussed. This programme includes an innovative outreach programme that combines sound business principals with social goals in order to specifically target the largest barrier to early psychosis treatment in Bolivia: the stigma of mental illness.

By utilizing a mobile, multidisciplinary treatment team that emphasizes the roles of trained case managers focused on providing intensive individual and family support in the home, this programme will provide culturally appropriate care that will leverage contributions from a limited supply of psychiatrists and shift dependence away from a fragmented medical system.

Keywords: Early Intervention Services in Psychosis; LAMI Countries; Bolivia; Young People.

RESUMO

Em 2011, a Associação Psiquiátrica Mundial lançou um programa de bolsas de investigação para psiquiatras em início de carreira a partir de países de renda baixa ou média-baixa, no âmbito deste programa, o autor foi selecionado para uma bolsa de pesquisa no Centre for Youth Mental Health/Orygen Youth Health Research Centre da Universidade de Melbourne.

Orygen, é a principal organização de pesquisa e tradução do conhecimento do mundo com foco em problemas de saúde mental em pessoas jovens. O estágio foi baseado em Prevenção e Intervenção Precoce Psychosis Centre (EPPIC), que faz parte do Orygen. EPPIC fornece programa de tratamento abrangente e integrada, baseada na comunidade para o primeiro episódio de psicose.

Esta dissertação descreve o modelo EPPIC, e seus componentes essenciais e fatores que são necessários para uma implementação de serviço direito.

Além disso, uma proposta de criação de um programa-piloto de intervenção psicose precoce é discutido. Este programa inclui um programa de extensão inovadora que combina princípios comerciais sólidos, com metas sociais, a fim de combater especificamente a maior barreira para o tratamento da psicose precoce na Bolívia: o estigma da doença mental.

Ao utilizar uma equipe de tratamento móvel, multidisciplinar, que enfatiza os papéis dos gerentes do caso treinados focada em fornecer indivíduo intensiva e apoio familiar no lar, este programa irá prestar cuidados culturalmente apropriados que irá alavancar contribuições de um suprimento limitado de psiquiatras e mudar longe da dependência um sistema médico fragmentado

Palavras-chave: Serviços de Intervenção Precoce em Psicose; Países LAMI; Bolívia; Pessoas Jovens.

RESUMEN

El año 2011, la Asociación Mundial de Psiquiatría puso en marcha un programa de becas de investigación para los psiquiatras jóvenes de los países de renta baja o media-baja, dentro de este programa, el autor fue seleccionado para una beca de investigación en el Centre for Youth Mental Health/Orygen Youth Health Research de la Universidad de Melbourne.

ORYGEN, es la principal organización de investigación y traslación de conocimiento del mundo en lo relativo a problemas de salud mental en los jóvenes. Este entrenamiento se llevo a cabo en el Centro de Intervención y Prevención de la Psicosis Temprana (Eppic), que es parte de ORYGEN. Eppic ofrece un programa de tratamiento integral del primer episodio psicótico, basado en la comunidad.

Esta tesis describe el modelo Eppic, y sus componentes básicos y los factores que son necesarios para una implementación correcta del servicio.

Adicionalmente, se discute una propuesta para establecer un programa piloto de intervención temprana de psicosis. Este propuesta incluye un programa de extensión innovadora que combina practicas de administración con objetivos sociales con el fin de centrarse específicamente en el mayor obstáculo para el tratamiento de la psicosis temprana en Bolivia: el estigma de la enfermedad mental.

Mediante la utilización de un equipo de tratamiento móvil, multidisciplinario y que hace hincapié en el papel de los gestores de caso, entrenados para proporcionar al individuo y a la familia apoyo intensivo en el hogar, este programa ofrecerá atención culturalmente apropiada. En un sistema con una oferta limitada de psiquiatras, alentando un modelo alejado de la dependencia a un sistema médico fragmentado

Palabras clave: servicios de intervención temprana en psicosis; países de renta baja; Bolivia; gente joven.

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Background

The World Psychiatric Association, as part of its Action Plan 2008-2011, launched a programme of research fellowships for early-career psychiatrists from low- or lower-middle income countries, in collaboration with internationally recognized Centres of Excellence in Psychiatry.

Within this programme, I was selected in 2011 as the World Psychiatric Association (WPA) Fellowship for early career psychiatrists to the Orygen Youth Health Research Centre at the University of Melbourne where I have conducted research on early detection and effective intervention services in psychosis, led by Prof. Patrick McGorry.

During twelve months (2011 -2012) I have visited to Orygen Youth Health Australia. Orygen Youth Health is a multi campus mental health facility encompassing clinical, research arms an educational/communication arms. It is the only public youth public mental health service in Victoria and specifically works with 15-24 year old young people with emerging and first episode mental health problems.

They receive approximately 2,500 clinical referrals per annum (for screening and assessment) and provide clinical services for up to 800 young people at any one time. OYH employs approximately 175 staff in the Clinical Program and 157 staff in the Research Centre. Orygen's clinical program provides specialized early intervention services to young people with emerging mental disorders, including drug and alcohol issues.

During my staying, I visited their inpatient unit located at 35 Mavis Street Footscray on the Western Hospital site. It is a 16 bed inpatient unit and has a 3 bed intensive care area. I spent considerable time with the Youth Access Team (YAT). YAT is a 24 hour, seven day a week service providing triage, assessment and crisis response services. The crisis response team assesses

young people unable to wait for an appointment and crisis response to current clients outside business hours. Community treatment is also offered by this team to current clients who require more intense treatment than can be offered by the case manager alone.

I also worked with senior staff in the outpatients unit. Early Psychosis Prevention and Intervention Centre (EPPIC) clinic focuses on clients who have experienced a first episode of psychosis. It provides 24 month episode of care. It is staffed by 5 consulting psychiatrists, 2 psychiatric registrars and 15 case managers (allied health and nursing). Interventions include CBT based therapy with a strong emphasis on psychoeducation and biological interventions.

In conclusion, I have completed a one-year research fellowship at Orygen Youth Health (OYH) at the Centre for Youth Mental Health CYMH at the University of Melbourne. During this period, I have observed the activities at OYH and have been engaged in planning research on implementing early intervention in psychosis for young people in low-income settings.

This dissertation is based on a report of this traineeship. Based in this experience, I'm currently working in a project to implement the EPPIC model, a model of specialist early intervention in psychosis care developed by Orygen Youth Health, in my country of origin: Bolivia. For that reason, this dissertation also includes a proposal to establish a pilot early psychosis intervention program in Santa Cruz de la Sierra, Bolivia.

Section 1

Information on the EPPIC model

The following section provides information regarding the EPPIC model.

1.1 Introduction

The ages between 15 and 24 years are a crucial time in the development of a young person and this coincides with the peak onset of serious mental illness, including a first episode of psychosis (Patel et al 2007). There is clear evidence that delaying the provision of appropriate treatment (which prolongs the duration of untreated psychosis), can have a major negative impact on the future development of young people as well as prolonging distressing symptoms and increasing the risk of premature death (Kohn et al 2004). Additionally, early mental disorders are associated with substantial decrements in income net of education at both individual and societal levels (Kawakami et al 2012). Early intervention services, through early detection and provision of smooth, youth-oriented access to specialist early psychosis treatments can change the course of illness. Evidence-based early interventions and services with a demonstrated efficacy are now available (Saraceno 2007). Although there are no published comparative studies of early intervention services, the EPPIC Model is the most evolved, developed and widely described with 20 years of clinical service experience. It has now become the proto-type for numerous early psychosis intervention services both nationally and internationally (McGorry 2008).

1.2 The EPPIC model at a glance

EPPIC (Early Psychosis Prevention and Intervention Centre) is a model of specialist early intervention in psychosis (EIP) care developed by Orygen Youth Health. Since first established in Melbourne in 1992, EPPIC has become the template on which hundreds of specialist EIP services throughout the world have been established. The continuing growth in the numbers of EIP services is

largely due to what the UK's NHS Confederation describes as the "compelling evidence of the clinical and cost effectiveness of EIP over standard care." (Byrne 2014).

For young people experiencing a first episode of psychosis, EPPIC provides three core functions:

- **Early detection**
- **Acute care** during or following a crisis
- **Recovery** focused expert multimodal interventions to enable a young person to maintain or regain their social, academic and career trajectory during the "critical period" of the first two to five years following the first onset of psychotic illness

In providing these core functions, key over-arching features of an EPPIC service are:

- **Easy Access to care** which is enabled by the service structure, 'youth-friendliness' of the service and community awareness of mental health literacy and referral pathways.
- **An integrated biopsychosocial approach** to clinical interventions which take into account the developmental stage of the young person. These interventions are aimed at not only the amelioration of distressing symptoms but to also maintain or regain the normal educational, vocational and social developmental trajectories of the young person.
- **A high level of partnerships with local service providers** to ensure effective and timely pathways into and out of the service as well as supporting service delivery during the episode of care. At the end of tenure of care, all young people are referred onto a health care provider with the clinicians of the EPPIC service assisting the young person to engage with the new provider.

1.3 Core components of the EPPIC model

A summary of the core components are given below:

1.1.1 Community Education and Awareness:

- a) *Component Description.* Community Education position (s) embedded within the EPPIC service to improve the mental health literacy in the EPPIC catchment area, and improve referral pathways for young people, who require interventions is provided, This may involve programs to educate teachers, education welfare counselors, youth workers, GPs, police, etc. Strategies would include the development of specific partnership with NGO's and primary health care agencies to jointly provide programs to increase mental health literacy.
- b) *Rationale.* Reduces the Duration of Untreated Psychosis (DUP). Raising the level of mental health literacy and knowledge of referral pathways to those people who work with young people as well as the general population increases the rate of early detection, smoother referral pathways and ultimately earlier treatment and better outcomes. There is a high level of synergy between Community Education activities and referral pathways. Relationships between referral sources and the service need to be developed and maintained by a dedicated person within the service who would also coordinate across-service Community Education activities.

1.1.2 Easy access to Service:

- a) *Component Description.* EPPIC services are accessible through one clear contact point. Young people referred, but not assessed as suitable for the EPPIC service, should be provided with appropriate referral to other services,
- Other key sub-components:
- Service location/s easily accessible by public transport
 - Services provided to clients in locations such as home and other community-based locations
- b) *Rationale.* Reduces the Duration of Untreated Psychosis (DUP). Easy access to the EPPIC service increases the rate of early detection, smoother referral pathways and ultimately earlier treatment and better outcomes.

Engagement with young people is endangered when referral and pathways to care are complex. Having clear referral pathways to help seeking is important along with flexible approach to engagement, and referral on, when young person is not assessed as suitable for the EPPIC service.

1.1.3 Home-based care and assessment (Youth Access Team -YAT)

- a) *Component Description.* A flexible, home-based assessment and intervention team.

This is provided by an early intervention, multidisciplinary team providing a service response 24 hours a day, 7 days a week offering triage, assessment and crisis intervention services.

Service capacities may require differing levels of staffing across the 24 hour time period depending on anticipated service demand.

- b) *Rationale.* Flexibility in location and service provision hours is essential to engagement and treatment of young people with psychotic disorders.

Initial engagement into the service is crucial if interventions are to succeed. This requires a level of flexibility including seeing young people in an environment that suits them e.g. home, particularly in the early stages of engagement. This will reduce any delays in assessment and treatment and improve outcomes.

Responsive crisis intervention is also necessary to minimize trauma associated with psychosis and potential hospital admission by supporting home treatment in a least restrictive manner when possible.

1.1.4 Access to Streamed Youth-friendly Inpatient Care.

- a) *Component Description.* Access to a youth friendly inpatient setting that provides specialized early psychosis care and which is staffed by nurses, allied health professionals and doctors. Where a stand-alone youth early psychosis in-patient unit is not possible, a special section of an existing general acute unit should be provided.

This setting provides inpatient care when it needed until the young person is ready for discharge and ongoing treatment from the Youth Access and Continuing Care teams.

The specialized youth friendly inpatient setting has practices and protocols in place that ensures that inpatient stays are for the shortest possible time (normally less than 10 days). Early discharge is supported by discharge and treatment planning with the home-based care and assessment team (YAT team), and the ongoing case management teams.

- b) *Rationale.* Young people with first episode psychosis benefit from a specific youth-focused inpatient setting.

Optimal inpatient treatment for the stage of illness is provided with better outcomes.

This setting minimizes trauma associated with hospital admission and improves engagement with the service. Maintaining age appropriate activities whilst an inpatient provides an optimistic therapeutic environment.

1.1.5 Access to Youth friendly Sub Acute beds.

- a) *Component Description.* Access to a youth friendly sub-acute setting.

This component provides a supported, post-acute transition to community care.

- b) *Rationale.* For some young people, the post-acute phases of psychosis requires an additional level of management and support prior to transition full community care.

Issues of homelessness are common amongst young people with a FEP and can affect all other aspects of recovery.

1.1.6 Continuing Care Case Management.

- a) *Component Description.* A continuing care team that provides team-based case management and individually focused therapeutic interventions. Clients are assigned an individual Case Manager, who may be either a clinical psychologist, social worker, occupational

therapist, or mental health nurse; and a psychiatrist or psychiatric registrar under the supervision of a consultant psychiatrist.

The case managers work collaboratively with the young person and their family or carers to provide a treatment approach tailored to the individual needs of the young person and appropriate to their stage of illness. Case managers ensure that the young person and their family are provided with information and education and are linked to other useful support services (housing, educational, vocational, financial, legal, etc) as well as providing individual therapies.

An episode of continuing care management would be for a minimum of 2 years duration with the potential for an added 3 years of “step-down” care for those young people with an incomplete recovery. Caseloads are targeted at 15 to 20 clients per case manager.

- b) *Rationale.* The treatment and management of young people with a First Episode of Psychosis (FEP) requires a level of coordination which can only be delivered using a case management model.

The 2 year minimum tenure of care addresses the “critical period” where symptomatic and psychosocial functioning is known to deteriorate.

Key person contact improves engagement with service and ultimately better recovery outcomes.

1.1.7 Medical treatments.

- a) *Component Description.* Evidence-based pharmacological interventions, prescribed by a psychiatrist are used to ameliorate symptoms and distress associated with psychosis, mood disturbance, anxiety and substance misuse. The evidence-based sequence of medications and their integration with psychosocial care is a key skill-set to which all EPPIC clients have access.

The physical well being of EPPIC clients is also focused on through the adoption of preventive approaches including metabolic screening and preventive interventions.

- b) *Rationale.* Guideline-based use of medication optimizes adherence, speed and extent of recovery.

The medical care of young people in the early stages of mental illnesses is considerably different in style and content from approaches utilized in older patients with established illness.

Minimizes side effect profile and subsequent added health risks.

1.1.8 Psychological interventions.

- a) *Component Description.* Evidence-based psychological interventions including individual psychotherapy and cognitive behavioral therapy (CBT) programs.

These interventions will be delivered by the case managers, as a part of their case management role. Where clinically indicated, particularly with complex clients, a clinical psychologist may provide a more specialized psychological intervention.

- b) *Rationale.* Psychological interventions enhance the speed and level of symptomatic and functional recovery in FEP as well as preventing and treating secondary morbidities.

Psychological interventions have been found to accelerate symptomatic recovery and promote engagement with the treatment strategy. CBT, suicide and relapse prevention, adaptation to illness and interventions to reduce substance use are the key components deployed.

1.1.9 Functional Recovery Program.

- a) *Component Description.* Evidence-based recovery programs including a vocational and educational program for clients wishing to remain in or return to education or work.

This approach is based on the individual placement and support model. Within the EPPIC model, the vocational worker and educational liaison position are based within the service rather than in an external agency.

- b) *Rationale.* Functional recovery interventions prevent loss of function, enhance the speed of recovery and improve educational and employment outcomes.

Preventing loss of function or recovering function reduces risk of negative sequelae such as loss of confidence, self-esteem, and secondary depression.

1.1.10 Mobile Outreach

- a) *Component Description.* Intensive Case Management using a mobile, intensive outreach model is provided to young people who have difficulty engaging with mental health services or those who have more complex needs requiring intensive support (including forensic issues, homelessness, severe personality disorder, prominent negative symptoms). The team provides a multi-disciplinary approach to case management, crisis intervention, individual therapy, family support and systems consultations/liaison.
- b) *Rationale.* Minimises chance of incomplete recovery and risks to self and others.

1.1.11 Group Programs

- a) *Component Description.* A comprehensive Group Program that gives clients the opportunity to work on personal issues such as lack of confidence, low self-esteem, anger or anxiety within a supportive peer group environment.
Groups are usually small with four to eight people involved and may include groups focusing on: school, study and work; better health, such as physical fitness, reducing drug use, stress management; social and leisure groups that focus on self-exploration and expression such as outdoor adventure, music, or art; groups that help with management of anxiety about recovery from illness.
- b) *Rationale.* Group programs enhance speed and level of symptomatic and functional recovery.
Provides an alternative medium for therapeutic approaches that may suit some clients better.

Reduces social isolation and impact of psychotic and stigma experiences.

1.1.12 Family Programs and Family peer support.

- a) Family programs are provided for parents, partners, children, siblings, extended family, close friends and anyone who carries out a care-giving function for an EPPIC client.

Family work is a function of case management with the support of a specific family therapist to provide family work for more complex cases.

Family Peer Support Workers, who have themselves had experience of EPPIC services, provide phone and face to face support to new family and carers whose relative enters the early psychosis service. Family members have access to family support groups and a family resource room with access to a wide range of information.

- b) *Rationale.* Reduce levels of distress of family members, and provides information and strategies that support client recovery.

Increases level of family engagement, and skills, to manage carer role.

Enhances speed of client recovery and reduces risk of relapse.

1.1.13 Youth Participation & Peer Support Program

- a) *Component Description.* A Youth Participation Program that ensures each EPPIC service provides a youth friendly environment, is accountable to its clients and facilitates peer support between clients.

Youth Participation Program workers participate in staff selection by contributing to interview selection panels. All clients are eligible to join the youth participation team whose function it is as a group to meet regularly to discuss possible improvements to the service or have involvement in community education activities.

Peer support workers who are past clients, visit current EPPIC clients in inpatient care as well as providing support to other clients on an outpatient basis. These peer support workers receive training, mentoring and support and are paid for their time.

- b) *Rationale*. Ensures “youth friendliness” of service.

Improves client engagement ultimately improving service quality and client outcomes.

Provides support intervention from a “lived experience” perspective.

Increases social awareness of First Episode Psychosis and reduces stigma which improves pathways to care.

EPPIC services are “youth-friendly” so that the service is attractive to young people who access their services. This may include factors such as building design, access to multi-media resources and minimizing factors that may increase stigma.

1.1.14 Partnerships

- a) *Component Description*. Partnership with other organizations that enhance the care of young people with first episode psychosis.

Examples may be community youth services, Headspace, Drug and Alcohol services.

- b) *Rationale*. Established links and partnerships will enhance the quality and breadth of service

Services cannot operate in isolation from broader health and social systems.

Improvement in referral and transition points for young people.

1.1.15 Workforce Development.

- a) *Component Description*. A workforce development program includes training and supervision provision to staff involved in an EPPIC service. Strategies include in-service training and education, support for external or post-graduate training, staff clinical supervision arrangements and attendance at professional development programs e.g. conferences, workshops.

- b) *Rationale*. Enhances fidelity to the EPPIC model. Core competencies of evidence based clinical knowledge and skills are required to work with young people experiencing First Episode of Psychosis.

Encourages new knowledge generation and innovation.

1.4 A note about the Ultra High Risk (UHR) group

For those young people who are help seeking and are experiencing some psychotic like symptoms which are assessed as being of high risk of psychosis but as not meeting the diagnostic threshold for a first episode of psychosis, EPPIC facilitates access to a separate, linked stream of care. This stream provides care for their current mental health needs, preventive interventions to minimize risk of transition to psychosis such as CBT and Omega 3 fatty acids and monitoring for further development of psychotic symptoms. Interventions must be concordant with the Australian clinical guidelines for early psychosis.

Early detection and intervention at this ultra-high risk stage may delay or prevent the onset of First Episode Psychosis. As a deterioration in psychosocial functioning has been shown to occur in this stage of illness (for example in social, school or work performance), intervening early may also help to maintain a normal functional trajectory or prevent further deterioration in functioning. A summary of this component description and rationale is given below:

Ultra-high risk detection and care

- a) *Component Description.* Services for help-seeking young people who have presented to the EPPIC service and are assessed as Ultra High Risk for developing psychosis.

EPPIC services should identify how they would manage “exit points” such as people who transit to psychosis and those who do not.

- b) *Rationale.* Reduces duration of untreated psychosis and minimizes functional loss.

Early detection and intervention at the ultra-high risk stage may delay or prevent the onset of First Episode Psychosis.

A reduction in psychosocial functioning has been shown to occur in this stage of illness, therefore intervening early may maintain normal functional trajectory and prevent deterioration in functioning.

Section 2

Rationale and Evidence for the Early Psychosis Prevention and Intervention

Centre (EPPIC) Model of Treatment of First Episode Psychosis

The following section provides an understanding of the rationale and evidence for the Early Psychosis Prevention and Intervention Centre Model of care. Evidence and data from national and international sources which has informed and influenced the development of the core components of the EPPIC Model is presented.

2.1 Introduction

Research from epidemiological studies indicates that at least 75% of mental health disorders commence before 24 years of age (Kessler et al 2005) with mental illness accounting for 50% of the total disease burden among young people aged 12 to 25 years in Australia (AIHW 2007). Data from WHO World Mental Health surveys suggests that the median age of onset of non-affective psychotic illness has been estimated at being from late teens to early twenties (Kessler et al 2007). One Australian study (Jablensky et al 2000) has reported the prevalence of engagement of adults with psychosis in treatment in a one month period to be 4.7 per 1000 adults, suggesting an even greater rate of people in need of treatment for psychosis. In Australia, schizophrenia is reported as being the third leading cause of burden and injury in young men and the fifth in young women of the same age (AIHW 2007).

The ages between 15 and 24 years are a crucial time in the development of a young person across many domains. It is a time of biological changes including those affecting neurological development. Adolescence and young adulthood is a stage of life where young people are individuating from families and developing stronger ties with peer groups, developing their own identity including experimenting with sexuality, drug use and developing interests, hobbies and skills of their own. Further, this is a period when young people will

face particular educational and vocational challenges and milestones such as choosing and embarking on career paths for employment or further study.

The onset of a first episode of psychosis, if left unrecognized, untreated or poorly treated therefore has the potential to derail a normal development trajectory with massive impact across all the biopsychosocial domains. As well as increased severity of illness and sustained disability there is also the higher risk of premature death by suicide (McGorry & Yung 2003, Jackson & Birchwood 1996). Therefore concerted efforts focusing on early identification and effective intervention have now become an increasing public health priority not only in Australia but throughout the world. This is also reflected in the development of approximately 200 early psychosis services throughout the world.

Duration of Untreated Psychosis

Delays in detection and effective treatment ultimately prolong the duration of untreated psychosis (DUP). Meta-analyses of the association between length of DUP and impact on recovery have shown that a prolonged DUP has a negative impact on recovery (Perkins et al 2005, Marshall et al 2005). In these studies, DUP was shown to be both a marker and an independent risk factor for poor recovery. Further, the relationship between DUP and outcome has been shown to be sustained over many years (Harris et al 2005) i.e. that a longer DUP will mean that these people take longer to recover if at all. A long DUP is also a predictor of treatment resistance (Huber and Lambert 2009). It is now apparent that the long-term harm caused by psychosis not only occurs within the first few weeks or months of onset (Drake 2000, Marshall et al 2005) but also in the period of time leading up to the onset of psychosis (Crumlish et al 2009).

Although DUP is a modifiable risk factor, the shortening of DUP only accounts for a modest amount of outcome variance, highlighting the importance of quality ongoing early treatment and interventions (Harris et al 2005). Early intervention services offer an opportunity to change the course of illness and restore the normal biopsychosocial development trajectory of young people.

2.2 EPPIC Model Components

Early intervention for psychosis aims to provide early detection and access to appropriate, evidenced-based clinical interventions. Detection and referral to early intervention services is targeted at those at ultra high risk of psychosis or if these are not detected, those who have already experienced a first episode of psychosis itself. Providing services for those pre and post onset of psychosis means that appropriate interventions need to be carefully directed towards the particular stage of illness.

Early Detection

Interventions to treat the onset of a first episode of psychosis are crucial but become redundant if those people who are experiencing the early signs of psychosis go undetected and never reach appropriate mental health services. Early detection programs such as that reported in the Scandinavian Early Treatment and Identification of Psychosis (TIPS) Study (Johannason 2001) have shown that by providing community education targeting GPs, social workers and school welfare workers as well as providing mobile detection teams, reductions in DUP can be achieved (Johannason 2005). This study showed that these programs tend to detect young people in the earlier stages of illness and in particular where there is evidence of a decline in social functioning. Given the evidence of functional decline occurring mostly in the earlier stages of psychosis (ultra-high risk stage of psychosis) then early detection programs can not only reduce the duration of untreated psychosis but also minimize the subsequent impact of a prolonged DUP. In particular, the TIPS study showed early detection teams had better social recovery outcomes, less risk of suicide and less negative symptoms at the 1 year time point. Therefore, early detection is a crucial component to the service delivery and early psychosis model.

Access and Pathways to Care

In a review of the literature related to pathways to care, Norman and Malla 2009 conclude that easy and quick access to excellent consultation, assessment and treatment services are essential in reducing the delays to treatment. Edwards and McGorry (2002) describe a home-based assessment, treatment and support team (YAT team) within the EPPIC model as one way of minimizing the barriers to access and engagement into a service. This multidisciplinary team provides a flexible service operating 24 hours a day, 7 days a week and offers youth focused triage, assessment and crisis intervention services. In the TIPS study, the early detection team provided a mobile service with a low threshold for referral onto services. These models not only provide an easier access to service but also move away from a 'too well for service' culture to a more inclusive 'at-risk mental state' approach with subsequent positive outcomes.

The early detection of young people at risk of developing psychosis (or in the early stages of psychosis) along with support for help-seeking and providing easy access to care, also provides an opportunity to help prior to the surge of florid psychotic symptoms. Subsequently it is more likely to result in a less traumatic and 'crisis-driven' mode of entry into a service and therefore help with engagement which in itself can present as a major challenge to clinicians.

Ultra High Risk of Psychosis

The onset of psychosis is characteristically preceded by a prodromal period. Frequently described prodromal symptoms included depressed mood, anxiety, irritability and aggressive behavior, suicidal ideation and attempts, and substance use, as well as subtle subjective deficits including cognitive, affective and social disturbances (Yung & McGorry 1996). There may also be the presence of attenuated or sub-threshold psychotic-like symptoms such as overvalued ideas, perceptual disturbances as well as deterioration in functioning and behavioral symptoms. The term 'psychosis prodrome' can only be applied retrospectively to those people who transit to a full diagnosable psychotic disorder. Describing all people who experience these symptoms as 'prodromal'

is inaccurate due to evidence that attenuated psychotic symptoms occur in the general public without the transition to psychosis (Tien & Anthony 1990, Van Os 2003, Verdoux & Cougnard 2006) and furthermore the 'prodrome' label suggests an inevitable progress to disease which appears not to be the case. A change in the terminology has been required with the subsequent emergence of the term 'ultra high risk' (UHR) of psychosis.

The development of specific criteria to differentiate between normal human experience and psychopathology with a view to predicting those who will go onto develop a psychosis if left untreated has been a major challenge. Nevertheless, this major advance of identifying the subgroup of people who are at risk of developing a psychotic disorder has been achieved. These UHR criteria (Yung & McGorry 1996) have made it possible to detect and engage a subset of young people presenting with demonstrable clinical needs who were at incipient risk for frank psychotic disorder. The rate of transition to full-threshold psychotic disorder within 12 months in this sample was approximately 35% (Yung et al 2003, Yung et al 2004) a rate 400 times greater than the expected incidence rate for first-episode psychosis in the general population. Although there remains incidence of 'false positives', the criteria have been validated in a number of studies (McGorry et al 2003, Canon et al 2008, Woods et al 2009).

Interventions targeted at the ultra-high risk of psychosis stage of illness provide the possibilities of (i) minimizing disability and adverse health and social impacts associated with this phase; (ii) enabling recovery before symptoms and poor functioning become entrenched, and (iii) and pharmacotherapy. Cognitive behavioural therapy (CBT) has been shown to be an effective intervention (Morrison et al 2004, Bechdolf et al 2007) with reductions in transition rates and psychiatric symptoms which subsequently reduce the likelihood of the need for prescription of antipsychotic medication. The OPUS trial (Nordentoft 2005) also showed a reduction in transition rates of people with schizotypal disorder using a combination of intensive case management, family involvement and psycho-education within a CBT framework.

Although evidence to date suggests that there may be a role for antipsychotic medication being effective in preventing or delaying transition to psychosis (McGorry et al 2002, McGlashan et al 2006), the Australian Clinical Guidelines 2nd edition (Early Psychosis Guidelines Writing Group 2010) do not recommend their use in the UHR stage. Any potential benefits are offset by problems related to side effects, self-stigmatization and the fact that antipsychotic medication may be less acceptable to consumers which may predicate service disengagement. Further, in relation to the possibility of non-transit to psychosis 'false-positives', individuals may be prescribed antipsychotics when they were not at risk of transition to psychosis anyway. The guidelines do suggest however, that pharmacotherapy be considered for those co-morbidities which contribute to the prominence of attenuated psychotic symptoms eg using antidepressants for depression (Cornblatt et al 2007). Also, there is evidence to suggest that omega-3 fatty acids may prevent or delay transition to psychosis (Amminger et al 2010).

For those people who are engaged in a UHR service and eventually transit to a first episode of psychosis despite UHR interventions, an opportunity arises to build upon service engagement and the therapeutic alliance as well as providing early effective antipsychotic treatment.

First Episode of Psychosis

As with the UHR stage of illness, the first episode of psychosis (FEP) stage also requires an integrated approach which combines both medication and psychosocial interventions. The model of early intervention used by the Early Psychosis Prevention and Intervention Centre (EPPIC) has two main goals; to reduce the period of time between the onset of psychosis and the commencement of treatment, and to bring about symptomatic recovery and restore the normal developmental trajectory as early as possible. The management of a first episode of psychosis may be described as having two stages: the acute stage and the recovery stage.

In the acute stage, the overall aims are:

- Monitor the client's mental state;
- Gain a thorough understanding of the person and their situation as quickly as possible;
- Ensure the safety of the individual and others;
- Reduce delay in effective treatment by treating or preventing:
 - o Positive symptoms of psychosis and disturbed behavior;
 - o Negative symptoms and coexisting problems such as depression, mania, anxiety or panic attacks and substance abuse;
- Build a sustainable therapeutic and supportive relationship with the individual and carers;
- Develop a management plan to aid recovery from the acute episode, reduce risk of relapse and promote long term well-being;
- Minimise trauma;
- Instill realistic hope;
- Provide an acceptable explanatory model, with education about psychosis and its treatment; and
- Inform and support the family to relieve their distress and to promote optimal family functioning.

Source: Australian Clinical Guidelines 2nd Ed.

There are two fundamental components to acute early intervention services within EPPIC. The YAT team has been previously described and provides home-based outreach, acute triage, assessment and support services. Where hospitalization is required, in the EPPIC model a specialized, youth friendly Inpatient Unit, staffed by nurses, allied health professionals and doctors, provides inpatient care until the young person is ready for discharge (Edwards & McGorry 2002). EPPIC services seek to ensure that inpatient stays are for the shortest possible time (normally less than 10 days). Early discharge is only possible due to the support of the home-based care and assessment team (YAT team) and strong links with the ongoing case management teams.

Whilst the treatment of symptoms remains an important part of the recovery stage, a full recovery needs to go far beyond the amelioration of symptoms alone. In the recovery stage, the focus of management is to:

- Manage comorbidity, including substance abuse;
- Engage the person in their own treatment;
- Increase adherence to treatment;
- Help the person understand their experience of illness;
- Assist the person in reconstructing and reorienting their lives (including helping them reengage with educational or vocational activities);
- Provide the person with a sense of empowerment rather than passive acceptance of a withdrawn and disabled role;
- Prevent relapse; and
- Assist the person in developing resources for the future.

Source: Australian Clinical Guidelines 2nd Ed.

Consistent and comprehensive clinical interventions from an integrated biopsychosocial approach are required to achieve the goals during the acute and recovery stages of FEP which are the critical early years of illness. Birchwood et al (1998) identified a critical period of 2 to 3 years post onset of psychosis when aggressive deterioration occurs along with entrenching family and psychological reactions to the psychosis. Crumlish et al 2009 supported this notion and went further to suggest that the 'critical period' include the prodrome period reporting evidence that a long duration of untreated illness (DUI - the timepoint from onset of prodrome to onset of treatment) predicts poor psycho-social recovery. The range of, and evidence for, core clinical interventions used in the management of FEP are described in the following sections.

Medication in FEP

The primary aim of medication is to reduce psychotic symptoms and medication should be regarded as a first line intervention for first episode psychosis.

However, a number of pharmacotherapy issues arise for people with a first episode psychosis which should influence how medication interventions are delivered. These issues are highlighted below:

- FEP patients are usually antipsychotic-naïve;
- First experience of antipsychotic medication will influence engagement and adherence;
- Diagnostic instability in FEP may require ongoing adaptation of pharmacological interventions;
- FEP patients generally show more rapid improvement in symptoms than in established schizophrenia;
- Positive symptoms in FEP patients are generally responsive to treatment in terms of overall response rate and degree of symptom reduction;
- FEP patients often improve at low antipsychotic doses;
- FEP patients may be particularly sensitive to extra-pyramidal side-effects; and
- FEP patients are more susceptible to antipsychotic-induced weight gain and metabolic side-effects than those with more chronic illness due to younger age.

Source: Australian Clinical Guidelines 2nd Ed. p.46

Although there are no demonstrable differences in terms of efficacy between typical and atypical antipsychotic medications, there are clear differences in the tolerability and rate of discontinuation with atypicals being superior (Khan et al 2008). A number of studies have also shown that low doses of atypical medications are advantageous particularly for people with a first episode psychosis where tolerability and safety are at a premium (Emsley 1999, Lambert 2003, Robinson et al 2005, Sanger et al 1999). People with FEP respond to antipsychotic medication more quickly and to a greater extent, and generally require lower doses to do so, than those with more established illness. Further, side-effects of antipsychotics are dose dependent and are often caused by rapid titration. For these reasons, a 'start low, go slow' prescribing approach

is warranted; use the lowest possible dose to treat symptoms (Early Psychosis Guidelines Writing Group 2010).

Relapse rates in the first five years of illness are approximately 80% which presents a significant problem. For those people who are in full remission 12 months post onset of FEP, Chen et al 2010 have shown that continuous use of atypical antipsychotic medication for a further 12 month period results in a lower relapse rate than placebo. Although the optimal duration for antipsychotic treatment remains unclear beyond 2 years, given the relapse rates it appears most people would benefit from the 'insurance policy' of ongoing antipsychotic medication treatment. However, since this notion of continuous medication presents a challenge to many people, some studies (Gabel et al 2010, Wunderlink et al 2007) have contrasted the utility and effectiveness of intermittent, targeted use of medication with continuous use with evidence suggesting this may be of value for a subgroup of people with FEP.

Psycho-social Interventions in FEP

Whilst medications assist in the amelioration of psychotic symptoms, their role in achieving a full functional recovery is limited. Psychosocial interventions have a fundamental place in the treatment of first episode psychosis, providing a humane basis for continuing care, preventing or resolving secondary consequences of psychosis and promoting recovery (IEPA Writing Group 2005). Although psychological therapies have been typically used in the recovery phase of psychosis, there are some studies which have been shown to be of benefit in the acute phase also.

The SoCRATES Study (Study of Cognitive Reality Alignment Therapy in Early Schizophrenia) (Haddock et al 1999, Lewis et al 2002) compared CBT and supportive counseling with 'treatment as usual' (TAU) for promoting recovery and relapse prevention. In the initial short term evaluation, results showed that CBT had a significant positive effect in reducing reported positive and negative psychotic symptoms compared to TAU alone and was superior to counseling in reducing positive symptoms. The benefits of CBT proved to be long term (at 18

months) compared to TAU although there were no effective differences compared to supportive counseling at this time point (Tarrier et al 2004). The ACE project (Jackson et al 2008) compared CBT with 'befriending' in people who were accepted within 4 weeks into a FEP service. Befriending describes an intervention which allowed social contact with a clinician with conversation focused on 'general chat' but prohibited any emotional support being given. The CBT intervention was given over a 14 week period and showed it outperformed befriending on measures of functioning but not symptomology with no significant differences at 12 months. Both these studies suggest some benefit of CBT interventions in bringing about recovery in the acute phase of psychosis.

A systematic review and meta-analysis of pharmacological and psychosocial interventions for relapse prevention (Alvarez-Jimenez 2009) showed that the combination of CBT and family interventions produced significantly better outcomes than single interventions alone. The intervention combining CBT and family interventions (Gleeson et al 2009) reported lower relapse rates and lengthened the time between relapse compared to a standard care control group. Three psychological interventions specifically developed for FEP with promising results are firstly, Cognitive Oriented Psychotherapy for FEP (COPE) (Henry et al 2002), secondly, an intervention described by Jolley et al (2003) which focused predominantly on the adjustment process and thirdly, the Graduated Recovery Intervention Program (GRIP) (Waldheter et al 2008) which focused on the domains of symptom improvement, optimism and self efficacy in relation to illness and functional recovery. In an uncontrolled trial (Erickson 2010) evidence is presented of the effectiveness of CBT in FEP for ongoing positive psychotic symptoms in 'treatment resistant' FEP patients. A systematic review of CBT in early psychosis services (Bird et al 2010) concludes that CBT for early psychosis has longer term benefits in reducing symptom severity.

Psychological interventions are an integral component of the EPPIC Model. Case managers from a multidisciplinary background are encouraged to use these interventions with supervision but referrals can also be made to the clinical psychologists employed within the programme. A more in-depth description of a number of psychological interventions in early psychosis can be

found in Gleeson & McGorry 2004 *Psychological Interventions in Early Psychosis: A Treatment Handbook*, Wiley.

Family interventions are also a core component of the EPPIC Model. Again, case managers are encouraged to provide these interventions with a back up from a specialist family therapist who may also take referrals for complex cases. General principles for working with families with an early psychosis family member are highlighted below:

- Recognize the phase nature of the patient's illness, and that family work needs to be adaptable and flexible in approach;
- Recognize that families will have a range of different feelings, worries and questions;
- Recognize that families need time and an opportunity to deal with the crisis and ensuing stressors;
- Recognize that the explanations that families have for what has happened to them need to be heard and understood;
- Recognize that families need a framework for understanding;
- Recognize that families also need a recovery time and may go through particular stages;
- Recognize that the family work may change over time, ranging from a maintenance role to dealing with longer-term, ongoing issues; and
- Recognize that family work is a preventive intervention. It is aimed at addressing levels of distress, burden, coping, social functioning and general health for all family members.

Source: Australian Clinical Guidelines 2nd Ed. p.69 (from Gleeson et al 1999)

A range of family work interventions and empirical studies have been described by McNab and Linzen 2009. They highlight distress, negative experiences of care giving and grief, as being features of the care giving experience in FEP families. Reviewed family interventions range from psychoeducation alone (offered individually or in multifamily groups), to broader interventions including a focus on early warning signs, stress management, problem solving skills,

affect regulation, attributing maladaptive behavior to illness, communication skills training, and reduction of high expressed emotion. Bird et al 2010 also systematically review family interventions in early psychosis services and report that reduced hospitalization and relapse rates are achieved, supporting the larger body of evidence for the role of family interventions in schizophrenia. Family peer support is also an integral part of the EPPIC Model and is described by Leggatt 2007. The family peer support programme employs family members of ex-clients to provide telephone or face to face support to new families or carers who have entered the early psychosis service.

The Australian Clinical Guidelines for Early Psychosis 2nd Edition (*Clinical Guidelines Writing Group 2007 p.73*) recommend that those people with a first episode of psychosis (or UHR) be offered group programs tailored to the different phases of psychosis in a range of clinical and community based settings. Although there is limited empirical evidence reviewing the effectiveness of group programs in FEP, there are some studies of note. One study (Albiston et al 1998) suggests that those referred to a range of group programs tended to have a poorer premorbid adjustment and trend towards a higher negative symptom profile. The group program had an effect in remediating poor functioning and preventing further deterioration and disability. In another study (Norman et al 2002), a group stress management program was found to reduce hospitalization rates above standard FEP services. A clinical manual has been developed describing the EPPIC Model of Group interventions (EPPIC 2002)

The majority of people who develop a psychosis do so at a crucial point in the development of their vocational and educational lives (Killackey et al 2009). The subsequent loss of opportunity gained from employment or education can have a significant impact on the sense of self, quality of life, productivity and income as well as social contact. Young people with a first episode of psychosis face a range of psychological and social challenges in achieving their goal to find employment or ongoing education despite their motivation to do so (Rinaldi et al 2010). Typically, they are falling out of education and employment by the time they present to FEP services and the decline may continue thereon. European

studies (Marwaha and Johnson 2004) suggest an employment rate of only 10 to 20% of people with schizophrenia and an average of 37% employment for those with a FEP.

Interventions aimed at restoring this normal developmental trajectory are therefore crucial to any early intervention service. The prospect of gaining or regaining employment or further study is not only seen as a goal but is therapeutic in its own right. Of particular relevance to a first episode population is the 'Individual Placement and Support' (IPS) model (See Killackey et al 2009 for full description). This model focuses on helping people return to competitive employment rather than sheltered work, and is a community-based model rather than being based in a mental health service. People are encouraged to engage on a voluntary basis when they feel ready, and support is ongoing rather than ceasing when the person has found employment. It has also been shown to be adaptable to different socio-political systems and contexts, and can be applied to both vocational and educational recovery.

This intervention has been found to be particularly effective when utilized with people following a first psychotic episode (Killackey et al 2008). In this Randomised Controlled Trial study, the IPS group had significantly better outcomes on levels of employment, hours worked per week, the number of jobs acquired and the longevity of employment. It also reduced the reliance on welfare benefits therefore having a positive economic impact as well as the social and health benefits. Although case managers should have a role to facilitate access to educational and vocational services (Early Psychosis Clinical Guidelines Writing Group 2010), in the EPPIC Model, an employment consultant is also integrated within the FEP service.

Young people's experience of mental illness and their subsequent treatment needs are often different from those of adults for a variety of reasons (James 2007). In order to ensure access and improve tenure to clinical interventions and treatment, it is essential that early psychosis services make their services 'youth friendly' by incorporating youth participation principles into the core components of their service. James (2007) describes a number of models of youth participation including the 'Platform Team' at EPPIC.

This Youth Participation Program ensures the service provides a youth friendly environment and is accountable to its clients. It facilitates peer support between clients and program workers to participate in staff selection by contributing to interview selection panels. All clients are eligible to join the youth participation team whose function is as a group to meet regularly to discuss possible improvements to the service or have involvement in community development or advocacy activities. Peer support workers who are past clients visit current EPPIC clients in inpatient care, as well as provide support to other clients on an outpatient basis. These peer support workers receive training, mentoring and supervision and are paid for their time.

Incomplete Recovery

A number of young people experiencing their first episode of psychosis will have an incomplete recovery due to residual psychotic symptoms or a continued loss of social, vocational or educational functioning. In the literature, there is no agreed definition of incomplete recovery or treatment resistance and so the prevalence is difficult to accurately determine (Pantelis & Lambert 2003) although Edwards et al (2002) report 20% at the 12 week time point. Factors influencing incomplete recovery are known and predictable and may be complex (Huber & Lambert 2009). A service system of early detection of incomplete recovery and a formulated, integrated biopsychosocial approach to interventions are required to address all known factors and are embedded within the EPPIC model (Edwards et al 2002). Although the level of intensity and assertiveness of care varies on an individual basis, young people with an incomplete recovery are those likely to go onto an extended period of care of up to 5 years.

2.3 Efficacy of Early Psychosis Services

This paper has identified a number of core components which go towards the development of an early psychosis service. A clear rationale for the components has been presented and where available, evidence to support this. The

evidence of the effectiveness of early psychosis services is compelling with a number of international studies demonstrating this.

Within the EPPIC Program, a naturalistic effectiveness study compared 12-month outcomes among patients treated under the EPPIC model in 1993 with an historical cohort of patients with first-episode psychosis (McGorry et al 1993). The results showed that clients treated within EPPIC experienced significantly better outcomes than their counterparts with regard to overall quality of life, including social and other role functioning. The level of post-traumatic stress associated with hospitalization and other elements of treatment was also reduced, and the experience of psychosis itself was reported as less traumatic.

An 8-year follow-up of a large sample of EPPIC patients (Mihapoulos et al 2009) described the 8-year outcome, cost and service utilization. Data for this study were collected as part of a naturalistic, prospective follow-up of 723 consecutive first-episode psychosis patients, several years after initial presentation to EPPIC. At 8-year follow-up, the pre-EPPIC group had a higher proportion of individuals with a lifetime diagnosis of schizophrenia or schizophreniform disorder than the EPPIC group (76% vs 56%). Furthermore, the EPPIC group had less severe symptoms and a higher level of global functioning compared to the pre-EPPIC group as well as a more favourable course of illness. This showed that the positive clinical outcomes achieved in the EPPIC program were maintained over the long term.

Two randomized controlled trials have been reported to evaluate the effectiveness of specialist first episode psychosis services. The OPUS study randomized 547 clients to either a standardized mental health treatment or to an integrated community based, assertive treatment providing pharmacotherapy, family interventions and social skills training (when necessary) for a period of 2 years (Jorgenson et al 2000). The results showed that the integrated treatment group had better symptomatic and functional outcomes as well as better client tenure and satisfaction at both 1 and 2 year

follow up (Peterson et al 2005a, Peterson et al 2005b). At 5 year follow up some of the gains had been eroded (Bartelson 2008).

The Lambeth Early Onset study (LEO) randomized 144 people with FEP to either standard community health treatment or 18 month specialized care based on an assertive outreach model (Craig et al 2004). Specialized care involved low dose antipsychotic medication, CBT, family and vocational interventions. Results showed reduced hospitalizations, relapse rates and treatment disengagement as well as improvements in recovery rates. However, as with the OPUS study, at 5 year follow up the gains had also been lost with the transfer of clients to community adult teams. An emerging consensus now suggests that for a substantial sub-set of clients at least, there needs to be up to a 5 year period of specialist service provision. Evidence to support this has emerged from the Canadian PEPP model (Norman et al 2011) which provides a step down service after 2 years (with up to 5 years tenure of care), For the subset of young people who required and received a step-down extra 3 years of care, the gains made in symptomatic recovery in the first two years in the PEPP model continued and the level of global functioning further improved over the 5 years. A comparison with the OPUS study showed that there were continued benefits with a longer continuity of care.

In a historical controlled trial comparing different models of early intervention services in Norfolk UK, Fowler et al (2009) report that the implementation of comprehensive early intervention teams can have a major impact in improving hospitalization rates and functional recovery of people with a first episode psychosis. The study compared three services which were identified as traditional care (a generic community mental health team - CMHT), partial model (a CMHT plus specialist support) and a comprehensive early intervention team. The authors report noted that the greater the fidelity to a comprehensive early intervention service, the better the outcome.

2.4 Economics of Early Psychosis

While it might be expected that the care provided in the more intensive and continuous EPPIC model is more expensive than what is provided in the existing system, Australian and international evidence (Valmaggia et al 2009, Mihalopoulos et al 1999, Mihalopoulos et al 2009, Goldberg et al 2006, McCrone et al 2010) indicates that the early intervention model reduces healthcare expenditure. These cost savings are further enhanced when other cost savings flowing from reduced unemployment, reduced suicide and reduced homicide are factored in.

Orygen Youth Health has modeled the results of Australian and international studies of early detection services to the Australian healthcare system to indicate that:

- **Health and social costs are better with early detection of the pre-psychotic or Ultra- High Risk group.** Although standard care has a lower intervention costs than EPPIC model early detection programs, total healthcare costs per person are lower (\$9,467 under the recommended CBT intervention compared to \$11,553 under standard care). Social costs are also lesser under the EPPIC model's recommended CBT intervention (\$15,753) compared to standard care (\$21,465).
- **Health costs are less when providing the EPPIC service for first episode psychosis clients.** The health costs through providing the full EPPIC model to young people experiencing a first episode psychosis are estimated to be \$25,955 compared to \$36,833 under standard care. International evidence indicates that partial implementation of the EPPIC model also delivers economic gains over standard care, though not to the same extent as full implementation of the EPPIC model.
- **Employment costs are less when providing the EPPIC service for first episode psychosis clients.** Modeling available data indicates that the costs of lost employment under an EPPIC type model are \$14,165 compared to \$20,728 for standard care.

- **Homicide costs are less when providing the EPPIC service for first episode psychosis clients.** The annual cost per patient per year arising from homicide are modeled at being \$16 under EPPIC compared to \$162 for standard care. The figures are small because homicide is a very rare occurrence. It should be noted however that reducing the duration of untreated psychosis is a priority strategy for reducing homicide as there is a significant association between the duration of untreated psychosis and homicide. Homicide and serious violence is far more likely amongst those who have not yet received a period of appropriate treatment.
- **Suicide costs are less when providing the EPPIC service for first episode psychosis clients.** The expected annual costs of suicide per person per year are \$2,104 under an EPPIC type model of care compared to \$6,479 under standard care.

2.5 Summary

The ages between 15 and 24 years are a crucial time in the development of a young person and this coincides with the peak onset of serious mental illness. Delaying the provision of appropriate treatment can have a major negative impact on the future development of young people as well as prolonging distressing symptoms and increasing the risk of premature death. Early intervention services, through early detection and provision of smooth, youth-oriented access to specialist early psychosis treatments, can change the course of illness. Evidence-based early interventions and services with a demonstrated efficacy are now available. The 'proof of concept' has been shown with the EPPIC Model now becoming the proto-type for numerous early psychosis intervention services both nationally and internationally. The evidence also suggests that a 'watering down' of the model may diminish the outcomes for young people.

Section 3

Translation of the EPPIC Model into Other Settings - Possible Configurations and Modeling

3.1 Introduction

There may need to be a level of flexibility built into service delivery of the EPPIC model, such as in regional areas. The model has the capacity to be delivered within a 'hub and spoke' service delivery framework, which may be of use in both metro and rural areas, as long as the essential core components of the EPPIC model are adhered to. For densely populated metro areas, a hub and spoke model may overcome issues of traffic congestion or poor public transport affecting access to care whereas in rural areas covering a large geographic spread, a hub and spoke model may provide access to a more local regional service. Innovative ways of addressing service delivery within the model can be sought, for example the use of Early Psychosis / Youth Mental Health Nurse Practitioners, the use of information technology, or by developing partnerships with other health care providers.

Potential service configurations may vary depending on the size of the catchment area which will in turn affect the size of the actual EPPIC service itself. As services build up their client numbers over the four year period, there is an expectation that there will be some financial capacity to invest in time bound activities to address challenges that directly relate to the startup phase of the service. It is anticipated that services will use this financial capacity to address issues such as managing 'pent up initial demand' in local catchment areas by bolstering the assessment program component of clinical services in the initial stages, developing community awareness, partner relationships and referral protocols through increased emphasis on this task in the initial phases, and embedding a best practice culture through investing in training and service development.

3.2 Implementing EPPIC in Different Geographical Settings

A number of possible service configurations may occur in different geographical locations.

The relationship between catchment size and annual funding will vary depending on local salary rates and non-salary costs, demographic factors relating to proportion of population in 15-24 age range and whether rent-free service premises can be provided by public health network. Based on conditions likely to apply in most areas and the available funding under the EPPIC measure, the optimal size of service catchment is likely to be between 500,000-800,000 people. Smaller catchments of 250,000-500,000 will also be easily accommodated in this measure, though they will not enjoy some of the economies of scale of the larger services. In some circumstances, local cost and other conditions may enable services to plan for catchment sizes between 800,000 and close to a million. However, as this is the outer limit of potential catchment size, services pursuing this option will need to be especially confident that their modeling assumptions will apply in the longer term.

Section 4

Proposal to Establish a Pilot Early Psychosis Intervention Programme in Santa Cruz de la Sierra, Bolivia.

4.1 Why Early Psychosis Intervention?

With a peak onset between 15-25 years of age, psychotic disorders such as schizophrenia can derail a young person's social, academic, and vocational development and initiate a trajectory of accumulating disability (Harrison et al 2001). Youth who are experiencing first episode psychosis are often frightened and confused, and struggle to understand what is happening to them. They also present unique challenges to family members and clinical providers, including irrational behavior, aggression against self and others, difficulties communicating and relating, and conflicts with authority figures. Impaired awareness of illness may be an additional complicating factor.

Despite these complexities, early intervention with evidence-based therapies offers real hope for clinical and functional recovery. Both meta-analytic and narrative reviews of randomized and quasi-experimental treatment studies conclude that early intervention services for psychosis can improve symptoms and restore adaptive functioning in a manner superior to standard care. An abundance of data accumulated over the past two decades supports the value of early intervention following a first episode of psychosis (Heinssen et al 2014).

4.2 The Current State of Psychosis Treatment in Bolivia

Lack of Detection

There is a large gap between the estimated number of people who experience a first episode of psychosis in Bolivia and the number who go on to receive any kind of psychiatric treatment. This is principally due to a lack of appropriate recognition of psychotic symptoms among the general public as well as within the health care community (Jaen-Varas et al 2014). While data is limited, evidence suggests that fewer than half of the more than 250 adolescents and

young adults¹ who are estimated to experience a first episode of psychosis in the city of Santa Cruz are ever diagnosed.

Lengthy Duration of Untreated Symptoms

Patients who are eventually recognized as having a first episode of psychosis are estimated to have experienced, on average, 2 years of symptomatology prior to diagnosis. At this stage, psychiatric treatment occurs most often in an inpatient setting and most frequently follows an episode of aggression that places the patient or others at risk for harm. In addition to being an experience that is often traumatic for a young person in the midst of a first episode of psychosis, inpatient stays in Santa Cruz are not publicly funded and often result in a high level of financial debt for family members.

Limited Options for Psychiatric Treatment

Most psychiatric care for patients with psychosis in Bolivia occurs in reaction to a crisis and is focused on the pharmacological management of what has already developed into severe symptomatology. There is minimal provision of psychological or social interventions required to more fully support recovery and a return to functionality. Most psychiatric treatment occurs in inpatient psychiatric hospitals during lengthy stays, which in Santa Cruz are not publicly funded. Outpatient options are limited. This contributes to difficulties with treatment adherence, high relapse rates, and a resulting cycle of frequent psychiatric inpatient re-admissions.

4.3 Barriers

Several barriers particular to Bolivia contribute to a lack of detection and sub-optimal treatment of psychosis in this country.

Stigma

There is an especially strong stigma of mental illness throughout Bolivia. This leads to a high reluctance to seek psychiatric care and makes it difficult for much of the population to accept or identify with traditional psychiatric diagnoses.

¹ Incidence estimate is based on World Health Organization incidence rates for schizophrenia spectrum diagnoses in 15-24 year olds.

Limited public funding for mental health

The Bolivian government provides very little public funding for mental health programs, including programs to address psychosis. In recent years Bolivia earmarked only 0.2% of its health budget for mental health (Garcia 2011), meaning that only about USD\$75,000 was directed towards the program of National Mental Health, Prevention and Rehabilitation. Santa Cruz does not have, for example, a public psychiatric hospital. There are three psychiatric hospitals in Santa Cruz, all of which mostly treat patients with psychotic disorders, such as schizophrenia. None of these facilities are public and all patients must pay out of pocket for a significant portion of their treatment. This makes inpatient treatment unaffordable and inaccessible for most of the population and leads many families into significant debt. There are also limited options for publicly funded outpatient treatment. Only two outpatient psychiatrists in Santa Cruz are reported to currently be working in the public sector.

Limited number of psychiatrists

Bolivia has a especially low presence of psychiatrists, with an average of only 1 per 100,000 inhabitants (Garcia 2011). This compares with an average of 15 per 100,000 in OECD countries and 4 per 100,000 in Chile. In the department of Santa Cruz there are estimated to be only 20 psychiatrists serving a population of nearly 3 million inhabitants, many younger than 25, which is when a first episode of psychosis most often occurs.

Limited mental health training

There is a lack of mental health training for primary care health personnel. Only an estimated 2% of training is devoted to mental health during medical school². There are also very few post-graduate training opportunities. This leads to a limited ability to appropriately screen for, identify, and treat mental illnesses in the general population.

^{2, 4, 5} Informe de la Evaluación de Salud Mental en Bolivia Usando el Instrumento de la Evaluación de los Sistemas de Salud Mental de la OMS 2008.
http://www.who.int/mental_health/bolivia_who_aims_report.pdf

Fragmented medical system

Bolivia has a highly fragmented medical system (Ledo & Soria 2011). There are no electronic medical records. There is limited coordination of care between individual providers as well as between group providers, such as clinics and hospitals. It is, therefore, often left to patients and their families to attempt to manage their own health care information and to communicate this effectively and efficiently with multiple providers. This can be an overwhelming burden, especially for family members already struggling to cope with a very ill relative, or for an individual who may have cognitive difficulties due to a sub-optimally treated psychotic disorder.

These barriers make it difficult for anyone with a mental illness in Bolivia to receive adequate care. For individuals with psychosis, and for their families, the impact of this reality is especially significant.

4.4 Psychosis

Psychotic disorders, such as schizophrenia, if not treated, treated early, and treated appropriately, are the most debilitating of all mental illnesses. In fact, they are amongst the most debilitating of all medical illnesses. At a public health level, according to the World Health Organization, psychotic disorders are the third most disabling condition in the world, more disabling than blindness and paraplegia. Psychotic illnesses also decrease lifespan by an average of roughly 10 years (Chatterji et al 2013). On a more individual level, those with psychosis often experience tremendous anxiety, engage in actions that are dangerous to themselves or others, and are at increased risk for additional psychiatric disorders, victimization, poverty, and additional medical problems (Lund et al 2011). And families of individuals with psychosis frequently experience high emotional as well as financial strain as they attempt to understand and treat their loved one's difficulties without adequate support and without having an accurate understanding of what precisely is occurring.

4.5 Benefits of early intervention

Programs that lead to early intervention for psychosis cut these risks significantly. While primary prevention of schizophrenia and related disorders,

such as bipolar disorders and schizoaffective disorders, remains out of reach, early intervention programs provide excellent prospects for secondary prevention. Early intervention programs improve short and long term outcomes, decrease recovery time, decrease use of hospitalization, decrease the risk of negative socio-economic consequences, reduce secondary psychiatric complications, including use of substances, minimize family disruption, and reduce risk of relapse. Early intervention programs have achieved remission rates of up to 70% in patients and more than 75% of patients in well-managed programs have returned to school or obtained gainful employment.

4.6 Arguments for early intervention in Bolivia

Despite the multiple barriers to mental health treatment in Bolivia, several factors indicate that an early psychosis intervention programme would not only lead to better outcomes, but would also fit very well in many communities here.

A well-designed programme does not require significant investment in medical or physical infrastructure, technology or high-cost, hard-to-obtain medications. Our proposed programme also does not rely heavily on psychiatrists, of whom the supply is limited in Bolivia, or on a large workforce of highly trained personnel. On a per patient basis, early intervention is far less costly than inpatient crisis treatment, which is the current *de facto* standard of psychiatric care for psychosis in this country. Using terms applied to sustainable development, our proposed early psychosis intervention program represents a low-tech, appropriate and potentially very transferable technology.

For these reasons, addressing psychosis through an early intervention program appears to be a better fit for Bolivia than simply attempting to expand current standard psychiatric or medical care – or making already available care more accessible. Given its barriers and limited resources, Bolivia does simply not need more mental health care – it needs a shift towards smarter, more strategically organized, more economical care – and this programme would represent an important step in this direction.

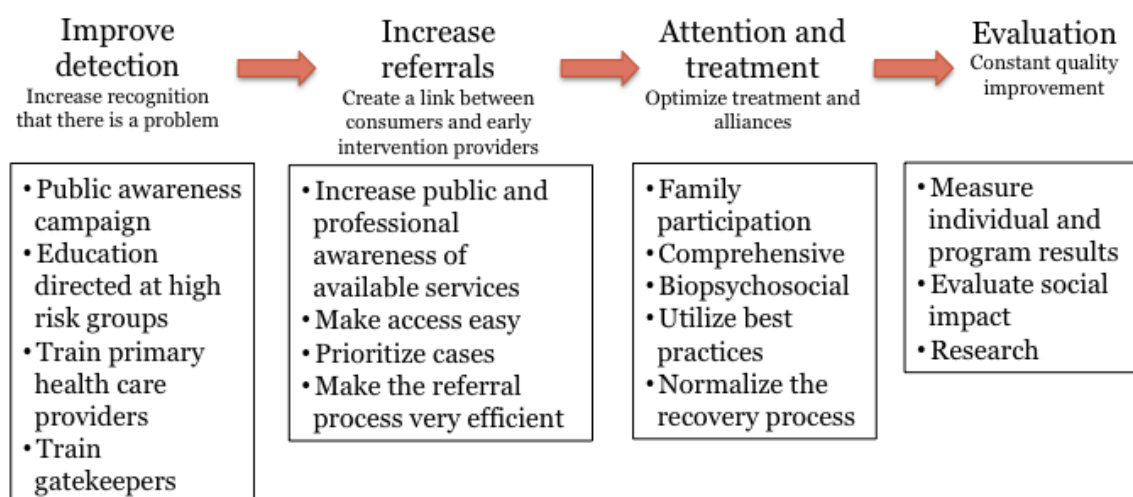
4.7 Programme Overview

We will create a pilot early psychosis intervention program called *El Programa de Apoyo Temprano a la Psicosis (PATAP)* that will provide age appropriate bio-psycho-social treatment and support for 15-25 years old with first episode psychosis and their families. This program's specific objectives are to:

- Improve short and long-term outcomes for those with psychosis
- Increase speed of recovery
- Decrease the need for hospitalization
- Reduce family disruption
- Decrease rates of relapse

A programme such as this has never been attempted in Bolivia or, as far as we aware, in any other community with a similar cultural, economic, and social profile. We, therefore, expect to learn a great deal as the programme moves forward. To support this process we will emphasize constant quality improvement, with an ongoing research and evaluation component. It is also for this reason, together with our need to manage what we expect will be limited resources at start-up, that we are proposing a pilot programme, focused on a specific segment of the population: 15-25 year olds with affective and non-affective psychosis, who reside in the neighborhood of Plan 3000 in the city of Santa Cruz de la Sierra, representing a catchment area of 350,000.

Like most early psychosis intervention programmes, our programme will organize its activities into four principal components, each with its own objective:



As described in the diagram above, our first set of activities – which serve as a foundation to the programme – is designed to improve detection. We expect that improved detection will drive programme referrals. Our second set of activities is organized around making referrals as efficient and easy as possible. Our third set of activities is designed to optimize the treatment of early psychosis with evidence-based practices. The final set of activities will allow us to carefully evaluate the programme and will support our goal of constant quality improvement.

Improve Detection

One of this programme's principal goals is to reduce the duration of untreated psychosis (DUP) by improving early detection of first episode psychosis in the community. Our education and outreach programmes are designed to support this goal by improving awareness and reducing stigma.

The target of our education programs will be high school and university students, their family members, and other “gatekeepers” who are in a position to interact with people in our client age range, such as teachers, counselors, and coaches. In Bolivia, many who experience a first episode of psychosis are taken by family members to see other medical specialists, such as neurologists, or traditional healers – instead of seeing a psychiatrist. These family members are aware that something is wrong, but are not sure precisely what is wrong. Because of stigma they are often reluctant to pursue psychiatric care. This not

only causes delays in the receipt of appropriate treatment, but also results in interventions that contribute to worsening symptomatology. We will, therefore, also carry out educational programmes with each of these provider groups, as well as with primary care providers. Clear explanations about the referral process will be included in these educational programmes.

We will hire two outreach specialists who will develop and carry out these training sessions. These specialists will be very familiar with local culture, informal systems of care, and the school system. They will be responsible for removing barriers to rapid treatment and will develop referral pathways with inpatient facilities, emergency departments, and the criminal justice system. They will cultivate relationships with admission and discharge personnel at these agencies through frequent visits, phone calls, and email communication. The outreach specialists will also monitor referrals and intakes to the program, and will facilitate the connection of likely candidates to the program.

To further support the detection of psychosis and referrals to treatment, we will also train and hire 5 part time “health agents”. These will be carefully selected members of the community paid to visit every high school in our target neighborhood twice per year. The goal will be to increase awareness of the signs and symptoms of psychosis, maintain our programme in gatekeepers’ awareness, assist with the identification of at-risk youth, and provide information about the referral process – all while instilling a message of hope and belief in our treatment process.

Another key component of our outreach efforts will be a public awareness campaign carried out via organized media activities. This will include a marketing plan detailing the timing, content, and message of recovery and hope that we intend to convey. We anticipate organizing intensive media exposure at the launch of the programme. This will be followed by news articles that will convey more detailed information about our program. Subsequent activities will include monitoring of media reporting, as well as regular meetings with media representatives. Radio shows are traditionally considered a very trustworthy source of information in Bolivia and we believe that communicating via this form

of media will represent a relatively low cost way to reduce stigma, increase awareness and reach our target audience.

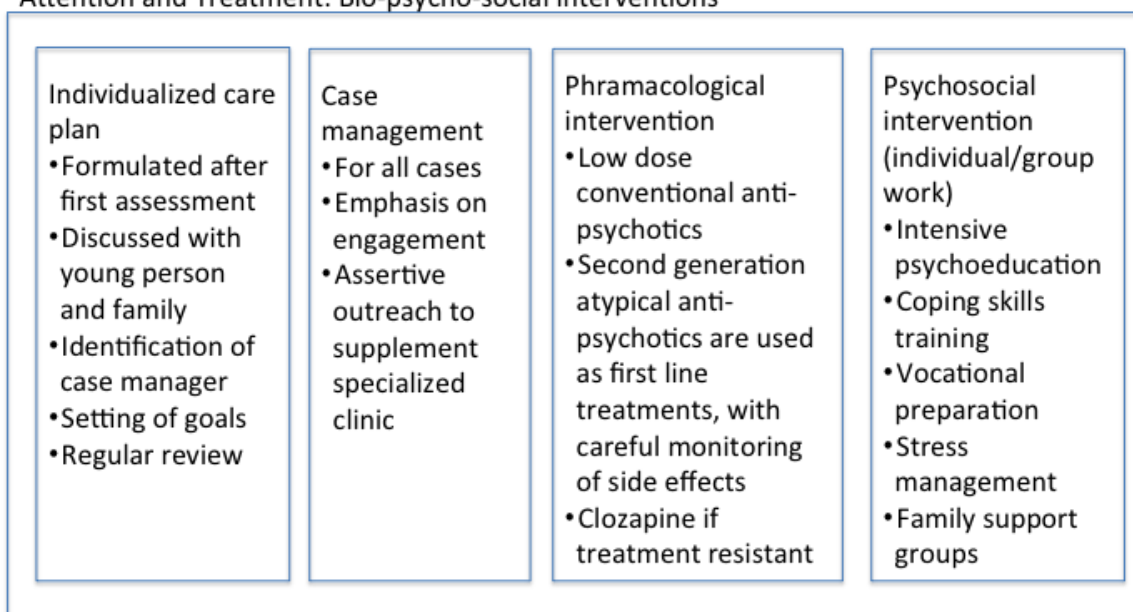
Increase Referrals

We will have multiple initiatives to support the efficient and rapid access to treatment for any individual identified as possibly experiencing a first episode of psychosis. These will include creating and operating a toll-free referral telephone line, as well as promoting frequent contact between our outreach specialists and the gatekeepers identified above, such as school representatives, general practitioners, and traditional providers of health care. Once a referral to our programme is made we will carry out a structured assessment by telephone within 24 hours and, if appropriate, an in-person diagnostic assessment within 72 hours. Given that many young people have difficulty engaging with clinic-based services, our outreach team will be mobile and will be able to carry out assessments in the client's home.

Attention and Treatment

Our treatment programme will be comprehensive, provided across all settings, (including outpatient to inpatient settings), and will include biological, psychological, and social interventions, as described in the figure below:

Attention and Treatment: Bio-psycho-social interventions



After being accepted into our programme, clients will receive a thorough medical assessment, and will then be assigned to a designated case manager. This case manager will provide in-depth engagement with the client, while also working with the client's family. Client progress will be monitored regularly, and problems in the recovery process will be identified early and managed in an assertive manner in order to obtain the best possible outcomes in terms of symptoms, functioning, and subjective recovery.

A standardized psychoeducational programme will be delivered to all clients and their family members. Group therapy will also be offered. Clients with additional needs, such as residual symptoms, secondary mood or anxiety symptoms, will be referred to face-to-face therapy with one of our clinical psychologists. Psychosocial rehabilitation interventions will also be provided via staff employment and educational support specialists. As with assessments, our treatment team and programmes will be mobile and able to travel to our clients' homes when appropriate in order to minimize trauma, disruption and anxiety for the client and family.

We will establish treatment protocols for pharmacological interventions based on best practices, whose adherence will be closely monitored. We will utilize low dose, second generation atypical antipsychotics as first line treatments, with careful monitoring of side-effects. Clozapine will be used if there is treatment resistance.

Treatment within our programme will continue for three years prior to a supported transition to standard outpatient care. This will include the provision of intensive case manager contact for the first two years. The third year in the programme will be a transitional period with decreased case manager input while medical follow up is maintained.

Roles and Services

The following clinical roles will be established in order to successfully carry out our care and treatment activities³

Treatment Team Role	Description	Evidence-Based Rationale
Team Leadership: Guillermo Rivera, MD, PhD	Dr. Rivera is an experienced clinician with a clear commitment to recovery-oriented care, management, and program development skills. He will provide ongoing consultation to team members regarding the principles of early psychosis intervention and will coordinate key services such as screening potential clients for admission into the program, leading weekly team meetings, overseeing treatment planning and case review conferences, and cultivating referral pathways to and from the treatment program.	Building and sustaining an effective mental health team requires committed leadership that provides clarity of purpose, a shared vision, and frequent review of team operations to maintain high quality care. Strong leadership results in greater collaboration and coordination with multidisciplinary team; solid teamwork translates into improved patient care and superior clinical outcomes for persons with first episode psychosis.
Case Management: TBD	Our programme's case managers represent perhaps the most vital part of our team. They are jack-of-all-trades, assisting clients with problem solving, offering solutions to address practical problems, and coordinating social services across multiple areas of need. Case managers have frequent in-person contact with our clients and their families, with sessions occurring in clinic, community, and home settings as required.	Successful treatment of individuals with first episode psychosis often requires a high degree of coordinated care, which is effectively delivered using a case management model. Individuals who experience first episode psychosis frequently need assistance with practical problems such as obtaining medical care, managing money, securing transportation, navigating the criminal justice system, and procuring stable housing.
Supported Employment and Education (SEE): TBD	SEE services will facilitate our client's return to work or school, as well as attainment of expected vocational and educational milestones. SEE will	For younger clients, the experience of first episode psychosis can disrupt school attendance and academic performance. For young adults, first

³ Adapted from "Evidence-Based Treatments for First Episode Psychosis: Components of Coordinated Specialty Care", NIMH, 2014

	emphasize rapid placement in the individual's desired work or school setting and will provide active and sustained coaching and support to ensure the individual's success. Our SEE Specialists will strive to integrate vocational and mental health services, act as the team liaison with outside educators and employers, and frequently work with our client in the community to enhance school or job performance.	episode psychosis can impede attempts to obtain or maintain employment. Young clients with first episode psychosis are often in school or are establishing their initial work career. Resumption of normal education or vocational activity is a common goal for clients and family members. SEE services are noted to be highly valued by many clients in other programmes, and often provide motivation for adhering to other aspects of treatment programmes.
Psychotherapy: TBD	Our psychotherapy program for first episode psychosis will be based upon cognitive and behavioral treatment principles and will emphasize resilience training, illness and wellness management, and general coping skills for improved stress management. Treatment will consist of core and supplemental modules and will be tailored to each client's needs. Clients and psychotherapists will work one-on-one or in groups, with the duration and frequency of sessions personalized for each individual.	Psychological interventions are essential for symptomatic and functional recovery, and may aide in the prevention of comorbidities, such as nicotine addiction and substance abuse. The experience of first episode psychosis disrupts the person's sense of wellness and often derails confidence and pursuit of pre-illness life goals. Psychotherapy – individual or group – aims to restore the person's feelings of personal wellness, reinforce coping and resilience, lessen the likelihood of subsequent psychotic episodes and prevent or treat comorbidities.
Family Education and Support: TBD	Our family education and support program will teach relatives or other individuals providing client support about psychosis and its treatment and will strengthen their capacity to aide in our client's recovery. To the greatest extent possible, and consistent with the client's preferences, supportive individuals are included in all phases of treatment planning and decision-making. For individuals less than 18 years of age, participation of a family or guardian will	A first episode of psychosis (FEP) can have a devastating impact on the ill person's relatives and other support persons, who struggle to adjust to changed circumstances and new demands. Education about psychosis and its treatment is recommended for all families during the initial phase of FEP care. Increasing relatives' understanding of psychotic symptoms, treatment options, and the likelihood of recovery can lessen family

	be required. Depending on the number of clients served at any given time, family therapy will be offered on an individual basis, or through multi-family workshops and support groups.	members' distress and feelings of helplessness. In addition, an alliance between the care team and family members often helps to maintain contact with the client in the event that psychotic symptoms reoccur.
Pharmacotherapy and Primary Care Coordination	Evidence-based pharmacologic approaches will guide medication selection and dosing for our clients. Pharmacotherapy will typically begin with a low dose of a single second generation antipsychotic medication and will include monitoring for psychopathology, side effects, and attitudes towards medication at every visit. Special emphasis will be given to cardiometabolic risk factors such as smoking, weight gain, hypertension, dyslipidemia, and pre-diabetes. Our psychiatrists will maintain close contact with primary care providers to assure optimal medical treatment for risk factors related to cardiovascular disease and diabetes.	Guideline-based use of medication optimizes the speed and extent of recovery, as well as acceptance of pharmacologic interventions. The medical care of young people during the early stages of mental illness is considerably different in style and content compared to approaches used in older individuals with established illness.

Size of the Intervention Team

Our programme will be implemented under a "radial" model basis, where primary care, responsibility and focus care program is in the hands of current and leading providers of mental health services (the "spokes"), but the contribution of specialists is provided by a treatment team of experts dedicated to first episode (the "hub").

The Early Intervention Team will be made up of different professionals who will work together with the first and second level referral network. The professionals who will work on the Early Intervention Team include:

The Hub

The team manager	Full-time position	The centralized 'Hub' provides support for the spoke workers through the delivery of clinical supervision, training, administration and management.
Administrator	Full-time position	
Consultant Psychiatrist	Part-time position	
Consultant Psychologist	Part-time position	

The Spokes

Social Worker	Full-time position	The community location of the 'Spokes', provides excellent opportunity to encourage referrals from local primary, voluntary and generic youth services, thus reducing the DUP.
Mental Health Nurse	Part-time position	
Assistant Psychologist	Part-time position	
Assistant Psychologist	Part-time position	

The role of the Local Health Involvement Groups

Santa Cruz has the benefit of having an already established and extensive referral network consisting of first and second level clinics, feeding into the two principal public hospitals with outpatient psychiatric services, San Juan de Dios and Hospital Japones. This last one will provide the infrastructure for the PATAP programme.

Initially, this proposal seeks to create a pilot programme that would train first-level referring providers within the referral network of Hospital Japones to be able to effectively carry out both of these vital tasks. This proposal also includes the development of a monitoring and evaluation system that would track results and methodically expand the programme over time, and, in doing so, begin a process of significantly improving short and long term outcomes of those experiencing early psychosis, as well as other mental illnesses, in Santa Cruz and in other departments of Bolivia.

Therefore, this proposal seeks to create a pilot training programme that would train care providers at first and second level referral centers to identify patients experiencing first episode psychosis. Participants would also be trained in the process for efficiently referring identified patients to the Hospital Japones where

they would be able to receive appropriate care. In addition, the training program would include the implementation of an assessment tool that would be used to evaluate the effectiveness of the training programme by tracking several important outcomes, including participants' level of comfort with identifying patients with psychosis, as well as the number of patients actually referred, and by whom. Following 12 weeks a second training session would be held, taking into account results from data collected following the first training session. Eventually the training programme would be expanded to other referral centers.

This proposal's long-term goal is to utilize the data collected from the pilot training programme in order to methodically create a model for training care providers to identify multiple mental illnesses, apart from psychosis, and to make appropriate referrals to higher levels of psychiatric care in communities throughout Bolivia.

Evaluation

Multiple studies that have demonstrated that mental health programmes with higher fidelity to defined practices tend to achieve better outcomes. Our evaluation programme will, therefore, monitor not only *how* we are doing, subjectively and objectively, but will also monitor *what* precisely we are doing. We will include regularly scheduled chart reviews as part of this process.

4.8 Incidence Data

Population of Plan 3000	350,000
% between 15-25 yo	25%
Population growth rate	5%
Incidence of new cases of affective and nonaffective psychoses	0.001
Number of new cases per year	88
% detected and referred year 1	25%
% detected and referred year 2	33%
# of new clients year 1	22
# of new clients year 2	30
Total clients at end of year 2	52

4.9 Scaling Up

One of the principal goals of this project is to create a model or blueprint to be replicated in similar communities in Santa Cruz, across Bolivia and possibly in other developing countries. To support this process, this project includes the implementation of a comprehensive research component that will support constant improvement via the frequent monitoring and evaluation of quantitative and qualitative outcomes. This research component will also provide data to show precisely how the programme is making a difference and, if not, what changes need to be made in order to do so.

4.10 Sustainability

Given the patient population that we expect to be working with, and the overall demographics and socio-economics of Bolivia, we cannot ethically or realistically expect to have our clients or their families cover their cost of treatment in our programme. We will make every effort to negotiate reduced rates for any required inpatient psychiatric care and for medications, although we realize that these variables will largely be out of our control at start-up given our expected budgetary restraints.

These restrictions reflect the fact that mental illness, unfortunately, is not yet a priority in the Bolivian national, departmental or city budgets – making public funding very limited. We do believe that public funding for mental illness will increase over time, but it will take a significant, concerted, well organized, and consistent lobbying effort in order to make this change happen. For this reason, we have already begun working with and providing support to the organization of family members of people with psychosis in the city of Santa Cruz. We will continue to work with this organization, training and providing support in order to optimize their lobbying efforts.

What is currently most lacking in order to support any lobbying effort for improved mental health treatment in Santa Cruz is a programme such as we are proposing that would provide a model of what mental health treatment should actually look like. With this, we believe that we can shift the expectation away from simply making symptomatic, and at times very costly and traumatic treatment, scarcely available, and barely accessible, towards the provision of

evidence-based, relatively low cost comprehensive services that would lead to real recovery.

Anyone with mental illness, including those with psychosis, should have a right to expect the kind of comprehensive bio-psycho-social treatment that our program proposes. This is the argument that we believe we will be able to effectively make and communicate towards the public and lawmakers over time. However, in order to do so we need to first demonstrate what this treatment would look like and what kind of results can be expected, and then communicate this effectively with the help of family members.

Over time, with this evidence and with our model in place, we believe that the burden of cost will shift from external funders, such as those to whom we are currently submitting this proposal, towards public funders in this country. This is a model and strategy that has been effectively utilized in other parts of the world to sustainably fund early psychosis intervention programmes, such as with the Early Assessment and Support Alliance (EASA) programme in the state of Oregon, in the United States. The EASA programme was initially funded by a grant from the Robert Wood Johnson foundation, which provided sufficient financing to cover limited services in only one county of the state. Fifteen years later, the programme now provides comprehensive early psychosis intervention services in every county in Oregon and has received sustainable funding from the state.

We hope to have the opportunity to make a similar, positive impact on lives of those with psychosis and their family members in Bolivia for many years to come.

Executive Summary

The Problem

- Less than half of the more than 250 adolescents and young adults who are estimated to experience a first episode of psychosis in the city of Santa Cruz each year are ever diagnosed and receive psychiatric treatment.
- Of those patients who are eventually diagnosed, the average duration of their symptoms of psychosis prior to receiving psychiatric treatment (duration of untreated psychosis, or DUP) is estimated to be over 2 years.
- Psychotic disorders such as schizophrenia, if not recognized and treated early, are the most debilitating of all mental illnesses. According to the World Health Organization, psychotic disorders are the third most disabling condition in the world – more disabling than blindness and paraplegia. And, studies show that duration of untreated psychosis is directly associated with less complete recovery and poor long-term outcomes.

The Opportunity

- Multiple psychosocial variables, such as the reaction of patients and their families to symptoms of psychosis, which play a vital role in determining long-term outcomes, demonstrate their highest degree of flexibility during the period of early psychosis. Psychological, social and evidence-based pharmacological interventions undertaken during this time frame can have a profound impact on the life-course of an individual with psychosis.

Our Solution

- We propose to establish a pilot early psychosis intervention program that will provide age appropriate bio-psycho-social treatment and support for 15-25 years old with first episode psychosis and their families in the city of Santa Cruz. This program will improve short and long-term outcomes for those with psychosis, increase speed of recovery, decrease the need for hospitalization, reduce family disruption and decrease rates of relapse. We

anticipate that this pilot program will eventually serve as a model that will be replicated throughout the country.

Innovations

- This program includes an innovative outreach program that combines sound business principals with social goals in order to specifically target the largest barrier to early psychosis treatment in Bolivia: the stigma of mental illness.
- By utilizing a mobile, multidisciplinary treatment team that emphasizes the roles of trained case managers focused on providing intensive individual and family support in the home, this program will provide culturally appropriate care that will leverage contributions from a limited supply of psychiatrists and shift dependence away from a fragmented medical system.

Leadership

- Guillermo Rivera, MD, PhD: A tenured professor of abnormal psychology at the leading university in Santa Cruz, Dr. Rivera is also one of only two psychiatrists working in the public sector at the Universidad Japones where he leads the mental health team treating patients of all ages. Dr. Rivera completed a fellowship in Child and Adolescent Psychiatry in Argentina and has a PhD in community mental health. He has multiple publications to his credit. In 2011 Dr. Rivera was awarded a World Psychiatric Association fellowship to spend a year studying with the ORYGEN Early Psychosis Intervention Program in Melbourne, Australia.

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