Improving Mental Health Services in Connecticut
Refine or Re-engineer?

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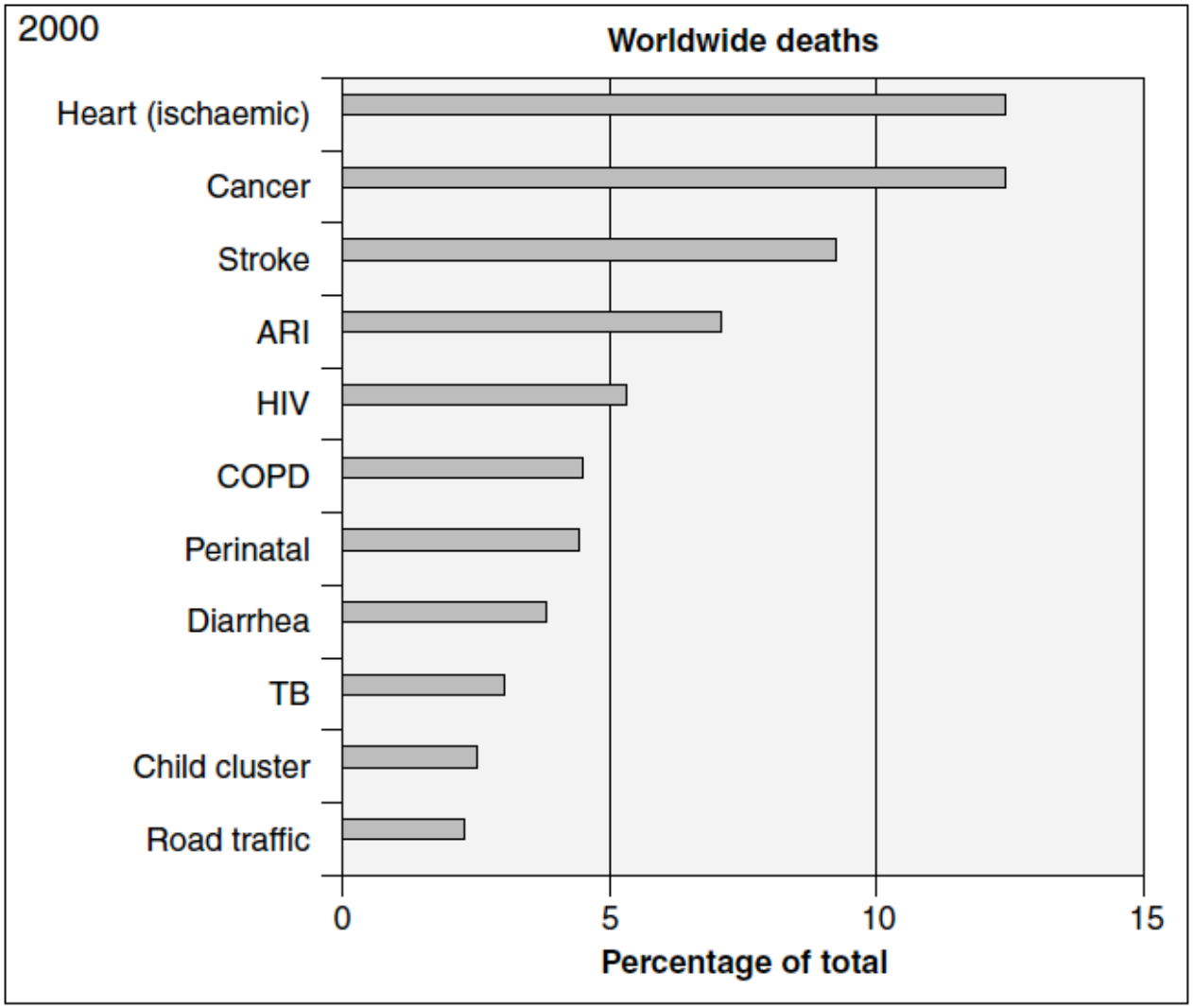
Improving Mental Health Services: *Refine or Re-engineer?*

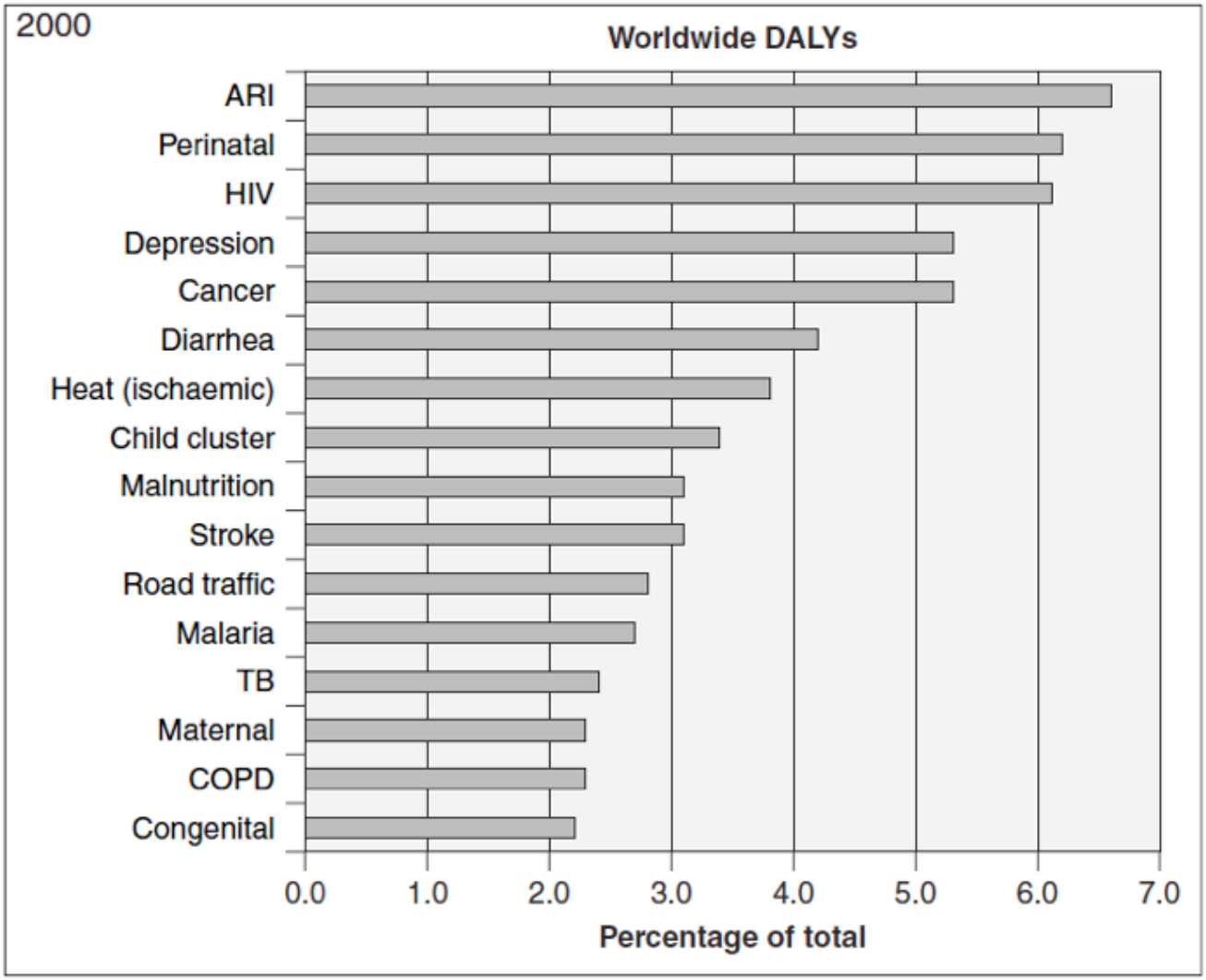
- A. Define the Problem
- B. What has been done to address this problem? (here and elsewhere)
- C. How is this salient to Connecticut's needs?



Estimating Burden of Disease

Worldwide deaths as a fraction of total mortality

(WHO, 2002)



Estimating Burden of Disease

Disability Adjusted Life Years as a percentage of worldwide disability

(WHO, 2002)

Condition	Total (millions)	Percentage of total
All causes	472.7	100
Unipolar major depression	50.8	10.7
Iron deficiency anemia	22.0	2.7
Falls	22.0	2.6
Alcohol use	15.8	3.3
Chronic obstructive pulmonary disease	14.7	3.1
Bipolar disorder	14.1	3.0
Congenital anomalies	13.5	2.9
Osteoarthritis	13.3	2.8
Schizophrenia	12.1	2.6
Obsessive compulsive disorders	10.2	2.2

Estimating Burden of Disease

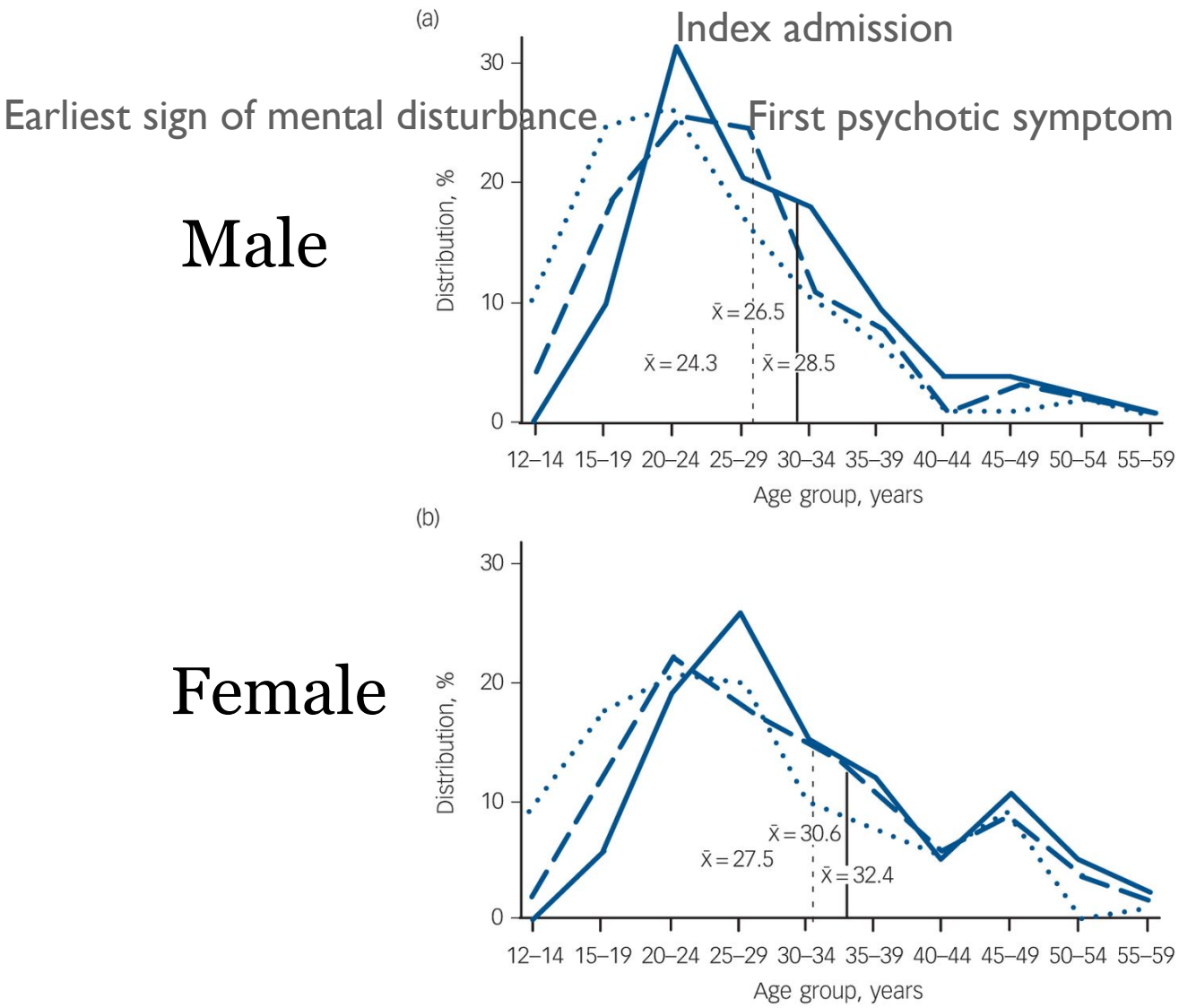
Leading causes of Years Lived with Disability (YLD) worldwide

(Lopez AD. Global Burden of Disease, 1990 projected to 2002)

Age of onset of Schizophrenia-spectrum disorders

Male

Female



From Hafner et al, Br J Psych '94

Mental illnesses are "*chronic diseases of the young*"
(Insel '05)

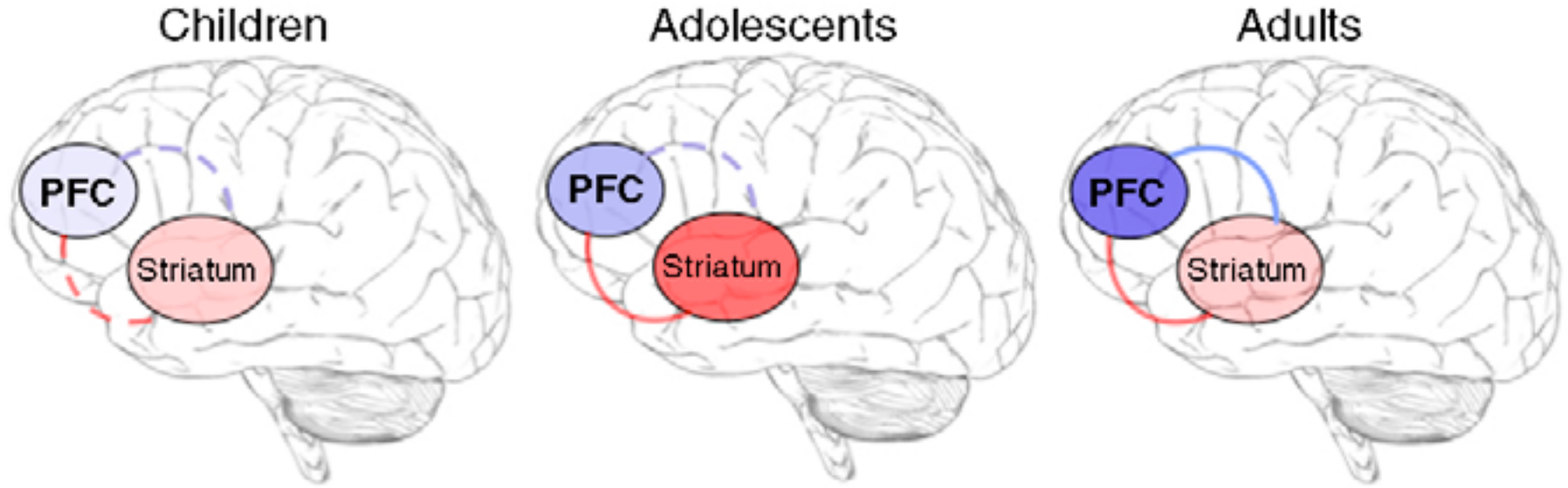
Table 1 Ages at onset for five categories of mental health disorder

	Projected lifetime risk,[a] % (s.e.)	Age at which % of projected lifetime risk attained, years[b]		
		25%	50% (median)	75%
Anxiety disorders	31.5 (1.1)	6	11	21
Mood disorders	28.0 (0.8)	18	30	43
Impulse control disorders	25.4 (1.1)	7	11	15
Substance use disorders	16.3 (0.6)	18	20	27
Any disorder	50.8 (1.2)	7	14	24

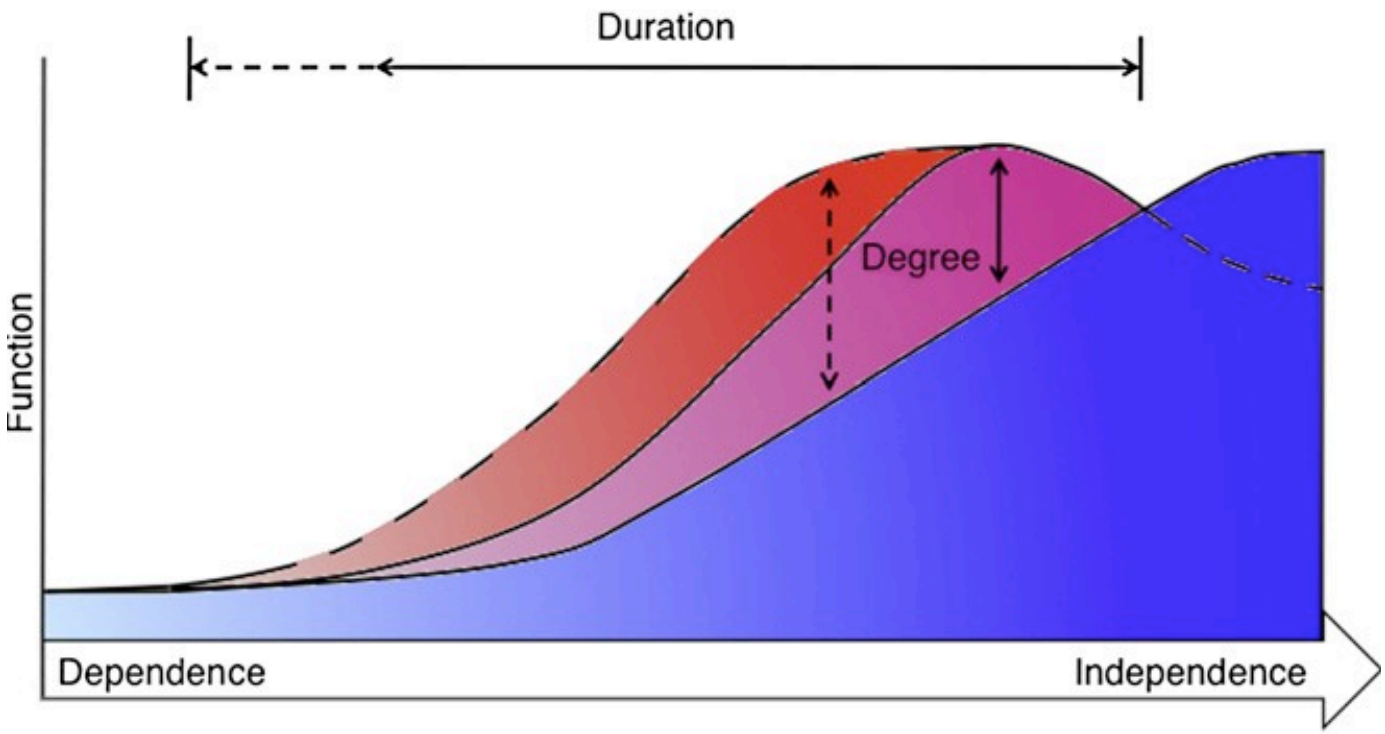
a. Proportion of whole population that will have experienced disorder by age 75 years.
b. Data for standardised age-at-onset distributions of DSM-IV diagnoses derived from the World Health Organization Composite International Diagnostic Interview with projected lifetime risk at age 75 years; adapted from Kessler *et al* where data on specific diagnoses and details of the sample are available.[31]

data from Kessler '05

1. 75% of chronic mental illness has manifested by mid-20s
2. Average delay in receiving treatment is measured in years



from Somerville '10

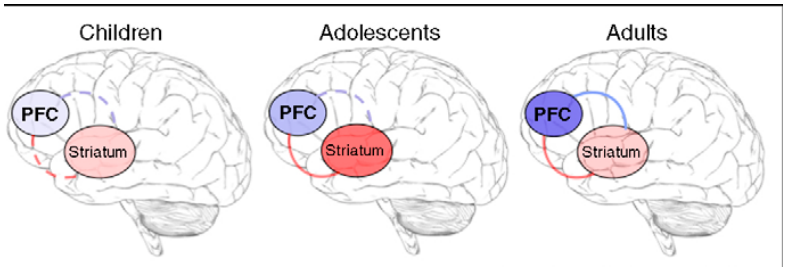


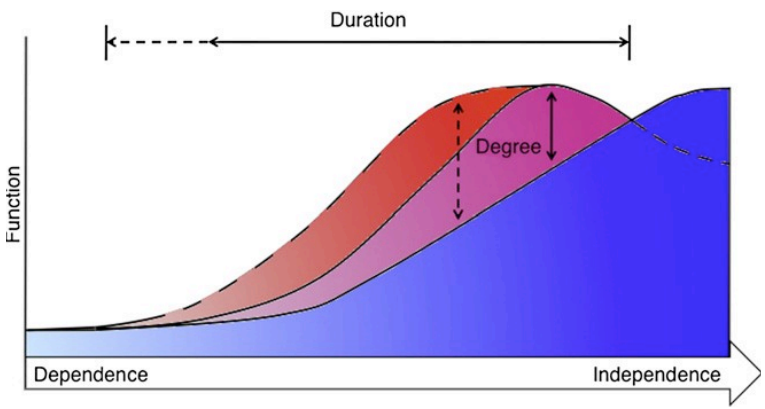
from Casey '10

A. Defining the Problem

C.1. Developmental Neurobiology
1. The 'second phase' of neurodevelopment (12-30yrs) crosses traditional legal, social and organizational boundaries of adulthood (i.e. 17-18yrs)

2. 'Normal' adolescence is defined by an imbalance between the earlier development of limbic (emotional/motivational cues) structures and later prefrontal control (age, experience, judgment)





A. Defining the Problem

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C.2. Epidemiology (Kessler '05)

4 distinct populations entering the Adult Mental Health System:

1. 'Normal' vicissitudes of adolescence
-Impulse control disorders
-Can be derailing or fatal, albeit transient.

2. Emerging Serious Mental Illness
-'Chronic Diseases of the Young'

3. The disorders of early deprivation
-Abuse, neglect, poverty

4. Disorders of the 1st phase of neuro-development (Autism, LD, ADHD)

Improving Youth Mental Health Services: Refine or Re-engineer?

- A. Defining the Problem
- B. What has been done to address this problem? (here and elsewhere)
- C. How is this salient to Connecticut's needs?

B. Early Intervention for Psychotic Disorders:
A model for youth mental health service development

- Rationale and Evidence for comprehensive Early Intervention services for Psychosis (EI)
- Evaluation of a CT-based intervention (STEP)

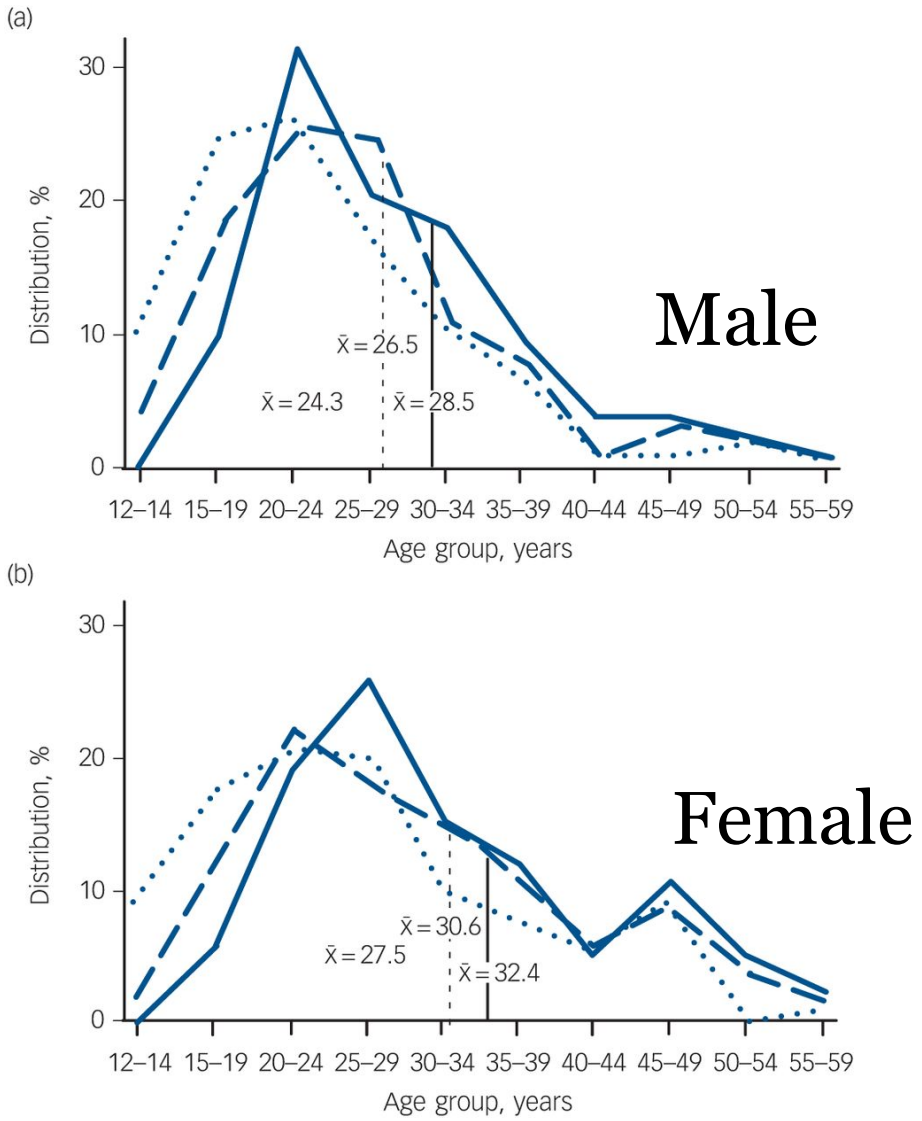
Schizophrenia-spectrum disorders

- Less than 1/3 recover > 5 years (Menezes, Psychological Medicine '06)
- Costs: direct* ($62); indirect ($22.7 billion)** (Wu, J Clin Psychiatry '05)

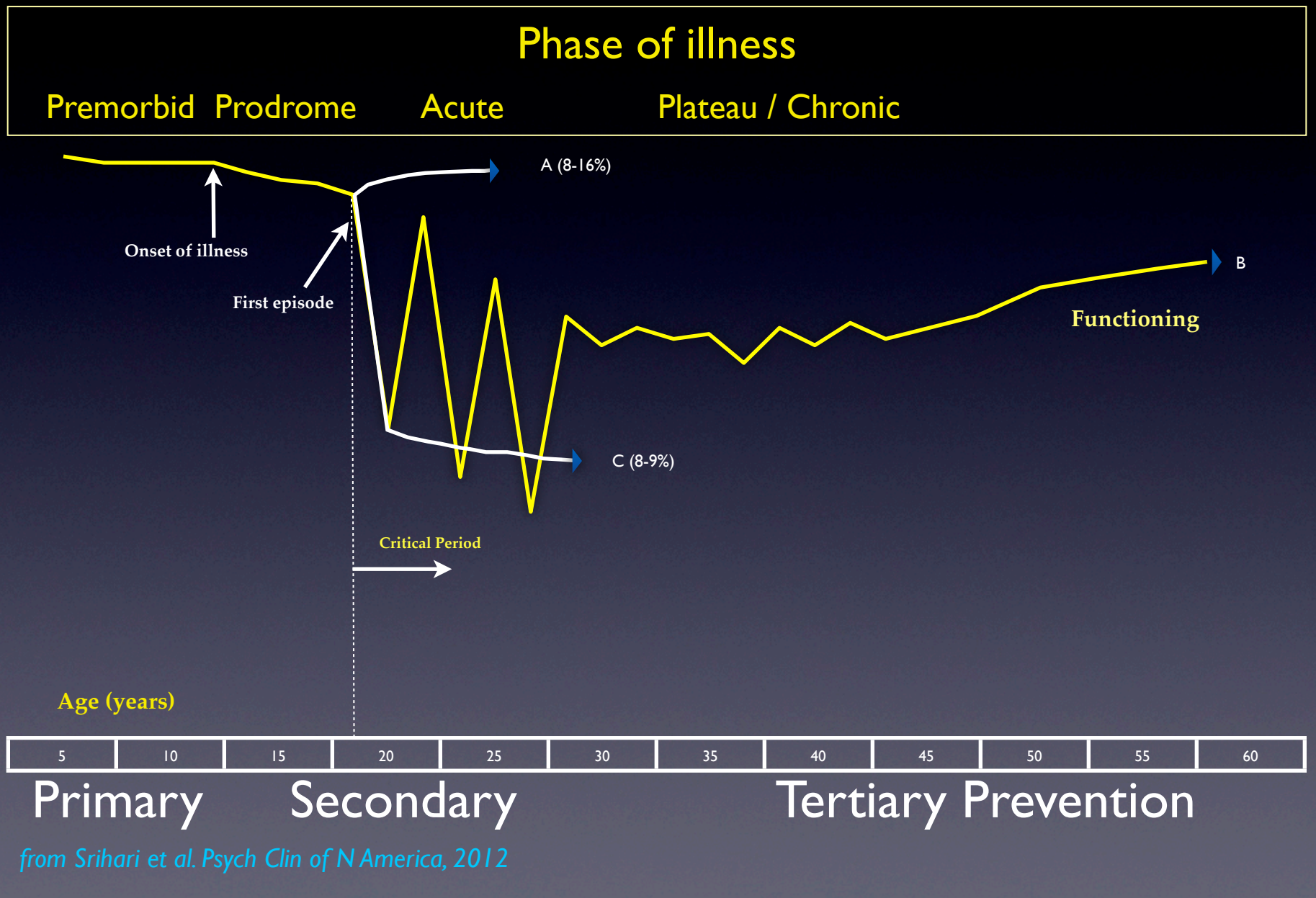
(Affective d/o$30.4 / 19.2 billion)

*mostly unemployment

**mostly (re)hospitalizations



Course of the 'Schizophrenias:' a critical period ?



from Srihari et al. Psych Clin of N America, 2012

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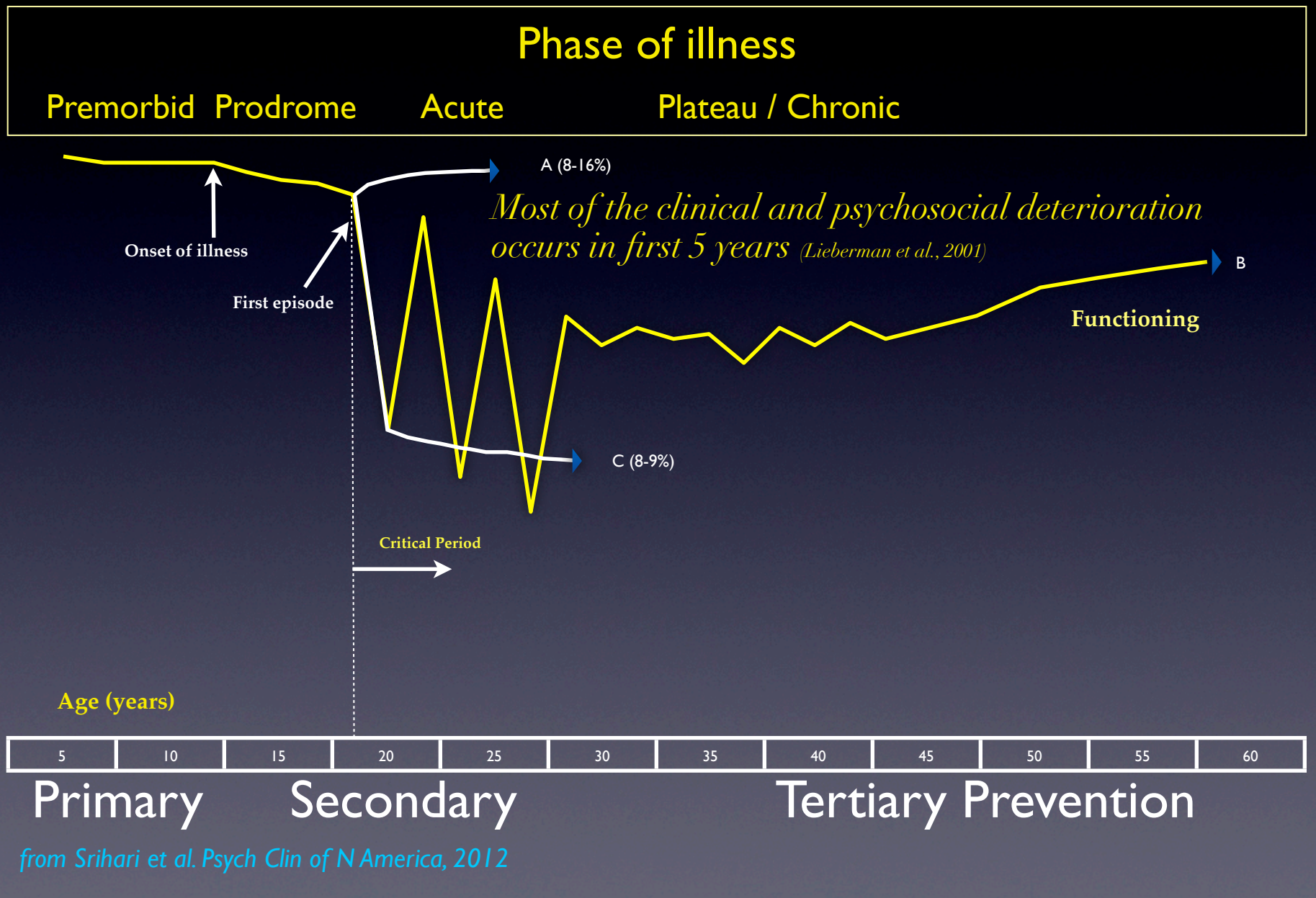

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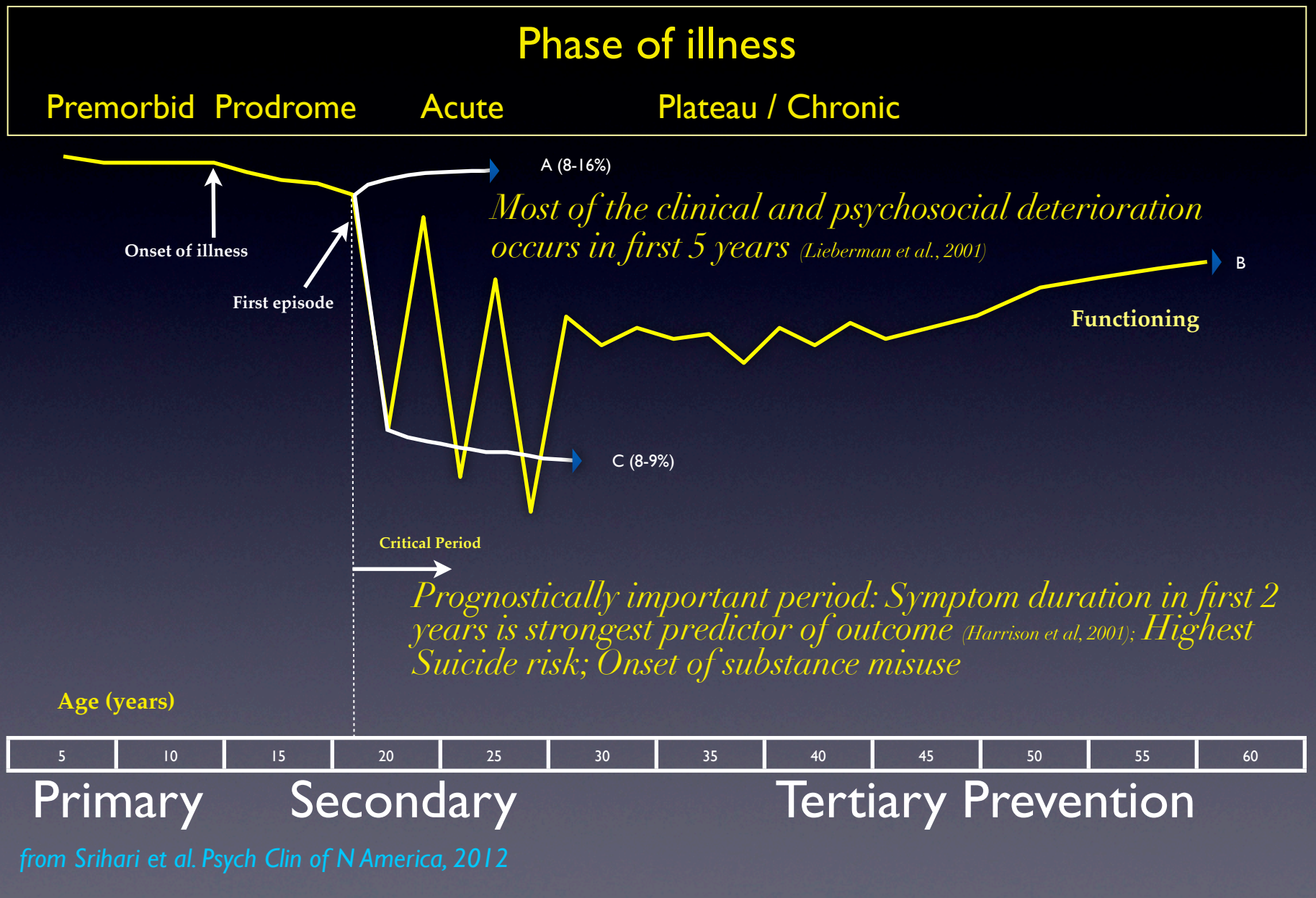

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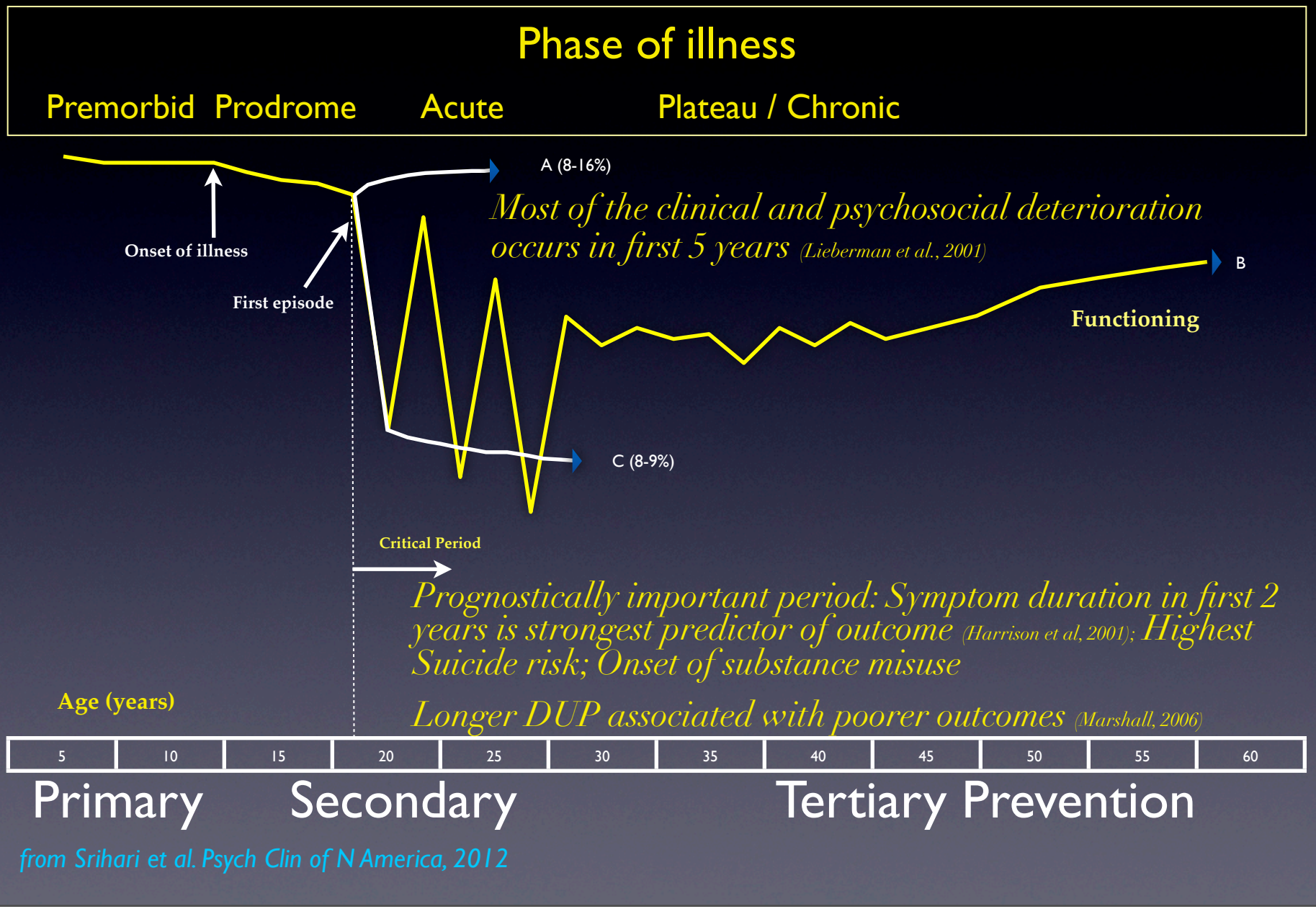

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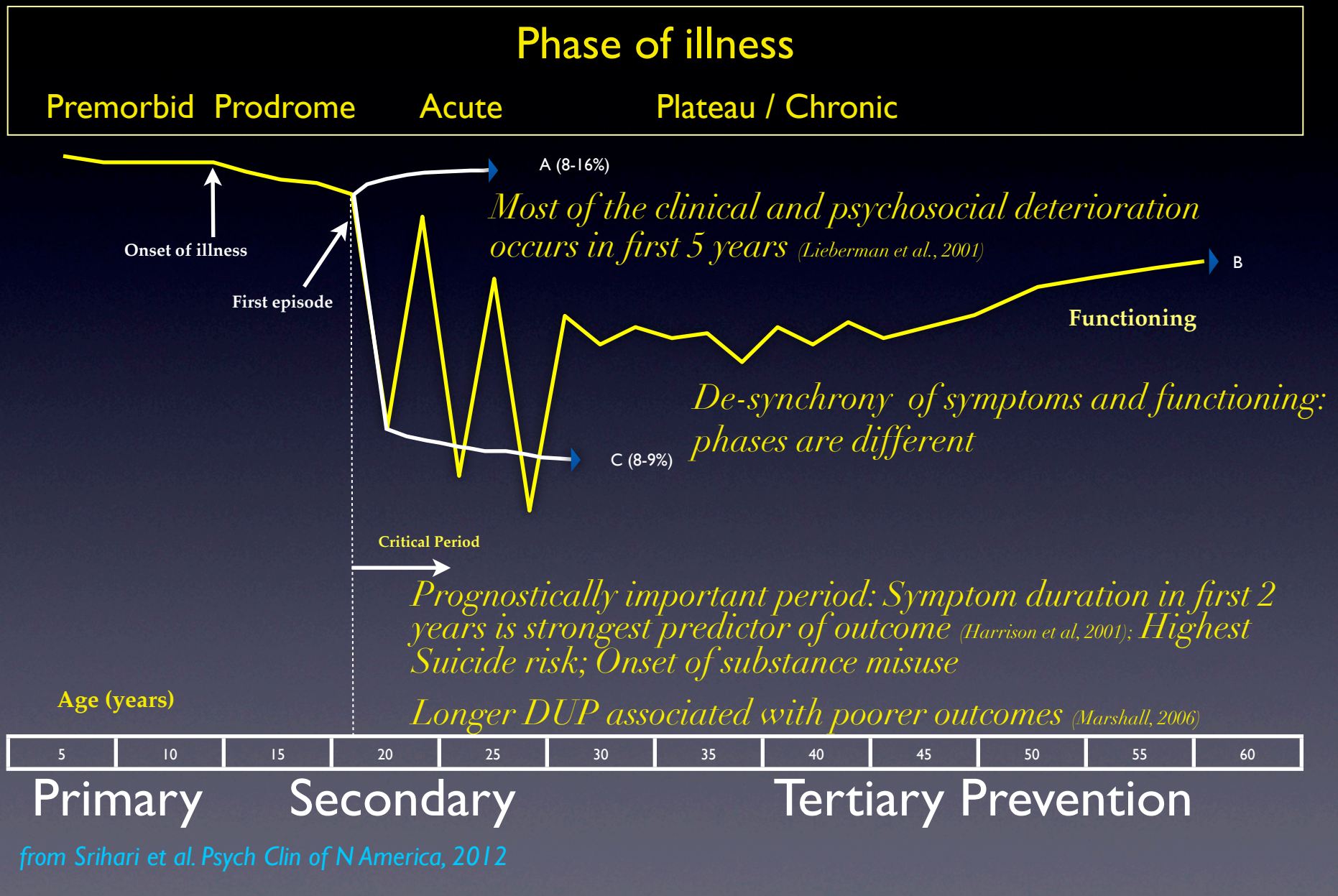

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The Critical Period Hypothesis

'Early' Intervention ⟶
Disproportionate improvement in long term outcome (Birchwood, '98)

What is 'Early Intervention ?'

A. Early Detection

- Shortening the Duration of Untreated Psychosis (DUP)

B. Intensive Treatment in first 2-5 years

- Focus on reducing relapse & maximizing functioning
- Interventions adapted from chronic SMI to younger patients
- Goal of 'phase-specific' intervention

The Evidence for EI

A. Intervening earlier (even without enriching care) appears to have durable effects on outcome (McGlashan et al, TIPS Project)

B. Intervening intensively after the onset of psychosis improves outcomes over usual care (OPUS Trial, Lambeth Trial) at 2+ years (reviewed in Srihari et al 2012)

Idiot's guide to Knowledge Translation

(adapted from Sackett D, 2006)

- Efficacy (can it work?) ✔
- Effectiveness (does it work?)
- Costs (is it worth it?)
- Dissemination (can it be done elsewhere?)

Overall Goal for EI clinic

Can EI (comprehensive, empirically based treatment) be delivered in a 'real-world' public sector setting in the U.S. and improve outcomes in a cost-effective manner?

Choosing a pilot site

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Connecticut Mental Health Center (CMHC):

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- Part of established 40+ yr. old national network of community centers with experience treating SMI
- Greatest incentive to improve outcomes, reduce costs for SMI
- Experience of the PRIME (prodrome) clinic
- Willingness to innovate as part of a unique Public-Academic (DMHAS-Yale) partnership (Srihari 2009)

Estimating the incidence of FEP in CT

- Conservative estimate: 31.6 per 100,000 (95% CI: 27.3-36.4) per year (Baldwin P, et al., 2005)
- First hospitalization for psychosis in CT in 2005: 42 – 48 per 100,000 person years (Connecticut Hospital Association – CHIME database)
- 1,423,551 in at risk population (16-45yo) (US Census Bureau) : 450-500/year

The clinic for Specialized Treatment Early in Psychosis (STEP) est. 2006

- **Based in public sector**
  DMHAS-Yale partnership
- **Pragmatic RCT**
  - Broad recruitment
  - Feasible interventions
  - Relevant outcomes
- **Address barriers to access**
  - Insurance status
  - Catchment of residence
  - Adolescent-Adult agencies

Public-Academic Partnerships

Early Intervention for Psychotic Disorders in a Community Mental Health Center

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Nicholas J. K. Breitborde, Ph.D.
Jessica Pollard, Ph.D.
Cenk Tek, M.D.
Leslie Hyman, L.C.S.W.
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Selby Jacobs, M.D.
Scott W. Woods, M.D.

Early intervention may improve long-term outcomes for psychotic illnesses. Early-intervention services in other countries have focused on reducing the duration of untreated illness and adapting interventions for younger patients. This column describes the process of building such a service, called specialized treatment early in psychosis (STEP), at the Connecticut Mental Health Center. This effort is rooted in a long-standing collaborative relationship between the Connecticut Department of Mental Health and Addiction Services and Yale. The authors describe the critical contribution of such partnerships in evaluating the cost-effectiveness of early intervention in a "real-world" U.S. setting. (*Psychiatric Services* 60:1426–1428, 2009)

Psychotic disorders rank among the top ten causes of global disability (1). Health care policy in Australia, the United Kingdom, and Scandinavia (2) has included systematic efforts to implement, study, and refine early-intervention services. These are models of care that attempt to reduce the duration of untreated illness and provide care adapted to younger patients. Three randomized controlled trials of early-intervention programs have demonstrated modest reductions in symptom severity, relapse rates, and suicidality and improvements in social and vocational functioning and quality of life (3–5).

Early intervention for psychotic disorders: the U.S. paradox

There is a conspicuous absence of a comparable U.S. strategy for early intervention. Care for psychotic disorders must be seen against the backdrop of mental health care in the United States in general. Epidemiologic assessments have shown that less than half of the population with mental disorders receive treatment (6), with evidence of a worsening since 2000 in treatment rates for those with serious mental illnesses (7) and longer delays between illness onset and care (8). The fragmentation of payment for and delivery of mental health services makes a coherent approach to early intervention difficult to implement. According to studies conducted in countries with national health care systems (9,10), savings related to early intervention emerge over a longer period than the typical annual enrollment period. Savings are thus likely to be realized by public and not private payers. We describe the implementation of an early-intervention initiative in a U.S. community mental health center and its particular salience as a model of successful public-academic collaboration.

Early intervention in Connecticut via public-academic collaboration

In 2005, a workgroup of faculty members from the Yale Department of Psychiatry began meeting to address a problem long recognized by members of the Yale Prevention Through Risk Identification, Management & Education (PRIME) research clinic. This clinic has since 1998 pioneered the early identification and treatment of individuals at risk for psychotic disorders. When conversion to full-blown psychosis occurred, the PRIME staff experienced considerable difficulty finding providers to care for them, especially when family income or insurance made them ineligible for public-sector care. Evidence linking longer durations of untreated illness with poorer outcomes (11) added to the more acute concerns for these patients' unmet needs. The notion of creating a clinic for first-episode psychosis patients was raised.

Initially the group explored private-sector models for funding the service. The local teaching-hospital leadership felt that the proposed service was clinically important and would provide an attractive training site but were concerned about fiscal viability. The only models perceived to break even financially were time-limited partial-hospitalization or intensive outpatient programs that would require patients to participate daily for two to four hours. We expected that many individuals experiencing an initial psychotic episode would require lower-intensity, longer-term treatment that better fit active work or school schedules. Several other arrangements were similarly at-

With the exception of Dr. Frisman, who is affiliated with the Connecticut Department of Mental Health and Addiction Services, Hartford, the authors are affiliated with Connecticut Mental Health Center and Yale University School of Medicine, New Haven. Send correspondence to Dr. Srihari, Connecticut Mental Health Center, 34 Park St., 2nd Floor, New Haven, CT 06519 (e-mail: vinod.srihari@yale.edu). Lisa B. Dixon, M.D., M.P.H., and Brian Hepburn, M.D., are editors of this column.

STEP: Specific Aims

1. Determine feasibility of …

   (a) Delivering EI &

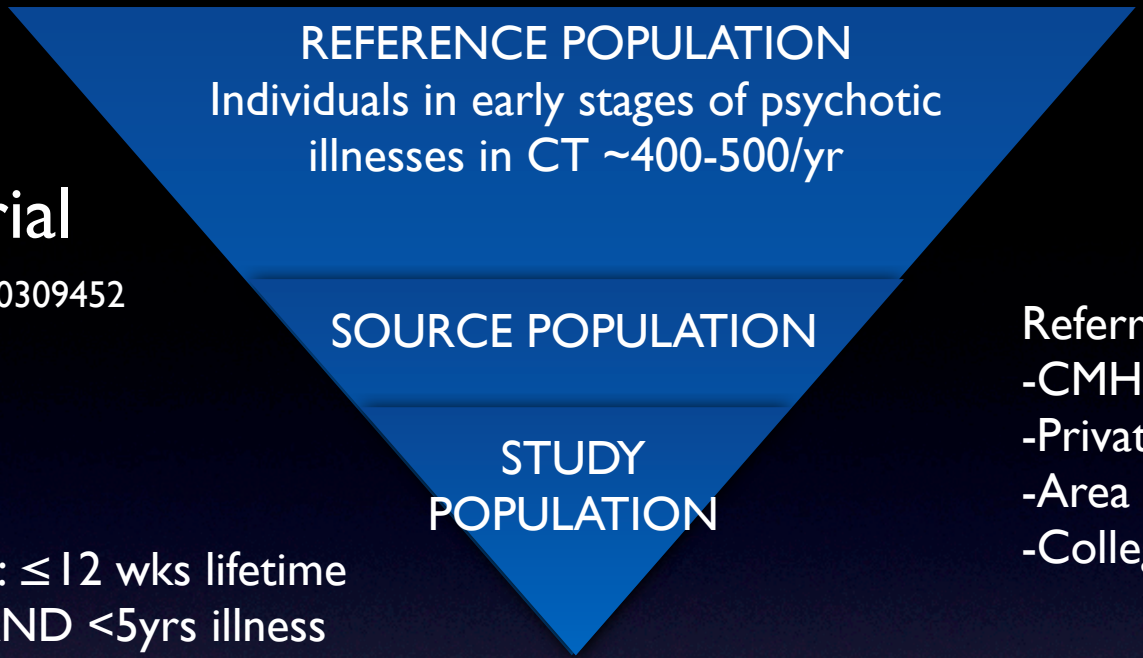
   (b) Evaluating outcomes in a community setting

2. Measure effectiveness of STEP care vs. treatment as usual (TAU)

3. Measure the costs of providing STEP vs. TAU

The STEP Trial

ClinicalTrails.gov NCT00309452
NIH MH088971-01



Referrals from ~
-CMHC triage
-Private Hospitals/ERs
-Area Clinics/PRIME
-Colleges

Age: 16-45 yo
Duration of illness: ≤12 wks lifetime antipsychotic Rx AND <5yrs illness
Exclusion: sub-induced psychotic d/o
Exclusion: DDS (DMR) eligibility

TAU

Referral to private or public-sector care

STEP Care

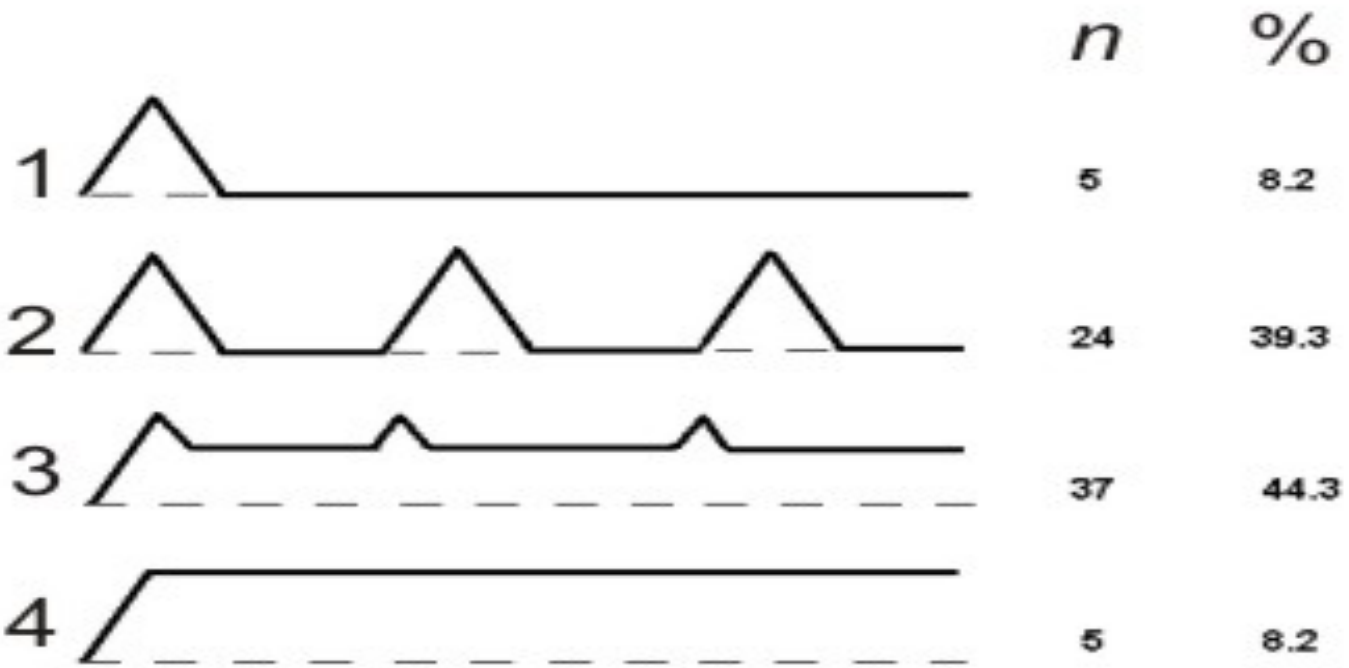
Based within CMHC ambulatory services

Components of STEP Care

- Evaluation
- Pharmacologic Treatment
- Cognitive Behavioral Therapy (Group⟶ Individual) Saksa et al, Intl. J of Group Psychotherapy 2009
- Family Education (Group⟶Individual)

  Breitborde NJK, Srihari VH. Family work for first-episode psychosis: A service delivery protocol. In Psychosis: Causes, Diagnosis and Treatment. Nova Science Publishers, Inc, NY. 2011.
- Case management (Liaison with supported employment & education services)

Heterogeneity of outcomes: 20-Year Course of Schizophrenia



R. Thara. The Madras Longitudinal Study. Can J Psychiatry 2004:49;564–569

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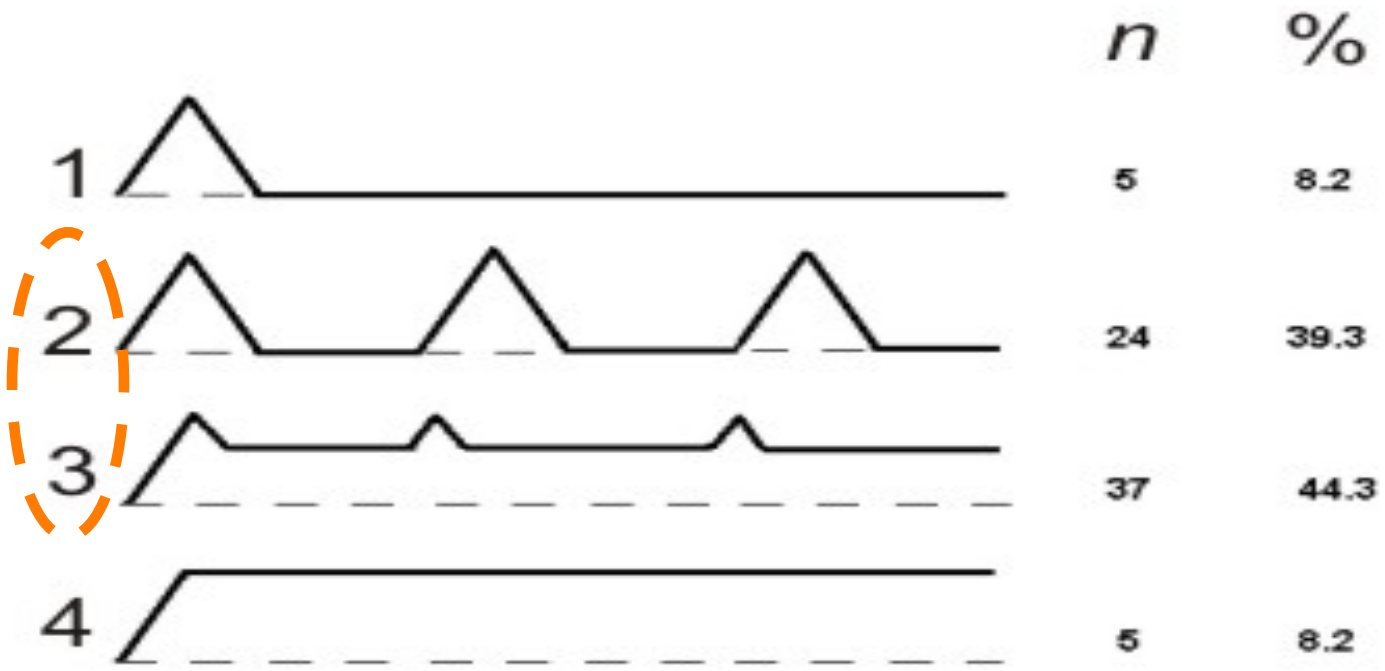

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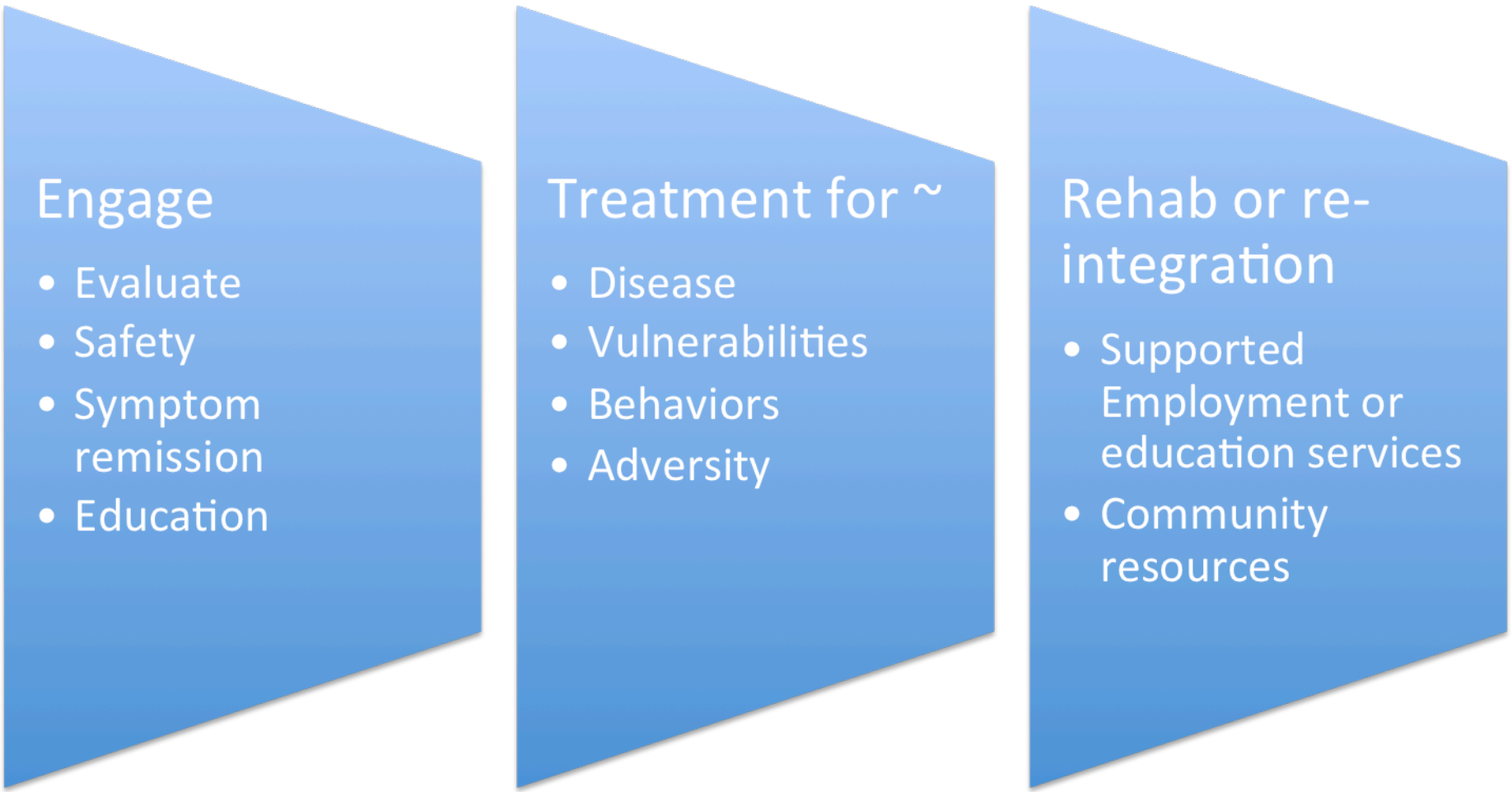
Principles of STEP Care
(IOM 'Quality Chasm' Categories)

1. **Safety:** Focus on suicide, EPS, CV Risk
2. **Effectiveness:** Empirically supported
3. **Patient Centered:**
    1. Menu of services
    2. Flexible (re-) engagement
    3. Active inclusion of family / primary supports
4. **Timely:** quick, open access
5. **Efficient:** Bootstrap, re-allocate, broker, refer
6. **Equitable:** Blind to insurance, catchment, immigration status

Delivery of STEP Care: Phases



STEP: Staffing with a bootstrap

(DMHAS funded)

Primary Clinicians: Social Work & Nursing clinicians

Also, Psychology and Psychiatry trainees

Staff Psychiatrist & PI: Vinod Srihari, MD

(NIH and Donaghue Grant funded)

Outcomes assessment:

Post-Doctoral Fellows

STEP: A Diverse Population

Baseline characteristics	STEP participants (n=133)
Age, mean (SD) years	22.8 (5.0)
Gender, male, n (%)	109 (82%)
Race/Ethnicity, n (%)	
African American	51 (38%)
White	52 (39%)
Latino/a	27 (20%)
Multi-racial	3 (2%)
Immigrant / First Gen.	39 (29%)

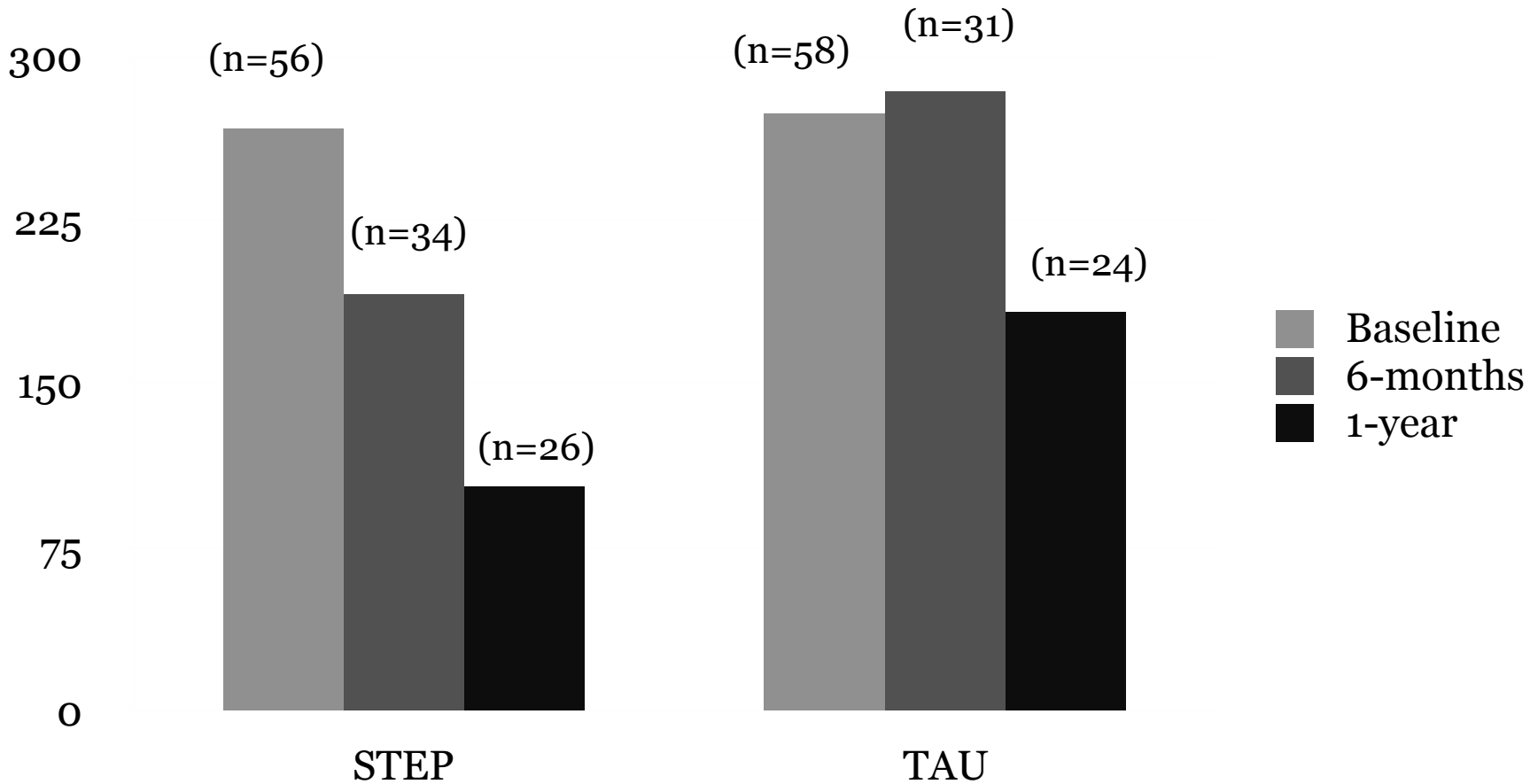
High Clinical Distress At Entry

- Co-morbid Sub Use Disorders: 38%
- Previously hospitalized: 89%
- Previous suicide attempt(s): 8%
- Unemployed: 59%
- Median DUP: 10.1 months

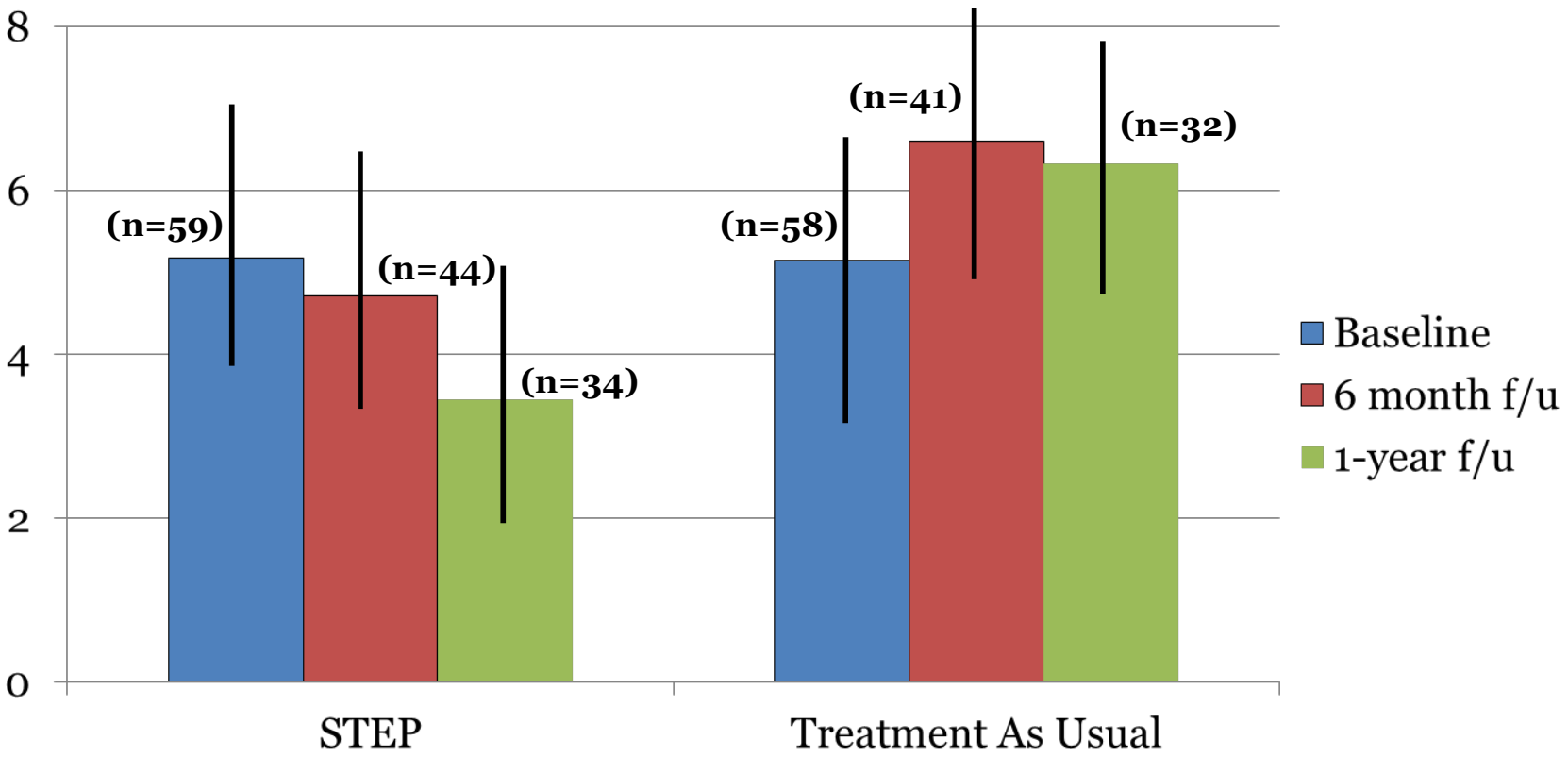
Measuring Recovery

- Primary outcome: (Re-)Hospitalization
- Recovery as Multi-dimensional (Liberman & Kopelowicz, 2005)
  - Reduction in Symptoms
  - Independent Living
  - Participation in Vocational/Educational Activities
  - Peer Relationships

of inpatient days over prior 6mos

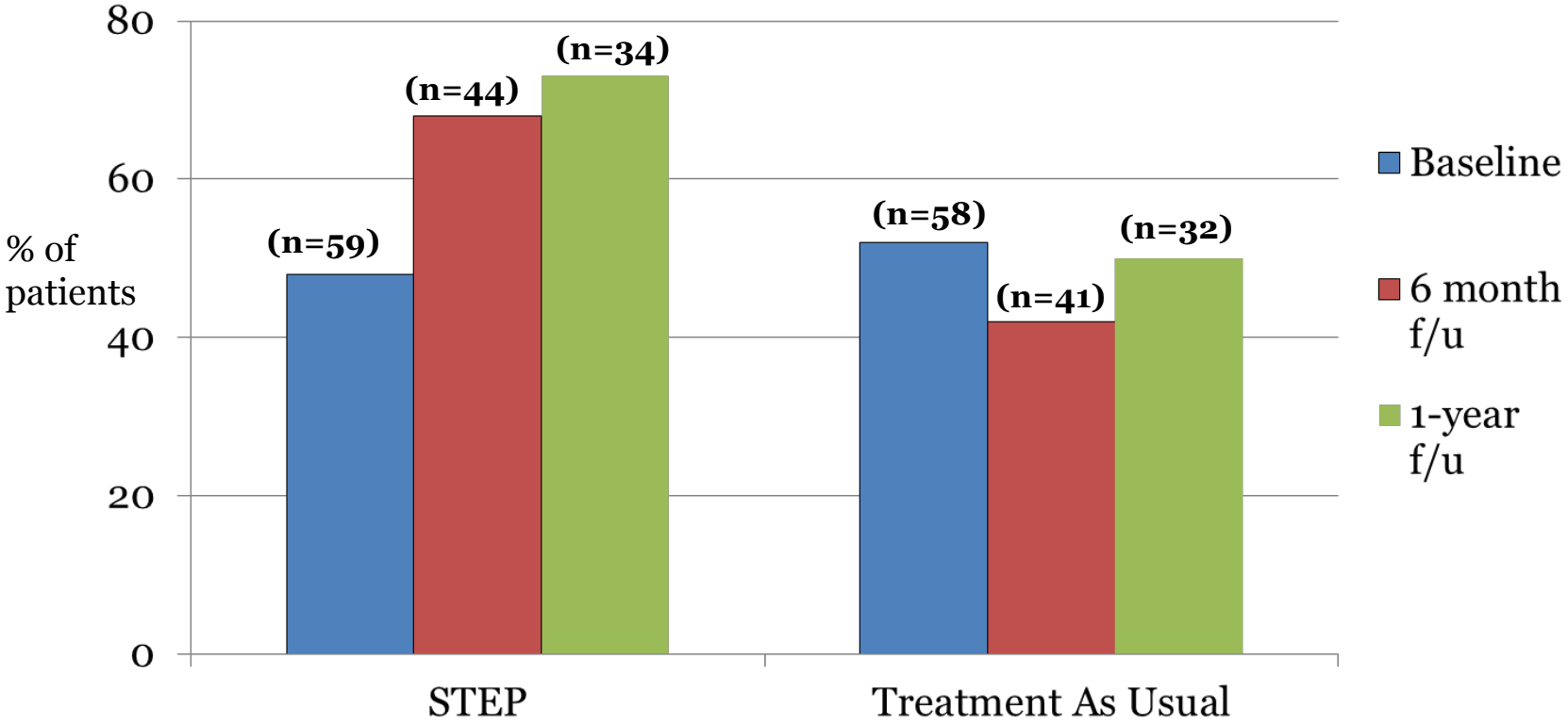


Total hospitalized days per patient in prior 6 mos



*Statistical trend at 6mo (p=0.10) and 1yr (p=0.39)

Vocational/Educational Engagement



*Statistical trend at 6mo (p=0.215) and 1yr (p=0.124)

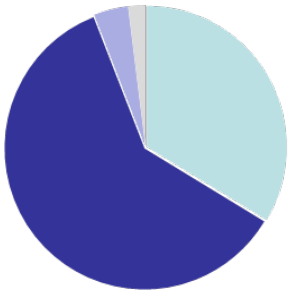
**Within STEP, improvements are significant (p<0.001) at 6mo and 1yr

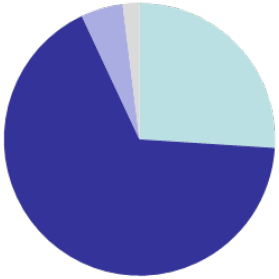
Living status

STEP

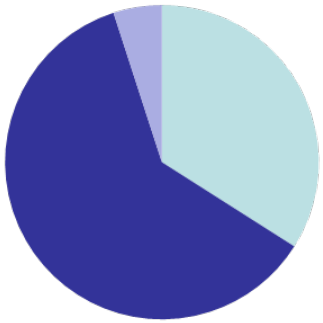
Treatment As Usual

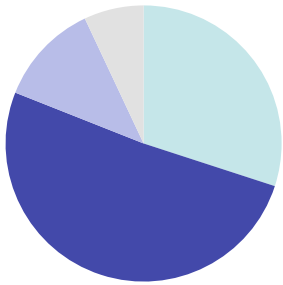
Baseline



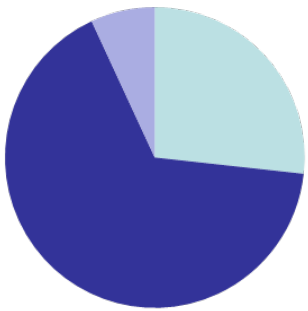


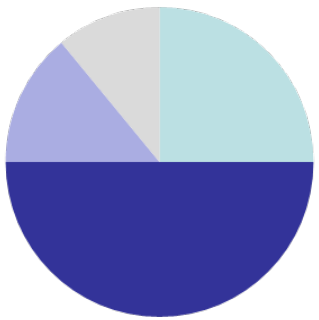
6-months

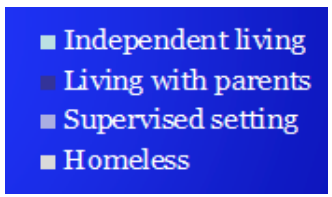




1-year







Service Utilization (6 mos.)

Visit with mental health professionals	STEP (n=44)	TAU (n=41)
MD	76	36
Case Manager	571	228
IM / Nurse practitioner	71	39
Visiting Nurse visits	380	199
Multi-family psycho-education groups	18 (41%)	0
CBT groups	12 (27%)	0

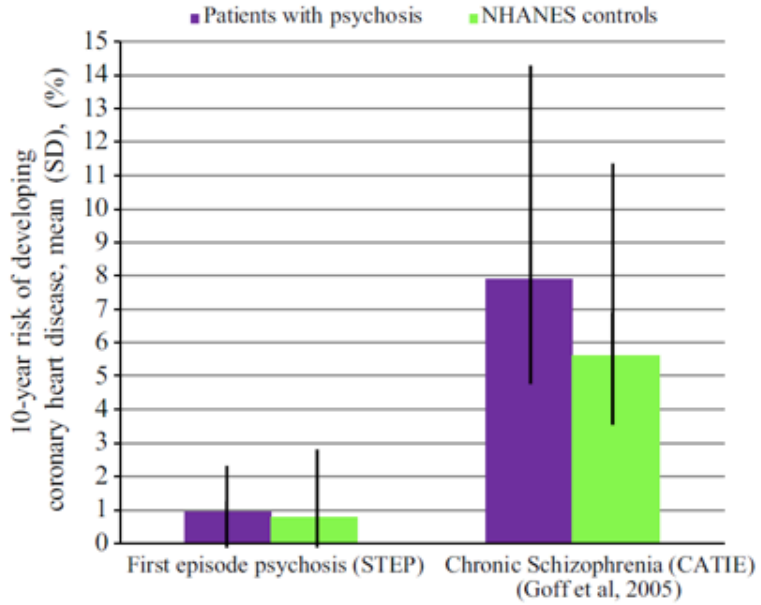


Fig. 1. Comparison of first episode psychosis (STEP) patients and chronic schizophrenia compared with age, gender and race matched controls from NHANES.

EI as an opportunity for Primary Prevention of Cardiovascular Morbidity

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Cardiovascular risk in a first-episode psychosis sample: A 'critical period' for prevention?

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ABSTRACT

Objective: Studies in first episode psychosis samples about status of cardiovascular risk factors have shown discordant results. We aimed to determine the 10-year risk of developing coronary heart disease in a sample of first episode psychosis patients referred to an early intervention clinic and compared the same with age, gender, and race matched controls from the U.S. National Health and Nutrition Examination Survey (NHANES).

Method: We conducted a cross-sectional analysis of baseline data of 56 subjects enrolled in first episode psychosis clinic from April 2006 to January 2010. This sample was compared with age, gender, and race matched 145 individuals drawn from NHANES 2005–2006 database. Sociodemographic and clinical variables were collected. Physical examination including laboratory evaluation was used to screen for common medical illnesses. The 10-year risk of developing coronary heart disease was calculated by using a tool developed by the National Cholesterol Education Program (NCEP-ATP III).

Results: There were elevated rates of smoking (46%) and hypertension (11%) albeit statistically significant differences from the control could not be demonstrated for these measures or weight, body mass index, or total or HDL cholesterol, fasting plasma glucose, status of diabetes and impaired fasting plasma glucose, HbA1C level. The 10-year median (range) risk of developing coronary heart disease in patients and controls was 1 (0–5)% and 0 (0–9)% respectively. The difference was not statistically significant.

Conclusions: First episode psychosis patients do not present with significantly higher cardiovascular risk than age and race-matched controls despite clinically significant prevalence of individual risk factors. This sample presents an opportunity for early intervention for the primary prevention of cardiovascular morbidity and mortality.

1. Introduction

Individuals with serious mental illness (SMI) die, on average, 25 years earlier than their peers (Colton and Manderscheid, 2006; Parks et al., 2006). While 30–40% of this premature mortality is attributable to suicide and accidental injury, cardiovascular disease accounts for the majority of early death. The single most common cause of death in patients with schizophrenia is cardiovascular disease (Osby et al., 2000; Capasso et al., 2008; Tiihonen et al., 2009). Patients with schizophrenia, relative to peers without SMI, experience a 3-fold increase in cardiovascular mortality between the ages of 18 and 49 and almost a 2-fold increase in mortality between the ages of 50 and 75 years (Osborn et al., 2007). They have a greater incidence of myocardial infarction than demographically similar persons without schizophrenia (Brown et al., 2000; Enger et al., 2004).

The causes of this increased cardiovascular burden in patients with schizophrenia are likely multi-factorial. Modifiable risk factors for cardiovascular disease include smoking, obesity, diabetes, dyslipidemia, and hypertension (Yusuf et al., 2004). When compared to age- and gender-matched controls, persons with chronic psychosis have higher rates of nicotine dependence (70–80% vs 25–30%) (de Leon and Diaz, 2005), obesity (45–55% vs 31–39%) (De Hert et al., 2009; Meigs et al., 2003), diabetes (13% vs 3%) (Goff et al., 2005), dyslipidemia (25–69% vs 24–48%) (De Hert et al., 2009; Meigs et al., 2003) and hypertension (27% vs 17%) (Goff et al., 2005). The largest study comparing cardiovascular risk factors in chronic schizophrenia patients, drawn from the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) Schizophrenia Trial, with age-, gender-, and race-matched controls from the U.S. National Health and Nutrition Examination Survey (NHANES) showed that patients had significantly higher 10-year coronary heart disease risk. This was due to higher rates of smoking, diabetes, and hypertension. Also, the mean (SD) duration of antipsychotic use in the CATIE study was 14.4 (10.7) years (Lieberman et al., 2005) and long-term use of antipsychotic

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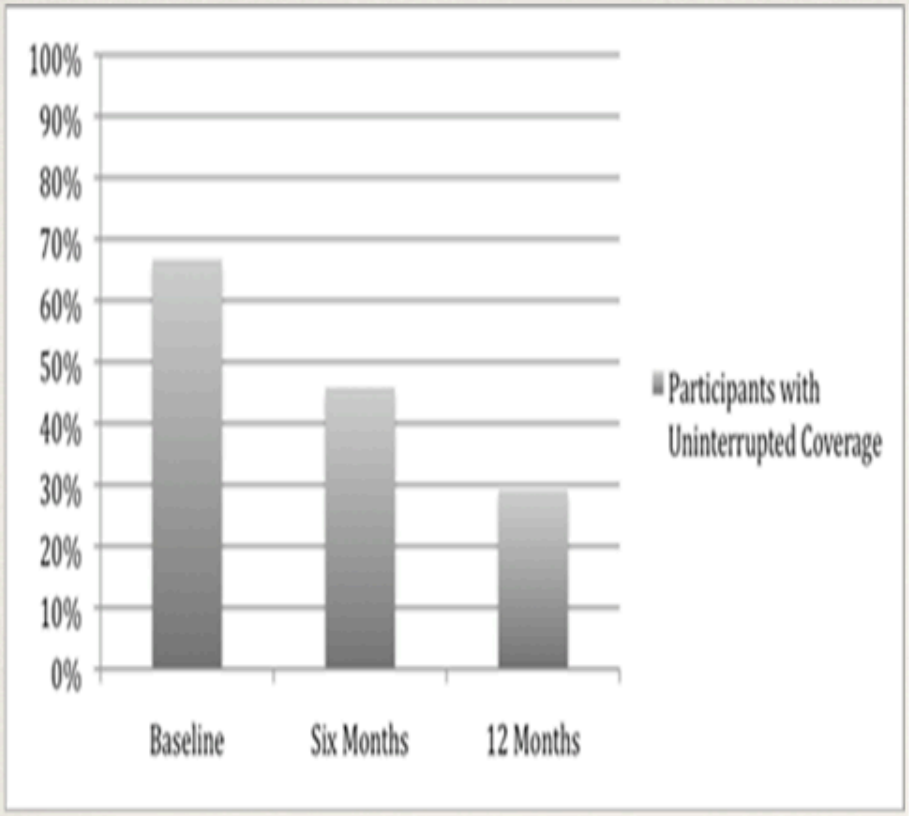

EI and pathways to care

13 / 18 (72%) lost private coverage

5/13 (38%) lost public insurance

Who Is Paying the Price? Loss of Health Insurance Coverage Early in Psychosis

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Objective: **Discontinuities in health insurance coverage may make it difficult for individuals early in psychosis to receive the services that are critical in determining long-term outcome. This study reports on the rates and continuity of insurance coverage among a cohort of early-psychosis patients enrolled in Specialized Treatment Early in Psychosis (STEP) at the Connecticut Mental Health Center.** ***Methods:*** **Insurance status at baseline, six months, and 12 months was collected from 82 participants from a combination of self-reports, clinical chart review, clinician reports, and a database maintained by the state Department of Social Services.** ***Results:*** **A total of 34 participants did not know whether they had health insurance or did not appear for follow-up assessments at six and 12 months. Among the remaining 48 participants, at baseline 18 had private insurance, 13 had public insurance, and 16 had no insurance. By the 12-month assessment, 13 (72%) privately insured and five (38%) publicly insured participants had lost coverage; less than one-third of the 48 participants (N=14) maintained continuous coverage.** ***Conclusions:*** **Specialty services for individuals experiencing early psychosis should address the difficulty of maintaining health insurance coverage during a period of illness in which continuity of care is critical to recovery. (*Psychiatric Services* 62:878–881, 2011)**

Shorter duration of untreated psychosis is associated with better response to treatment (1,2), and specialized early intervention programs have been shown to improve both severity of illness and quality of life (3–5). Together, these findings suggest that increasing individuals' use of services early in the course of illness may be one key to altering the course of illness.

One modifiable barrier to treatment is lack of health insurance. Being uninsured predicts delayed help seeking following onset of psychosis (6) as well as less use of community mental health treatment and greater likelihood of using only crisis or emergency services (7). In the Suffolk County (New York) Mental Health Project, 44% of patients with a first admission for psychosis were uninsured (8). These patients were less likely to have received prior outpatient treatment and were more likely to be hospitalized involuntarily than those with either public or private insurance.

Health insurance status is not stable over time. Of the Suffolk County patients who initially had private insurance (between 1989 and 1995), 12% had become uninsured and 14% had become publicly insured by two-year follow-up (9). At least one-fourth, therefore, were at risk of experiencing discontinuities in care or disruption of treatment relationships. Similarly, 6% of those who initially had had public insurance had become uninsured by the two-year follow-up. These results, however, do not indicate how many people were uninsured at some point during those two years and, therefore, likely underestimate the frequency of discontinuities in insurance coverage.

Patterns of insurance coverage also likely vary between states, based on differences in regulation of the private market and in public assistance. Two public health insurance programs specific to Connecticut are Healthcare for Uninsured Kids and Youth (HUSKY) and State Administered General Assistance (SAGA) programs.

HUSKY is Connecticut's two-part health insurance program for low-income children and caregivers. HUSKY A consists of Medicaid coverage for children and adult caregivers in families with income up to 185% of the federal poverty level (FPL). HUSKY B, funded in part by the State Children's Health Insurance Program (SCHIP), provides subsidized coverage for children whose families' in-

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Program Evaluation

Specific Aim 1: Feasibility ✔

- Recruitment: large, diverse and relevant sample (550+ referrals, 200+ invited, 149 enrolled)
- Retention: ~30% attrition
- Well-accepted by patients, families, front-line clinical staff

Program Evaluation

Specific aims 2 & 3: Determining effectiveness and costs

a) Reductions in hospital use

b) Improvements in vocational functioning

c) Health economic analysis…

B. Summary

Early Intervention for Psychotic Disorders as a model

1. The Problem

- Mental illnesses are chronic diseases of the young
- Adolescence is a developmentally vulnerable period (even in the absence of mental illness much can go awry)
- Current legal, organizational definitions of adulthood are out of sync with these realities

2. What does STEP add?

A feasible, effective and economically viable model of early intervention has been developed within DMHAS. Also first experimental test of EI service in U.S.

Improving Mental Health Services: Refine or Re-engineer?

- A. Defining the Problem
- B. What has been done to address this problem? (here and elsewhere)
- C. How is this salient to Connecticut's needs?

A. Defining the Problem

C.1. Developmental Neurobiology

1. The 'second phase' of neurodevelopment (12-30yrs) crosses traditional legal, social and organizational boundaries of adulthood (i.e. 17-18yrs)

2. 'Normal' adolescence is defined by an imbalance between the earlier development of limbic (emotional/motivational cues) structures and later prefrontal control (age, experience, judgment)

C.2. Epidemiology (Kessler '05)

4 distinct populations entering the Adult Mental Health System:

1. 'Normal' vicissitudes of adolescence
-Impulse control disorders
-Can be derailing or fatal, albeit transient.
Approach: ?

2. Emerging Serious Mental Illness
-'Chronic Diseases of the Young'
Approach: STEP

3. The disorders of early deprivation
Approach: YAS

4. Disorders of the 1st phase of neuro-development (Autism, LD, ADHD)
Approach: ?

Engineering Youth Mental Health Care

(a) 'Sticky' with focus on Youth Participation and stigma reduction;

(b) Family/caregiver engagement: improve pathways to AND through care;

(c) Preventive and Optimistic stance with stepped care for more specialized clinical needs

(c) Early Intervention for emerging illness: social inclusion and vocational outcomes as core targets;

(d) Elimination of discontinuities in care during developmental transition;

(f) Seamless linkages with community services that can adapt to the needs of emerging adults.

adapted from McGorry et al 2013

Models of Youth Mental Health Services

- Headspace (Australia) www.headspace.org.au/
- Headstrong (Ireland) www.headstrong.ie
- Youthspace (Birmingham, England) www.youthspace.org.uk

Sources cited

Birchwood, M. 2006. Early intervention in psychosis: the critical period. *The recognition and management of early psychosis: A preventative approach*: 226–264.

Casey, B J BJ, Stéphanie S Duhoux, and Matthew M Malter Cohen. 2010. Adolescence: what do transmission, transition, and translation have to do with it? *Neuron* 67: 749–760. doi:10.1016/j.neuron.2010.08.033.

Dodds, T J, V H Phutane, B J Stevens, S W Woods, M J Sernyak, and V H Srihari. 2011. Who is paying the price? Loss of health insurance coverage early in psychosis. *Psychiatric services (Washington, D.C.)* 62: 878–881. doi:10.1176/appi.ps.62.8.878.

Häfner, H, K Maurer, W Löffler, B Fätkenheuer, and et al. 1994. The epidemiology of early schizophrenia influence of age and gender on onset and early course. *The British Journal of Psychiatry*. Royal College of Psychiatrists.

Insel, T R, and W S Fenton. 2005. Psychiatric epidemiology: it's not just about counting anymore. *Archives of General Psychiatry* 62. Am Med Assoc: 590.

Jones, P B. 2013. Adult mental health disorders and their age at onset. *The British journal of psychiatry. Supplement* 54: s5–s10. doi:10.1192/bjp.bp.112.119164.

Kessler, R C, G P Amminger, S Aguilar Gaxiola, J Alonso, S Lee, and T B Ustun. 2007. Age of onset of mental disorders: a review of recent literature. *Current opinion in psychiatry* 20. NIH Public Access: 359.

Liberman, Robert Paul RP, and Alex A Kopelowicz. 2005. Recovery from schizophrenia: a concept in search of research. *Psychiatric services (Washington, D.C.)* 56: 735–742. doi:10.1176/appi.ps.56.6.735.

McGorry, Patrick, Tony Bates, and Max Birchwood. 2013. Designing youth mental health services for the 21st century: examples from Australia, Ireland and the UK. *The British Journal of Psychiatry* 202: s30–s35. doi:10.1192/bjp.bp.112.119214.

Menezes, Natasja. 2005. *Menezes - Meta-analysis of First Break Studies*.

Phutane, Vivek H, Cenk Tek, Lydia Chwastiak, Joseph C Ratliff, Banu Ozyuksel, Scott W Woods, and Vinod H Srihari. 2011. Cardiovascular risk in a first-episode psychosis sample: a “critical period” for prevention? *Schizophrenia research* 127: 257–261. doi:10.1016/j.schres.2010.12.008.

Sources Cited (continued)

Sackett, D L, R B Haynes, G H Guyatt, and P Tugwell. How to Do Clinical Practice Research. 2005. *Lippincott Williams and Wilkins*.

Saksa, John R, Shuki J Cohen, Vinod H Srihari, and Scott W Woods. 2009. Cognitive behavior therapy for early psychosis: a comprehensive review of individual vs. group treatment studies. *International journal of group psychotherapy* 59: 357–383. doi:10.1521/ijgp.2009.59.3.357.

Somerville, Leah H, and B J Casey. 2010. Developmental neurobiology of cognitive control and motivational systems. *Current Opinion in Neurobiology* 20. Elsevier Ltd: 236–241. doi:10.1016/j.conb.2010.01.006.

Srihari, Vinod H, Jai Shah, and Matcheri S Keshavan. 2012. Is early intervention for psychosis feasible and effective? *The Psychiatric clinics of North America* 35: 613–631. doi:10.1016/j.psc.2012.06.004.

Srihari, Vinod H, Nicholas J K Breitborde, Jessica Pollard, Cenk Tek, Leslie Hyman, Linda K Frisman, Thomas H McGlashan, Selby Jacobs, and Scott W Woods. 2009. Public-academic partnerships: early intervention for psychotic disorders in a community mental health center. *Psychiatric services (Washington, D.C.)* 60: 1426–1428. doi:10.1176/appi.ps.60.11.1426.

Thara, R R. 2004. Twenty-year course of schizophrenia: the Madras Longitudinal Study. *Canadian Journal of Psychiatry* 49: 564–569.

The Economic Burden of Schizophrenia in the United States in 2002. 2005. The Economic Burden of Schizophrenia in the United States in 2002: 1–8.

Velden WT Hegelstad, Ten, Wenche, Tor K TK Larsen, Bjørn B Auestad, Julie J Evensen, Ulrik U Haahr, Inge I Joa, Jan O JO Johannesen, et al. 2012. Long-term follow-up of the TIPS early detection in psychosis study: effects on 10-year outcome. *American Journal of Psychiatry* 169: 374–380. doi:10.1176/appi.ajp.2011.11030459.