



Recovery-Oriented Outcomes Associated with Long-Acting Injectable Antipsychotics

Kei Yoshimatsu, M.D., Melanie Thomas, M.D., M.S., Alexandra Ballinger, B.A., Andrea Elser, B.A., Steven Wozniak, M.D., James Dilley, M.D., Christina Mangurian, M.D., M.A.S.

University of California, San Francisco, San Francisco General Hospital, and South of Market Mental Health Services



Background

- Previous research has shown that long-acting injectable antipsychotics (LAIs) are preferable to their oral equivalents (POs) due to:
 - Increased medication adherence
 - Decreased episodes of psychiatric decompensation
 - Reduced overall cost of care in patients with psychotic illnesses
- Growing literature supports the effectiveness of LAIs in community mental health settings:
 - Evidence in patients with co-morbid substance use
 - Evidence in patients who are incarcerated or struggling with homelessness
- However, there is a knowledge gap about whether LAIs affect change in patients' recovery-oriented goals such as employment, housing, and relationships

Objectives

- Assess change in levels of psychosocial functioning among patients who have been adherent to LAIs in a safety-net urban community-based mental health system
- Address knowledge gap about whether LAIs affect change in patients' recovery-oriented goals

Methods

- Study type** - Retrospective cohort study using longitudinal data extracted from county electronic medical and pharmacy record systems
- Participants** - Patients seen in the county behavioral health system during the calendar year of 2015 who were adherent to LAI for greater than 12 months, with no treatment gaps lasting longer than 90 days (see Figure 1 for details of exclusion criteria)
- Setting** - Urban county mental health system encompassing outpatient, inpatient, and jail settings with large prevalence of homelessness and substance use
- Measure** - Primary outcome is the change in Adults Strengths and Needs Assessment (ANSA) scores, an evidenced-based, clinically-validated tool that measures psychosocial functioning (see Table 1). Secondary outcome is improvement in specific problem domains as identified by a 2 or 3 on a Likert scale of 0 to 3 in the initial PO ANSA score (see Figure 3).
- Analysis** - Chi-square and paired t-tests comparing means of ANSA items on POs versus LAIs examining within-subject changes in ANSA scores before and after LAI treatment

Figure 1. Study Flow

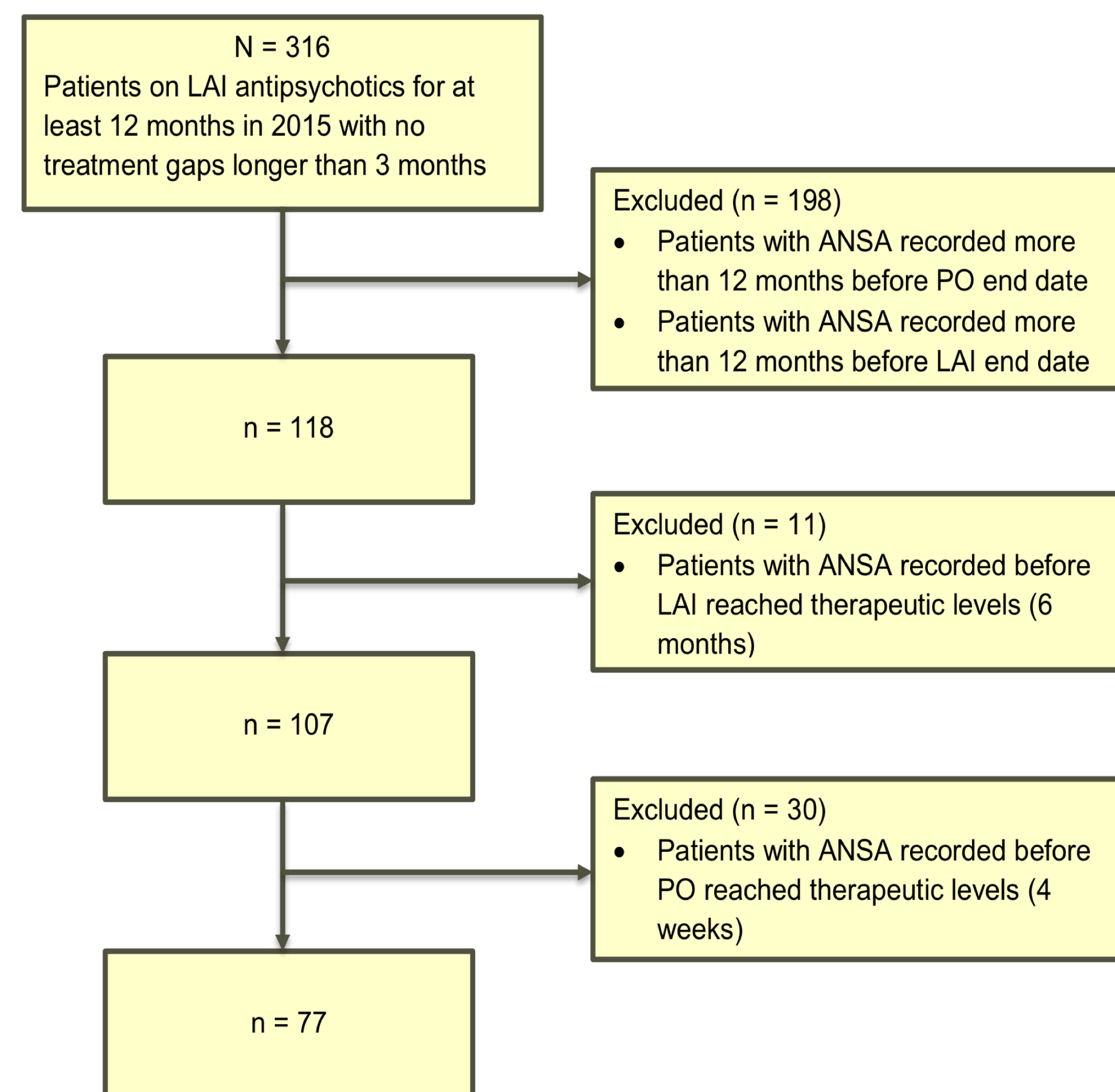


Table 1. Patient Demographics

	LAI Sample	County Sample	χ^2	p
Total	77	24,577		
Average Age (years)	46	47		
Gender			2.21	.331
Male	51 (66%)	14,239 (58%)	.9	
Female	26 (34%)	10,317 (42%)	1.2	
Race/Ethnicity			25.65	< .001*
Asian/Pacific Islander	24 (31%)	4,043 (16%)	10.1	
Black/African descent	22 (29%)	5,078 (21%)	2.3	
White/Middle Eastern	14 (18%)	8,606 (35%)	6.2	
Latino	13 (17%)	2,953 (12%)	1.5	
Other / Unknown	4 (5%)	3,897 (16%)	5.5	

Table 2. Clinical Characteristics

	LAI Sample
Diagnosis	
Schizophrenia	44 (57%)
Schizoaffective disorder	23 (30%)
Bipolar Disorder	7 (9%)
Unspecified schizophrenia spectrum, other psychotic disorders	2 (3%)
PTSD	1 (1%)
Average LAI Adherence (years)	2.21
LAI Agent	
Paliperidone - 1 month	40 (52%)
Haloperidol	18 (23%)
Aripiprazole	15 (20%)
Risperidone	3 (4%)
Fluphenazine	1 (1%)

Table 3. Changes in ANSA scores from PO to LAI

	PO Mean (SD)	LAI Mean (SD)	t-value (df)	p (one-tailed)
Anxiety	1.29 (.88)	1.23 (.76)	.59 (74)	.278
Depression	1.35 (.79)	1.30 (.76)	.36 (71)	.358
Psychosis	2.06 (.75)	1.94 (.71)	1.45 (76)	.075
Interpersonal problems	.99 (1.04)	.74 (.88)	2.11 (73)	.019*
Impulse control	1.36 (1.02)	1.17 (.85)	1.56 (75)	.061
Trauma adjustment	.88 (.90)	.88 (.80)	.00 (68)	.500
Physical/medical health	1.09 (.89)	1.14 (.76)	-.48 (76)	.685
Family functioning	1.21 (.97)	1.21 (.73)	.00 (72)	.500
Living skills	1.61 (.91)	1.49 (.89)	1.01 (75)	.157
Social functioning	1.71 (.87)	1.49 (.94)	1.71 (76)	.045*
Residential stability	1.36 (1.07)	1.10 (1.11)	1.85 (76)	.034*
Employment	1.46 (.95)	1.58 (.99)	-.40 (25)	.653
Danger to self	.65 (.70)	.66 (.60)	-.15 (76)	.560
Danger to others	.51 (.53)	.59 (.61)	-1.10 (75)	.862
Grave disability	.92 (.85)	.77 (.75)	1.37 (74)	.087
Self-injurious behavior	.43 (.67)	.45 (.61)	-.15 (68)	.559
Exploitation	.45 (.82)	.63 (.85)	-1.81 (70)	.963
Criminal behavior	.74 (.97)	.47 (.50)	2.91 (73)	.002**
Medication adherence	1.23 (.85)	.85 (.68)	3.12 (73)	.001**
Cultural stress	.70 (.92)	.61 (.71)	.87 (70)	.195
Substance use	1.04 (1.11)	1.01 (1.06)	.24 (72)	.402
Recovery stage	1.92 (.98)	1.74 (.88)	.94 (38)	.176
Substance use severity	1.66 (.99)	1.71 (.84)	-.33 (37)	.628
Optimism	1.56 (.79)	1.40 (.85)	1.38 (76)	.085
Community connection	1.89 (.85)	1.65 (.83)	1.79 (74)	.039*
Spiritual/religious	1.96 (1.00)	1.59 (1.14)	2.20 (48)	.016*
Recovery involvement	1.53 (.90)	1.42 (.85)	.88 (75)	.190

Note. *p < .05, **p < .005

Figure 3. Improvements on Actionable ANSA Items

PSYCHOSOCIAL FUNCTIONING CHANGES ON LAI

Improvement: reduction in ANSA item score that was originally given a score of 2 or 3



CRIMINAL BEHAVIOR

100% of patients showed improvements (13/13)



GRAVE DISABILITY

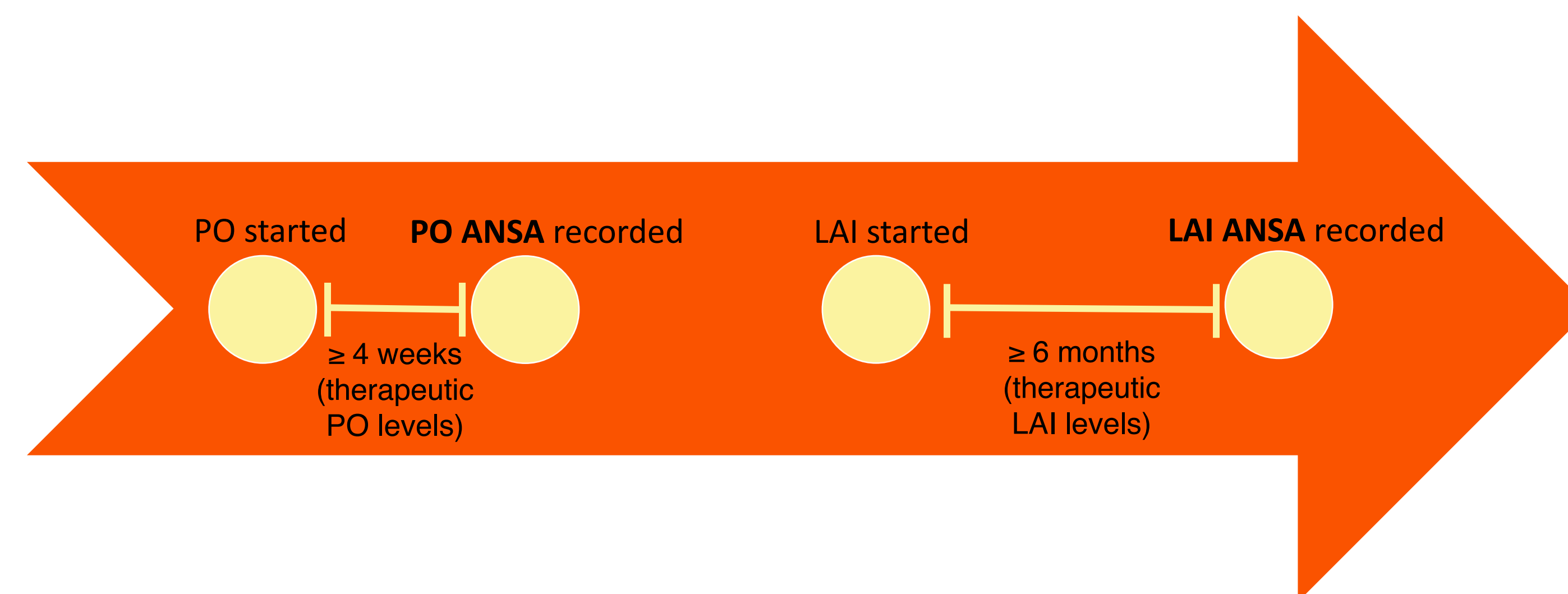
83% of patients showed improvements (12/15)



DANGER TO SELF

75% of patients showed improvements (4/6)

Figure 2. Study Timeline



Discussion

- Key take home points:**
 - Patients on LAIs show significant improvements in domains of interpersonal problems, social functioning, residential stability, criminal behaviour, medication adherence, community connection, and spiritual/religious domains
 - 100% of patients with problems in criminal behaviour showed improvements on LAIs. Similarly, 83% of patients with problems in grave disability improved and 75% of patients with problems in dangerousness-to-self improved
 - In our LAI sample a greater proportion of patients identified as Asian/Pacific Islander and Black/African descent compared to the overall county behavioural health population.
- Limitations:**
 - Large exclusion of patients due to incomplete documentation, a common challenge in community-based mental health services research
 - Uncontrolled design of who was transitioned from PO to LAIs
- Future directions include more robust, randomized controlled trials of LAIs versus POs in their associations with improvements in psychosocial functioning