



Quality Improvement Project in the UCSF LPPI Child, Adolescent, and Adult Outpatient Clinics to Reduce the Risks Associated with Lithium Use by Adhering to the Use of Safety Monitoring Labs

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Poster Number:

Introduction

- Lithium is the “gold standard” mood stabilizer. It was the first medication approved by the U.S. Food and Drug Administration (FDA) for the treatment of mania and maintenance therapy in children and adolescents ages 12 years and older.¹
- Lithium has been found to have similar efficacy in children as adults for the acute treatment of bipolar I and is generally well-tolerated.² It is also used “off-label” to reduce aggression and suicidality in pediatric populations.
- Lithium requires careful lab monitoring due to its narrow therapeutic window (0.6 to 1.4 mEq/L) and potential for dangerous side effects
- Because lithium toxicity is closely related to its serum concentration, it is important to monitor lithium levels frequently when making dose adjustments, and then every 3 months once a stable dose has been achieved.
- Since lithium can affect renal tubular function, renal function should be monitored every 2-3 months during the first 6 months of treatment and then every 6 months thereafter.
- However, studies around the world have shown that lithium monitoring is not optimal. There have been different attempts for quality improvement including educational interventions and the development of lithium use guidelines and databases.⁴

Objectives

- The objective of this quality improvement project in the UCSF LPPI child, adolescent, and adult outpatient clinics is to reduce the risks associated with lithium use by adhering to the use of safety monitoring labs.

Methods

Participants: The UCSF LPPI child, adolescent, and adult psychiatric clinic outpatient population seen by UCSF resident and CAP fellow trainees

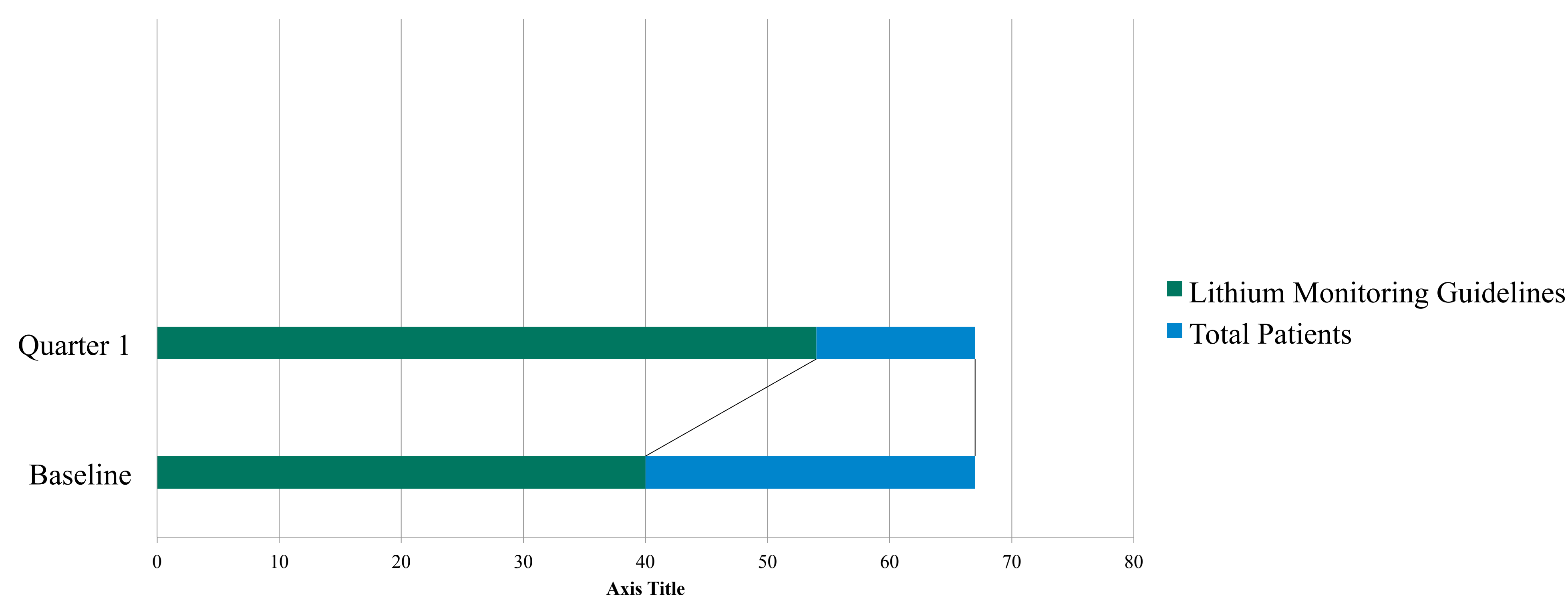
Project Procedures:

- Tabulate baseline data prior to August 2016 of the percentage of clinic patients on lithium for whom the following tests have been performed within the following time periods:
 - Lithium level – every 3 months
 - Renal function tests – every 6 months
 - Thyroid function tests – every 6 months
- Educate trainees on monitoring the potential adverse effects of lithium use
- Implement an electronic health record method (Apex dot phrases) for trainees to track lithium lab tests on their patients
- Continue to monitor trainee adherence to the use of safety monitoring labs with a quality improvement goal of 90% lithium monitoring compliance for 3 out of 4 best performing quarters between August 2016 and June 2017

Data analysis: Quality improvement data will be collected via electronic health record reports and chart audits

Results to Date

- Baseline data from August 2016:
- A total of 67 patients on maintenance lithium therapy were under the care of UCSF residents and CAP fellows
- Of these 59.7% (40 patients) met lithium monitoring guidelines at baseline
- An educational intervention was implemented. Trainees were made aware of the lithium monitoring guidelines and UCSF-sponsored monetary incentive to meet the QI goals set forth.
- Quarter 1 data from August to October 18, 2016
- A total of 67 patients on maintenance lithium therapy were under the care of UCSF residents and CAP fellows
- Of these 80.6% (54 patients) met lithium monitoring guidelines at the end of Q1



Discussion

Implications:

- There was an increase of adherence from baseline but did not meet our QI goal of 90% adherent
- Education alone increased adherence but not enough to meet our goal

Future directions:

- Implement an electronic health record method (Apex dot phrases) for trainees to track lithium lab tests on their patients
- Query trainees in a focus group format to investigate barriers to getting lab work on lithium patients
- Collaborate with other system partners including patients, patient families, pharmacists, primary care doctors, and lab staff to better understand barriers to lithium monitoring

References

- McClellan J, Kowatch R, Findling RL, Work Group on Quality I. Practice parameter for the assessment and treatment of children and adolescents with bipolar disorder. *J Am Acad Child Adolesc Psychiatry.* 2007;46(1):107-125.
- Findling RL, Robb A, McNamara NK, et al. Lithium in the Acute Treatment of Bipolar I Disorder: A Double-Blind, Placebo-Controlled Study. *Pediatrics.* 2015;136(5):885-894
- Thomas T, Stansifer L, Findling RL. Psychopharmacology of pediatric bipolar disorders in children and adolescents. *Pediatr Clin North Am.* 2011;58(1):173-187, xii.
- Paton C, Adroer R, Barnes TR. Monitoring lithium therapy: the impact of a quality improvement programme in the UK. *Bipolar Disord.* 2013;15(8): 865-875.

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