Optimizing EMR Use for Mental Health Care

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Faculty/Presenter Disclosure

- **Faculty:** Ilan Fischler, MD, FRCPC

- **Relationships with commercial interests in previous 2 years:**
  - **Grants/Research Support:** None
  - **Speakers Bureau/Honoraria:** Meditech
  - **Consulting Fees:** Healthtech, Meditech, Z. Ramji and Associates, CELHIN
  - **Other:** Employee of Ontario Shores Centre for Mental Health Sciences

Disclosure of Commercial Support

- **<u>Potential for conflict(s) of interest</u>:**
  - Ilan Fischler has received payment from Meditech whose product(s) are being discussed in this program.

Mitigating Potential Bias

- Potential sources of bias identified in slides 1 and 2 have been mitigated as all order sets, templates, decision support discussed in this presentation could be built in other vendor EMRs. The content discussed is vendor-agnostic and is equally relevant to all EMRs.

Objectives

- At the end of this presentation, participants will:
  - Be familiar with how EMR customization can be used to improve quality and reduce unnecessary variation in mental health care
  - Understand order set development approaches for mental health practice
  - Be aware of how EMR usage can promote inter-professional collaboration, improved efficiency of documentation and optimized patient engagement

Understanding the Context

- Ontario Shores was the first Hospital in Canada (and first mental health hospital in the world) to achieve HIMSS EMRAM Stage 7 and the Nicholas E. Davies Award of Excellence
- Strategic initiatives at the organization have included implementing the Recovery Model, Minimization of Restraint and Seclusion, and implementing UK NICE clinical practice guidelines and HQO mental health quality standards
- Major focus on patient engagement initiatives

Improving Quality in Mental Health Care

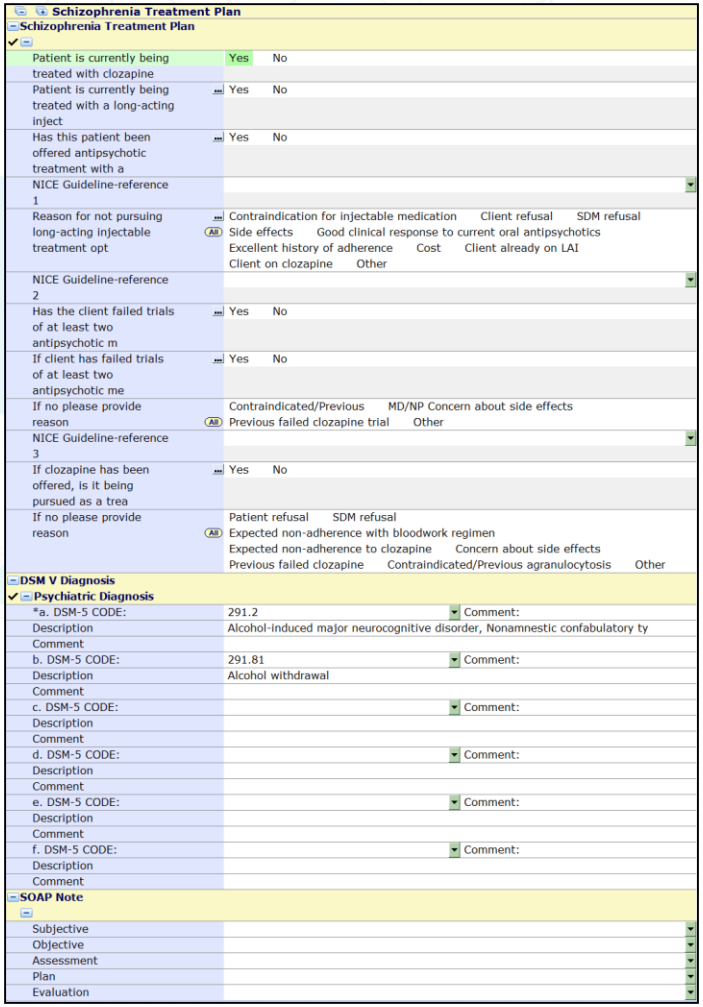
- Customized documentation templates that support clinical practice guideline or quality standard adherence
- Build adherence monitors and exception handling into documentation templates
- Discrete data collection and reporting for quality improvement initiatives
- Trigger orders/order sets based on answers to documentation queries

- Warning: Unlike Other Areas of Inpatient Medicine/Surgery, order sets are not the primary means to improve quality in mental healthcare

Example of Documentation Template

Schizophrenia Treatment Planning Note

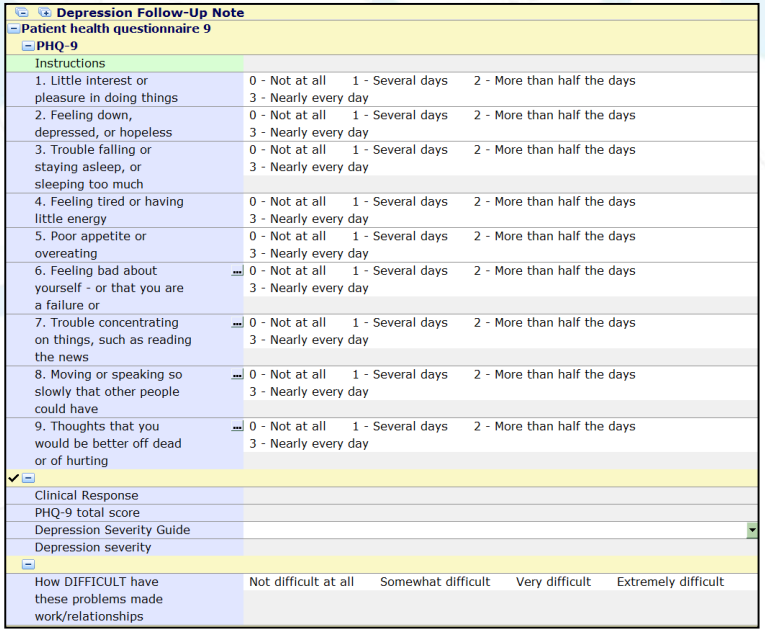
- Completed within 28 days of admission of any individual with a primary diagnosis of Schizophrenia
- Less than 1 minute to complete, but prompts MD and provides exception handling for deviations from HQO quality standards for Schizophrenia



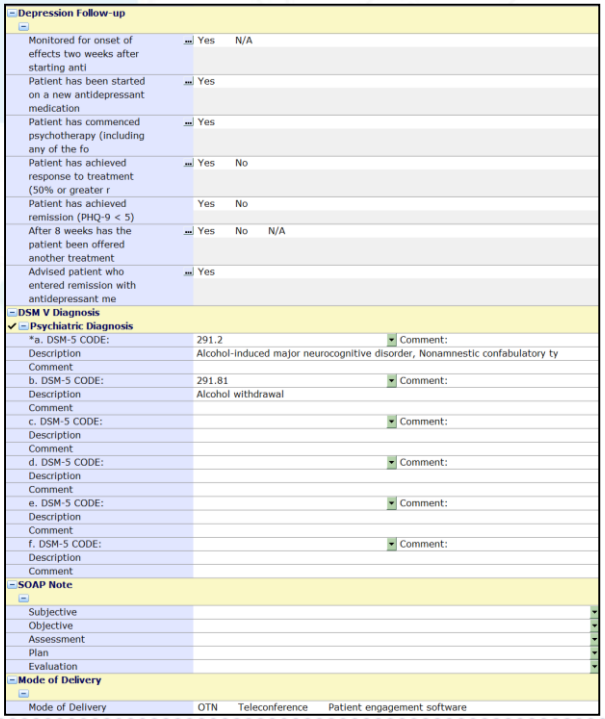
Example of Documentation Template

Major Depression Follow-Up Note

- Completed as the progress note for every follow-up appointment for individuals with a primary diagnosis of major depression
- Supports measurement-based care, aggressive treatment targets and movement through an algorithm



Depression Follow-Up Note				
Patient health questionnaire 9				
PHQ-9				
Instructions				
1. Little interest or pleasure in doing things	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
2. Feeling down, depressed, or hopeless	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
3. Trouble falling or staying asleep, or sleeping too much	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
4. Feeling tired or having little energy	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
5. Poor appetite or overeating	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
6. Feeling bad about yourself - or that you are a failure or	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
7. Trouble concentrating on things, such as reading the news	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
8. Moving or speaking so slowly that other people could have	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
9. Thoughts that you would be better off dead or of hurting	0 - Not at all	1 - Several days	2 - More than half the days	3 - Nearly every day
Clinical Response				
PHQ-9 total score				
Depression Severity Guide				
Depression severity				
How DIFFICULT have these problems made work/relationships	Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult



Depression Follow-up			
Monitored for onset of effects two weeks after starting anti	Yes	N/A	
Patient has been started on a new antidepressant medication	Yes		
Patient has commenced psychotherapy (including any of the fo	Yes		
Patient has achieved response to treatment (50% or greater r	Yes	No	
Patient has achieved remission (PHQ-9 < 5)	Yes	No	
After 8 weeks has the patient been offered another treatment	Yes	No	N/A
Advised patient who entered remission with antidepressant me	Yes		
DSM V Diagnosis			
Psychiatric Diagnosis			
*a. DSM-5 CODE:	291.2	Comment:	
Description	Alcohol-induced major neurocognitive disorder, Nonamnestic confabulatory ty		
Comment			
b. DSM-5 CODE:	291.81	Comment:	
Description	Alcohol withdrawal		
Comment			
c. DSM-5 CODE:		Comment:	
Description			
Comment			
d. DSM-5 CODE:		Comment:	
Description			
Comment			
e. DSM-5 CODE:		Comment:	
Description			
Comment			
f. DSM-5 CODE:		Comment:	
Description			
Comment			
SOAP Note			
Subjective			
Objective			
Assessment			
Plan			
Evaluation			
Mode of Delivery			
Mode of Delivery	OTN	Teleconference	Patient engagement software

Example of Exception Handling

Antipsychotic Polypharmacy Prompt

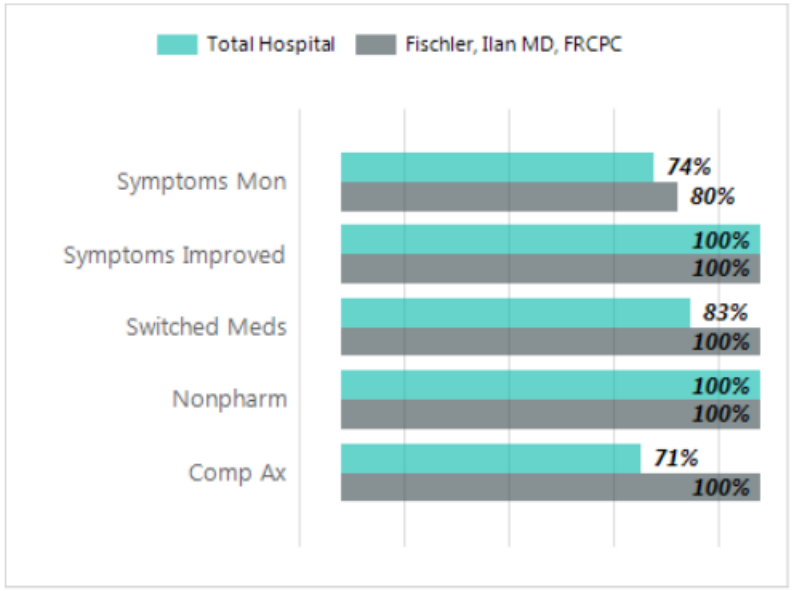
- Notice triggers MD to review antipsychotic polypharmacy and document rationale for same

Reason for Multiple Antipsycho		
✔ Primary Reason		
Reason for second antipsychotic:	Cross - Titration	Admit on Combo Short Stay
	Treatment Resistance No Clozapine	Partial Improvement
	Treat-Resistnce Post Cloz	Patient Choice
	Treat-Resistnce Efficacy	Other's Advice
	Different Effects	PRN Specific
	Faster Response	Augment Clozapine
	Different Mechanisms	Mood Stabilizer
	Admitted on Combo	
Guidelines to select reason:		

Using Data for Quality Improvement

Physician Quality Standard Dashboard

- Review adherence to quality standards compared to peers
- Reported at organizational, programmatic, unit and individual physician level



Category	Numerator	Denominator	Percent
Comp Ax	3	3	**100.0%**
Nonpharm	5	5	**100.0%**
Symptoms Mon	4	5	**80.0%**
Switched Meds	1	1	**100.0%**
Symptoms Improved	1	1	**100.0%**

Using Data for Quality Improvement

Physician Quality Standard Dashboard

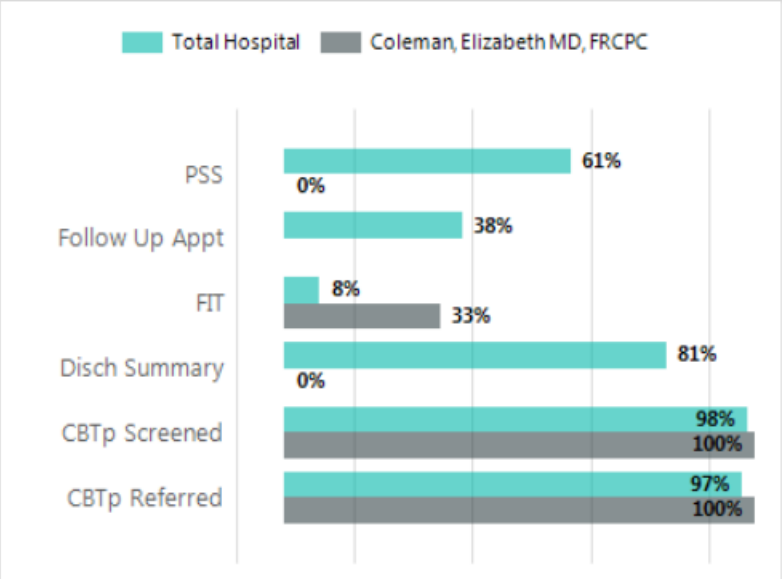
Ontario Shores
Centre for Mental Health Sciences

Quality Standards | Physician Scorecard

Coleman, Elizabeth MD, FRCPC

Report for Month: **2018-03**

SCHIZOPHRENIA INDICATORS

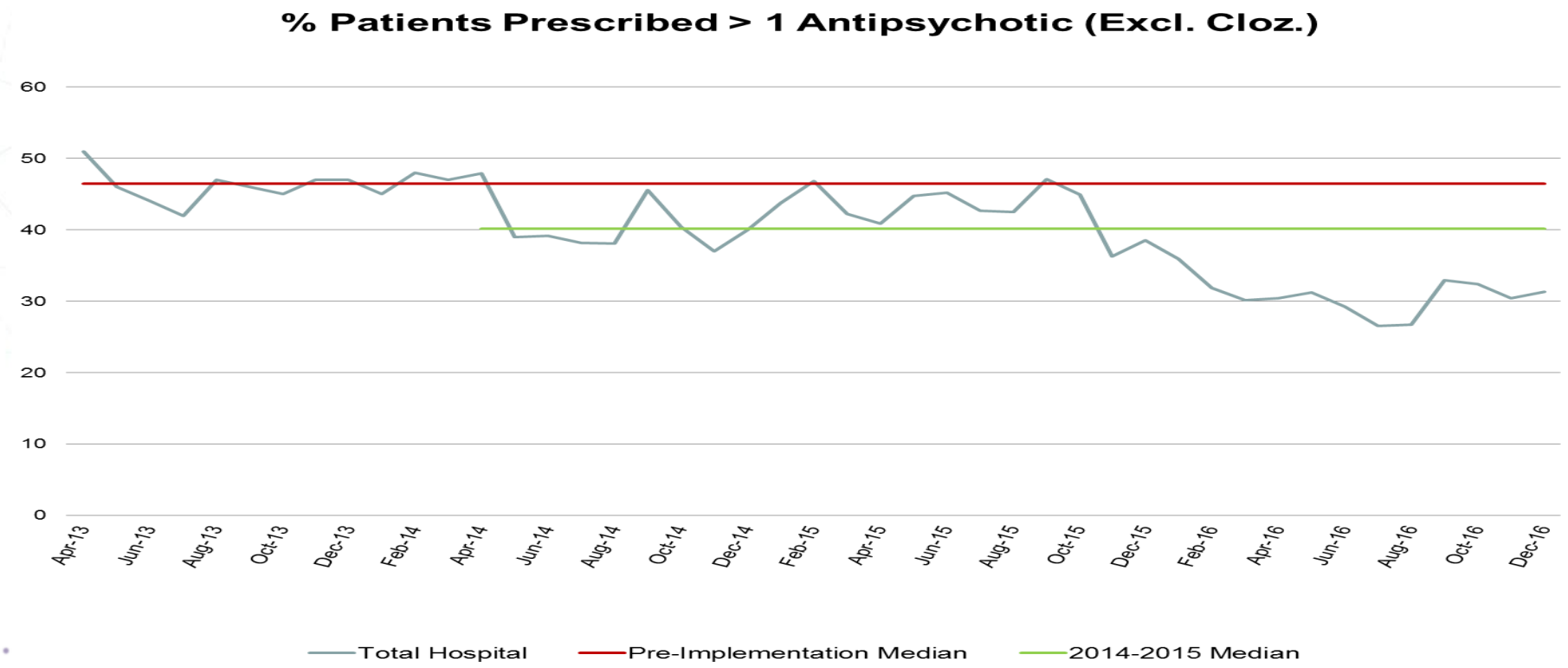


Category	Numerator	Denominator	Percent
CBTp Screened	15	15	**100.0%**
CBTp Referred	12	12	**100.0%**
FIT	1	3	**33.3%**
Follow Up Appt	0	0	**–**
Disch Summary	0	1	**0.0%**
PSS	0	1	**0.0%**

Using Data for Quality Improvement

Antipsychotic Polypharmacy Trending

- Compare rates at medical staff association meetings
- Academic detailing as part of resident quality improvement project



Automated Decision Support

Automated referrals based on answers to screening tools

CBT for psychosis referral screening tool ✔

CBT screening

*Does patient have a psychotic illness?	◉ Yes ○ No
*Does patient talk openly about symptoms (i.e., are they able to talk openly about symptoms, even if they don't recognize them as such)?	◉ Yes ○ No If No - Consider other groups first (e.g., Insight into Illness, Practical Facts about Mental Illness, etc.)
*Does patient currently experience residual negative symptoms/ delusions/ hallucinations	◉ Yes ○ No If No - Revisit the reason for referring patient to CBT for Psychosis
*Enter referral for CBT	◉ Yes ○ No
If no, indicate reason	☐ Floridly psychotic ☐ Refusing intervention ☐ No insight ☐ Receiving CBTp ☐ Physically unwell ☐ Completed CBTp ☐ Cognitive deficits ☐ On wait list

✔	Type	Suggestions	Action	Trigger	Result
☐	Order	CBT for Psychosis- 1:1	Order Now	Enter referral for CBT	Yes

Triggered By

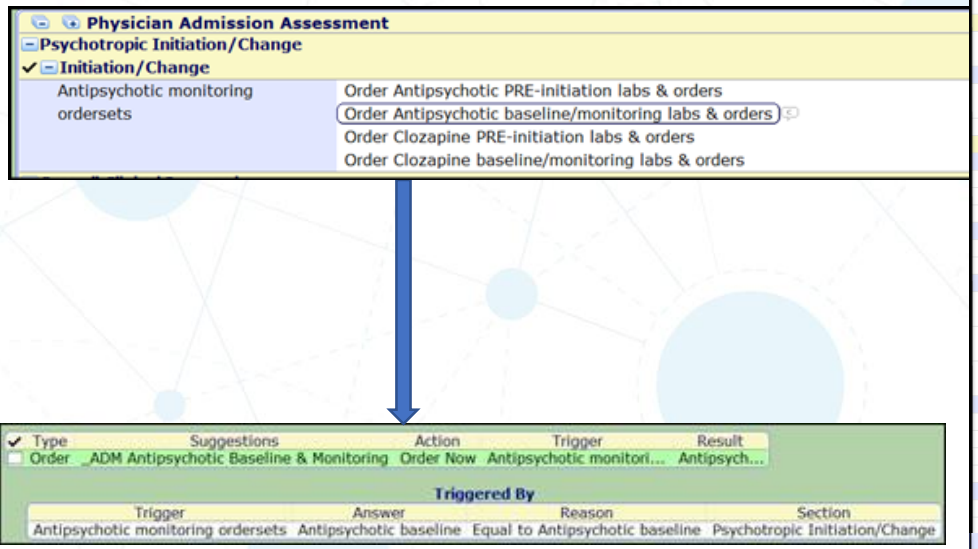
Trigger	Answer	Reason	Assessment
Enter referral for CBT	Yes	Equal to Yes	CBT for psychosis referral scr

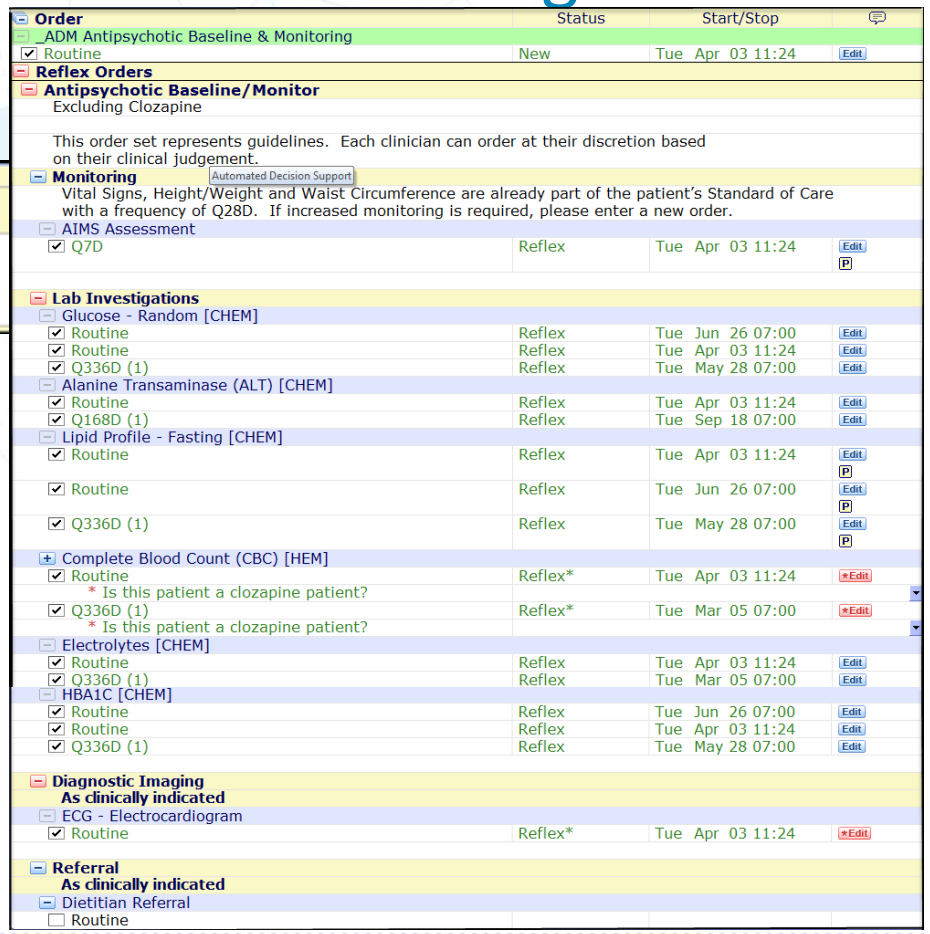
Order	Status	Start/Stop	
CBT for Psychosis- 1:1			
☑ Routine	New*	Tue Apr 03 11:43	*Edit
* Provider	Train,Doctor		
* Source	Interprofessional Referral		

Automated Decision Support

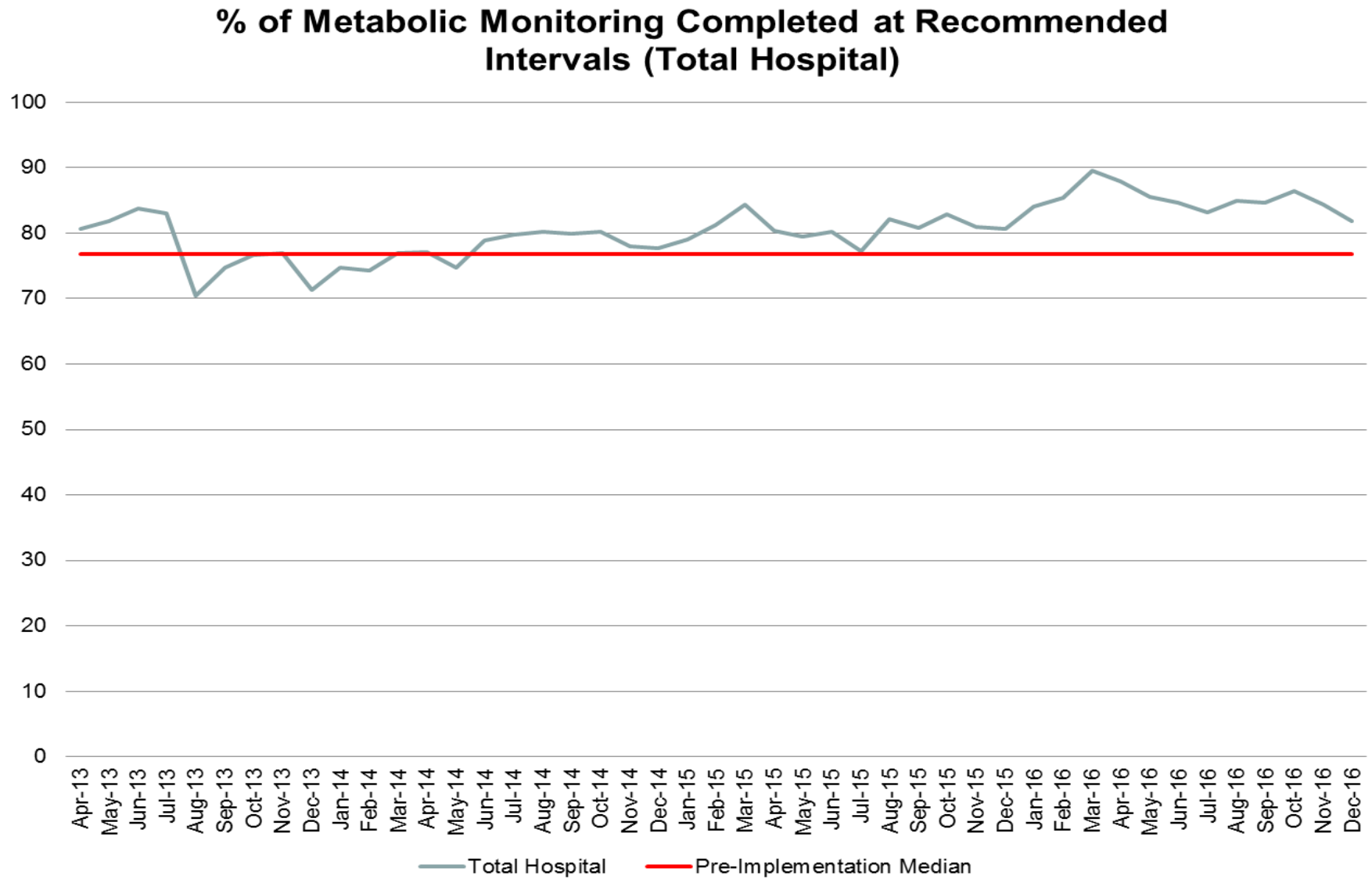
Physician documentation triggers best-practice standards for metabolic monitoring

- Physician Admission Assessment





Metabolic Monitoring Trends



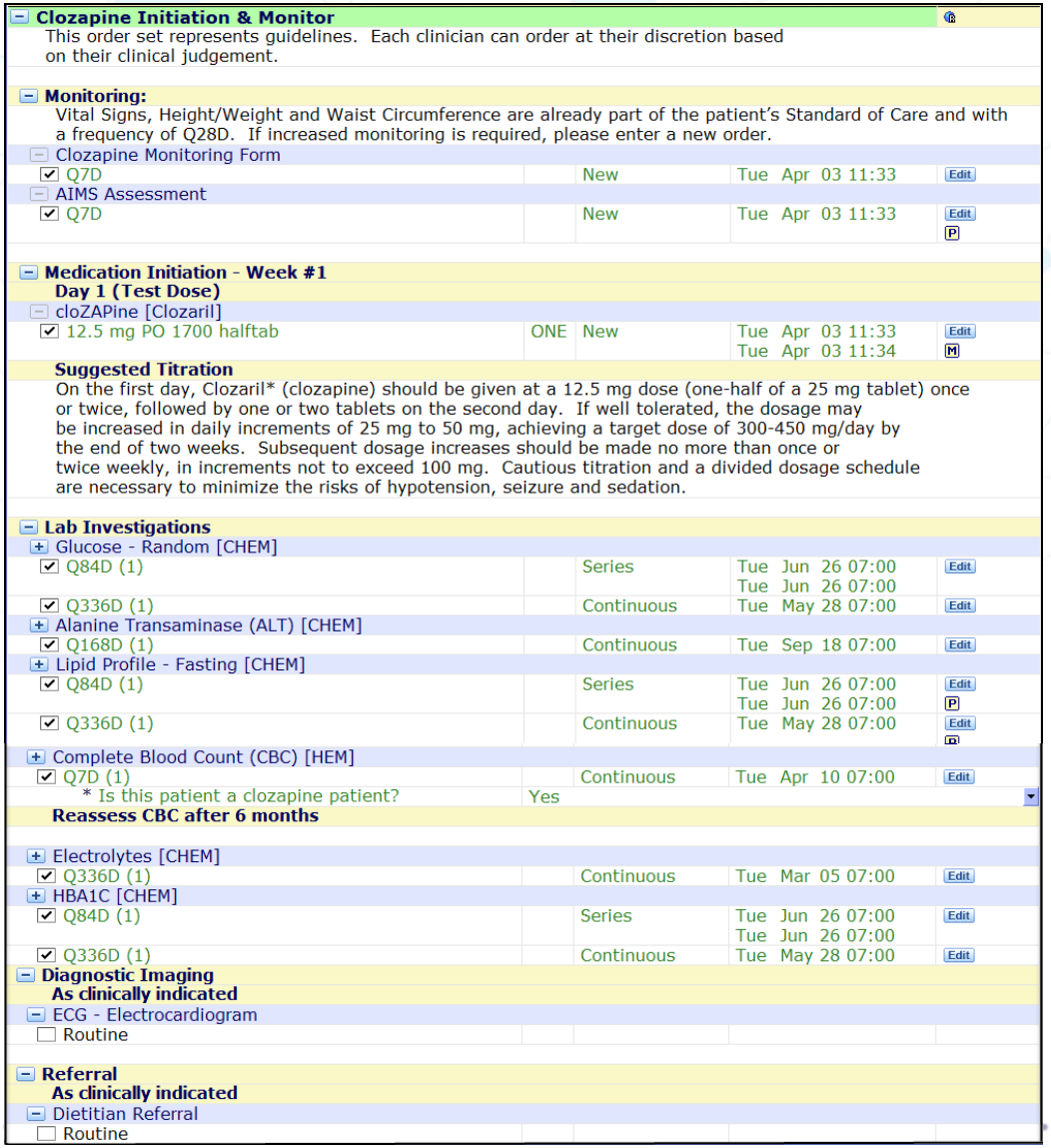
Order Set Creation and Optimization

- Diagnosis-based order sets do not work well in Psychiatry
- Order sets serve 2 main functions in Psychiatry
  - Convenience/efficiency
  - Evidence-based practice
- Consider treatment-based order sets versus diagnosis-based order sets
- Embed decision-support/exception handling and rules into order sets where possible
- No vendors to support this work; create mechanism to ensure regular review of content

ECT Pre-Initiation Order Set

Order	Status	Start/Stop	
ECT Pre-Initation			
This order set represents guidelines. Each clinician can order at their discretion based on their clinical judgement.			
Preliminary Investigations			
1. CBC & differential if not done in the last 28 days on patients over 60 years of age or if clinically indicated.			
2. Urea, creatinine & electrolytes if patient is diabetic, receiving diuretics, lithium or psychotropic meds which may cause hyponatremia.			
3. INR, PTT for patient on anticoagulation.			
4. Chest x-ray is required if history or exam suggests cardiovascular or pulmonary disease.			
5. Cervical spine x-ray is required if patient has suspected cervical spine instability. Discuss with IHS.			
6. ECG is required on all patients.			
7. Anaesthesia consult is required on all patients.			
Diagnostic Imaging			
Chest 2 Views			
☐ Routine			
ECG - Electrocardiogram			
☑ Routine	New*	Tue Apr 03 11:19	*Edit
Lab orders			
Complete Blood Count (CBC) [HEM]			
☐ Routine			
Urea [CHEM]			
☐ Routine			
Creatinine [CHEM]			
☐ Routine			
Electrolytes [CHEM]			
☐ Routine			
INR [HEM]			
☐ Routine			
APTT [HEM]			
☐ Routine			
Alkaline Phosphatase [CHEM]			
☐ Routine			
Aspartate Transaminase (AST) [CHEM]			
☐ Routine			
Bilirubin - Direct [CHEM]			
☐ Routine			
Bilirubin - Total [CHEM]			
☐ Routine			
Albumin [CHEM]			
☐ Routine			
Glucose Fasting [CHEM]			
☐ Routine			P
Lipid Profile - Fasting [CHEM]			
☐ Routine			P
Thyrotropin (Sensitive TSH) [CHEM]			
☐ Routine			
Free Thyroxine (T4) [CHEM]			
☐ Routine			
Referrals			
ECT - Therapy Referral			
☑ Routine	New*	Tue Apr 03 11:19	*Edit
Pre-ECT IHS Referral			
☑ Routine	New	Tue Apr 03 11:19	Edit
Anaesthesia Consult			
☑ Routine	New	Tue Apr 03 11:19	Edit

Clozapine Monitoring Order Set



Clozapine Initiation & Monitor

This order set represents guidelines. Each clinician can order at their discretion based on their clinical judgement.

Monitoring:

Vital Signs, Height/Weight and Waist Circumference are already part of the patient's Standard of Care and with a frequency of Q28D. If increased monitoring is required, please enter a new order.

Clozapine Monitoring Form

☑ Q7D		New	Tue Apr 03 11:33	Edit

AIMS Assessment

☑ Q7D		New	Tue Apr 03 11:33	Edit P

Medication Initiation - Week #1

Day 1 (Test Dose)

cloZAPine [Clozaril]

☑ 12.5 mg PO 1700 halftab	ONE	New	Tue Apr 03 11:33 Tue Apr 03 11:34	Edit M

Suggested Titration

On the first day, Clozaril* (clozapine) should be given at a 12.5 mg dose (one-half of a 25 mg tablet) once or twice, followed by one or two tablets on the second day. If well tolerated, the dosage may be increased in daily increments of 25 mg to 50 mg, achieving a target dose of 300-450 mg/day by the end of two weeks. Subsequent dosage increases should be made no more than once or twice weekly, in increments not to exceed 100 mg. Cautious titration and a divided dosage schedule are necessary to minimize the risks of hypotension, seizure and sedation.

Lab Investigations

Glucose - Random [CHEM]

☑ Q84D (1)		Series	Tue Jun 26 07:00 Tue Jun 26 07:00	Edit
☑ Q336D (1)		Continuous	Tue May 28 07:00	Edit

Alanine Transaminase (ALT) [CHEM]

☑ Q168D (1)		Continuous	Tue Sep 18 07:00	Edit

Lipid Profile - Fasting [CHEM]

☑ Q84D (1)		Series	Tue Jun 26 07:00 Tue Jun 26 07:00	Edit P
☑ Q336D (1)		Continuous	Tue May 28 07:00	Edit

Complete Blood Count (CBC) [HEM]

☑ Q7D (1)		Continuous	Tue Apr 10 07:00	Edit
* Is this patient a clozapine patient?	Yes			

Reassess CBC after 6 months

Electrolytes [CHEM]

☑ Q336D (1)		Continuous	Tue Mar 05 07:00	Edit

HBA1C [CHEM]

☑ Q84D (1)		Series	Tue Jun 26 07:00 Tue Jun 26 07:00	Edit
☑ Q336D (1)		Continuous	Tue May 28 07:00	Edit

Diagnostic Imaging

As clinically indicated

ECG - Electrocardiogram

☐ Routine

Referral

As clinically indicated

Dietitian Referral

☐ Routine

Improving Efficiency of Documentation and Workflow

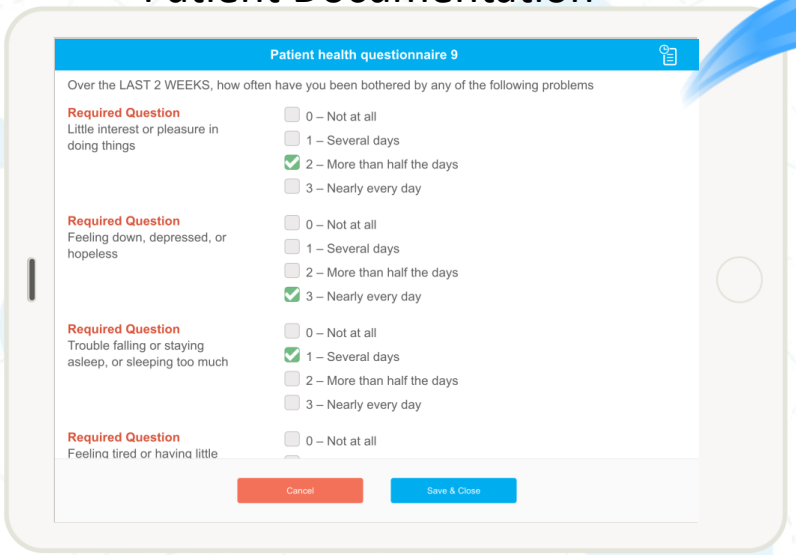
- Use tick boxes in place of narrative where appropriate
- Allow patients or inter-professional staff to document what has traditionally been the domain of the physician
- Create interfaces between patient-facing scales/templates and the EMR
- Revisit workflows
- Automate notification of important clinical events
- Create inter-professional assessments
- Create standard lists of community resources that can be added to note with one click

Using Tick Boxes Where Appropriate

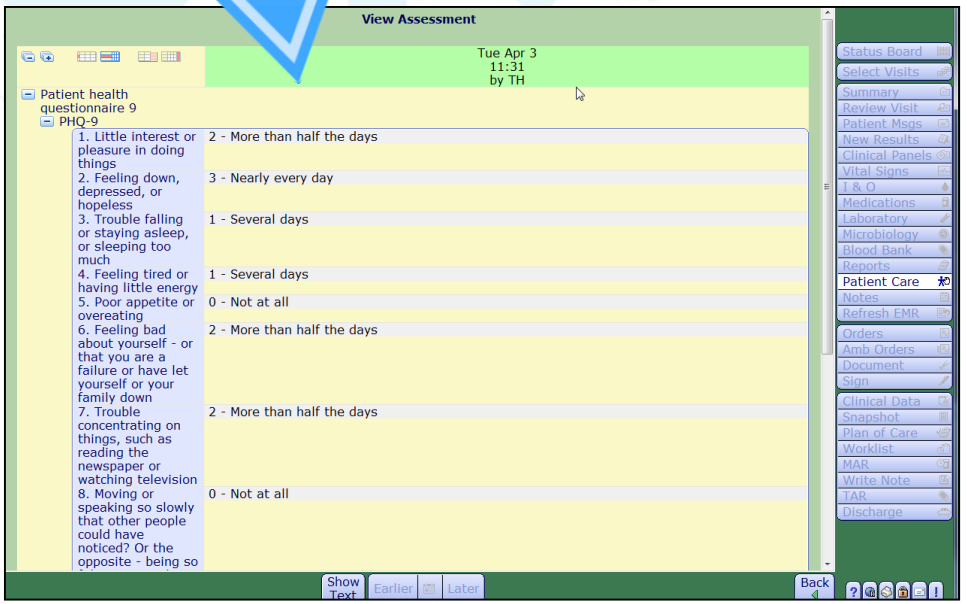
Admission Mental Status Exam		
Appearance		
Grooming		Neat Overly meticulous Unbathed Unkempt Malodorous
Dress		Appropriate Bulky Dishevelled Clean Unclean Unusual
Posture		Comfortable Peculiar body posture Slumped Slouched Rigid Threatening
Eye Contact		Attentive Avoidant Staring Fleeting
Behaviour		
Motor Activity		Appropriate Hyperarousal Entr othrs space/intrusiv Ridgidity
Pos/Neg	All All	Psychomotor retardation Psychomotor agitation Compulsive behaviors Compulsive exercising Unusul/abnormal movements Impulsive behaviours
Other		
Attitude during interaction		Cooperative Withdrawn Apathetic Apprehensive Guarded
Pos/Neg	All All	Aggressive Suspicious Irritable Seductive Angry Paranoid Resistive
Speech		
Speech		No problems identified Unable to Assess Soft Loud Pressured
Pos/Neg	All All	Rapid Slow Selective mutism Echolalia Incoherent Slurred Paucity Aphasic Mumbling Language barrier Unable to speak
Mood		
Mood: patients statement		
Affect		
Affect quality		Euthymic Dysphoric Sad Elated Anxious Angry Fearful Irritable
Affect range and intensity		Flat Blunted Normal Expansive Labile Constricted
Pos/Neg	All All	
Affect congruent to		Yes No

Patient Documents PHQ-9 Which Flows into EMR

Patient Documentation



EMR



Example of Allied Staff Documentation Pulling into Psychiatrist's Consult

Allied Documentation

Illness Information ✓

Illness

Average Age At the Onset of Mental Illness	17
Have You Ever Been Hospitalized in a Psychiatric Facility	◉ Yes ○ No
Average Age at First Psychiatric Hospitalization	19
Past Psychiatric History	Previous hospitalization on psychiatric facility related to ... [End]
Other Past Psychiatric History	

Family

Precipitating Stress Factors	☑ Family ☑ Housing ☐ Legal ☐ Pain ☐ Situational crisis ☑ Financial ☐ Lack of support system ☐ Marital ☑ School ☐ Work
Family Psychiatric History	Paternal Grandfather was diagnosed with schizophrenia..
Other Family Psychiatric	

Psychiatrist Documentation

OP Admission/Consult Ax

Patient and Family Psyc. Hx

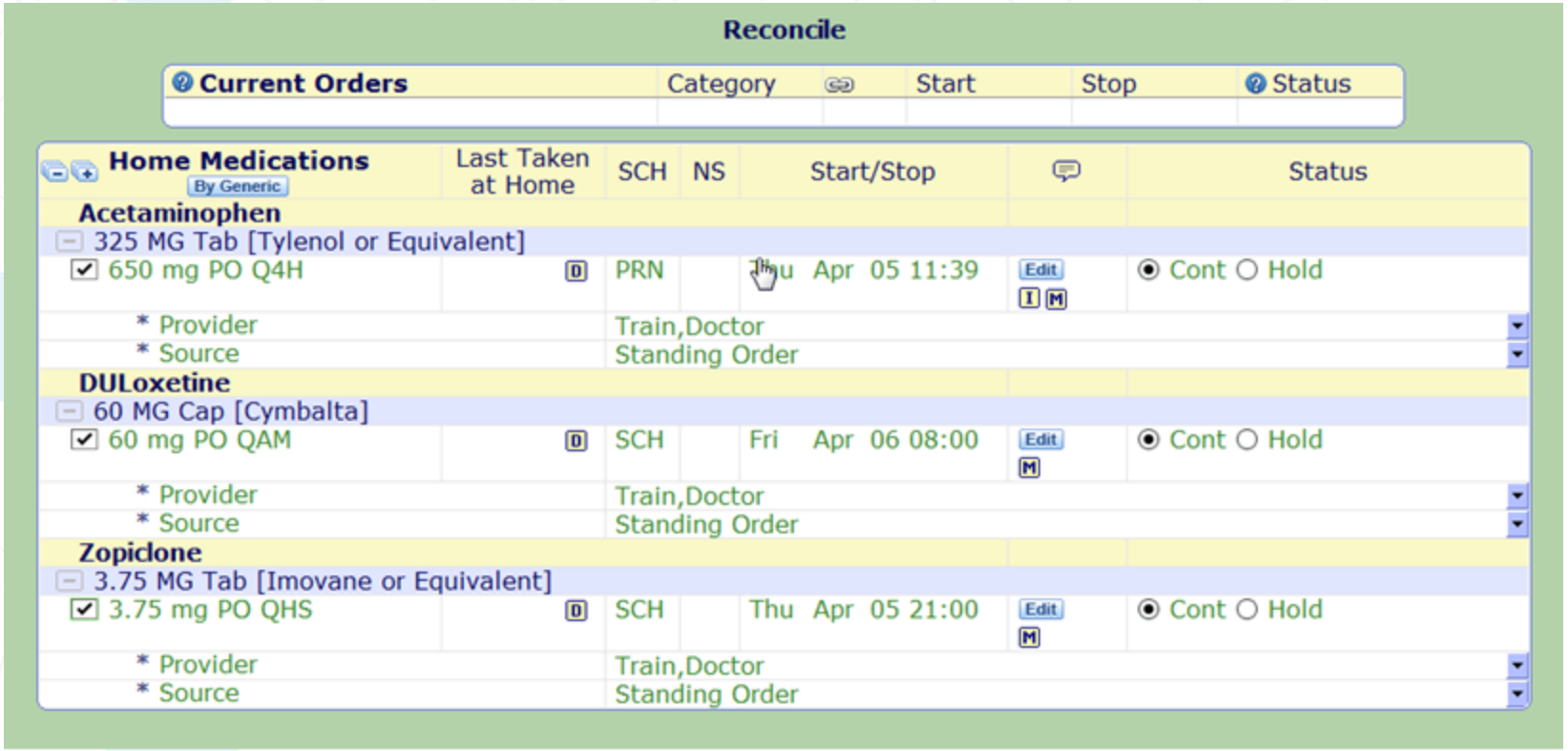
✓ **Patient History**

Precipitating Stress Factors	Family	Legal	Situational crisis
	All Financial	Marital	Work
	Housing	Pain	
	Lack of support system	School	
History of Present Illness			
Average Age At the Onset of Mental Illness	17	Comment:	
Have You Ever Been Hospitalized in a Psychiatric Facility	Yes No		
Average Age at First Psychiatric Hospitalization	19	Comment:	
Previous Psychiatric History	[Previous hospitalization on psychiatric facility related to ...		
Past Electroconvulsive Treatment	Yes No	Comment:	

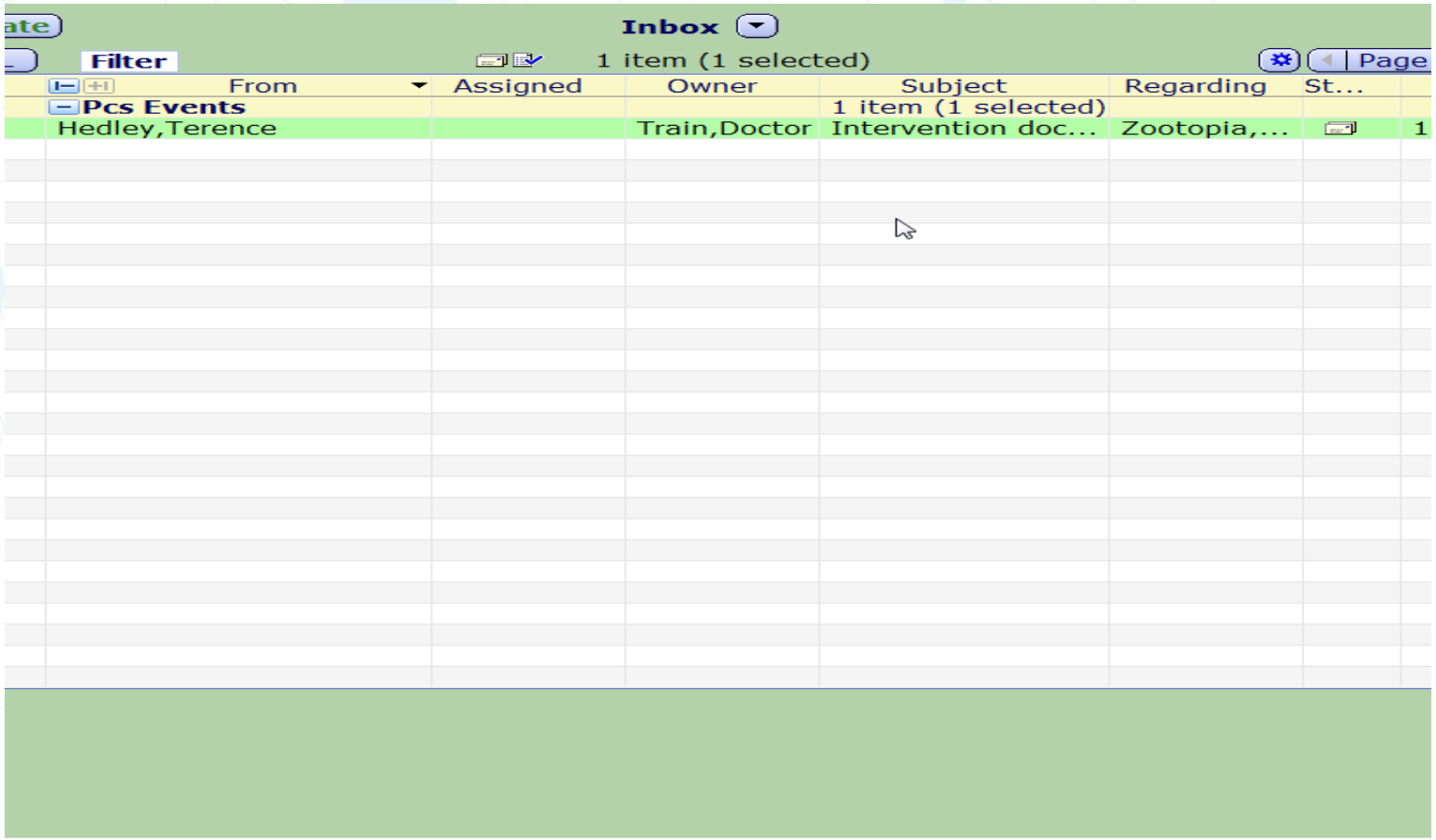
✓ **Family History**

Family History	[Paternal Grandfather was diagnosed with schizophrenia...
Past Personal Social History	

Revisiting Workflows



Automating Notices for Important Clinical Events



Patient Portal