THE JOURNAL OF CLINICAL PSYCHIATRY
THE OFFICIAL JOURNAL OF THE AMERICAN SOCIETY OF CLINICAL PSYCHOPHARMACOLOGY

Supplementary Material

Article Title: Expert Survey on Medication Adherence in Psychiatric Patients and Use of a Digital Medicine System

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DOI Number: 10.4088/JCP.16m11252

List of Supplementary Material for the article

1. **eAppendix 1** Survey on the Use of a Digital Medication Platform in Patients With Serious and Persistent Mental Illness

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Survey on the Use of a Digital Medication Platform in Patients with Serious and Persistent Mental Illness

Last name

First name

Degree(s)

Title and organization

Professional address

Address for correspondence and payment

Social security number/Tax ID

Telephone

Please tell us a few more things about yourself:

1. Gender

◯ Male ◯ Female

Age ☐

Years in practice ☐

Years in research ☐

2. Clinical time—please check portion of your professional time you spend seeing patients in any setting:

◯ 100% clinical ◯ majority ◯ about half ◯ about 25% ◯ < 10%

3. Practice setting—please check all that apply as settings where you see a significant number of patients:

☐ Private solo practice
☐ Private group practice
☐ Public sector
☐ Academic special clinical or research setting
☐ Academic general clinical setting
☐ Academic general research setting
☐ Private sector research
☐ Other

If "other" please specify

☐

4. What percent (full time = 100%) of time do you spend treating or supervising the treatment of patients with:

Schizophrenia ☐

Major depressive disorder ☐

Bipolar disorder ☐

5. Have you participated in a research project involving schizophrenia, major depressive disorder, or bipolar disorder during the past 5 years?

◯ Yes ◯ No

6. Have you participated in a research project using Ecological Momentary Assessment (EMA) techniques?

◯ Yes ◯ No

(Note: EMA involves the use of techniques that permit repeated sampling of patients' symptoms, behavior, and experience in real time as they are experienced in the patient's normal environment. Technologies used may range from written diaries or telephone monitoring to electronic diaries and various types of physiological sensors and monitors.)

7. Have you ever held a federal (NIMH or NIH) research grant as principal investigator (PI)?

◯ Yes ◯ No

8. Have you ever been PI for an industry-sponsored grant?

◯ Yes ◯ No

OVERVIEW OF THE PROJECT

Research has shown that a crucial component in preventing relapse and rehospitalization in patients with serious and persistent mental illness is ensuring that patients continue to take their medication as prescribed.(1,2) Yet epidemiological studies have found that non-adherence is a frequent and serious problem in this population.(3,4) However, up to now, clinicians have lacked effective methods to accurately assess non-adherence.(5,6)

A new medication delivery system in development involves an atypical antipsychotic agent with an embedded chip that signals when the medication is taken and a sensor that receives and amplifies that signal for transmission. This digital medication platform will give clinicians access to real-time empirical data concerning whether their patients are actually taking their oral antipsychotic medication. The sensor also concomitantly measures a number of physiological parameters including activity and heart rate. The digital medication platform also allows for the incorporation of a variety of psychosocial support and therapeutic applications.

This survey focuses on how clinicians might best use the information about adherence that this new system could provide. In the survey, we refer to this system as the ***digital medication platform*** and respondents should assume that this medication platform has the characteristics described above. The survey asks questions about the following:

- how to evaluate a patient with a suboptimal outcome to treatment,
- relative importance of assessing adherence in a range of clinical situations,
- how accurately you think clinicians are able to assess adherence in current real-world clinical settings,
- how you envision that this new digital medication platform could best be used in clinical practice, and
- how and when to intervene given objective data on non-adherence supplied by the digital medication platform.

Your answers to this survey will be used to develop a guide for clinicians on how to optimize the safe and appropriate use of this new digital medication platform when it becomes available. Many questions in the survey ask separately about schizophrenia, bipolar disorder and major depression. In responding to questions in this survey, assume the antipsychotic medication is being used appropriately for the patient (i.e., as a primary or adjunctive treatment depending on diagnosis and clinical situation).

References

1. Weiden PJ, Kozma C, Grogg A, et al. Partial compliance and risk of rehospitalization among California Medicaid patients with schizophrenia. Psychiatr Serv 2004;55:886–891
2. Altman S, Haeri S, Cohen LJ, et al. Predictors of relapse in bipolar disorder: A review. J Psychiatr Pract 2006;12:269–282
3. Valenstein M, Blow FC, Copeland LA, et al. Poor antipsychotic adherence among patients with schizophrenia: medication and patient factors. Schizophr Bull 2004;30:255–264
4. Sajatovic M, Valenstein M, Blow FC, et al. Treatment adherence with antipsychotic medications in bipolar disorder. Bipolar Disord 2006;8:232–241
5. Velligan DI, Lam YW, Glahn DC, et al. Defining and assessing adherence to oral antipsychotics: a review of the literature. Schizophr Bull 2006;32:724–742
6. Velligan DI, Wang M, Diamond P, et al. Relationships among subjective and objective measures of adherence to oral antipsychotic medications. Psychiatr Serv 2007;58:1187–1192

Chair: Peter J. Weiden, MD

Instructions for Completing the Survey

Please download the pdf file containing the survey and save it on your computer. Be sure to record your name at the beginning of the file. After you have completed the questions, please click the **SUBMIT** button at the end. This will send your responses to our database for analysis. The survey is divided into three sections.

I. Why and when is it important to assess adherence? What problems exist with current methods for assessing adherence? (Questions 1-9)

II. Potential uses for the digital medication platform (Questions 10-22)

III. Strategies for targeting different causes of adherence problems (Question 23)

If you have questions about completing the survey, please contact Monika Vance (mvance@santium.com).

Section I.

A. Why and When Is It Important to Assess Adherence?
B. What Problems Exist with Current Methods for Assessing Adherence?

Questions 1-3: Evaluating Patients with Suboptimal Treatment Outcomes
In the following questions we ask about three types of suboptimal outcomes:
Persistent residual symptoms: patient has responded to treatment but continues to experience some significant symptoms
Fluctuation of symptoms: patient's level of symptoms changes frequently
Acute exacerbation of symptoms: recent acute worsening of symptoms

In responding to questions 1-3, please use the following consensus evaluation scale:
9: extremely important
7–8: very important
4–6: sometimes important
2–3: not generally important
1: not important at all

1. Persistent residual symptoms

Thinking back over a broad range of experiences, how important do you consider it to evaluate the following as possible underlying causes of persistent residual symptoms in a patient with schizophrenia, bipolar disorder, or major depressive disorder? *(Rating scale from 1 = not important at all to 9 = extremely important)*

	1	2	3	4	5	6	7	8	9
Accuracy of the diagnosis	○	○	○	○	○	○	○	○	○
Active substance abuse	○	○	○	○	○	○	○	○	○
Adherence to treatment	○	○	○	○	○	○	○	○	○
Comorbid medical conditions	○	○	○	○	○	○	○	○	○
Drug-drug interactions	○	○	○	○	○	○	○	○	○
Inadequate efficacy of the current medication regimen	○	○	○	○	○	○	○	○	○
Psychosocial stress/life changes	○	○	○	○	○	○	○	○	○
Side effects	○	○	○	○	○	○	○	○	○

2. Fluctuation of symptoms

Thinking back over a broad range of experiences, how important do you consider it to evaluate the following as possible underlying causes of fluctuating symptoms in a patient with schizophrenia, bipolar disorder, or major depressive disorder? *(Rating scale from 1 = not important at all to 9 = extremely important)*

	1	2	3	4	5	6	7	8	9
Accuracy of the diagnosis	○	○	○	○	○	○	○	○	○
Active substance abuse	○	○	○	○	○	○	○	○	○
Adherence to treatment	○	○	○	○	○	○	○	○	○
Comorbid medical conditions	○	○	○	○	○	○	○	○	○
Drug-drug interactions	○	○	○	○	○	○	○	○	○
Inadequate efficacy of the current medication regimen	○	○	○	○	○	○	○	○	○
Psychosocial stress/life changes	○	○	○	○	○	○	○	○	○
Side effects	○	○	○	○	○	○	○	○	○

3. Acute exacerbation of symptoms

Thinking back over a broad range of experiences, how important do you consider it to evaluate the following as possible underlying causes of an acute exacerbation of symptoms in a patient with schizophrenia, bipolar disorder, or major depressive disorder? *(Rating scale from 1 = not important at all to 9 = extremely important)*

	1	2	3	4	5	6	7	8	9
Accuracy of the diagnosis	○	○	○	○	○	○	○	○	○
Active substance abuse	○	○	○	○	○	○	○	○	○
Adherence to treatment	○	○	○	○	○	○	○	○	○
Comorbid medical conditions	○	○	○	○	○	○	○	○	○
Drug-drug interactions	○	○	○	○	○	○	○	○	○
Inadequate efficacy of the current medication regimen	○	○	○	○	○	○	○	○	○
Psychosocial stress/life changes	○	○	○	○	○	○	○	○	○
Side effects	○	○	○	○	○	○	○	○	○

For question 4, please use the following consensus evaluation scale:
9: extremely accurate
7–8: very accurate
4–6: sometimes accurate
2–3: not generally accurate
1: not accurate at all

4. ***Accuracy of assessments:*** In the situations above, you rated the importance of various factors as underlying causes of sub-optimal outcome. Now consider a clinician in current routine practice gathering information about each of these underlying causes to make an informed decision about what to do next to improve the outcome. For each of the possible underlying causes listed below, how accurate is the information generally obtained in current routine clinical practice?

	1	2	3	4	5	6	7	8	9
Accuracy of the diagnosis	○	○	○	○	○	○	○	○	○
Active substance abuse	○	○	○	○	○	○	○	○	○
Adherence to treatment	○	○	○	○	○	○	○	○	○
Comorbid medical conditions	○	○	○	○	○	○	○	○	○
Drug-drug interactions	○	○	○	○	○	○	○	○	○
Inadequate efficacy of the current medication regimen	○	○	○	○	○	○	○	○	○
Psychosocial stress/life changes	○	○	○	○	○	○	○	○	○
Side effects	○	○	○	○	○	○	○	○	○

Questions 5-7. Clinical Situations That Trigger Concern about Adherence Problems

Non-adherence or intermittent adherence to antipsychotic treatment as monotherapy or adjunctive therapy may be an underlying cause of unresolved symptoms, relapse, and unnecessary side effects. We would like to ask you about specific situations in which adherence and adherence assessment may be more or less important. Please use the score of “5” as a reference point for situations in which you feel the “average” or “routine” level of assessment is appropriate. Use increasing scores up to 9 to indicate clinical situations in which assessing for nonadherence is increasingly important. Use decreasing scores down to 1 to indicate clinical situations in which you feel that adherence assessment is not as important to perform. For example, a “9” indicates that you think that adherence assessment would be extremely important while a “1” indicates that, given the clinical information available, there is no need to assess for adherence.

5. Please rate the relative importance of assessing for non-adherence in a patient with ***schizophrenia*** in each of the following situations. *(Rating scale from 1 = not at all important to assess for non-adherence to 9 = extremely important to assess for non-adherence)*

	1	2	3	4	5	6	7	8	9
Patient recently diagnosed with a first episode of schizophrenia discharged from the hospital in the past 2 weeks on a maintenance course of antipsychotic medication	○	○	○	○	○	○	○	○	○
Patient well known to you who is reluctant to discontinue medication because of fear of relapse but continues to exhibit symptom fluctuation	○	○	○	○	○	○	○	○	○
Patient with a history of multiple episodes of schizophrenia, recently discharged from the hospital, who comes to your clinic for the first time and for whom a good treatment history is not available	○	○	○	○	○	○	○	○	○
Patient in the transitional period after discharge from the hospital	○	○	○	○	○	○	○	○	○
Stable patient with a history of good adherence	○	○	○	○	○	○	○	○	○
A patient whose medication was until recently supervised by a family member but who has recently moved out of his or her parents' home and is now living independently	○	○	○	○	○	○	○	○	○
Patient exhibiting unexpected change in side effects (new or worsening side effects or unexpected absence of side effects that were previously present)	○	○	○	○	○	○	○	○	○
Patient with history of serious substance abuse problems	○	○	○	○	○	○	○	○	○
Patient with history of recurrent adherence problems	○	○	○	○	○	○	○	○	○
Previously stable patient who has begun to have increasing symptoms	○	○	○	○	○	○	○	○	○

6. Please rate the relative importance of assessing for non-adherence in a patient with ***bipolar disorder*** in each of the following situations. *(Rating scale from 1 = not at all important to assess for non-adherence to 9 = extremely important to assess for non-adherence)*

	1	2	3	4	5	6	7	8	9
Patient recently diagnosed with bipolar disorder after being hospitalized for a first manic episode, who was discharged from the hospital in the past 2 weeks on a course of antipsychotic medication	○	○	○	○	○	○	○	○	○
Patient well known to you who is reluctant to discontinue medication because of fear of relapse but continues to exhibit symptom fluctuation	○	○	○	○	○	○	○	○	○
Patient with history of multiple manic episodes recently discharged from the hospital after a manic episode that developed after 1 month off medications	○	○	○	○	○	○	○	○	○
Patient in the transitional period after discharge from the hospital	○	○	○	○	○	○	○	○	○
Stable patient with a history of good adherence	○	○	○	○	○	○	○	○	○
Patient whose medication was until recently supervised by a family member but who has recently moved out of his or her parents' home and is now living independently	○	○	○	○	○	○	○	○	○
Patient exhibiting unexpected change in side effects (new or worsening side effects or unexpected absence of side effects that were previously present)	○	○	○	○	○	○	○	○	○
Patient with history of serious substance abuse problems	○	○	○	○	○	○	○	○	○
Patient with history of recurrent adherence problems	○	○	○	○	○	○	○	○	○
Previously stable patient who has suddenly developed a recurrence of manic symptoms	○	○	○	○	○	○	○	○	○
Previously stable patient who has developed increasing depressive symptoms	○	○	○	○	○	○	○	○	○

7. Please rate the relative importance of assessing for non-adherence in a patient with ***major depressive disorder*** in each of the following situations. *(Rating scale from 1 = not at all important to assess for non-adherence to 9 = extremely important to assess for non-adherence)*

	1	2	3	4	5	6	7	8	9
Patient recently diagnosed with major depressive disorder after being hospitalized for a very severe depressive episode; discharged from the hospital in the past 2 weeks on a maintenance course of antidepressant and antipsychotic medications	○	○	○	○	○	○	○	○	○
Patient well known to you who is reluctant to discontinue medication because of fear of relapse but continues to exhibit symptom fluctuation	○	○	○	○	○	○	○	○	○
Patient with a history of recurrent depressive episodes that have often been associated with attempts to self-discontinue medications	○	○	○	○	○	○	○	○	○
Patient in the transitional period after discharge from the hospital	○	○	○	○	○	○	○	○	○
Stable patient with a history of good adherence	○	○	○	○	○	○	○	○	○
Teenage patient with history of severe recurrent depressions whose medication was until recently supervised by her mother but who has recently started college in another state and been referred to your clinic for follow-up care	○	○	○	○	○	○	○	○	○
Patient exhibiting unexpected change in side effects (new or worsening side effects or unexpected absence of side effects that were previously present)	○	○	○	○	○	○	○	○	○
Patient with history of serious substance abuse problems	○	○	○	○	○	○	○	○	○
Patient with history of recurrent adherence problems	○	○	○	○	○	○	○	○	○
Previously stable patient who has suddenly developed increasing depressive symptoms	○	○	○	○	○	○	○	○	○

Questions 8 and 9. How Adherence is Currently Assessed

8. Frequency of use of sources of information on adherence. How frequently do you believe the following types of adherence assessment are used in routine clinical practice? Use a 9 to indicate methods used almost 100% of the time in routine "medication management" visits and a 1 to indicate methods that are almost never used and are not considered part of routine practice. Note that we are not asking here about the accuracy or helpfulness of these methods, just about whether they are routinely, occasionally, or rarely used. If you do not have enough experience to rate an item (e.g., adherence rating scales), leave that item blank.

	1	2	3	4	5	6	7	8	9
Ask the patient about recent adherence to medication (behavior)	○	○	○	○	○	○	○	○	○
Ask the patient about their attitude towards medication	○	○	○	○	○	○	○	○	○
Ask the patient about any problems taking medications (e.g., side effects, financial issues)	○	○	○	○	○	○	○	○	○
Use level of symptoms on mental status exam as a way to estimate adherence (equating response with adherence and lack of response with lack of adherence)	○	○	○	○	○	○	○	○	○
Call patient's family or caregiver to ask about adherence, if patient has given permission to contact them	○	○	○	○	○	○	○	○	○
Ask patients to bring in their medication for review and/or pill count	○	○	○	○	○	○	○	○	○
Obtain laboratory assessment (plasma levels of medications)	○	○	○	○	○	○	○	○	○
Review pharmacy records to see if patient picked up medication refills	○	○	○	○	○	○	○	○	○
Speak with other (nonprescribing) members of the patient's treatment team (e.g., case manager)	○	○	○	○	○	○	○	○	○
Technological tools such as smart pill containers that send adherence information via web to treatment team	○	○	○	○	○	○	○	○	○
Use a standardized adherence rating instrument (e.g., BARS, MARS*)	○	○	○	○	○	○	○	○	○

*Byerly MJ, Nakonezny PA, Rush AJ. The Brief Adherence Rating Scale (BARS) validated against electronic monitoring in assessing the antipsychotic medication adherence of outpatients with schizophrenia and schizoaffective disorder. Schizophr Res 2008;100:60–9; Thompson K, Kulkarni J, Sergejew AA. Reliability and validity of a new Medication Adherence Rating Scale (MARS) for the psychoses. Schizophr Res 2000;42:241–7

9. **Accuracy of currently available sources of information on adherence.** Now we would like you to rate the ***accuracy of the information*** that treating clinicians in current routine clinical practice can obtain from each of the following methods of assessing adherence. *Use a rating of 7–9 to indicate most accurate sources, 4–6 for sources that are sometimes accurate, and a 1–3 for sources that are not very accurate.* If you do not have enough experience to rate an item (e.g., adherence rating scales), leave that item blank.

	1	2	3	4	5	6	7	8	9
Ask the patient about recent adherence to medication (behavior)	○	○	○	○	○	○	○	○	○
Ask the patient about their attitude towards medication	○	○	○	○	○	○	○	○	○
Ask the patient about any problems they have been having or anticipate in the near future taking medications (e.g., side effects, financial problems)	○	○	○	○	○	○	○	○	○
Use level of symptoms on mental status exam as a way to estimate adherence (equating response with adherence and lack of response with lack of adherence)	○	○	○	○	○	○	○	○	○
Call patient's family or caregiver to ask about adherence, if patient has given permission to contact them	○	○	○	○	○	○	○	○	○
Ask patients to bring in their medication for review and/or pill count	○	○	○	○	○	○	○	○	○
Obtain laboratory assessment (plasma levels of medications)	○	○	○	○	○	○	○	○	○
Review pharmacy records to see if patient picked up medication refills	○	○	○	○	○	○	○	○	○
Speak with other (nonprescribing) members of the patient's treatment team (e.g., case manager)	○	○	○	○	○	○	○	○	○
Technological tools such as smart pill containers that send adherence information via web to treatment team	○	○	○	○	○	○	○	○	○
Use a standardized adherence rating instrument (e.g., BARS, MARS*)	○	○	○	○	○	○	○	○	○

*Byerly MJ, Nakonezny PA, Rush AJ. The Brief Adherence Rating Scale (BARS) validated against electronic monitoring in assessing the antipsychotic medication adherence of outpatients with schizophrenia and schizoaffective disorder. Schizophr Res 2008;100:60–9; Thompson K, Kulkarni J, Sergejew AA. Reliability and validity of a new Medication Adherence Rating Scale (MARS) for the psychoses. Schizophr Res 2000;42:241–7

Section II. Potential Uses for the Digital Medication Platform

We anticipate that this digital medication platform may be a clinically useful tool for:

- **Adherence Assessment:** to provide critical information concerning actual adherence when a patient presents with clinical worsening, in crisis,or with persistent symptoms
- **Routine Monitoring:** to provide information to be used during regular visits with the patient to integrate adherence assessment and its management into routine clinical care
- **Monitoring Alerts:** to generate a “real time” alert for the clinician/treatment team after the patient crosses a predefined threshold of consecutive days of missed medication
- **Adherence Intervention:** to promote adherence in a patient with a pattern of intermittent adherence or premature discontinuations.

In this section of the survey, we will ask you to provide guidance concerning the potential uses of the digital medication platform in these different clinical situations. In answering questions 10-12, assume that

1. The patient has given permission for this form of treatment.
2. The antipsychotic medication being used is an appropriate choice for this patient.
3. Payment issues have been worked out.
4. Information is being relayed to you in a way that you find reasonably convenient and using whatever parameters you consider most useful for the particular situation.

For questions10-12, please use the followiing consensus evaluation scale.

9: extremely useful
7–8: very useful
4–6: sometimes useful
2–3: not generally useful
1: not useful at all

10. Based on the capability of the digital medication platform to provide real time objective information about adherence, please rate its potential usefulness in a patient with ***schizophrenia*** for the following purposes.
(Rating scale ranging from 1 = not useful at all to 9 = extremely useful)

	1	2	3	4	5	6	7	8	9
Adherence Assessment: when patient is in crisis or presents with clinical worsening or persistent symptoms	○	○	○	○	○	○	○	○	○
Routine Monitoring: as source of information to discuss with patient during routine visits	○	○	○	○	○	○	○	○	○
Monitoring Alerts: to generate “real time” alerts about non-adherence between routine visits	○	○	○	○	○	○	○	○	○
Adherence Intervention: to promote adherence in patients with a pattern of intermittent adherence	○	○	○	○	○	○	○	○	○

11. Based on the capability of the digital medication platform to provide real time objective information about adherence, please rate its potential usefulness in a patient with ***bipolar disorder*** for the following purposes. *(Rating scale ranging from 1 = not useful at all to 9 = extremely useful)*

	1	2	3	4	5	6	7	8	9
Adherence Assessment: when patient is in crisis or presents with clinical worsening or persistent symptoms	○	○	○	○	○	○	○	○	○
Routine Monitoring: as source of information to discuss with patient during routine visits	○	○	○	○	○	○	○	○	○
Monitoring Alerts: to generate “real time” alerts about non-adherence between routine visits	○	○	○	○	○	○	○	○	○
Adherence Intervention: to promote adherence in patients with a pattern of intermittent adherence	○	○	○	○	○	○	○	○	○

12. Based on the capability of the digital medication platform to provide real time objective information about adherence, please rate its potential usefulness in a patient with ***major depressive disorder*** for the following purposes. *(Rating scale ranging from 1 = not useful at all to 9 = extremely useful)*

	1	2	3	4	5	6	7	8	9
Adherence Assessment: when patient is in crisis or presents with clinical worsening or persistent symptoms	○	○	○	○	○	○	○	○	○
Routine Monitoring: as source of information to discuss with patient during routine visits	○	○	○	○	○	○	○	○	○
Monitoring Alerts: to generate “real time” alerts about non-adherence between routine visits	○	○	○	○	○	○	○	○	○
Adherence Intervention: to promote adherence in patients with a pattern of intermittent adherence	○	○	○	○	○	○	○	○	○

13. We are interested in the types of patients for whom you would be ***less likely*** to use this digital medication platform. Please rate the appropriateness of using this digital medication platform for each of the following types of patients *(Rating scale from 1 = less appropriate/would not recommend use of the digital medication platform for this type of patient to 9 = patient very appropriate for digital medication platform).*

	1	2	3	4	5	6	7	8	9
Patient who is homeless	○	○	○	○	○	○	○	○	○
Patient who is suicidal (thoughts and plan)	○	○	○	○	○	○	○	○	○
Patient who is unable to use simple technology (watch, cell phone)	○	○	○	○	○	○	○	○	○
Patient whose illness is characterized by persecutory delusions	○	○	○	○	○	○	○	○	○
Patient with a history of violent behavior	○	○	○	○	○	○	○	○	○
Patient with severe cognitive deficits	○	○	○	○	○	○	○	○	○
Patient with substance abuse	○	○	○	○	○	○	○	○	○
Patient whose disorganization would make it unlikely that he or she would keep track of devices, patches, etc.	○	○	○	○	○	○	○	○	○

Questions 14-16. Using the Digital Medication Platform to Provide an Alert Between Visits

14. **Between-session adherence alerts.** How helpful do you believe an alert about non-adherence between treatment sessions provided by the digital medication platform would be for each of the following purposes? If you envision another clinical situation in which you would be likely to use such an alert, please write it in and rate it at the bottom. *(Rating scale from 1 = not at all helpful to 9 = extremely helpful)*

	1	2	3	4	5	6	7	8	9
To obtain “real time” information about why the medication has not been taken	○	○	○	○	○	○	○	○	○
To help disentangle inadequate response due to adherence problems from inadequate response due to poor efficacy	○	○	○	○	○	○	○	○	○
To be able to inform family, caregivers, case manager, and/or residential staff of change in adherence status (allowing for a reduction or increase in day-to-day supervisory burden)	○	○	○	○	○	○	○	○	○
As a tool to reduce adherence problems in a patient about to be discharged from the hospital to try to prevent readmission within 30 days	○	○	○	○	○	○	○	○	○
To be able to institute a “real time” psychosocial intervention with the goal of having the patient resume adherence before any symptomatic worsening occurs	○	○	○	○	○	○	○	○	○
To serve as a criterion for bringing the patient back in to the outpatient service for evaluation	○	○	○	○	○	○	○	○	○
To serve as a criterion for referring the patient to a crisis intervention team, emergency room, or other emergency services	○	○	○	○	○	○	○	○	○
Other situation (please describe below)	○	○	○	○	○	○	○	○	○

Other situation

15. **Timing of real-time notifications of non-adherence**
The goal of the digital medication platform is to be a clinically useful tool to alert clinicians to relevant behaviors that warrant attention either between scheduled visits or at the next scheduled visit. If the digital medication platform is being used to provide between-appointment alerts and the timing of alerts is set at intervals that are too sensitive (think about the annoying nature of car alarms when first introduced), this could be counterproductive. We recognize that the appropriate alert time would vary from patient to patient, but in the following question please provide your best estimate of the average time point at which you feel a between-appointment clinical alert about non-adherence would be valuable for a patient with each of these diagnoses.

On average, for a patient with each of the following disorders, after how many ***days of missed medications*** would you want to receive an alert from the system?

Schizophrenia	Bipolar Disorder	Major depression
☐	☐	☐

16. **Personalization of real-time notifications of non-adherence.** As you consider the practical use of the alert system described above, how helpful would it be to be able to customize alerts for individual patients *using a scale where 1 = not useful at all and 9 = extremely useful*?

	1	2	3	4	5	6	7	8	9
	○	○	○	○	○	○	○	○	○

Questions 17-19. Responding to Alerts Concerning Nonadherence Between Appointments. In the following question, assume that you have calibrated the digital medication platform so that you or your treatment team are to be notified of a medication gap between appointments at a certain threshold for the specific patient. Please rate the appropriateness of each type of intervention in each of the following situations.

17. **Patient with Schizophrenia**

17a.You are treating a patient with ***schizophrenia*** who rapidly and consistently decompensates after not taking medication, placing the patient at immediate risk. Please rate the appropriateness of each of the following interventions should you receive a between-appointment alert about non-adherence. *(Rating scale ranging from 1 = extremely inappropriate to 9 = extremely appropriate)*

	1	2	3	4	5	6	7	8	9
Contact case manager	○	○	○	○	○	○	○	○	○
Contact family member/residential staff	○	○	○	○	○	○	○	○	○
Contact patient	○	○	○	○	○	○	○	○	○
Contact therapist (if one is involved in patient's care)	○	○	○	○	○	○	○	○	○
Make a note to discuss at next scheduled appointment	○	○	○	○	○	○	○	○	○
Refer to emergency room for evaluation for admission	○	○	○	○	○	○	○	○	○
Schedule appointment earlier than was originally scheduled	○	○	○	○	○	○	○	○	○
Schedule appointment immediately	○	○	○	○	○	○	○	○	○

17b. You are treating a patient with ***schizophrenia*** who is stable, reliably takes medications, and is at no immediate risk of harm to self or others. Please rate the appropriateness of each of the following interventions should you receive a between-appointment alert about non-adherence. *(Rating scale ranging from 1 = extremely inappropriate to 9 = extremely appropriate)*

	1	2	3	4	5	6	7	8	9
Contact case manager	○	○	○	○	○	○	○	○	○
Contact family member	○	○	○	○	○	○	○	○	○
Contact patient	○	○	○	○	○	○	○	○	○
Contact therapist (if one is involved in patient's care)	○	○	○	○	○	○	○	○	○
Make a note to discuss at next scheduled appointment	○	○	○	○	○	○	○	○	○
Refer to emergency room for evaluation for admission	○	○	○	○	○	○	○	○	○
Schedule appointment earlier than was originally scheduled	○	○	○	○	○	○	○	○	○
Schedule appointment immediately	○	○	○	○	○	○	○	○	○

18. **Patient with Bipolar Disorder**

18a. You are treating a patient with ***bipolar disorder*** who rapidly and consistently decompensates after not taking medication, placing the patient at immediate risk. Please rate the appropriateness of each of the following interventions should you receive a between-appointment alert about non-adherence. *(Rating scale ranging from 1 = extremely inappropriate to 9 = extremely appropriate)*

	1	2	3	4	5	6	7	8	9
Contact case manager	○	○	○	○	○	○	○	○	○
Contact family member/residential staff	○	○	○	○	○	○	○	○	○
Contact patient	○	○	○	○	○	○	○	○	○
Contact therapist (if one is involved in patient's care)	○	○	○	○	○	○	○	○	○
Make a note to discuss at next scheduled appointment	○	○	○	○	○	○	○	○	○
Refer to emergency room for evaluation for admission	○	○	○	○	○	○	○	○	○
Schedule appointment earlier than was originally scheduled	○	○	○	○	○	○	○	○	○
Schedule appointment immediately	○	○	○	○	○	○	○	○	○

18b. You are treating a patient with ***bipolar disorder*** who is stable, reliably takes medications, and is at no immediate risk of harm to self or others. Please rate the appropriateness of each of the following interventions should you receive a between-appointment alert about non-adherence. *(Rating scale ranging from 1 = extremely inappropriate to 9 = extremely appropriate)*

	1	2	3	4	5	6	7	8	9
Contact case manager	○	○	○	○	○	○	○	○	○
Contact family member	○	○	○	○	○	○	○	○	○
Contact patient	○	○	○	○	○	○	○	○	○
Contact therapist (if one is involved in patient's care)	○	○	○	○	○	○	○	○	○
Make a note to discuss at next scheduled appointment	○	○	○	○	○	○	○	○	○
Refer to emergency room for evaluation for admission	○	○	○	○	○	○	○	○	○
Schedule appointment earlier than was originally scheduled	○	○	○	○	○	○	○	○	○
Schedule appointment immediately	○	○	○	○	○	○	○	○	○

19. **Patient with Major Depressive Disorder**

19a. You are treating a patient with ***major depression*** who has a history of severe depressive relapse after stopping medication. Please rate the appropriateness of each of the following interventions should you receive a between-appointment alert about non-adherence. *(Rating scale ranging from 1 = extremely inappropriate to 9 = extremely appropriate)*

	1	2	3	4	5	6	7	8	9
Contact case manager	○	○	○	○	○	○	○	○	○
Contact family member	○	○	○	○	○	○	○	○	○
Contact patient	○	○	○	○	○	○	○	○	○
Contact therapist (if one is involved in patient's care)	○	○	○	○	○	○	○	○	○
Make a note to discuss at next scheduled appointment	○	○	○	○	○	○	○	○	○
Refer to emergency room for evaluation for admission	○	○	○	○	○	○	○	○	○
Schedule appointment earlier than was originally scheduled	○	○	○	○	○	○	○	○	○
Schedule appointment immediately	○	○	○	○	○	○	○	○	○

19b. You are treating a patient with ***major depression*** who is stable, reliably takes medications, and is at no immediate risk of harm to self or others. Please rate the appropriateness of each of the following interventions should you receive a between-appointment alert about non-adherence. *(Rating scale ranging from 1 = extremely inappropriate to 9 = extremely appropriate)*

	1	2	3	4	5	6	7	8	9
Contact case manager	○	○	○	○	○	○	○	○	○
Contact family member	○	○	○	○	○	○	○	○	○
Contact patient	○	○	○	○	○	○	○	○	○
Contact therapist (if one is involved in patient's care)	○	○	○	○	○	○	○	○	○
Make a note to discuss at next scheduled appointment	○	○	○	○	○	○	○	○	○
Refer to emergency room for evaluation for admission	○	○	○	○	○	○	○	○	○
Schedule appointment earlier than was originally scheduled	○	○	○	○	○	○	○	○	○
Schedule appointment immediately	○	○	○	○	○	○	○	○	○

Question 20. Use of the Digital Medication Platform as An Adherence Assistance Tool
Please use the following evaluation scale:
9: extremely useful
7–8: very useful
4–6: sometimes useful
2–3: not generally useful
1: not useful at all

20. **Using the digital medication platform to target specific causes of nonadherence.** Please rate the potential usefulness of the digital medication platform as an **adherence assistance tool** for a patient with **schizophrenia, bipolar disorder, or major depression** whose non-adherence you strongly suspect is due to one of the following problems, based on interviews with the patient or significant others or other information. (We realize that more than one of the problems may actually be contributing to the adherence difficulties.) *(Rating scale ranging from 1 = not useful at all to 9 = extremely useful)*

	1	2	3	4	5	6	7	8	9
Partial efficacy of medication with persistent symptoms	○	○	○	○	○	○	○	○	○
Persistent medication side effects	○	○	○	○	○	○	○	○	○
Problems with the therapeutic alliance	○	○	○	○	○	○	○	○	○
Poor insight into the illness or the need for medication	○	○	○	○	○	○	○	○	○
Cognitive deficits that make it hard to take medication accurately	○	○	○	○	○	○	○	○	○
Substance use problems	○	○	○	○	○	○	○	○	○
Logistic problems (e.g., lack of transportation, poverty, difficulty paying for medications)	○	○	○	○	○	○	○	○	○
Transitional problems continuing medication after an impatient admission that could lead to readmission within 30 days	○	○	○	○	○	○	○	○	○
Stigma associated with the illness	○	○	○	○	○	○	○	○	○
Lack of daily routines that makes it difficult to take medication accurately	○	○	○	○	○	○	○	○	○
Social support problems (e.g., lack of support from family, family ambivalent about medication)	○	○	○	○	○	○	○	○	○
Patient's belief that the prescribed medication is not effective	○	○	○	○	○	○	○	○	○

Questions 21 and 22. Potential Benefits and Complications of the Digital Medication Platform

21. Listed below are some **potential therapeutic benefits** that may be associated with use of a daily adherence tracking device for an oral antipsychotic. Please indicate how much you agree that these would be benefits.
(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)

	1	2	3	4	5	6	7	8	9
Fosters open dialogue about adherence issues	○	○	○	○	○	○	○	○	○
Allows for direct, real time discussion of barriers to adherence	○	○	○	○	○	○	○	○	○
Moves discussion of adherence away from “obedience” because clinician needs to explain rationale for monitoring by linking it to better outcome	○	○	○	○	○	○	○	○	○
Facilitates patient understanding of/ learning about barriers to adherence	○	○	○	○	○	○	○	○	○
Facilitates patient understanding of/ learning about relationship between medication discontinuation and symptom exacerbation	○	○	○	○	○	○	○	○	○
Increases clinician’s appreciation of day-to-day challenges for patients in ongoing medication adherence	○	○	○	○	○	○	○	○	○
Facilitates evaluation of persistent symptoms (especially by helping clinicians disentangle partial efficacy from nonadherence as potential causes)	○	○	○	○	○	○	○	○	○
Decreases stress on family members/ caretakers who otherwise would be trying to directly supervise medication	○	○	○	○	○	○	○	○	○

22. Listed below are some **potential barriers or complications** that may be associated with use of a daily adherence tracking device for an oral antipsychotic. Please indicate how much you agree that these might be complications. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Availability of too much information	○	○	○	○	○	○	○	○	○
Concern about potential for increased liability exposure due to not having effected or documented a clinical response to available adherence information	○	○	○	○	○	○	○	○	○
Concern about patient confidentiality and transmission of information	○	○	○	○	○	○	○	○	○
Depersonalization of patient care and potential damage to the therapeutic alliance	○	○	○	○	○	○	○	○	○
Device might be seen as “big brother” by clinician who resents having to use it	○	○	○	○	○	○	○	○	○
Difficulty having the medication approved (e.g., by insurance, formulary)	○	○	○	○	○	○	○	○	○
Giving adherence information to family/ caregivers may increase tension in relationship with patient.	○	○	○	○	○	○	○	○	○
Patient does not have access to the required technology	○	○	○	○	○	○	○	○	○
Patient unable to handle the required technology	○	○	○	○	○	○	○	○	○
Possible exacerbation of paranoid symptoms related to being monitored or controlled	○	○	○	○	○	○	○	○	○
Too time consuming and a hassle to use	○	○	○	○	○	○	○	○	○
Uncertainty about how to use the information the system provides	○	○	○	○	○	○	○	○	○
Uncertainty about how to discuss this medication delivery system with the patient	○	○	○	○	○	○	○	○	○

Section III. Strategies for targeting different causes of adherence problems

23. A number of different interventions may be helpful in targeting different types of adherence problems. In this question we ask you to rate the appropriateness of different adherence interventions as a strategy for targeting the following problems that can contribute to non-adherence:

- Partial efficacy of medication with persistent symptoms
- Persistent medication side effects
- Problems with the therapeutic alliance
- Poor insight into the illness or the need for medication
- Cognitive deficits that make it hard to take medication accurately
- Substance use problems
- Logistic problems (e.g., lack of transportation, poverty, difficulty paying for medications)
- Stigma associated with the illness
- Lack of daily routines that makes it difficult to take medication accurately
- Social support problems (e.g., lack of support from family, family ambivalent about medication)
- Patient's belief that the prescribed medication is not effective

23a. Please rate the appropriateness of each of the following interventions as a strategy for targeting ***adherence problems related to partial efficacy of medication with persistent symptoms.*** *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23b. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***persistent medication side effects***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23c. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***problems with the therapeutic alliance***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23d. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***poor insight into the illness or the need for medication***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23e. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***cognitive deficits that make it hard to take medication accurately***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23f. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***substance use problems.*** *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23g. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***logistic problems (e.g., lack of transportation, poverty, difficulty paying for medications).*** *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23h. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***stigma associated with the illness***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23i. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***lack of daily routines that makes it difficult to take medication accurately***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23j. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***social support problems (e.g., lack of support from family, family ambivalent about medication)***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	○	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

23k. Please rate the appropriateness of each of the following interventions as a strategy for targeting adherence problems related to ***a patient's belief that the prescribed medication is not effective***. *(Rating scale ranging from 1 = strongly disagree to 9 = strongly agree)*

	1	2	3	4	5	6	7	8	9
Adjust or change medication regimen to reduce distressing side effects	○	○	○	○	○	○	○	○	○
Behavioral interventions/environmental supports to establish medication routine (e.g., reminders, pill boxes, alarms)	○	○	○	○	○	○	○	○	○
Change medication regimen to improve efficacy for symptoms that may interfere with adherence	○	○	○	○	○	○	○	○	○
Family psychoeducation, using evidence-based family interventions	○	○	○	○	○	○	○	○	○
Increase level of medication supervision	○	○	○	○	○	○	○	○	○
Institute home visits	○	○	○	○	○	○	○	○	○
Involuntary outpatient commitment (if available and patient meets criteria)	○	○	○	○	○	○	○	○	○
More frequent/longer visits if possible	○	○	○	○	○	○	○	○	○
Patient-based psychoeducation (e.g., to help patient understand biologic basis of symptoms and role of maintenance antipsychotic medication for relapse prevention)	○	◉	○	○	○	○	○	○	○
Psychotherapeutic interventions (e.g., to work through psychological resistance to being ill and having to take medication)	○	○	○	○	○	○	○	○	○
Refer for ACT/PACT services	○	○	○	○	○	○	○	○	○
Refer for medication financial assistance program (e.g., compassionate programs, reduced co-pays)	○	○	○	○	○	○	○	○	○
Refer for residential treatment services	○	○	○	○	○	○	○	○	○
Social work targeting logistic problems	○	○	○	○	○	○	○	○	○
Use a long-acting injectable antipsychotic instead of an oral antipsychotic	○	○	○	○	○	○	○	○	○

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