Chapter 1

The Inpatient with Schizophrenia

Steven Bartek, Travis Kruger, and Michael I. Casher

Why Might a Patient with Schizophrenia Be Admitted to a Psychiatric Unit?

Patients with schizophrenia who meet criteria for admission to an inpatient unit are generally quite ill. The so-called positive symptoms of schizophrenia, which can result in threatening behavior and loss of control, are the usual triggers for admission. Some admitted patients will be experiencing a first episode of illness ("first break"), while others are hospitalized with an exacerbation of preexisting schizophrenia. The most obvious – and most disruptive – symptoms are generally related to psychosis, with the loss of reality testing and impaired mental functioning [1, 2]. Psychosis usually presents with hallucinations, delusions, disorganized thinking, and/or bizarre or disruptive behavior (Table 1.1). The onset of illness or worsening of psychotic symptoms may be noticed by a family member, friend,

Table 1.1 Symptoms of psychosis

Symptom	Definition	Example
Hallucination	False sensory perception in the absence of actual input	Auditory hallucination: for example, hearing a man's voice commenting on one's actions
Delusion	False belief based on incorrect inference about external reality	Paranoid delusion: for example, belief that one's psychiatrist is attempting administer deadly poison
Disorganized thinking	Disturbance of thinking that affects language and communication	Loose associations: expressing unrelated ideas in succession without logical transitions or connections

teacher, coworker, employer, or caregiver who sees the patient behaving bizarrely and deteriorating in their ability to function. A patient may be so disruptive in the community that he or she is brought to the emergency department by the police. Some patients might even be hospitalized involuntarily for a time, depending on the laws and criteria in their state [3].

The negative symptoms of schizophrenia, such as social withdrawal and apathy, are often also present in inpatients and contribute largely to the overall morbidity of the illness. However, these symptoms alone do not generally precipitate a stay on the inpatient unit unless they are so severe that patients are unable to adequately care for themselves outside the hospital.

How Should the Inpatient Clinician Approach an Interaction with an Acutely Psychotic Patient?

While it is important to establish a treatment alliance with a patient early in their stay, psychosis is often accompanied by a lack of insight and neurocognitive deficits that hamper this process. Clinicians also need to be mindful of their own safety, which, with certain very agitated patients or patients with a known history of violence, might entail having one or more staff members or security officers either observe the interview or be on "standby" just outside. Also, acute pharmacologic interventions – such as a 2 mg dose of lorazepam – may be a necessary adjunct to even the most soothing bedside manner! In short, early efforts are directed toward calming the patient sufficiently for the interview to proceed safely. When the patient is ready to participate, the interviewer's manner should be reassuring, calm, and nonjudgmental. Patients can become more agitated if the interviewer appears incredulous or challenging when confronted with the patient's delusional ideas (Table 1.2).

The following vignette illustrates the kind of flexibility that is necessary to engage these often distrustful individuals:

> A young indigent woman, in her first episode of illness, presented to the psychiatric emergency department with a recent history of eating from dumpsters, as she feared she would be poisoned by the various church meals offered in the area. Once hospitalized, she refused oral medication for the same reason, and thus required a court order for injectable medication. The treatment team eventually discovered that she was very worried about her inability to pay her student loans. When team members demonstrated their willingness to help her with this issue, and assisted her with loan deferral forms and a disability application, she was able to be more engaged in treatment and was then willing to try oral medication for psychotic symptoms.

Table 1.2 *In our experience* . . . Hints for approaching a fearful or agitated patient

Always pay attention to your safety. Look for signs that the patient is escalating: profanity, clenched fists, threatening posture, or movements toward you.
Make sure the patient does not feel trapped or cornered in the interview space.
Include a staff member who knows or already has a rapport with the patient.
Offer the patient something tangible (e.g., food or a blanket).
Start with, or use exclusively, simple, concrete questions.
Leading questions/statements are often helpful: e.g., "Many patients tell me they feel uncomfortable talking to a doctor about these experiences."
Keep your own affect display to a minimum.
Do not try to be overly friendly or familiar, even if you know the patient.
If necessary, keep the initial interview brief and return to complete your assessment later.
Do not focus solely on medications; they are often a source of contention, fear, or distrust.
Remember: No matter how nervous or frightened you are, the patient is much more so.

What Historical Information Is Important with a First-Episode Patient?

Particular attention should be paid to the time-course and intensity of psychotic symptoms. However, early on in the evaluation process, when time may be limited and the patient may be guarded and distrustful, fully fleshing out intricate details of complex delusional symptoms can be delayed to a later meeting. A detailed inquiry into use of illicit substances and alcohol is useful in the diagnostic assessment, since there is a high comorbidity of substance use with schizophrenia, and because substance intoxication and withdrawal are often causes of, or contributors to, psychosis [4]. The clinician should also carefully determine whether there are, or have been, any mood symptoms, since their presence or absence is an important factor in the diagnostic algorithm.

A complete social history, which in many instances is best obtained from family, is a high priority in the evaluation. The details of the patient's social functioning, both in the past and currently, help to outline the longitudinal course of illness. One should find out when family members first noticed

changes in the patient's social interactions, academic ability, and – if the patient has been working – occupational functioning. Parents are often able to provide a fairly complete developmental history, which can also contribute important diagnostic and prognostic data. Schizophrenic patients were often "odd" or socially isolated during childhood or demonstrated prodromal symptoms of psychosis during their teenage years. There is a much better prognosis for a patient who was fully functional six weeks before the admission compared to a patient who "never had any friends" and has experienced a slow deterioration over a period of years.

In the early stage of a hospitalizable psychotic illness, such as might occur with a first episode of psychosis, the clinician should attempt to pin down a specific diagnosis, as this categorization will have implications for prognosis, treatment, and the institution of social supports. This level of diagnostic certitude is often elusive in the early stage of a psychotic illness and many experienced inpatient psychiatrists will discharge a patient with a considerable hedging on the final diagnosis: e.g., "Unspecified psychosis, rule-out schizophrenia." This is likely a wise policy as the presentation of the patient and the historical data obtained during a single inpatient admission may not provide a full picture of the patient, and new information may come to light over time. Indeed, one study of "diagnosis stability" found a provisional diagnosis of schizophrenia from an index admission "stays true" approximately 75% of the time during 10 years of subsequent monitoring, and diagnostic shifts from other psychosis diagnoses to schizophrenia occurred in about one-third of patients during that period [5].

Despite the above caveats with regard to the diagnostic assessment, modern management of schizophrenic illnesses has involved a greater emphasis on identifying and aggressively treating first psychotic episodes and an associated focus on addressing prodromal symptoms in an effort to decrease the long-term severity of illness. Research in this area is ongoing, and although there continues to be some debate over the risk/benefit of antipsychotic medication early (e.g. with prodromal symptoms) in the course of schizophrenic illness, patients ill enough to warrant hospitalization will almost invariably require medications [6–9]. Pertinent to inpatient treatment and discharge planning is the evidence that engaging patients in the treatment process and encouraging the use of psychosocial supports can help reduce the recurrence of symptoms. Thus, psychoeducation (pitched at the level of the patient's cognitive state) and unit therapeutic groups and activities are important elements of the hospital treatment, as is ensuring appropriate outpatient follow-up care. In those instances in which patients have presented with psychosis complicated by misuse of substances, it is especially important to arrange outpatient follow-up in which both conditions can be closely monitored and addressed. As noted earlier, diagnostic clarity may require a longitudinal view of the patient and this is particularly an issue with these "dual diagnosis" patients

Table 1.3 *In our experience* . . . Hints for recognizing psychoses other than schizophrenia

Delusional Disorder – can be high functioning with very circumscribed and believable false ideas. Staff on unit will sometimes debate if the patient is truly psychotic.
Shared Delusional Disorder – the "nondominant" deluded partner may have some personality-based vulnerability or be in a very dependent relationship with the "true" psychotic partner.
Brief Psychotic Disorder – look for a significant stressor in a vulnerable individual. Can be time-limited and remit without meds once in the structure of the hospital.
Schizoaffective Disorder – look for separation of the affective and psychotic components of illness. Tend to function better than pure schizophrenic patients.
Psychotic Disorder due to Medical Illness – the physical exam, medical history, and labs can be crucial. More likely to have cognitive dysfunction or other signs of delirium.
Substance-Induced Psychotic Disorder – look for other stigmata of drug or alcohol use and pay attention to the drug screen and markers for alcohol use. Ask about high-potency cannabinoids, synthetics, and drugs that typically do not appear on drug screens.
Postpartum Psychosis – look for confusion and disorganization in addition to delusions/hallucinations. Many have bipolar personal or family history. Also look for delusions/obsessions about the baby and assess for safety of the baby.
Remember: Not all people who are delusional have schizophrenia. Look for the nuances that rule the other possibilities in or out.

(see also Chapter 7). One large (n=6,788) retrospective study found that 32.2% of patients initially diagnosed with substance-induced psychosis eventually were more definitively categorized as having schizophrenia or bipolar disorder; if the substance was cannabis, the rate increased to 47.4% [10].

For the considerations of differential diagnosis for the patient presenting to the hospital with acute psychosis, psychiatrists will need to be familiar with the other DSM illnesses classified under Schizophrenia and Other Psychotic Illnesses. Although – as pointed out earlier – the definitive classification of the patient's psychotic illness may, in some instances, await longitudinal posthospitalization clinical observation, this initial determination has implications for prognosis and recommended treatment (Table 1.3).

What Is the Initial Workup of a Psychotic Patient?

A complete workup for medical causes of psychosis ferrets out cases where a physical illness, possibly a highly treatable one, presents with symptoms similar to schizophrenia. This workup should include a urine drug screen,

a comprehensive metabolic lab profile, and thyroid function testing (thyroid-stimulating hormone). Some clinicians order magnetic resonance imaging (MRI) or computerized tomography (CT) scan of the brain in the instance of a first episode of psychosis when there is suspicion of a primary structural disease: presence of persistent or new headaches, history of head trauma, focal findings on neurological exam, concern for malignancy, or significant cognitive impairment (Figure 1.1). Findings on the physical exam or mental status testing can also guide one toward a more extensive workup, including lumbar puncture, EEG, heavy metals testing, copper and ceruloplasmin, autoimmune/inflammatory markers, etc. The involvement of a neurologist can be helpful if there are specific signs or symptoms that suggest the possibility of a primary neurological illness.

How Does One Distinguish Psychosis in Schizophrenia from Mania in Bipolar Disorder?

This is a challenging differential diagnosis: a patient from either group can present in an enraged and/or paranoid state with persecutory and/or grandiose delusions. With the limited snapshot of the patient's symptom complex one sees in the hospital, the clinical presentations can be indistinguishable. However, the pathway of each to psychotic symptoms differs, and longitudinal history obtained from collateral sources such as family and friends can assist in differentiating schizophrenia from bipolar disorder. In the months or years leading up to the psychotic break, schizophrenic patients will usually have shown a pattern of withdrawal and isolation, whereas bipolar patients may have had periods of extra energy and hypomanic gregariousness that were noticeable but not of significant enough severity to warrant clinical attention. Depressive symptoms observed by others during this prodromal period, though important to note, do not always point to bipolar disorder, since the negative symptoms of schizophrenia often look like depression. If information about the patient's behaviors leading up to the current episode is unclear or unavailable, some clinicians find it useful to look at old family movies and photographs to see if the patient appeared odd or ill at ease as a child, which turns out to be a harbinger of the development of schizophrenia in adolescence or early adulthood [11, 12].

Family history can also be helpful in making the distinction between these two categories of illness. A strong family history of any mood disorder, and especially a well-described family history of bipolar disorder, can be combined with other observations to make a good case for the current patient having the same illness. Similarly, a pedigree that includes relatives with schizophrenia or schizophrenic spectrum disorders (e.g. schizotypal or schizoid features) can lend some weight to the diagnosis of schizophrenia. However, a clinician must be wary of placing too much emphasis on family history in the process of psychiatric diagnosis generally, as the data obtained is often unreliable, with different

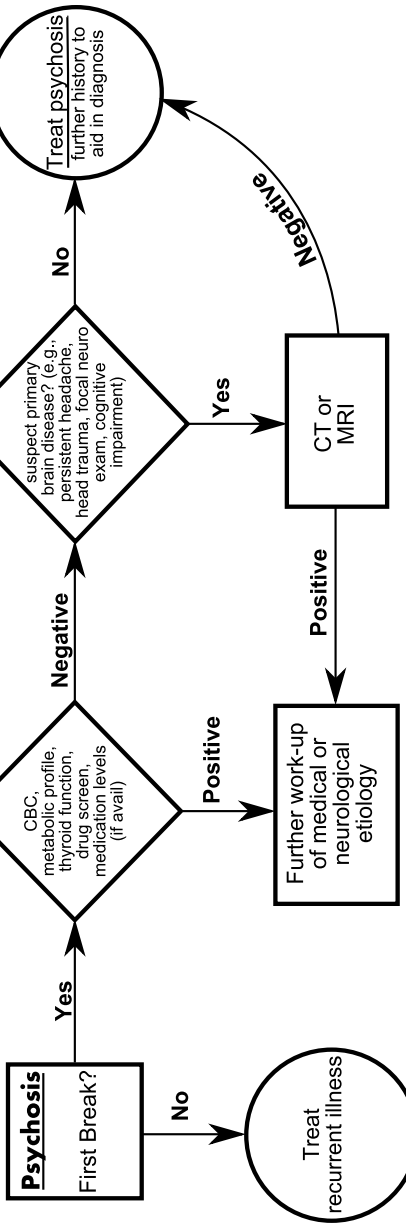

Figure 1.1 Initial workup of first-break psychosis.

Table 1.4 *In our experience* . . . Questions to help obtain family history in difficult cases

Was anyone in your family ever institutionalized? . . . in a state hospital? . . . in an asylum?
Were there relatives that went away for periods of time without explanation?
Did any of your relatives take pills for their nerves?
Did anyone in your family die unexpectedly? . . . without an explanation of how?
Did you ever hear of a family member getting shock treatments?
Was there a relative that your family avoided talking about?
Any relatives that other family members said were "funny," "not right," or "crazy"?
Remember: Diagnoses evolve . . . an uncle with "schizophrenia" in the 1950s might not meet the current criteria for that diagnosis.

relatives giving different information [13]. Family history, even when accurate, will have greater significance for a bipolar diagnosis versus a diagnosis of schizophrenia as bipolar disorder has the higher degree of genetic loading. While the concordance rate for identical twins is 80% in bipolar disorder, it is only 50% in schizophrenia [2]. In other words, the significance of a patient having a bipolar relative is greater than that of having a schizophrenic relative (Table 1.4).

What Factors Are Considered When a Patient with Known Schizophrenia Is Admitted?

First, one needs to make sure the diagnosis is correct. While the field of psychiatry has made great strides in reliability and stability of diagnoses, especially schizophrenia, it is still far from 100% [14, 15]. The last provider observed the patient over only a brief length of time, just like the current provider is about to do when a patient is admitted.

When a patient with an established diagnosis of schizophrenia is admitted to the inpatient unit, the primary task of the inpatient team is to determine what circumstances led to decompensation [16]. The most frequent cause of relapse is suboptimal adherence to the outpatient medication regimen. In these cases, it is useful to get an assessment of the patient's attitude toward his or her illness and toward medication, as denial of illness predisposes a patient to poor medication adherence. In other cases, there is a specific psychosocial trigger, such as the loss of a supportive figure or a change in work environment. Other possible social stressors include loss of domicile, intense

family interactions, and financial uncertainty. It is helpful to look at the past record for similar instances of relapse to see if there is a repeating pattern of relapse during stressful life events. Finally, associated alcohol or substance use can undermine the effects of an adequate antipsychotic regimen. Sometimes, as in the vignette that follows, a psychotic family member can support – or even provoke – psychosis in a vulnerable patient:

> A 20-year-old man with schizophrenia and several hospitalizations in the past was stable on medication until several weeks prior to his current stay in the hospital. He was admitted through the emergency department in an acutely agitated, paranoid state that left him unable to attend to his basic needs. In a family meeting on the unit, his mother presented as floridly delusional herself! She had no understanding of, or empathy for, her son's illness, and was convinced that his problems were due to an antibiotic he had taken as a child. The patient, in a pathologically symbiotic tie to his mother, had adopted her viewpoint, and in the process had lost all trust in the treatment team at his outpatient clinic. His mother's level of disorganization left his family life in chaos, and he was further distressed by his mother's constant refrain to him that he "was not psychotic." His situation left him little recourse other than a further retreat into psychosis.

What Factors Are Involved in Choosing an Antipsychotic Medication?

Most of the time, the first-line treatment will be an atypical antipsychotic (a.k. a second-generation antipsychotic, or SGA). First, attention must be paid to the history of medications that a patient has already tried, since there is no sense in "reinventing the wheel." Contacting the patient's current outpatient psychiatrist and care team is extremely important, as these providers will likely have useful documentation of the patient's history of medication trials and their effect. Next, there are usually formulary constraints on medication choices as laid down by the insurance company, government, or other payers. Additional factors in the choice of an antipsychotic include patient preference, side-effect profile of the drug, and the drug's efficacy. Since the efficacy among the atypical antipsychotics is roughly equivalent [17], the choice among these medications primarily entails consideration of possible side effects, and thus tolerability. These factors include metabolic side effects – weight gain, hyperlipidemia, genesis of diabetes – that are well established and require ongoing monitoring [18–20], as well as extrapyramidal symptoms (EPS), orthostatic hypotension, activation/akathisia, and sedation (Figure 1.2 and Table 1.5). Patients differ in terms of which particular side effects they would find most undesirable, and attempts to address these preferences will go a way toward improving long-term medication adherence. For

Table 1.5 Atypical antipsychotic documented side effects [28–33]

Medication*	Forms	Common Side Effects (≥5%, ≥15%)	Serious Side Effects (<1% but reported, ≥1%)
clozapine	tablet, ODT	*Metabolic*: weight gain (>50%), diabetes, significant alterations in serum cholesterol and triglyceride levels *EPS*: <5% overall *Other*: tachyarrhythmia (25%), sweating, excessive salivation (31%), constipation, xerostomia, dizziness (19%), headache, somnolence (39%), tremor, vertigo (19%)	sudden cardiac death, QTc prolongation (no reports of TdP), myocarditis (rare), syncope (5%), agranulocytosis (1.3%), eosinophilia (1%), neutropenia (3%), seizure (5%), acute dystonia, NMS, tardive dyskinesia
olanzapine	tablet, ODT, IR IM	*Metabolic*: hypercholesterolemia (up to 24%), hyperglycemia (0.1–17.4%), increased appetite (24%), increased triglycerides (up to 40%), weight gain (up to 57%), diabetes [20] *EPS*: overall 15–32%, parkinsonism 5–20%, akathisia *Other*: orthostatic hypotension, increased prolactin (31.2–61.1%), constipation, indigestion, xerostomia, dizziness (4–18%), insomnia, somnolence (2–52%), cough, rhinitis	QTc prolongation (no reports of TdP but report of VFib), dystonic events (2–3%), acute dystonia, NMS, tardive dyskinesia[34]
risperidone**	tablet, ODT, solution, LA IM	*Metabolic*: weight gain (up to 18%), alterations in serum cholesterol and triglyceride levels *EPS*: overall 7–31%, akathisia, parkinsonism 0.6–20% *Other*: constipation, diarrhea, indigestion, nausea, headache (15–21%), somnolence, tremor, anxiety (2–16%), rhinitis	sudden cardiac death, QTc prolongation w/ report(s) of TdP, syncope (up to 2%), seizure, dystonia (5–11%), NMS, tardive dyskinesia
quetiapine	tablet, ER tablet	*Metabolic*: increased cholesterol (9–16%), increased triglycerides (14–23%), weight gain (5–23%), increased appetite	QTc prolongation w/ report of TdP, syncope (1%), leukopenia (at least