SCHIZOPHRENIA

Initial Presentation of Schizophrenia: Assessment, Management, and Long-Term Outcomes

Case Study and Commentary, Douglas L. Noordsy, MD, and Walter K. Rush IV, MD

INSTRUCTIONS

The following article, “Initial Presentation of Schizophrenia: Assessment, Management, and Long-Term Outcomes,” is a continuing medical education (CME) article. To earn credit, read the article and complete the CME evaluation form on page 216.

OBJECTIVES

After participating in the continuing education activity, primary care physicians should be able to:

1. Recognize the presenting symptoms of initial onset of schizophrenia
2. Describe techniques for probing symptoms in guarded patients
3. Know the diagnostic criteria for schizophrenia
4. Explain the rationale for early sustained treatment of schizophrenia
5. Understand the steps of education, medication management, and referral in initial treatment of schizophrenia

Schizophrenia, schizoaffective disorder, and other psychotic disorders are quite common, afflicting approximately 2% of the general population [1]. Onset of psychotic symptoms (e.g., hallucinations, delusions) occurs most commonly in the late teens to twenties (later in women than in men), although soft neurological signs, impersistence, or social awkwardness may be present much earlier [1]. The extensive periods of psychosis that often precede treatment have been associated with adverse social consequences [2], increasing risk for victimization and blood-borne infections, and poorer long-term outcomes [3]. Therefore, early identification and effective treatment of an early psychotic disorder are important [4]. Early identification requires primary care providers to be able to recognize the symptoms of a developing disorder and to refer the patient to a psychiatrist or, if the patient resists referral, to initiate treatment themselves. Treatment must be chosen carefully but initiated quickly since untreated psychotic symptoms may have both short- and long-term consequences.

The past decade has seen substantial progress in our understanding of the neurobiology of schizophrenia as well as remarkable advances in pharmacologic and rehabilitation treatments: the second generation of antipsychotic medications has revolutionized pharmacotherapy for schizophrenia and other psychotic disorders [1]; evidence-based practices have been defined for family intervention [5], social skills training [6], vocational rehabilitation [7], assertive case management [8], and treatment of comorbid substance abuse [9]; cognitive-behavioral therapy interventions for residual psychotic symptoms are being developed [10]; synergistic interactions between second-generation medications and rehabilitation have been hypothesized [11]; and a literature is now developing on defining and measuring recovery from schizophrenia [12]. We are in the midst of an exciting time in the treatment of schizophrenia [13].

CASE STUDY

Initial Presentation

A 21-year-old man is brought into his family doctor’s office by his mother. She presents concerns that her son has been moody, isolating in his room, and not sleeping at night.

History

The patient has been cared for by his family doctor since childhood. He achieved developmental milestones appropriately and did well in school. After graduating high school he enrolled in a prestigious university. He was achieving honors in college until he unexpectedly returned home in the middle of his junior year. He got a job waiting tables but quit after a few days. He spent most of his time alone, listening to music or lying on his bed. He participated minimally in family gatherings and passed up invitations to get together with friends.

When family members asked what was wrong he gave vague descriptions of pains and headaches. He became

From the Department of Psychiatry, Dartmouth Medical School, Lebanon, NH.
angry when his family pressed him to explain or asked him to help out around the house. At one point he became upset when watching TV and yelled loudly before retreating to his room. In the middle of the night, his parents would hear him yelling in his room and wandering the house.

There is a family history of depression in a paternal great aunt. The patient acknowledges intermittent use of alcohol and experimentation with cannabis while at college. He has consumed an occasional glass of wine with dinner since coming home and has tried using alcohol to help with sleep on several occasions. He is on no prescription medication. The patient acknowledges dating during college but does not have a current girlfriend and is not sexually active.

**Physical Examination**

On physical examination the patient appears thin and demonstrates reduced bowel sounds. Cranial and peripheral nerves are intact, but patellar reflexes are 3+. He refuses funduscopic examination. His heart rate is 102 bpm. The remainder of the physical examination is unremarkable and vital signs are within normal limits.

On mental status examination, the patient is uncertain of the date but otherwise oriented. He makes limited eye contact but looks around the room several times. His speech is slowed, with increased latency and terse responses. Mood is described as “depressed.” Affect appears nervous and guarded, but there is no tearfulness or hyperactivity.

**What is the differential diagnosis of abrupt decline in social and occupational functioning in a young adult?**

Several mental disorders that have onset in young adulthood are associated with a marked decline in functioning, nonspecific physical complaints such as pain, and disturbances of eating and sleeping. The possibilities include mood disorders (ie, major depression, bipolar disorder), addictions, and psychotic disorders such as schizophrenia. These disorders are all defined by clusters of characteristic symptoms that can overlap [14]. There are no pathognomonic laboratory or radiographic features. Family history may provide helpful clues, especially if first-degree relatives are afflicted, but many sporadic cases occur. The best way to make a diagnostic determination is to gain the patient’s trust and to gently explore his or her experiences.

The differential diagnosis also includes many other conditions associated with psychotic symptoms, but it is rare for psychosis to be as sustained in these disorders as it is in schizophrenia. Phencyclidine (PCP or angel dust) intoxication mimics the full syndrome of schizophrenia, while stimulant, hallucinogen, and steroid intoxication can produce hallucinations or delusions. A medical condition could cause delirium, producing psychotic symptoms. An otherwise occult neurological disease is also in the differential.

**Why should the diagnosis of schizophrenia be strongly considered in this particular patient?**

This patient presents several signs suggestive of schizophrenia, including abrupt and substantial decline in function, amotivation, irritability, and guardedness. While all of these symptoms can occur in mood disorders and addictions as well, a suggestive sign of psychosis is that he was yelling at the TV and in his room. Had these symptoms been overlooked, he might have been diagnosed with depression and received inappropriate treatment. Recognizing these critical clues will allow the clinician to explore for the presence of hallucinations and delusions.

**How can the diagnosis be confirmed?**

It is usually helpful to speak to the patient privately after having collected collateral information from significant others. Empathic probing of suggestive signs often allows patients to explain their experience. Patients are typically cautious about telling too much until they have a sense of how the clinician will react. Communicating interest and using reflective listening help patients to elaborate. Reflective listening involves responding to a statement by repeating a few words the speaker used. This process (illustrated below) directs the speaker to elaborate on that topic, without communicating a judgment by the listener.

Once a rapport is established, the clinician can effectively probe for specific symptoms needed to confirm the diagnosis. As the patient describes his or her experiences, the clinician evaluates whether the symptoms fulfill DSM-IV criteria for schizophrenia (Table 1). The symptoms of schizophrenia sort into 5 symptom clusters: positive symptoms, disorganization, negative symptoms, cognitive symptoms, and mood symptoms (Table 2). Assessing the severity of each cluster and ascertaining which symptoms are bothersome to the patient are vital to designing effective treatment in which the patient will be invested.

If the duration of symptoms is less than 6 months but other criteria are fulfilled, a temporary diagnosis of schizoaffective disorder is made. If there have been substantial episodes of depression or mania, a diagnosis of schizoaffective disorder or mood disorder with psychotic features should be considered. A tentative diagnosis must be made in
some cases initially, as it may take months for the full syndrome to manifest.

**Further Examination**

Clinician: It sounds like things on TV were upsetting for you the other day.
Patient: There is a lot of junk on TV. I don’t watch it anymore.
Clinician: You don’t watch it anymore?
Patient: No, they just use me.
Clinician: They use you?
Patient: Who are they to manipulate my mind like that?
Clinician: Sounds like it was upsetting.
Patient: How would you feel if you were being used in an experiment? It’s too much. If I stay away from the TV they can’t do it to me. I meditate and listen to music. It’s safer.
Clinician: You are being used in an experiment?
Patient: You’re a doctor, you know about this stuff. I have a thought, and the next thing you know the guy on TV is saying my exact words. They are using me to test their propaganda. They must have some way to read my mind. It would be so easy over cable TV. All they’d need to do is reverse the electron flow and the cathode tube becomes a huge camera. Focus in on my eyes and they can read my brain waves. The optic nerves are a direct extension of the brain, you know. Right there for anyone to see, if they have a big enough camera. *(Looks around the room.)*
Clinician: No wonder you’ve stopped watching television. How long has this been going on?

Empathizing with the patient’s experience without judging its accuracy positioned the clinician to be trusted with the whole story, while maintaining the ability to later educate the patient about alternative explanations for his experience. The patient went on to describe hearing voices and perceiving microphones and cameras in several household devices, fulfilling criteria A1 and A2 (Table 1). He lacked disorganized speech or behaviors. However, he acknowledged that his avoidance of social opportunities was due to loss of interest, not just absorption in his psychosis, and he had trouble following through on tasks he started (criterion A5). He clearly presented social and occupational dysfunction by history, and his symptoms had been present for over 6 months (criteria B and C). He was discouraged by his struggle to function, but did not fulfill criteria for major depression and had never had sustained euphoric or irritable mood (criterion D). Last use of alcohol was 3 days ago and cannabis 3 weeks ago (criterion E).

Table 1. DSM-IV Criteria for Schizophrenia

<table>
<thead>
<tr>
<th>A. Characteristic symptoms: 2 or more of the following during a 1-month period (only 1 symptom required if delusions are bizarre or hallucinations consist of running commentary or 2 or more voices conversing):</th>
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</thead>
<tbody>
<tr>
<td>1. Delusions</td>
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<td>2. Hallucinations</td>
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<td>3. Disorganized speech (derailment, incoherence)</td>
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<td>4. Grossly disorganized or catatonic behavior</td>
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<td>5. Negative symptoms (flat affect, alogia, avolition, social indifference)</td>
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<td>B. Social/occupational dysfunction: work, interpersonal, self-care below previous level</td>
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<tr>
<td>C. Duration: continuous for 6 months (at least 1 month should be active phase)</td>
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<tr>
<td>D. Schizoaffective and mood disorder exclusion: no mood disorder episodes or brief</td>
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<tr>
<td>E. Substance/general medical condition exclusion: symptoms not better explained by substance use or a general medical condition</td>
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Screening laboratory work should be performed to rule out general medical conditions that could produce psychosis, such as metabolic or hormonal abnormalities. A metabolic profile, complete blood count, and thyroid-stimulating hormone level is usually sufficient. Establishing baseline glucose and lipid levels is useful, as elevations frequently occur during treatment. A drug screen is mandatory, as the frequency of comorbid substance abuse exceeds 50% [15]. Physicians should be aware of what their drug panel screens for—ecstasy, LSD, and “designer” or fad drugs typically are not included. Specific tests for these drugs can be ordered when there is cause for suspicion.

Brain imaging may be performed to rule out traumatic brain injury or space-occupying lesions, but unless there are localizing signs or suggestive history, the yield is low [16]. While schizophrenia is associated with enlargement of the brain’s ventricles, sulci and gyri, there is too much overlap with normal variation for measurement to be useful diagnostically [1].
Despite low yield, the stakes are high, so brain imaging is typically recommended as part of the workup of a patient presenting with sustained psychosis.

**Diagnosis**

The patient demonstrates no clinically significant findings on screening laboratory panels, and the drug screen is negative. As no other signs of a significant general medical condition are found on physical examination, a diagnosis of schizophrenia is confirmed. While there is no definitive biological marker to confirm the diagnosis, a clinical diagnosis of schizophrenia is extremely specific. In a recent study, 96% of patients meeting criteria for schizophrenia who achieved remission went onto relapse within 2 years of medication withdrawal [17].

• What are the first steps in clinical management after a diagnosis of schizophrenia or a related disorder has been made?

**Clinical Management**

If immediate referral to a psychiatrist is available, the patient should be ushered into a system that provides comprehensive psychiatric care. The family doctor, internist, or pediatrician who first diagnoses the patient needs to be prepared to proceed with care themselves, however, as psychiatric care may be unavailable or the patient may not accept referral and treatment must not be delayed. Even when the patient accepts the referral, the primary care doctor will remain involved in general health care. Whether the provider is a psychiatric or primary care clinician, the first steps in clinical management are education, medication management, and referral.

**Education**

Education engages a patient and their family in treatment by helping them to understand and accept the diagnosis. Schizophrenia commonly impairs insight, as hallucinations and delusions may be compelling and persistent. Patients might not perceive the symptoms as an illness but insist that they are reality, and then logically conclude that treatment for them is irrational. Stigma and onset during turbid young adulthood in individuals with normal premorbid functioning contribute to family’s hopes that there is a temporary problem, perhaps just stress or substance use, that will go away on its own.

However, sustained early treatment may represent a unique window of opportunity to intervene in the course of schizophrenia. Some studies have shown that a shorter duration of untreated psychosis is associated with better long-term outcomes [3]. At minimum, untreated psychosis has devastating social consequences [2]. While controversial, circumstantial evidence implicates the glutamate system, which is involved in normal neuronal pruning during maturation. Glutamatergic dysfunction may be involved in psychosis in a way that could lead to irreversible changes in brain function and treatment responsiveness. It is hypothesized that high levels of glutamate, as occur during psychosis, can lead to neuronal cell death. Ketamine, a phencyclidine (PCP) analog that produces psychosis in humans through antagonism of the NMDA-glutamate receptor, has been shown to cause such cell death [18]. Medications for schizophrenia can stop ketamine-induced cell death in animal models [18].

Unfortunately, it takes an average of 2 years of symptoms before patients first seek treatment for schizophrenia, and rates of follow-through after initial diagnosis are low [19]. Education of patients, their families, primary care providers, school counselors, and the general public is critically important to promoting early intervention and potentially reducing the social and economic costs of these disorders.

This patient and his family need to be informed of the tentative diagnosis before they leave the office. They need to understand the accuracy of a diagnosis with schizophrenia. They need to know that the typical long-term course of schizophrenia includes substantial impairment in social and occupational functioning and that they have a window of opportunity to intervene now. They also need to appreciate the critical prophylactic role of a maintenance medication regimen after symptoms are controlled [17].

The good news is that schizophrenia and related disorders are responsive to treatment and that individuals in their first

<table>
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<tr>
<th>Table 2. 5 Symptom Clusters in Schizophrenia</th>
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<tbody>
<tr>
<td>Positive symptoms</td>
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<tr>
<td>Hallucinations</td>
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<tr>
<td>Suspiciousness</td>
</tr>
<tr>
<td>Delusions</td>
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<tr>
<td>Negative symptoms</td>
</tr>
<tr>
<td>Apathy, social indifference</td>
</tr>
<tr>
<td>Avolition, impersistence</td>
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<tr>
<td>Flat affect</td>
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<tr>
<td>Poor self care</td>
</tr>
<tr>
<td>Disorganization</td>
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<tr>
<td>Tangential or circumstantial speech</td>
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<tr>
<td>Bizarre behaviors</td>
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<tr>
<td>Cognitive symptoms</td>
</tr>
<tr>
<td>Memory impairment</td>
</tr>
<tr>
<td>Poor concentration</td>
</tr>
<tr>
<td>Impaired executive function: planning, problem solving</td>
</tr>
<tr>
<td>Mood symptoms</td>
</tr>
<tr>
<td>Dysphoria</td>
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<tr>
<td>Excitement, mania</td>
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episode of illness are particularly responsive [1]. Negative and cognitive symptoms (Table 2), which create the greatest impairments in occupational and social function, tend to be less severe in first-episode patients. In addition, better medications and rehabilitation techniques have improved our ability to treat these symptoms when they do present [6,7,20].

The goal of education is to motivate the patient and family to intervene at the onset of this illness and to maintain that motivation for sustained preventive treatment. They need to focus on maintaining consistent adherence to medication treatment, preventing relapse into psychosis, and maintaining social activity. Use of alcohol and street drugs, even at low levels, has been associated with increased severity of positive symptoms and should be avoided [21]. Ninety percent of people with schizophrenia become nicotine dependent, likely due to nicotine’s capacity to ameliorate cognitive symptoms [22]. Patients should avoid starting smoking and cognitive symptoms should be aggressively treated. Work or similar constructive activity creates an external focus that helps patients to ignore residual symptoms and reinforces positive thought patterns [23]. Regular exercise and a careful diet may help avoid elevations in blood sugar, lipids, and weight commonly observed in patients with schizophrenia and may help maintain positive mood [24,25].

Medication Management

The second step in the management of schizophrenia is prescription of a medication. Antipsychotic medication treatment may lead to initial symptom attenuation within days, although full effects develop gradually over 6 weeks or more. Bear in mind that some antipsychotic medications have extremely uncomfortable neurologic side effects. For an individual who may already feel frightened and misunderstood, these disturbing physical side effects may lead to non-compliance, resistance, and eventually escalating psychotic symptoms.

The first generation of medications used to treat schizophrenia (“conventional” antipsychotics, eg, chlorpromazine, haloperidol) are well known for causing extrapyramidal symptoms and dysphoria. These medications are potent blockers of dopamine-2 (D-2) receptors and are effective for controlling the positive symptoms of schizophrenia, but may worsen negative and depressive symptoms. They markedly elevate risk for tardive dyskinesia and other movement disorders. They are, however, the only antipsychotics currently available in a long-acting preparation. Due to their limited efficacy profile and risk for neurologic side effects, conventional antipsychotics are reserved for second-line use [26].

Second-generation medications (“atypical” or “novel” antipsychotics) are dopamine-2 and serotonin-2A receptor antagonists. Dual receptor blockade improves the specificity of these agents to the pathophysiology of schizophrenia by concentrating maximal dopamine blockade in mesolimbic pathways while facilitating dopamine release in other dopaminergic tracts [27]. This profile is associated with minimal neurologic and hormonal side effects (except for risperidone) and significant improvements in negative symptoms relative to first-generation agents. Side effects of this group of agents include appetite stimulation and weight gain (except ziprasidone). Currently, 3 second-generation medications are recommended for first-line use [26]. A fourth, ziprasidone, which was released in 2001 with warnings about its potential to prolong QTc intervals (Table 3), has yet to receive broad acceptance as a first-line agent.

The second-generation agents generally have some efficacy in all 5 symptom clusters, with similar efficacy to each other and good tolerability. Existing trials have demonstrated small differences in efficacy between these agents [28–31]. Side effect differences are more consistent in available studies (Table 3). A very intriguing line of work has demonstrated that olanzapine and risperidone are associated with significant improvements in memory and other cognitive measures compared to haloperidol treatment [32]. Several NIMH-funded studies are underway to compare the effectiveness of second-generation antipsychotics to each other and to conventional antipsychotic medications [31].

Clozapine is a unique second-generation agent that has superior efficacy for patients with refractory psychosis. However, it has a substantial side effect burden and carries a risk for agranulocytosis. Patients must comply with weekly, then eventually biweekly, blood draws. Therefore, it is relegated to third-line use [26].

Selection of a medication should follow a shared decision-making approach in which an educated patient chooses from available options based on personal preference [33]. After reviewing the patient’s symptoms in each of the 5 clusters, potential side effects of available agents, and strategies for managing side effects, the patient and the physician should choose a medication together. Shared decision making maximizes the patient’s investment in treatment. Once a medication is selected, a relatively low dose should be initiated to maximize tolerability. Many patients will achieve remission of most or all of their symptoms during initial treatment. The same cannot be said of chronic patients, demonstrating the importance of early treatment.

Referral

The third step in management of patients with schizophrenia and related disorders is referral. Ongoing care for an individual with schizophrenia is complex, and optimal care usually requires collaboration with a team of rehabilitation specialists [6,7]. Therefore, referral to a psychiatrist specializing in the treatment of schizophrenia is recommended whenever possible. If the patient refuses psychiatric referral
or none is available, the primary care provider should con-
tinue treatment while seeking referral resources. Hospitalization may be necessary if the patient’s psych-
osis creates impulses to harm themself or others. About half of patients with schizophrenia attempt and 10% com-
plete suicide, usually in the early years of the illness [34]. Delusions of persecution and command hallucinations to harm others are predictors of violence [35]. As symptoms are revealed, the physician should probe for specific thoughts of harm as well as intent to carry them out. Hospitalization is recommended when risk of harm is substantial, when the patient is too disorganized to follow treatment recom-
mandations and lacks supports, or is too agitated to accept sup-
port. Some areas may offer lower intensity alternatives, such as crisis/respite beds or partial hospitalization, for those with less acute needs. Commitment to involuntary hospital-
ization must be sought when a patient is acutely dangerous and refuses voluntary care. Specific criteria for involuntary commitment vary based on local regulations.

### Additional Follow-up

The patient’s hallucinations and ideas of reference fade gradually after starting medication. He main-
tains the belief that he had been used in an experiment, but is able to question its validity. He no longer hears his thoughts on TV and spends more time out of his room. He remains unemployed and inactive.

Ongoing treatment is provided by a team including a psychiatrist, a therapist (clinical case manager), and a voca-
tional specialist. The family also is referred to the local chapter of the National Alliance for the Mentally Ill (NAMI) for support. The therapist completes in-depth education with the patient and his family about schizophrenia. They develop a list of early-warning signs of relapse, a crisis care plan, and short- and long-term goals. These include resuming social relationships, exercise, and work.

The therapist assists the patient in breaking down the steps of initiating social contact and exercise, logging his progress, and following through. The vocational specialist works with him to develop a resume, practice interviewing, identify available jobs that fit his needs, and apply for employment. The patient soon starts a part-time job doing data entry at an insurance company. His vocational specialist meets with him weekly off-site to problem solve work stress-
es and manage any symptoms that presented in the work-
place. The patient also begins playing basketball 3 times a week at the YMCA and occasional jogging. He identifies exercise as helpful with managing anxiety and mood, while work helps him to ignore lingering paranoia by allowing him to focus his thoughts on external tasks. He also initiates contacts with several old friends and joins a chess club. He makes the decision to avoid alcohol and drug use to maximize his odds of a good outcome. He develops substance refusal skills with his therapist, avoids high-risk social settings, and asks his friends to respect his decision.

His sense of hope grows with his accomplishments. His team helps him stay focused on respecting and managing the risks his illness still poses, while defining himself through his life roles and relationships. He develops plans to complete college and get on with his life.

### Case-Based Review

**Table 3. First-line Medications for Schizophrenia**

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Trade Name</th>
<th>Prominent Side Effects</th>
<th>Initial Target Dose for First-Episode Patients*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risperidone</td>
<td>Risperdal</td>
<td>Parkinsonism</td>
<td>0.5–2 mg/d</td>
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<td></td>
<td></td>
<td>Prolactin elevation</td>
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<tr>
<td>Olanzapine</td>
<td>Zyprexa</td>
<td>Appetite stimulation</td>
<td>2.5–10 mg/d</td>
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<td></td>
<td></td>
<td>Weight gain</td>
<td></td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Seroquel</td>
<td>Sedation and dizziness</td>
<td>100–400 mg/d</td>
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<td></td>
<td></td>
<td>Risk of cataracts</td>
<td></td>
</tr>
<tr>
<td>Ziprasidone†</td>
<td>Geodon</td>
<td>Agitation</td>
<td>Unknown</td>
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<tr>
<td></td>
<td></td>
<td>QTc prolongation</td>
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</table>

*Recommended doses for chronically ill patients are generally higher.
†Not widely accepted as first-line agent.

- What is the appropriate duration of therapy for this patient?
- What long-term outcomes can people with schizophrenia achieve?

After onset, the typical course of schizophrenia and schizoaf-
fective disorder includes 2 to 3 decades of active illness fol-
lowed by a roughly one-third chance of remission, one-third chance of attenuated symptoms, and one-third chance of
continued symptoms [36,37]. During the active phase, patients may present episodes of severe symptoms alternating with periods of quiescence, or continuous symptoms. Relapse is nearly universal without medication treatment [17], and active psychosis may impact prognosis as outlined above. Therefore, once a patient has fulfilled criteria for schizophrenia or schizoaffective disorder, medication should be continued to protect them through the period of vulnerability to active illness (to approximately age 50), and as long as symptoms remain problematic thereafter.

The dose of medication required for prophylaxis during the maintenance phase is typically lower than that needed to control acute symptoms. If the diagnosis is questionable due to brief duration of symptoms or onset in the context of marked stress or heavy substance use, and if the patient is able to sustain a symptom-free state for 12 to 24 months, it is reasonable to gradually taper antipsychotic medication to see if it remains necessary [4]. Any discontinuation of medications should be done under sustained close supervision, as relapse can be delayed up to 2 years [17].

Recent research with newer antipsychotics and rehabilitation interventions has demonstrated impressive long-term outcomes, even among patients with chronic, severe illnesses. Significantly better participation in rehabilitation was seen among patients randomized to clozapine [38]. Significant improvements in employment and social functioning have been documented in patients treated with olanzapine [11,39,40], and improvements in quality of life measures have been reported with multiple agents. Employment rates approaching 50% have been achieved using the IPS vocational model [7].

More distal outcomes such as self-esteem and recovery are harder to document [23]. This is in part because these factors are subjective and difficult to measure. An effort is underway to improve our capacity to measure recovery, so that it can be related to treatment interventions and health outcomes [12]. The most useful outcome measures are those that can be behaviorally quantified and reflect reversal of impairments that are associated with schizophrenia. Therefore, vocational and social measures are the most valuable indicators of psychosocial outcome among people with schizophrenia. Standardized measures of these outcomes are available [23,40].

Current research is focusing on documenting synergistic interactions between newer antipsychotics and evidence-based rehabilitation interventions that may help patients with schizophrenia achieve even better outcomes [11,41]. Combined with effective early intervention, modern pharmacology and rehabilitation hold the promise of improving long-term outcomes for people with schizophrenia well beyond those of past decades [36]. Our clinical experience working in model care settings indicates that better outcomes are realistic with effective treatment delivery, and that poor outcomes often emanate from failed treatment delivery rather than from failed treatment. This paper attempts to further improvement of the delivery of effective treatment. With better tools, resources, and effective care delivery, schizophrenia should join the ranks of other debilitating disorders (eg, cancer, diabetes, depression) that are now manageable such that afflicted individuals can live indistinguishably in the community given regular medical care and lifestyle modifications, experience infrequent exacerbations, and continue a high quality of life. This goal is already attainable for some patients with schizophrenia and schizoaffective disorder today.

Corresponding author: Doug Noordsy, MD, MHCGM, 1555 Elm St., Manchester, NH 03101, noordsy@dartmouth.edu.

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Part 1. Please respond to each statement.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Strongly Disagree</th>
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<tr>
<td>5</td>
<td>1</td>
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<td>4</td>
<td>2</td>
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I was provided with new information pertinent to my practice.  
I reaffirmed a specific skill or knowledge.  
This article will help with clinical decision making.  
Relevant clinical outcomes are addressed.  
The case is communicated in a manner that kept my interest.  
The case presentation is realistic and effective.  
I could easily interpret the tables and figures.  
My attitude about this topic changed in some way.

Additional comments: ______________________________________________________________________________________  
________________________________________________________________________________________________________

Part 2. Please complete the following sentence.

As a result of reading this case study, I . . .

- see no need to change my practice.
- will seek more information before modifying my practice.
- intend to change the following aspect(s) of my practice: (Briefly describe)

________________________________________________________________________________________________________  
________________________________________________________________________________________________________


Signature: _________________________________________ Date: _________________________________________________

Part 4. Identifying information: Please PRINT legibly or type the following:

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__________________________________________________ Social Security number: _________________________________

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