



# Psychosis in the Emergency Department

# 12

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## Introduction

Psychotic symptoms are common. The lifetime incidence of psychotic symptoms in the United States is as high as 10% [1]. These symptoms include hearing voices (auditory hallucinations), visual hallucinations, experiencing mind control, or paranoia. People with psychosis present to the emergency department (ED) for reasons both related and unrelated to their psychosis.

In this chapter, I review the elements of the ED evaluation of the patient with psychotic symptoms:

1. Evaluating agitation and safety
2. Identifying and exploring psychotic symptoms
3. Understanding the etiology of psychotic symptoms: Are they primary, as in schizophrenia, or secondary, as in medical illnesses or intoxication?
4. Performing a screening medical evaluation for patients with known primary psychotic illness who may have untreated medical problems

5. Assessing the patient's acute risk of danger to himself or others due to his psychosis
6. Discharging the patient with psychosis

This evaluation determines the level of medical or psychiatric treatment warranted. As hospitalization is often not indicated, I review interventions in the ED to improve the patient's course of illness in the community. This discussion is organized around brief case examples to highlight key points in the emergency evaluation of the patient with psychosis.

## Evaluating Agitation and Safety

If the patient is agitated, agitation must be addressed immediately as it poses a danger to the patient, ED staff, and other patients. If the patient cannot be verbally de-escalated, medication administration will be required to decrease his level of dangerousness, and mechanical restraints may be applied. During the first minutes of the evaluation, the presence of delirium, intoxication, and medical illnesses must be assessed. Patients who received medications may be too sedated to fully participate in the evaluation; however, evaluation of the initial cause of agitation should be actively pursued.

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## Case Example 1: “He’s a Runner!”

Chief Complaint (CC): Emotionally Disturbed Person. An approximately 30-year-old man registered as “Unknown, Male” is brought to the hospital by ambulance after he was seen running down the center of a highway. When he was approached by emergency services, he waved a large Bible at them and screamed “Rocks a socks a rocks a socks a!” and then began to bark. On arrival, he was not responsive to attempts at verbal redirection to stop pacing rapidly, barking, and posturing in a fighting stance. He received intramuscular (IM) medication to decrease his level of agitation and became comfortably sedated but unable to engage in a meaningful interview.

It is imperative to remember that psychosis is not the only possible cause of acute agitation, even in a patient with a known severe mental illness. Agitation is commonly caused by delirium, intoxication, psychosis, mania, severe personality disorder, or disinhibition related to intellectual disability or brain injury. Patients with known psychotic illness may present as agitated due to exacerbation of their psychosis or due to another cause. (See references [2–5] for further discussion of the management of acute agitation, verbal de-escalation techniques, and restraint and seclusion.)

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## Identifying and Exploring Psychotic Symptoms

ED clinicians must identify symptoms of psychosis, as well as negative symptoms of schizophrenia, which will be notable for either their presence or absence during the evaluation of the person with psychosis. Key symptoms of psychosis include delusions, hallucinations, disorganization of thought, and disorganization of motor behavior (including catatonia).

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## Delusions

Delusions are beliefs that are firmly held despite contradicting evidence; if someone is unable to entertain the thought that their expressed belief

could be wrong, it has risen from a firmly held belief into a delusion [6]. Delusions may include the belief that others are following you and trying to harm you (paranoid delusions), belief that someone knows your thoughts or is trying to extract thoughts from your head, belief that an outside force is putting thoughts into your head or trying to control your mind, or belief that innocuous stimuli in the environment hold specific personal meaning (delusions of reference). Grandiose and erotomanic delusions are more commonly seen in the patient with mania with psychotic features. The delusional belief that an outside force or person can control one’s mind or body is often very frightening to the patient as it erodes the expectation of personal privacy and agency.

It is imperative to both elicit the presence or absence of delusions, as well as to explore their meaning. Many patients may not spontaneously divulge delusional beliefs. The evaluation of delusions should encompass a discussion of what this belief means to the person because the patient’s response is central to risk assessment. For example, when assessing paranoid delusions, the examiner should ask whether the patient knows who is persecuting him and why, how the patient could identify the believed persecutor, and what the patient would do if he had interaction with the believed persecutor. The clinician should understand the patient’s behaviors in response to the delusion, such as remaining inside, leaving the house, leaving curtains drawn, changing walking or driving routes, or taking precautions regarding what food is eaten. In the case of delusions of control, it is also important to inquire about the degree to which the patient feels that he can resist such outside influence/control and whether he has ever been in a situation where he was unable to resist such control [7–9]. After engaging with the patient in a discussion of his beliefs, the clinician will have a sufficient understanding of the patient’s responses to make an informed assessment of his risk for dangerousness to himself or others.

## Hallucinations

Hallucinations are perceptual experiences that occur without outside stimuli. The person may have such perceptual experiences within any of the five senses. Hallucinations are a symptom but are not specific to a diagnosis. Auditory hallucinations are the most common form of hallucination in schizophrenia. Common auditory hallucinations include hearing people mocking, threatening, or egging them onto action [6]. Visual hallucinations will be experienced at some point by more than 20% of people with schizophrenia [10] and are common symptoms in delirium [11]. Olfactory and gustatory hallucinations are seen in patients with seizures, brain tumors, or a primary psychotic illness. Tactile hallucinations, especially formication (the sensation of bugs crawling on the skin), are commonly associated with cocaine and amphetamine intoxication.

The assessment of hallucinations is not a binary assessment, and it is inadequate to indicate only whether or not the person is experiencing hallucinations. It is necessary to explore the person's (1) emotional response to the hallucinations, (2) insight into the experience as hallucinatory, and (3) understanding of the content of the hallucination. The assessment of hallucinations includes both the subjective report and objective evidence. For example, the objective evaluation may include whether the patient displays affect incongruous to his situation or appears to be actively responding to internal stimuli [9]. The patient's responses, both emotional and cognitive, to the hallucination are what will inform the clinician's risk assessment.

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## Disorganization of Thought

Disorganization of thought is an objective psychotic symptom. It refers not to the content of the thoughts but to the way in which a person's thoughts are strung together. Does one thought logically lead to the next? Is the next thought only obliquely related to the last thought? Are the

thoughts not connected in any way, and do they appear to be unrelated [6]? In the first case example, the patient displayed clang associations when he said, "Rocks a socks a rocks a socks a"; the only relationship between these words is their sound. This verbalization is a dramatic example of thought disorganization. Less dramatically, patients with tangential thought process initially appear to have thoughts that are logically connected but then veer off tangentially in a manner that ultimately completely obscures meaningful communication. For example, when the examiner asks, "What brings you here today?," the patient replies, "I was walking down the street when a policeman stopped me, just stopped me like you stop a train in its tracks, like a train that was traveling from California to New York, and, well, it arrived in Penn Station and just stopped." Even an attentive clinician may feel confused by the patient's verbal responses: The clinician's feeling of confusion is an important clue, suggesting the patient's disorganization of thought.

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## Disorganization of Behavior

Disorganization of behavior is another objective psychotic symptom. Examples of this symptom include odd behavior such as posturing like an animal, miming, displaying psychomotor agitation, purposeless movements, or extreme negativism (including holding a rigid pose or remaining mute). Catatonia is a form of behavioral disorganization [6]. The patient discussed in the first case example displayed disorganized behavior by his purposeless agitation and bizarre barking.

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## Negative Symptoms of Schizophrenia

Negative symptoms are defined by decreased expressiveness and amotivation. Expressive deficits include restricted affect and poverty of speech. Loss of motivation encompasses decreased spontaneous motor activity, poor atten-

tion to grooming/hygiene, decrease in engagement in work/recreation/leisure, and decreased social engagement [12]. Negative symptoms of schizophrenia contribute significantly to its overall illness burden and morbidity. Recent estimates indicate that one or more negative symptoms are present in nearly 60% of patients with schizophrenia. Antipsychotic medications have limited impact on negative symptoms [13].

Delusions, hallucinations, disorganization of thought, and disorganization of behavior are terms for psychotic symptoms collectively referred to as “positive symptoms.” Positive symptoms may be seen in either a primary or secondary psychosis, which will be discussed later in this chapter. Negative symptoms are found primarily in schizophrenia. The presence of prominent negative symptoms can help to narrow the differential diagnosis of a patient’s psychosis.

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### Case Example 2: “She’s So Lazy.”

“She’s talking to herself.” A 28-year-old woman is brought to the ED by her husband because he has noticed that she has been talking and laughing to herself for the past month and has had a decline in functioning over the past year. He reports that she stopped going to work months ago for no apparent reason other than “laziness,” and he says that she is “so lazy that when I leave for work, she is sitting on the couch, and when I get home, she’s still sitting there. She’s so lazy that she doesn’t even bother to turn on the TV!” The patient is observed quietly talking to herself. When spoken to, she has a long latency of response, and then shakes her head and says, “What?” She then briefly engages with you. She denies having hallucinations, says that she feels “fine,” and cannot give any explanation for her behavior or recent lack of engagement or interest. Suddenly, she interrupts speaking with you and turns, whispering under her breath, “Oh, hush! I can handle this without your help!” and then resumes speaking with you. She has no medical problems and does not use drugs or alcohol. Neither the patient nor her husband has any concerns about her harming herself or anyone else.

This woman has both prominent negative symptoms and hallucinations. Psychotic symptoms may be seen in a number of illnesses. Negative symptoms are specific to schizophrenia. This patient’s symptoms are consistent with those

of schizophrenia, a chronic psychotic illness defined as experiencing at least two out of five symptom clusters for at least 6 months. The major symptom clusters are hallucinations, delusions, disorganization of thought, disorganization of behavior, and negative symptoms [6]. This patient’s hallucinations may compel the clinician’s attention, but the negative symptoms are more diagnostically specific and may have a greater impact on her functioning.

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### Understanding the Etiology of Psychotic Symptoms

In the ED, it is imperative to determine whether the patient with psychotic symptoms has psychosis as a result of a primary psychiatric illness or if the symptoms are the result of intoxication or medical illness. Primary psychotic symptoms are due to a mental illness, most likely schizophrenia, schizoaffective disorder, delusional disorder, mania, depression with psychotic features, or schizotypal personality disorder. Secondary psychotic symptoms are due to intoxication or medical illness [6]. Unfortunately, there is no way to distinguish between primary and secondary psychosis on the basis of the presenting psychotic symptoms alone. New-onset psychotic symptoms presenting after age 45 generally warrant evaluation for delirium and a workup for a medical and/or substance-induced cause [14]; late-life onset of primary psychotic illness is rare. For a discussion of the many medical etiologies of psychotic symptoms in the ED, see Chap. 15.

The differential diagnosis for secondary psychotic symptoms is broad. Table 12.1 lists some of the many medical illnesses associated with psychotic symptoms. In the ED, common toxidromes that cause psychosis include:

1. Stimulant drugs
  - (a) Cocaine
  - (b) Amphetamine
  - (c) Methamphetamines
  - (d) 3,4-methylenedioxymethamphetamine (MDMA)/ecstasy
  - (e) Bath salts

**Table 12.1** Medical illnesses that can cause psychotic symptoms

Type of illness	Examples
Infection	Human immunodeficiency virus (HIV) Neurosyphilis Meningitis Cerebral malaria
Endocrine disorders	Thyroid disorder Steroid-producing tumors Pheochromocytoma Insulinomas
Autoimmune disease	Multiple sclerosis Systemic lupus erythematosus [20]
Dementia	Vascular Alzheimer's Lewy body/frontotemporal Huntington's [21] Parkinson's [22]
Brain injury	Trauma Stroke Seizure Tumor Abscess
Cancer	Paraneoplastic syndrome Ovarian teratoma
Encephalopathy	Limbic [23, 24] Uremic Hepatic Wernicke's
Other [25]	Wilson's disease Porphyrias

2. Hallucinogens
  - (a) Phencyclidine (PCP)
  - (b) Lysergic acid diethylamide (LSD)
3. Cannabinoids
  - (a) Marijuana
  - (b) Synthetic cannabinoids ("K2," "Spice")
  - (c) High doses of dextromethorphan

Drug-induced psychosis typically resolves with the metabolism of acute intoxication but can persist for weeks or months following acute intoxication. Prescribed medications may also cause psychosis. Examples include Parkinson's disease medications (carbidopa-levodopa and amantadine), steroids, anticholinergic medications, stimulants, antihistamines, antibiotics (isoniazid, penicillin, macrolides, and fluoroquinolones), antivirals (acyclovir, efavirenz, and interferon), anticonvulsants, beta-blockers, meperidine, disul-

fram, and benzodiazepines. Also consider withdrawal syndromes, including alcohol, benzodiazepines, or baclofen, as possible cause of psychotic symptoms [15].

Toxic exposures are a less common cause of psychotic symptoms. The onset of such symptoms closely follows the exposure. Chemicals that cause psychosis at certain exposure levels include many metals (mercury, lead, and manganese), pesticides (organophosphates [16]), and industrial solvents (carbon disulfide and toluene). Historically, clusters of cases of new-onset psychosis have occurred among rayon industry workers exposed to carbon disulfide, miners with manganese intoxication, and hatters or felt workers with mercury intoxication [17]. More recently, public health measures have been instituted to prevent such occupational exposures, but exposure may occur after accidents or natural disasters disrupt normal safety controls.

Delirium is a common etiology of psychosis in the ED. Unlike patients with schizophrenia, the patient with delirium will have had an acute onset of symptoms, as well as waxing and waning of symptoms. Delirium always causes inattention and typically causes impairment of short-term memory. A patient with delirium may or may not be oriented to person, place, and time [18]. Immediate recognition and treatment of delirium are important as the condition predicts poor outcomes, including increased mortality, institutionalization, prolonged hospitalization, and cognitive impairment [19]. For more on the identification and treatment of delirium, see Chap. 15.

## Performing a Screening Medical Evaluation

As with any ED evaluation, vital signs must be evaluated, and the patient examined for acute physical illness or injury. Some patients present with medical complaints that may at first appear to be related to psychosis. Regardless, the patient's medical complaints must be evaluated prior to attributing any symptoms to psychosis. For example, a patient who presents with weak-

ness “because my roommate is blowing toxic chemicals into my window” may demonstrate objective weakness notwithstanding any delusional symptom attribution. The following case example demonstrates the importance of a proper medical evaluation.

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### Case Example 3: “He’s So Stinky.”

“My shoulder hurts.” A 58-year-old man is brought into the ED by ambulance after he walked up to a stranger, grabbed him, and screamed, “The mission has been compromised!” On arrival to the ED, he tells the triage nurse that he is here because of shoulder pain. He presents as extremely disheveled, malodorous, and wrapped in many layers of clothing. When asked by the ED doctor what brought him in, he responds with a lengthy and illogical diatribe about how “they” nearly got him and how, as an undercover CIA agent, he is on a secret mission to expose a foreign sleeper cell. He grimaces and intermittently moans throughout this interaction. Psychiatry is consulted and recommends admission to inpatient psychiatry for stabilization of psychosis. Only when the patient is changed into hospital pajamas immediately prior to being brought to the psychiatric department is it noticed that he is holding his left arm immobile and there is tenting and blanching of the skin above his left clavicle. This was not observed earlier under the patient’s multiple layers of clothes. X-ray reveals a grossly displaced left clavicular fracture that requires surgical intervention.

People with primary psychotic illnesses receive inadequate health care. The socioeconomic disadvantages and decreased ability to function caused by primary psychotic illnesses lead to premature morbidity and mortality. One large study found that people with severe mental illness live, on average, 8.2 years less than the general population, with 95% of these deaths attributable to medical illnesses rather than accidents or injuries [26]. A large meta-analysis showed that people with schizophrenia have a 2.6-fold increase in mortality as compared with age-matched peers in the general population [27]. In the emergency setting, it is necessary to evaluate for untreated medical conditions, paying particular attention to wounds (both recent and chronic), foot care, bug infestation, respiratory illnesses, and untreated (or inadequately treated)

sexually transmitted illnesses (including syphilis and HIV). Lab testing and imaging may be needed to clarify the etiology of the patient’s psychosis, evaluate for acute medical problems, and obtain baseline levels prior to initiating treatment. Because the psychotic patient may be a poor historian, the ED clinician’s close observations and physical examination will provide the clues to understanding the patient’s medical stability.

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### Assessing the Patient’s Acute Risk for Danger to Himself or Others

The psychiatric history of present illness will focus primarily on the (1) mode of arrival, (2) precipitating events, and (3) risk factors for dangerousness (to both self and others). The ED physician’s role is not only to examine the patient but to evaluate his level of risk. Such evaluation extends beyond what the patient tells you and will include additional information from family, friends, or community treatment providers, as well as information found in the medical record. The standard of care for the ED evaluation includes reaching out to the patient’s contacts in the community in order to fully understand the patient’s functioning in the community, including overt symptoms of illness or worrisome behavior.

A suicide risk assessment should be completed and documented for all patients with psychosis. Suicide is a very real risk for those with schizophrenia: In the general US population, approximately 13 per 100,000 people complete suicide [28], compared to 5 per 100 people with schizophrenia. This risk is greatest early in the course of the illness [29]. For more information on risk assessment, see Chap. 8.

Among psychotic patients, violence toward other is less common than suicidal actions but nonetheless requires assessment. In the popular imagination, people with psychosis are believed to be at high risk for violence. However, the vast majority of violent acts committed in the United States are done by people who have no psychotic symptoms, and the majority of those who have



psychosis do not engage in violence. It is true that the likelihood of committing violence is greater for people with major mental illness than for those without [30, 31]. Violence may be intentional or unintentional. For example, the highly disorganized, agitated patient may accidentally cause another injury by his actions, without specifically intending to harm another. This presentation contrasts with that of a patient who has a linear and coherent thought process and deliberately acts violently toward another. For example, a person who believes that he is about to be killed may harm another in what he perceives to be self-defense. Again, understanding the patient's reaction to delusional thinking is a critical part of the clinical assessment.

The third element of risk assessment, in addition to evaluation for risk for harm to self or others, is a person's ability to care for himself. This self-care is not based on functional ability but, rather, is a reflection of insight into the need for basic hygiene, food, clothing, and shelter. Patients with primary psychotic illness may be so disabled by their illness that they are unable to care for themselves in the community.

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#### Case Example 4: "He's So Dirty."

"I don't know why I'm here." A 45-year-old man was brought into the ED by ambulance after homeless outreach workers called 911. Those workers observed him sleeping on the street and barely changing position for days. On arrival, the patient is calm and generally cooperative with everything that is asked of him. He is observed to have lice and is showered with a pediculicide body wash and shampoo. Afterward, the patient has a paucity of spontaneous speech but does not appear to be responding to internal stimuli. He denies having hallucinations and reports his mood to be "fine." No delusions are elicited on the exam. Lab testing reveals an anemia (hemoglobin 7.2 g/dL), most likely resulting from severe and chronic lice infestation coupled with dietary malnutrition iron deficiency. Psychiatry advises that the patient requires psychiatric hospitalization as he is unable to care for himself (as evidenced by his lice infestation and nutritional deficiency).

While this patient is similar to the patient in case example 2 in that he has prominent negative

symptoms, unlike that patient, he cannot care for himself due to the severity of his illness coupled with his lack of social supports. For more on the decision to admit, see Chap. 20.

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### Discharging the Patient with Psychosis

Most patients with psychosis will be found to be at no acute risk for dangerousness toward themselves or others and will be deemed able to care for themselves. In such instances, the ED clinician must facilitate a discharge plan.

Antipsychotic medication may be started in the ED if local resources allow for close follow-up in the community. Such follow-up can be either with a psychiatrist or with a primary care provider with psychiatric consultation resources. The standard of care for starting antipsychotic medications includes obtaining a baseline metabolic screening, including a body mass index, waist circumference, blood pressure, blood glucose, and lipid panel [32], which may be easier to obtain in the ED than in certain outpatient office settings. A complete blood count and liver function testing may also be helpful. An electrocardiogram should be obtained in any patient with risk factors for QTc prolongation as antipsychotics may increase the QTc. These risk factors include age greater than 65, electrolyte disturbance, known cardiac disease, concomitant use of other medications that increase the risk for prolonged QTc, endocrine or metabolic disorders, or central nervous system injury [33]. Test results should be sent to the community provider on discharge. Additionally, the patient and his family must be educated that psychosocial interventions—together with medication treatment—are key components in the treatment of schizophrenia.

Psychosocial interventions include providing support and education for the patient's family and engaging patient in cognitive-behavioral therapy for psychosis [34]. The ED clinician can set the tone for ongoing treatment by listening to the patient's and family's concerns, providing realistic yet hopeful education about the

patient's illness and need for treatment, and helping the patient and his family find ongoing treatment in the community. The patient and his family should be given clear guidelines as to what symptoms should trigger their return to the ED: any acute safety concerns by the patient or his family (even if these concerns are not well verbalized), verbalization of suicidal thoughts, increased agitation, scary displays of inappropriate affect, or verbalization of thoughts to harm others.

## Conclusion

Many patients present to the ED with psychotic symptoms—perhaps these symptoms trigger the emergency evaluation or are entirely incidental findings. After managing acute agitation and medical concerns, the ED clinician should formulate an assessment of the most likely etiology of the patient's psychotic symptoms, as well as any other causes that are high in the differential diagnosis and require further evaluation. This assessment enables treatment, risk assessment, and discharge to the least restrictive level of care. When discharging patients, the ED clinician should educate the patient and his family as to symptoms that should trigger return to the ED and the need for ongoing treatment, including both medications and psychosocial treatments. Coordinating with outpatient providers may further improve the patient's prognosis and reduce ED recidivism.

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