



# HELP PATIENTS ESCAPE THE SPIRAL OF SCHIZOPHRENIA RELAPSE

## INDICATION AND USAGE

UZEDY (risperidone) extended-release injectable suspension for subcutaneous use is indicated for the treatment of schizophrenia in adults.

## IMPORTANT SAFETY INFORMATION

### WARNING: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS

**Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. UZEDY is not approved for use in patients with dementia-related psychosis and has not been studied in this patient population.**

**CONTRAINDICATIONS:** UZEDY is contraindicated in patients with a known hypersensitivity to risperidone, its metabolite, paliperidone, or to any of its components. Hypersensitivity reactions, including anaphylactic reactions and angioedema, have been reported in patients treated with risperidone or paliperidone.

## WARNINGS AND PRECAUTIONS

**Cerebrovascular Adverse Reactions:** In trials of elderly patients with dementia-related psychosis, there was a significantly higher incidence of cerebrovascular adverse events (e.g., stroke, transient ischemic attack), including fatalities, in patients treated with oral risperidone compared to placebo. UZEDY is not approved for use in patients with dementia-related psychosis.

**Neuroleptic Malignant Syndrome (NMS):** NMS, a potentially fatal symptom complex, has been reported in association with antipsychotic drugs. Clinical manifestations of NMS are hyperpyrexia, muscle rigidity,

altered mental status including delirium, and autonomic instability (irregular pulse or blood pressure, tachycardia, diaphoresis, and cardiac dysrhythmia). Additional signs may include elevated creatine phosphokinase, myoglobinuria (rhabdomyolysis), and acute renal failure. If NMS is suspected, immediately discontinue UZEDY and provide symptomatic treatment and monitoring.


**Tardive Dyskinesia (TD):** TD, a syndrome consisting of potentially irreversible, involuntary, dyskinetic movements, may develop in patients treated with antipsychotic drugs. Although the prevalence of the syndrome appears to be highest among the elderly, especially elderly women, it is impossible to predict which patients will develop the syndrome. Whether antipsychotic drug products differ in their potential to cause TD is unknown.

The risk of developing TD and the likelihood that it will become irreversible are believed to increase with the duration of treatment and the cumulative dose. The syndrome can develop, after relatively brief treatment periods, even at low doses. It may also occur after discontinuation. TD may remit, partially or completely, if antipsychotic treatment is discontinued. Antipsychotic treatment, itself, however, may suppress (or partially suppress) the signs and symptoms of the syndrome, possibly masking the underlying process. The effect that symptomatic suppression has upon the long-term course of the syndrome is unknown.

**Please see additional Important Safety Information and Brief Summary of full Prescribing Information for UZEDY, including Boxed WARNING, on the following pages.**







**UZEDY**<sup>TM</sup>  
(risperidone) extended-release  
injectable suspension

50 mg 75 mg 100 mg 125 mg  
150 mg 200 mg 250 mg

**AN LAI THAT CLINICIANS AND PATIENTS AGREE ON<sup>1\*</sup>**



**RAPID ABSORPTION**

UZEDY rapidly achieves therapeutic levels<sup>1</sup> in plasma within 6 to 24 hours of administration with a single dose<sup>1,2</sup>



**DEMONSTRATED EFFICACY<sup>+</sup>**

UZEDY demonstrated significant reductions in the risk of relapse vs placebo<sup>1,2</sup>



**STREAMLINED INITIATION**

No loading dose or oral supplementation is required<sup>2</sup>



**SUBCUTANEOUS INJECTION**

UZEDY is for subcutaneous injection administered only by a healthcare professional and comes in a single-dose, prefilled syringe with a short, 5/8-inch needle<sup>2</sup>



**FLEXIBLE 1- AND 2-MONTH DOSING INTERVALS**

With 2 dosing intervals and 8 dosing options, you can tailor the dosing regimen to the individual patient needs<sup>2</sup>

**IMPORTANT SAFETY INFORMATION  
(CONTINUED)**

**Tardive Dyskinesia (TD) (Continued):**

If signs and symptoms of TD appear in a patient treated with UZEDY, drug discontinuation should be considered. However, some patients may require treatment with UZEDY despite the presence of the syndrome. In patients who do require chronic treatment, use the lowest dose and the shortest duration of treatment producing a satisfactory clinical response. Periodically reassess the need for continued treatment.

**Metabolic Changes:** Atypical antipsychotic drugs have been associated with metabolic changes that may increase cardiovascular/cerebrovascular risk. These metabolic changes include hyperglycemia, dyslipidemia, and body weight gain. While all of the drugs in the class have been shown to produce some metabolic changes, each drug has its own specific risk profile.

**Hyperglycemia and diabetes mellitus (DM),** in some cases extreme and associated with ketoacidosis or hyperosmolar coma or death, have been reported in patients treated with atypical antipsychotics, including risperidone. Patients with an established diagnosis of DM who are started on atypical antipsychotics, including UZEDY, should be monitored regularly for worsening of glucose control. Patients with risk factors for DM (e.g., obesity, family history of diabetes) who are starting treatment with atypical antipsychotics, including UZEDY, should undergo fasting blood glucose (FBG) testing at the beginning of treatment and periodically during treatment. Any patient treated with atypical antipsychotics, including UZEDY, should be monitored for symptoms of hyperglycemia including polydipsia, polyuria, polyphagia, and weakness. Patients who

(continued on next page)

**Please see additional Important Safety Information and Brief Summary of full Prescribing Information for UZEDY, including Boxed WARNING, on the following pages.**

LAI, long-acting injectable.

\*Data were collected from 63 patients, 24 physicians, and 25 nurses in a prospective, cross-sectional companion survey assessing the perceptions regarding ease of use and satisfaction with UZEDY. The survey was administered after a minimum of 2 experiences prescribing, administering, or receiving UZEDY. Ninety-six percent of clinicians and 92% of patients reported that they were satisfied with UZEDY. Ninety-two percent of clinicians and 89% of patients reported that administration of UZEDY was easy. Eighty percent of clinicians and 94% of patients reported that if given a choice, they would choose a shorter needle over a longer needle.<sup>1</sup>

<sup>1</sup>The threshold for clinically relevant plasma concentrations of risperidone is defined as levels  $\geq 10$  ng/mL.<sup>1</sup>

<sup>2</sup>The RISE phase 3 study was a randomized, double-blind, multicenter, placebo-controlled, relapse prevention study evaluating the safety and efficacy of UZEDY once monthly or once every 2 months vs placebo once monthly in 542 patients with schizophrenia.<sup>2</sup>



## IMPORTANT SAFETY INFORMATION (CONTINUED)

### Metabolic Changes (Continued):

develop symptoms of hyperglycemia during treatment with atypical antipsychotics, including UZEDY, should undergo FBG testing. In some cases, hyperglycemia has resolved when the atypical antipsychotic, including risperidone, was discontinued; however, some patients required continuation of antidiabetic treatment despite discontinuation of risperidone.

**Dyslipidemia** has been observed in patients treated with atypical antipsychotics.

**Weight gain** has been observed with atypical antipsychotic use. Monitoring weight is recommended.

**Hyperprolactinemia:** As with other drugs that antagonize dopamine D<sub>2</sub> receptors, risperidone elevates prolactin levels and the elevation persists during chronic administration. Risperidone is associated with higher levels of prolactin elevation than other antipsychotic agents.

**Orthostatic Hypotension and Syncope:** UZEDY may induce orthostatic hypotension associated with dizziness, tachycardia, and in some patients, syncope. UZEDY should be used with particular caution in patients with known cardiovascular disease, cerebrovascular disease, and conditions which would predispose patients to hypotension and in the elderly and patients with renal or hepatic impairment. Monitoring of orthostatic vital signs should be considered in all such patients, and a dose reduction should be considered if hypotension occurs. Clinically significant hypotension has been observed with concomitant use of oral risperidone and antihypertensive medication.

**Falls:** Antipsychotics, including UZEDY, may cause somnolence, postural hypotension, motor and sensory instability, which may lead to falls and, consequently, fractures or other fall-related injuries. Somnolence, postural hypotension, motor and sensory instability have been reported with the use of risperidone. For patients, particularly the elderly, with diseases, conditions, or medications that could exacerbate these effects, assess the risk of falls when initiating antipsychotic treatment and recurrently for patients on long-term antipsychotic therapy.

**Leukopenia, Neutropenia, and Agranulocytosis** have been reported with antipsychotic agents, including risperidone. In patients with a pre-existing history of a clinically significant low white blood cell count (WBC) or absolute neutrophil count (ANC) or a history of drug-induced leukopenia or neutropenia, perform a complete blood count (CBC) frequently during the first few months of therapy. In such patients, consider discontinuation of UZEDY at the first sign of a clinically significant decline in WBC in the absence of other causative factors. Monitor patients with clinically significant neutropenia for fever or other symptoms or signs of infection and treat promptly if such symptoms or signs occur. Discontinue UZEDY in patients with ANC < 1000/mm<sup>3</sup> and follow their WBC until recovery.

**Potential for Cognitive and Motor Impairment:** UZEDY, like other antipsychotics, may cause somnolence and has the potential to impair judgement, thinking, and motor skills. Somnolence was a commonly reported adverse reaction associated with oral risperidone treatment. Caution patients about operating hazardous machinery, including motor vehicles, until they are reasonably certain that treatment with UZEDY does not affect them adversely.

**Seizures** During premarketing studies of oral risperidone in adult patients with schizophrenia, seizures occurred in 0.3% of patients (9 out of 2,607 patients), two in association with hyponatremia. Use UZEDY cautiously in patients with a history of seizures or other conditions that potentially lower the seizure threshold.

**Dysphagia:** Esophageal dysmotility and aspiration have been associated with antipsychotic drug use. Antipsychotic drugs, including UZEDY, should be used cautiously in patients at risk for aspiration.

**Priapism** has been reported during postmarketing surveillance for other risperidone products. A case of priapism was reported in premarket studies of UZEDY. Severe priapism may require surgical intervention.

**Body temperature regulation.** Disruption of the body's ability to reduce core body temperature has been attributed to antipsychotic agents. Both hyperthermia and hypothermia have been reported in association with oral risperidone use. Strenuous exercise, exposure to extreme heat, dehydration, and anticholinergic medications may contribute to an elevation in core body temperature; use UZEDY with caution in patients who experience these conditions.

### ADVERSE REACTIONS

The most common adverse reactions with risperidone (≥5% and greater than placebo) were parkinsonism, akathisia, dystonia, tremor, sedation, dizziness, anxiety, blurred vision, nausea, vomiting, upper abdominal pain, stomach discomfort, dyspepsia, diarrhea, salivary hypersecretion, constipation, dry mouth, increased appetite, increased weight, fatigue, rash, nasal congestion, upper respiratory tract infection, nasopharyngitis, and pharyngolaryngeal pain.

The most common injection site reactions with UZEDY (≥5% and greater than placebo) were pruritus and nodule.

### DRUG INTERACTIONS

- Carbamazepine and other strong CYP3A4 inducers decrease plasma concentrations of risperidone.
- Fluoxetine, paroxetine, and other strong CYP2D6 inhibitors increase risperidone plasma concentration.
- Due to additive pharmacologic effects, the concomitant use of centrally-acting drugs, including alcohol, may increase nervous system disorders.
- UZEDY may enhance the hypotensive effects of other therapeutic agents with this potential.
- UZEDY may antagonize the pharmacologic effects of dopamine agonists.
- Concomitant use with methylphenidate, when there is change in dosage of either medication, may increase the risk of extrapyramidal symptoms (EPS)

### USE IN SPECIFIC POPULATIONS

**Pregnancy:** May cause EPS and/or withdrawal symptoms in neonates with third trimester exposure. There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to atypical antipsychotics, including UZEDY, during pregnancy. Healthcare providers are encouraged to register patients by contacting the National Pregnancy Registry for Atypical Antipsychotics at 1-866-961-2388 or online at <http://womensmentalhealth.org/clinicaland-research-programs/pregnancyregistry/>.

**Lactation:** Infants exposed to risperidone through breastmilk should be monitored for excess sedation, failure to thrive, jitteriness, and EPS.

**Fertility:** UZEDY may cause a reversible reduction in fertility in females.

**Pediatric Use:** Safety and effectiveness of UZEDY have not been established in pediatric patients.

**Renal or Hepatic Impairment:** Carefully titrate on oral risperidone up to at least 2 mg daily before initiating treatment with UZEDY.

**Patients with Parkinson's disease or dementia with Lewy bodies** can experience increased sensitivity to UZEDY. Manifestations and features are consistent with NMS.

**Please see Brief Summary of full Prescribing Information for UZEDY on the following pages.**

**References:** 1. Data on file. Parsippany, NJ: Teva Neuroscience, Inc. 2. UZEDY™ (risperidone) extended-release injectable suspension Current Prescribing Information. Parsippany, NJ: Teva Neuroscience, Inc.

**BRIEF SUMMARY OF PRESCRIBING INFORMATION FOR UZEDY (risperidone) extended-release injectable suspension, for subcutaneous use**  
**SEE PACKAGE INSERT FOR FULL PRESCRIBING INFORMATION.**

**WARNING: INCREASED MORTALITY IN ELDERLY PATIENTS WITH DEMENTIA-RELATED PSYCHOSIS**

**Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. UZEDY is not approved for the treatment of patients with dementia-related psychosis and has not been studied in this patient population [see Warnings and Precautions (5.1)].**

**1 INDICATIONS AND USAGE**

UZEDY is indicated for the treatment of schizophrenia in adults.

**4 CONTRAINDICATIONS**

UZEDY is contraindicated in patients with a known hypersensitivity to risperidone, its metabolite, paliperidone, or to any of its components. Hypersensitivity reactions, including anaphylactic reactions and angioedema, have been reported in patients treated with risperidone or paliperidone.

**5 WARNINGS AND PRECAUTIONS**

**5.1 Increased Mortality in Elderly Patients with Dementia-Related Psychosis**

Elderly patients with dementia-related psychosis treated with antipsychotic drugs are at an increased risk of death. Analyses of 17 placebo-controlled trials (modal duration of 10 weeks), largely in patients taking atypical antipsychotic drugs, revealed a risk of death in drug-treated patients of between 1.6- to 1.7-times the risk of death in placebo-treated patients. Over the course of a typical 10-week controlled trial, the rate of death in drug-treated patients was about 4.5%, compared to a rate of about 2.6% in the placebo group. Although the causes of death were varied, most of the deaths appeared to be either cardiovascular (e.g., heart failure, sudden death) or infectious (e.g., pneumonia) in nature. Observational studies suggest that, similar to atypical antipsychotic drugs, treatment with conventional antipsychotic drugs may increase mortality. The extent to which the findings of increased mortality in observational studies may be attributed to the antipsychotic drug as opposed to some characteristic(s) of the patients is not clear.

In two of four placebo-controlled trials in elderly patients with dementia-related psychosis, a higher incidence of mortality was observed in patients treated with furosemide plus oral risperidone when compared to patients treated with oral risperidone alone or with placebo plus furosemide. No pathological mechanism has been identified to explain this finding, and no consistent pattern for cause of death was observed.

UZEDY is not approved for the treatment of patients with dementia-related psychosis [see Boxed Warning and Warnings and Precautions (5.2)].

**5.2 Cerebrovascular Adverse Reactions, Including Stroke, in Elderly Patients with Dementia-Related Psychosis**

Cerebrovascular adverse reactions (e.g., stroke, transient ischemic attack), including fatalities, were reported in patients (mean age 85 years; range 73 to 97 years) in trials of oral risperidone in elderly patients with dementia-related psychosis. In placebo-controlled trials, there was a significantly higher incidence of cerebrovascular adverse reactions in patients treated with oral risperidone compared to patients treated with placebo. UZEDY is not approved for the treatment of patients with dementia-related psychosis [see Warnings and Precautions (5.1)].

**5.3 Neuroleptic Malignant Syndrome**

Neuroleptic Malignant Syndrome (NMS), a potentially fatal symptom complex, has been reported in association with antipsychotic drugs. Clinical manifestations of NMS are hyperpyrexia, muscle rigidity, altered mental status including delirium, and autonomic instability (irregular pulse or blood pressure, tachycardia, diaphoresis, and cardiac dysrhythmia). Additional signs may include elevated creatine phosphokinase, myoglobinuria (rhabdomyolysis), and acute renal failure.

If NMS is suspected, immediately discontinue UZEDY and provide symptomatic treatment and monitoring.

**5.4 Tardive Dyskinesia**

Tardive dyskinesia, a syndrome consisting of potentially irreversible, involuntary, dyskinetic movements may develop in patients treated with antipsychotic drugs. Although the prevalence of the syndrome appears to be highest among the elderly, especially elderly women, it is impossible to predict, which patients will develop the syndrome. Whether antipsychotic drug products differ in their potential to cause tardive dyskinesia is unknown. The risk of developing tardive dyskinesia and the likelihood that it will become irreversible are believed to increase with the duration of treatment and the cumulative dose. The syndrome can develop, after relatively brief treatment periods, even at low doses. It may also occur after discontinuation of treatment.

Tardive dyskinesia may remit, partially or completely, if antipsychotic treatment is discontinued. Antipsychotic treatment, itself, however, may suppress (or partially suppress) the signs and symptoms of the syndrome possibly masking the underlying process. The effect that symptomatic suppression has upon the long-term course of the syndrome is unknown. Given these considerations, UZEDY should be prescribed in a manner that is most likely to minimize the occurrence of tardive dyskinesia. Chronic antipsychotic treatment should generally be reserved for patients: (1) who suffer from a chronic illness that is known to respond to antipsychotic drugs, and (2) for whom alternative, equally effective, but potentially less harmful treatments are not available or appropriate. In patients who do require chronic treatment, use the lowest dose and the shortest duration of treatment producing a satisfactory clinical response. Periodically reassess the need for continued treatment.

If signs and symptoms of tardive dyskinesia appear in a patient treated with UZEDY, drug discontinuation should be considered. However, some patients may require treatment with UZEDY despite the presence of the syndrome.

**5.5 Metabolic Changes**

Atypical antipsychotic drugs have been associated with metabolic changes that may increase cardiovascular/cerebrovascular risk. These metabolic changes include hyperglycemia, dyslipidemia, and body weight gain. While all of the drugs in the class

**UZEDY™ (risperidone) extended-release injectable suspension**

have been shown to produce some metabolic changes, each drug has its own specific risk profile.

**Hyperglycemia and Diabetes Mellitus**

Hyperglycemia and diabetes mellitus, in some cases extreme and associated with ketoacidosis or hyperosmolar coma or death, have been reported in patients treated with atypical antipsychotics including risperidone. Assessment of the relationship between atypical antipsychotic use and glucose abnormalities is complicated by the possibility of an increased background risk of diabetes mellitus in patients with schizophrenia and the increasing incidence of diabetes mellitus in the general population. Given these confounders, the relationship between atypical antipsychotic use and hyperglycemia-related adverse events is not completely understood. However, epidemiological studies suggest an increased risk of treatment-emergent hyperglycemia-related adverse events in patients treated with the atypical antipsychotics. Precise risk estimates for hyperglycemia-related adverse events in patients treated with atypical antipsychotics are not available. Patients with an established diagnosis of diabetes mellitus who are started on atypical antipsychotics, including UZEDY, should be monitored regularly for worsening of glucose control. Patients with risk factors for diabetes mellitus (e.g., obesity, family history of diabetes) who are starting treatment with atypical antipsychotics, including UZEDY, should undergo fasting blood glucose testing at the beginning of treatment and periodically during treatment. Any patient treated with atypical antipsychotics, including UZEDY, should be monitored for symptoms of hyperglycemia including polydipsia, polyuria, polyphagia, and weakness. Patients who develop symptoms of hyperglycemia during treatment with atypical antipsychotics, including UZEDY, should undergo fasting blood glucose testing. In some cases, hyperglycemia has resolved when the atypical antipsychotic, including risperidone, was discontinued; however, some patients required continuation of antidiabetic treatment despite discontinuation of risperidone.

Pooled data from three double-blind, placebo-controlled schizophrenia studies and four double-blind, placebo-controlled studies in another indication with oral risperidone are presented in Table 2.

**Table 2: Change in Random Glucose from Seven Placebo-Controlled, 3- to 8-Week, Fixed- or Flexible-Dose Studies in Adults with Schizophrenia or Another Indication with Oral Risperidone**

	Oral Risperidone		
	Placebo	1 mg to 8 mg per day	>8 mg to 16mg per day
	<b>Mean change from baseline (mg/dL)</b>		
<b>Serum Glucose</b>	<b>N=555</b>	<b>N=748</b>	<b>N=164</b>
	-1.4	0.8	0.6
	<b>Proportion of Patients with Shifts</b>		
<b>Serum Glucose</b>			
(<140 mg/dL)	0.6%	0.4%	0%
to ≥200 mg/dL)	(3/525)	(3/702)	(0/158)

In longer-term, controlled and uncontrolled studies in adults, oral risperidone was associated with a mean change in glucose of +2.8 mg/dL at Week 24 (N=151) and +4.1 mg/dL at Week 48 (N=50).

**Dyslipidemia**

Undesirable alterations in lipids have been observed in patients treated with atypical antipsychotics. Before or soon after initiation of antipsychotic medications, obtain a fasting lipid profile at baseline and monitor periodically during treatment.

Pooled data from 7 placebo-controlled, 3- to 8- week, fixed- or flexible-dose studies in adults with schizophrenia or another indication with oral risperidone are presented in Table 3.

**Table 3: Change in Random Lipids from Seven Placebo-Controlled, 3- to 8-Week, Fixed- or Flexible-Dose Studies in Adults with Schizophrenia or Another Indication with Oral Risperidone**

	Oral Risperidone		
	Placebo	1 mg to 8 mg per day	>8 mg to 16mg per day
	<b>Mean change from baseline (mg/dL)</b>		
<b>Cholesterol</b>	<b>N=559</b>	<b>N=742</b>	<b>N=156</b>
Change from baseline	0.6	6.9	1.8
<b>Triglycerides</b>	<b>N=183</b>	<b>N=307</b>	<b>N=123</b>
Change from baseline	-17.4	-4.9	-8.3
	<b>Proportion of Patients with Shifts</b>		
<b>Cholesterol</b>			
(<200 mg/dL)	2.7%	4.3%	6.3%
to ≥240 mg/dL)	(10/368)	(22/156)	(6/96)
<b>Triglycerides</b>			
(<500 mg/dL)	1.1%	2.7%	2.5%
to ≥500 mg/dL)	(2/180)	(8/301)	(3/121)

In longer-term, controlled and uncontrolled studies, oral risperidone was associated with a mean change in (a) non-fasting cholesterol of +4.4 mg/dL at Week 24 (N=231) and +5.5 mg/dL at Week 48 (N=86); and (b) non-fasting triglycerides of +19.9 mg/dL at Week 24 (N=52).

**Weight Gain**

Weight gain has been observed with atypical antipsychotic use. Clinical monitoring of weight is recommended.

Data on mean changes in body weight and the proportion of subjects meeting a weight gain criterion of 7% or greater of body weight from 7 placebo-controlled, 3- to 8- week, fixed- or flexible-dose studies in adults with schizophrenia or another indication with oral risperidone are presented in Table 4.



**UZEDY™ (risperidone) extended-release injectable suspension**

**Table 4: Mean Change in Body Weight (kg) and the Proportion of Subjects with ≥7% Gain in Body Weight From Seven Placebo-Controlled, 3- to 8-Week, Fixed- or Flexible-Dose Studies in Adults With Schizophrenia or Another Indication with Oral Risperidone**

	Oral Risperidone		
	Placebo (n=597)	1 mg to 8 mg per day (n=769)	>8 mg to 16mg per day (n=158)
<b>Weight (kg)</b>			
Change from baseline	-0.3	0.7	2.2
<b>Weight Gain</b>			
≥7% increase from baseline	2.9%	8.7%	20.9%

In longer-term, controlled and uncontrolled studies, oral risperidone was associated with a mean change in weight of +4.3 kg at Week 24 (n=395) and +5.3 kg at Week 48 (n=203).

**5.6 Hyperprolactinemia**

As with other drugs that antagonize dopamine D<sub>2</sub> receptors, risperidone elevates prolactin levels and the elevation persists during chronic administration. Risperidone is associated with higher levels of prolactin elevation than other antipsychotic agents. Hyperprolactinemia may suppress hypothalamic GnRH, resulting in reduced pituitary gonadotropin secretion. This in turn may inhibit reproductive function by impairing gonadal steroidogenesis in both female and male patients. Galactorrhea, amenorrhea, gynecomastia, and impotence have been reported in patients receiving prolactin-elevating compounds. Long-standing hyperprolactinemia may lead to decreased bone density in both female and male patients.

Tissue culture experiments indicate that approximately one-third of human breast cancers are prolactin dependent *in vitro*, a factor of potential importance if the prescription of these drugs is contemplated in a patient with previously detected breast cancer. An increase in pituitary gland, mammary gland, and pancreatic islet cell neoplasia (mammary adenocarcinomas, pituitary and pancreatic adenomas) was observed in the risperidone carcinogenicity studies conducted in mice and rats. Neither clinical studies nor epidemiologic studies conducted to date have shown an association between chronic administration of this class of drugs and tumorigenesis in humans; the available evidence is considered too limited to be conclusive at this time.

**5.7 Orthostatic Hypotension and Syncope**

UZEDY may induce orthostatic hypotension associated with dizziness, tachycardia, and in some patients, syncope, probably reflecting its alpha-adrenergic antagonistic properties. Syncope was reported in 0.2% (6/2607) of patients treated with oral risperidone in Phase 2 and 3 studies in adults with schizophrenia.

UZEDY should be used with particular caution in (1) patients with known cardiovascular disease (history of myocardial infarction or ischemia, heart failure, or conduction abnormalities), cerebrovascular disease, and conditions which would predispose patients to hypotension, e.g., dehydration and hypovolemia and (2) in the elderly and patients with renal or hepatic impairment. Monitoring of orthostatic vital signs should be considered in all such patients, and a dose reduction should be considered if hypotension occurs. Clinically significant hypotension has been observed with concomitant use of oral risperidone and antihypertensive medication.

**5.8 Falls**

Antipsychotics, including UZEDY, may cause somnolence, postural hypotension, motor and sensory instability which may lead to falls and, consequently, fractures or other fall-related injuries. Somnolence, postural hypotension, motor and sensory instability have been reported with the use of risperidone. For patients, particularly the elderly, with diseases, conditions, or medications that could exacerbate these effects, assess the risk of falls when initiating antipsychotic treatment and recurrently for patients on long-term antipsychotic therapy.

**5.9 Leukopenia, Neutropenia, and Agranulocytosis**

In clinical trial and/or postmarketing experience, events of leukopenia/neutropenia have been reported temporally related to antipsychotic agents, including risperidone. Agranulocytosis has also been reported.

Possible risk factors for leukopenia/neutropenia include pre-existing low white blood cell count (WBC) and a history of drug-induced leukopenia/neutropenia. In patients with a pre-existing history of a clinically significant low WBC or ANC or a history of drug-induced leukopenia or neutropenia, perform a complete blood count (CBC) frequently during the first few months of therapy. In such patients, consider discontinuation of UZEDY at the first sign of a clinically significant decline in WBC in the absence of other causative factors.

Monitor patients with clinically significant neutropenia for fever or other symptoms or signs of infection and treated promptly if such symptoms or signs occur. Discontinue UZEDY in patients with absolute neutrophil count <1000/mm<sup>3</sup> and follow their WBC followed until recovery.

**5.10 Potential for Cognitive and Motor Impairment**

UZEDY, like other antipsychotics, may cause somnolence and has the potential to impair judgement, thinking, and motor skills. Somnolence was a commonly reported adverse reaction associated with oral risperidone treatment, especially when ascertained by direct questioning of patients. This adverse reaction is dose-related, and in a study utilizing a checklist to detect adverse reactions, 41% of the high-dose patients (oral risperidone 16 mg/day) reported somnolence compared to 16% of placebo patients. Direct questioning is more sensitive for detecting adverse reactions than spontaneous reporting, by which 8% of oral risperidone 16 mg/day patients and 1% of placebo patients reported somnolence as an adverse reaction.

Patients should be cautioned about operating hazardous machinery, including motor vehicles, until they are reasonably certain that treatment with UZEDY does not affect them adversely.

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**5.11 Seizures**

During premarketing studies of oral risperidone in adult patients with schizophrenia, seizures occurred in 0.3% of patients (9 out of 2,607 patients), two in association with hyponatremia. Use UZEDY cautiously in patients with a history of seizures or other conditions that potentially lower the seizure threshold.

**5.12 Dysphagia**

Esophageal dysmotility and aspiration have been associated with antipsychotic drug use. Aspiration pneumonia is a common cause of morbidity and mortality in patients with advanced Alzheimer's dementia. Antipsychotic drugs, including UZEDY, should be used cautiously in patients at risk for aspiration.

**5.13 Priapism**

Priapism has been reported during postmarketing surveillance for other risperidone products. A case of priapism was reported in premarket studies of UZEDY. Severe priapism may require surgical intervention.

**5.14 Body Temperature Regulation**

Disruption of the body's ability to reduce core body temperature has been attributed to antipsychotic agents. Both hyperthermia and hypothermia have been reported in association with oral risperidone use. Strenuous exercise, exposure to extreme heat, dehydration, and anticholinergic medications may contribute to an elevation in core body temperature; use UZEDY with caution in patients who may experience these conditions.

**6 ADVERSE REACTIONS**

The following are discussed in more detail in other sections of the labeling:

- Increased mortality in elderly patients with dementia-related psychosis [see *Boxed Warning and Warnings and Precautions (5.1)*]
- Cerebrovascular adverse events, including stroke, in elderly patients with dementia-related psychosis [see *Warnings and Precautions (5.2)*]
- Neuroleptic malignant syndrome [see *Warnings and Precautions (5.3)*]
- Tardive dyskinesia [see *Warnings and Precautions (5.4)*]
- Metabolic changes [see *Warnings and Precautions (5.5)*]
- Hyperprolactinemia [see *Warnings and Precautions (5.6)*]
- Orthostatic hypotension and syncope [see *Warnings and Precautions (5.7)*]
- Falls [see *Warnings and Precautions (5.8)*]
- Leukopenia/neutropenia and agranulocytosis [see *Warnings and Precautions (5.9)*]
- Potential for cognitive and motor impairment [see *Warnings and Precautions (5.10)*]
- Seizures [see *Warnings and Precautions (5.11)*]
- Dysphagia [see *Warnings and Precautions (5.12)*]
- Priapism [see *Warnings and Precautions (5.13)*]
- Body temperature regulation [see *Warnings and Precautions (5.14)*]

**6.1 Clinical Trials Experience**

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in clinical practice.

The safety of UZEDY for the treatment of schizophrenia in adults is based on adequate and well-controlled studies of oral risperidone in studies of patients with schizophrenia and other indications. The results of those adequate and well-controlled studies are presented below.

The data described in this section are derived from a clinical trial database consisting of 9,803 patients exposed to one or more doses of oral risperidone for the treatment of schizophrenia and other psychiatric disorders. Of these 9,803 patients, 2,687 were patients who received oral risperidone while participating in double-blind, placebo-controlled trials. The conditions and duration of treatment with oral risperidone varied greatly and included (in overlapping categories) double-blind, fixed- and flexible-dose, placebo- or active-controlled studies and open-label phases of studies, inpatients and outpatients, and short-term (up to 12 weeks) and longer-term (up to 3 years) exposures. Safety was assessed by collecting adverse reactions and performing physical examinations, vital signs, body weights, laboratory analyses, and ECGs.

Injection site reactions for UZEDY presented in this section (see "Injection Site Reactions with UZEDY" below) are based on a randomized withdrawal study in patients with schizophrenia consisting of a 12-week open-label oral risperidone (2 mg to 5 mg) stabilization phase, followed by a placebo-controlled phase in which patients were randomized to UZEDY (once monthly or once every 2 months) or placebo for a variable time until impending relapse or study completion.

The safety of UZEDY was evaluated in a total of 740 adult patients with schizophrenia who received at least 1 dose of UZEDY during the clinical development program. A total of 351 patients were exposed to UZEDY for at least 6 months, of which 221 patients were exposed to UZEDY for at least 12 months, which included 112 patients exposed to once monthly and 109 patients to once every 2 months dosing regimens. In addition, 32 patients were exposed to UZEDY for at least 24 months.

**Adverse Reactions in Studies with Oral Risperidone**

The most common adverse reactions in clinical trials of oral risperidone (>5% and twice placebo) were parkinsonism, akathisia, dystonia, tremor, sedation, dizziness, anxiety, blurred vision, nausea, vomiting, upper abdominal pain, stomach discomfort, dyspepsia, diarrhea, salivary hypersecretion, constipation, dry mouth, increased appetite, increased weight, fatigue, rash, nasal congestion, upper respiratory tract infection, nasopharyngitis, and pharyngolaryngeal pain.

**Commonly-Observed Adverse Reactions in Double-Blind, Placebo-Controlled Clinical Trials -Adult Patients with Schizophrenia Treated with Oral Risperidone**

Table 5 lists the adverse reactions reported in 2% or more of oral risperidone-treated adult patients with schizophrenia in three 4- to 8-week, double-blind, placebo-controlled trials.

**Table 5: Adverse Reactions in ≥2% of Oral Risperidone-Treated Adult Patients (and greater than placebo) with Schizophrenia in Double-Blind, Placebo-Controlled Trials**

System/Organ Class Adverse Reaction	Percentage of Patients Reporting Reaction		
	Oral Risperidone		
	2 mg to 8 mg per day (N=366)	>8 mg to 16 mg per day (N=198)	Placebo (N=225)
<b>Cardiac Disorders</b>			
Tachycardia	1	3	0
<b>Eye Disorders</b>			
Vision blurred	3	1	1
<b>Gastrointestinal Disorders</b>			
Nausea	9	4	4
Constipation	8	9	6
Dyspepsia	8	6	5
Dry mouth	4	0	1
Abdominal discomfort	3	1	1
Salivary hypersecretion	2	1	<1
Diarrhea	2	1	1
<b>General Disorders</b>			
Fatigue	3	1	0
Chest pain	2	2	1
Asthenia	2	1	<1
<b>Infections and Infestations</b>			
Nasopharyngitis	3	4	3
Upper respiratory tract infection	2	3	1
Sinusitis	1	2	1
Urinary tract infection	1	3	0
<b>Investigations</b>			
Blood creatine phosphokinase increased	1	2	<1
Heart rate increased	<1	2	0
<b>Musculoskeletal and Connective Tissue Disorders</b>			
Back pain	4	1	1
Arthralgia	2	3	<1
Pain in extremity	2	1	1
<b>Nervous System Disorders</b>			
Parkinsonism*	14	17	8
Akathisia*	10	10	3
Sedation	10	5	2
Dizziness	7	4	2
Dystonia*	3	4	2
Tremor*	2	3	1
Dizziness postural	2	0	0
<b>Psychiatric Disorders</b>			
Insomnia	32	25	27
Anxiety	16	11	11
<b>Respiratory, Thoracic and Mediastinal Disorders</b>			
Nasal congestion	4	6	2
Dyspnea	1	2	0
Epistaxis	<1	2	0
<b>Skin and Subcutaneous Tissue Disorders</b>			
Rash	1	4	1
Dry skin	1	3	0
<b>Vascular Disorders</b>			
Orthostatic hypotension	2	1	0

\*Parkinsonism includes extrapyramidal disorder, musculoskeletal stiffness, parkinsonism, cogwheel rigidity, akinesia, bradykinesia, hypokinesia, masked facies, muscle rigidity, and Parkinson's disease. Akathisia includes akathisia and restlessness. Dystonia includes dystonia, muscle spasms, muscle contractions involuntary, muscle contracture, oculogyration, tongue paralysis. Tremor includes tremor and parkinsonian rest tremor.

**Other Adverse Reactions Observed During the Clinical Trial Evaluations of Oral Risperidone**

The following is a list of additional adverse drug reactions that have been reported during the clinical trial evaluation of oral risperidone:

**Blood and Lymphatic System Disorders:** anemia, granulocytopenia, neutropenia

**Cardiac Disorders:** sinus bradycardia, sinus tachycardia, atrioventricular block first degree, bundle branch block left, bundle branch block right, atrioventricular block

**Ear and Labyrinth Disorders:** ear pain, tinnitus

**Endocrine Disorders:** hyperprolactinemia

**Eye Disorders:** ocular hyperemia, eye discharge, conjunctivitis, eye rolling, eyelid edema, eye swelling, eyelid margin crusting, dry eye, lacrimation increased, photophobia, glaucoma, visual acuity reduced

**Gastrointestinal Disorders:** dysphagia, fecaloma, fecal incontinence, gastritis, lip swelling, cheilitis, apyralism

**General Disorders:** edema peripheral, thirst, gait disturbance, chest discomfort, chest pain, influenza-like illness, pitting edema, edema, chills, sluggishness, malaise, face edema, discomfort, generalized edema, drug withdrawal syndrome, peripheral coldness, feeling abnormal

**Immune System Disorders:** drug hypersensitivity

**Infections and Infestations:** pneumonia, influenza, ear infection, viral infection, pharyngitis, tonsillitis, bronchitis, eye infection, localized infection, cystitis, cellulitis, otitis media, onychomycosis, acarodermatitis, bronchopneumonia, respiratory tract infection, tracheobronchitis, otitis media chronic

**Investigations:** body temperature increased, blood prolactin increased, alanine aminotransferase increased, electrocardiogram abnormal, eosinophil count increased, white blood cell count decreased, blood glucose increased, hemoglobin decreased, hematocrit decreased, body temperature decreased, blood pressure decreased, transaminases increased

**Metabolism and Nutrition Disorders:** decreased appetite, polydipsia, anorexia

**Musculoskeletal, Connective Tissue, and Bone Disorders:** joint swelling, joint stiffness, musculoskeletal chest pain, posture abnormal, myalgia, neck pain, muscular weakness, muscle rigidity, rhabdomyolysis

**Nervous System Disorders:** balance disorder, disturbance in attention, dysarthria, unresponsive to stimuli, depressed level of consciousness, movement disorder, transient ischemic attack, coordination abnormal, cerebrovascular accident, speech disorder, syncope, loss of consciousness, hypoesthesia, tardive dyskinesia, cerebral ischemia, cerebrovascular disorder, neuroleptic malignant syndrome, diabetic coma, head titubation

**Psychiatric Disorders:** agitation, blunted affect, confusional state, middle insomnia, nervousness, sleep disorder, listlessness, libido decreased, anorgasmia

**Renal and Urinary Disorders:** enuresis, dysuria, pollakiuria, urinary incontinence

**Reproductive System and Breast Disorders:** menstruation irregular, amenorrhea, gynecostasia, galactorrhea, vaginal discharge, menstrual disorder, erectile dysfunction, retrograde ejaculation, ejaculation disorder, sexual dysfunction, breast enlargement

**Respiratory, Thoracic, and Mediastinal Disorders:** wheezing, pneumonia aspiration, sinus congestion, dysphonia, productive cough, pulmonary congestion, respiratory tract congestion, rales, respiratory tract disorder, hyperventilation, nasal edema

**Skin and Subcutaneous Tissue Disorders:** erythema, skin discoloration, skin lesion, pruritus, skin disorder, rash erythematous, rash papular, acne, hyperkeratosis, seborrheic dermatitis, rash generalized, rash maculopapular

**Vascular Disorders:** hypotension, flushing

**Discontinuations Due to Adverse Drug Reactions with Oral Risperidone**

Approximately 7% (39/564) of oral risperidone-treated patients in double-blind, placebo-controlled trials discontinued treatment due to an adverse reaction, compared with 4% (10/225) who were receiving placebo. The adverse reactions associated with discontinuation in 2 or more oral risperidone-treated patients were:

**Table 6: Adverse Reactions Associated with Discontinuation in ≥2% of Oral Risperidone-Treated Adult Patients in Schizophrenia Trials**

Adverse Reaction	Oral Risperidone		
	2 mg to 8 mg per day (N=366)	>8 mg to 16 mg per day (N=198)	Placebo (N=225)
Dizziness	1.4%	1%	0%
Nausea	1.4%	0%	0%
Vomiting	0.8%	0%	0%
Parkinsonism	0.8%	0%	0%
Somnolence	0.8%	0%	0%
Dystonia	0.5%	0%	0%
Agitation	0.5%	0%	0%
Abdominal pain	0.5%	0%	0%
Orthostatic hypotension	0.3%	0.5%	0%
Akathisia	0.3%	2%	0%

Discontinuation for extrapyramidal symptoms (including Parkinsonism, akathisia, dystonia, and tardive dyskinesia) was 1% in placebo-treated patients, and 3.4% in active control-treated patients in a double-blind, placebo- and active-controlled trial.

**Dose Dependency of Adverse Reactions in Clinical Trials of Oral Risperidone****Extrapyramidal Symptoms**

Data from two fixed-dose trials in adults with schizophrenia provided evidence of dose-relatedness for extrapyramidal symptoms associated with oral risperidone treatment. Two methods were used to measure extrapyramidal symptoms (EPS) in an 8-week trial comparing 4 fixed doses of oral risperidone (2, 6, 10, and 16 mg/day), including



## UZEDY™ (risperidone) extended-release injectable suspension

(1) a Parkinsonism score (mean change from baseline) from the Extrapyramidal Symptom Rating Scale, and (2) incidence of spontaneous complaints of EPS:

**Table 7: Extrapyramidal Symptoms Associated with Oral Risperidone-Treated Adult Patients in an 8-Week Fixed Dose Schizophrenia Trial**

Dose Groups	Placebo	Oral Risperidone 2 mg	Oral Risperidone 6 mg	Oral Risperidone 10 mg	Oral Risperidone 16 mg
Parkinsonism	1.2	0.9	1.8	2.4	2.6
EPS Incidence	13%	17%	21%	21%	35%

Similar methods were used to measure extrapyramidal symptoms (EPS) in an 8-week trial comparing 5 fixed doses of oral risperidone (1, 4, 8, 12, and 16 mg/day):

**Table 8: Extrapyramidal Symptoms Associated with Oral Risperidone-Treated Adult Patients in an 8-Week Fixed Dose Schizophrenia Trial**

Dose Groups	Oral Risperidone 1 mg	Oral Risperidone 4 mg	Oral Risperidone 8 mg	Oral Risperidone 12 mg	Oral Risperidone 16 mg
Parkinsonism	0.6	1.7	2.4	2.9	4.1
EPS Incidence	7%	12%	17%	18%	20%

### Changes in Body Weight

Weight gain was observed in short-term, controlled trials and longer-term uncontrolled studies in adults [see *Warnings and Precautions (5.5) and Adverse Reactions (6)*].

### Dystonia

Symptoms of dystonia, prolonged abnormal contractions of muscle groups, may occur in susceptible individuals during the first few days of treatment. Dystonic symptoms include: spasm of the neck muscles, sometimes progressing to tightness of the throat, swallowing difficulty, difficulty breathing, and/or protrusion of the tongue. While these symptoms can occur at low doses, they occur more frequently and with greater severity with high potency and at higher doses of first generation antipsychotic drugs. An elevated risk of acute dystonia is observed in males and younger age groups.

### Other Adverse Reactions

Adverse reaction data elicited by a checklist for side effects from a large study comparing 5 fixed doses of oral risperidone (1, 4, 8, 12, and 16 mg/day) were explored for dose-relatedness of adverse events. A Cochran-Armitage Test for trend in these data revealed a positive trend ( $p < 0.05$ ) for the following adverse reactions: somnolence, vision abnormal, dizziness, palpitations, weight increase, erectile dysfunction, ejaculation disorder, sexual function abnormal, fatigue, and skin discoloration.

### Changes in ECG

Between-group comparisons for pooled placebo-controlled trials of oral risperidone in adults revealed no statistically significant differences between oral risperidone and placebo in mean changes from baseline in ECG parameters, including QT, QTc, and PR intervals, and heart rate. When all oral risperidone doses were pooled from randomized controlled trials in several indications, there was a mean increase in heart rate of 1 beat per minute compared to no change for placebo patients. In short-term schizophrenia trials, higher doses of oral risperidone were associated with a higher mean increase in heart rate compared to placebo (4 to 6 beats per minute).

### Injection Site Reactions with UZEDY

Local tolerability assessments were administered to patients who reported injection site adverse reactions in a randomized withdrawal study with UZEDY in adult patients with schizophrenia. The injection site was assessed by appropriately trained personnel throughout the clinical development program.

All injection site reactions (nodule, pruritus, erythema, mass, and swelling) were mild to moderate in severity with the exception of 1 case of severe pruritus which resolved after 6 days. Injection site reactions were reported in 22 patients (13%) in the placebo group, 36 patients (20%) in the UZEDY once monthly group, and 37 patients (21%) in the UZEDY once every 2 months group. The most common injection site reactions were: nodule (7% in each UZEDY-treated group and 3% in the placebo group) and pruritus (5% and 3% in the UZEDY-treated once monthly and once every 2 months groups, respectively, and 2% in the placebo group).

### 6.2 Postmarketing Experience

The following adverse reactions have been identified during post-approval use of oral risperidone. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

These adverse reactions include: alopecia, anaphylactic reaction, angioedema, atrial fibrillation, cardiopulmonary arrest, catatonia, diabetic ketoacidosis in patients with impaired glucose metabolism, dysgeusia, hypoglycemia, hypothermia, ileus, inappropriate antidiuretic hormone secretion, intestinal obstruction, jaundice, mania, pancreatitis, pituitary adenoma, precocious puberty, pulmonary embolism, QT prolongation, sleep apnea syndrome, somnambulism, Stevens-Johnson syndrome and toxic epidermal necrolysis (SJS/TEN), sudden death, thrombocytopenia, thrombotic thrombocytopenic purpura, urinary retention, and water intoxication.

Postmarketing cases of extrapyramidal symptoms (dystonia and dyskinesia) have been reported in patients concomitantly taking methylphenidate and risperidone when there was an increase or decrease in dosage, initiation, or discontinuation of either or both medications.

## 7 DRUG INTERACTIONS

The interactions of UZEDY with co-administration of other drugs have not been studied. The drug interaction data provided in this section is based on studies with oral risperidone.

## UZEDY™ (risperidone) extended-release injectable suspension

### 7.1 Drugs Having Clinically Important Interactions with UZEDY

Table 9 includes clinically significant drug interactions with UZEDY.

**Table 9: Clinically Important Drug Interactions with UZEDY**

Strong CYP2D6 Inhibitors	
<i>Clinical Impact:</i>	Concomitant use of UZEDY with strong CYP2D6 inhibitors may increase the plasma exposure of risperidone and lower the plasma exposure of a major active metabolite, 9-hydroxyrisperidone.
<i>Intervention:</i>	When initiation of strong CYP2D6 inhibitors is considered, patients may be placed on the lowest dose (50 mg once monthly or 100 mg once every 2 months) of UZEDY prior to the planned start of strong CYP2D6 inhibitors to adjust for the expected increase in plasma concentrations of risperidone. When strong CYP2D6 inhibitors are initiated in patients receiving UZEDY 50 mg once monthly or 100 mg once every 2 months, it is recommended to continue treatment with the same dose unless clinical judgment necessitates interruption of UZEDY treatment. The effects of discontinuation of strong CYP2D6 inhibitors on the pharmacokinetics of risperidone and 9-hydroxyrisperidone have not been studied [see <i>Clinical Pharmacology</i> ].
Strong CYP3A4 Inducers	
<i>Clinical Impact:</i>	Concomitant use of UZEDY and a strong CYP3A4 inducer may cause decreases in the combined plasma concentrations of risperidone and 9-hydroxyrisperidone which could lead to decreased efficacy of UZEDY.
<i>Intervention:</i>	Changes in efficacy and safety should be carefully monitored with any dose adjustment of UZEDY. At the initiation of therapy with a strong CYP3A4 inducer, patients should be closely monitored during the first 4 to 8 weeks. In patients receiving UZEDY at a specific dose, consider increasing the dose to the next highest dose. In patients receiving UZEDY 125 mg once monthly or 250 mg once every 2 months, additional oral risperidone therapy may need to be considered. On discontinuation of a strong CYP3A4 inducer, the dosage of UZEDY or any additional oral risperidone therapy should be reevaluated and, if necessary, decreased to adjust for the expected increase in plasma concentration of risperidone and 9-hydroxyrisperidone. For patients treated with UZEDY 50 mg once monthly or UZEDY 100 mg once every 2 months discontinuing from a strong CYP3A4 inducer, it is recommended to continue treatment with the same dose unless clinical judgment necessitates interruption of UZEDY treatment.
Centrally-Acting Drugs and Alcohol	
<i>Clinical Impact:</i>	Due to additive pharmacologic effects, the concomitant use of centrally-acting drugs, including alcohol, may increase nervous system disorders.
<i>Intervention:</i>	Caution should be used when UZEDY is administered in combination with other centrally-acting drugs or alcohol.
Hypotensive Agents	
<i>Clinical Impact:</i>	Because of its potential for inducing hypotension, UZEDY may enhance the hypotensive effects of other therapeutic agents with this potential.
<i>Intervention:</i>	Caution should be used when UZEDY is administered with other therapeutic effects of other therapeutic agents with this potential.
Dopamine Agonists	
<i>Clinical Impact:</i>	Agents with central antidopaminergic activity such as UZEDY may antagonize the pharmacologic effects of dopamine agonists.
<i>Intervention:</i>	Caution should be used when UZEDY is administered in combination with levodopa and dopamine agonists.
Methylphenidate	
<i>Clinical Impact:</i>	Concomitant use with methylphenidate, when there is change in dosage of either medication, may increase the risk of extrapyramidal symptoms (EPS) [see <i>Adverse Reactions (6.2)</i> ].
<i>Intervention:</i>	Monitor for symptoms of EPS with concomitant use of UZEDY and methylphenidate.

### 7.2 Drugs Having No Clinically Important Interactions with UZEDY

Based on pharmacokinetic studies with oral risperidone, no dosage adjustment of UZEDY is required when administered concomitantly with amitriptyline, cimetidine, ranitidine, clozapine, topiramate, and moderate CYP3A4 inhibitors (erythromycin). Additionally, no dosage adjustment is necessary for lithium, valproate, topiramate, digoxin, and CYP2D6 substrates (donepezil and galantamine) when co-administered with UZEDY.

## 8 USE IN SPECIFIC POPULATIONS

### 8.1 Pregnancy

#### Pregnancy Exposure Registry

There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to atypical antipsychotics, including UZEDY, during pregnancy. Healthcare providers are encouraged to register patients by contacting the National Pregnancy Registry for Atypical Antipsychotics at 1-866-961-2388 or online at <http://womensmentalhealth.org/clinicaland-research-programs/pregnancyregistry/>.

#### Risk Summary

Neonates exposed to antipsychotic drugs during the third trimester of pregnancy are at risk for extrapyramidal and/or withdrawal symptoms following delivery (see *Clinical Considerations*). Overall, available data from published epidemiologic studies of pregnant

women exposed to risperidone have not established a drug-associated risk of major birth defects, miscarriage, or adverse maternal or fetal outcomes (see *Data*). There are risks to the mother associated with untreated schizophrenia and with exposure to antipsychotics, including UZEDY, during pregnancy (see *Clinical Considerations*).

Oral administration of risperidone to pregnant mice caused cleft palate at doses 3- to 4-times the oral maximum recommended human dose (MRHD) of 16 mg/day with maternal toxicity observed at 4-times MRHD based on mg/m<sup>2</sup> body surface area. Risperidone was not teratogenic in rats or rabbits at doses up to 6-times the oral MRHD based on mg/m<sup>2</sup> body surface area. Increased stillbirths and decreased birth weight occurred after oral risperidone administration to pregnant rats at 1.5-times the oral MRHD based on mg/m<sup>2</sup> body surface area. Learning was impaired in offspring of rats when the dams were dosed at 0.6-times the oral MRHD and offspring mortality increased at doses 0.1- to 3-times the oral MRHD based on mg/m<sup>2</sup> body surface area.

The background risks of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2 to 4% and 15 to 20%, respectively.

#### Clinical Considerations

##### Disease-associated maternal and/or embryo/fetal risk

There is a risk to the mother from untreated schizophrenia, including increased risk of relapse, hospitalization, and suicide. Schizophrenia is associated with increased adverse perinatal outcomes, including preterm birth. It is not known if this is a direct result of the illness or other comorbid factors.

##### Fetal/Neonatal Adverse Reactions

Extrapyramidal and/or withdrawal symptoms, including agitation, hypertonia, hypotonia, tremor, somnolence, respiratory distress, and feeding disorder have been reported in neonates who were exposed to antipsychotic drugs, including risperidone, during the third trimester of pregnancy. These symptoms have varied in severity. Monitor neonates for extrapyramidal and/or withdrawal symptoms and manage symptoms appropriately. Some neonates recovered within hours or days without specific treatment; others required prolonged hospitalization.

##### Data

##### Human Data

Published data from observational studies, birth registries, and case reports on the use of atypical antipsychotics during pregnancy do not report a clear association with antipsychotics and major birth defects. A prospective observational study including 6 women treated with risperidone demonstrated placental passage of risperidone. A retrospective cohort study from a Medicaid database of 9258 women exposed to antipsychotics during pregnancy did not indicate an overall increased risk for major birth defects. There was a small increase in the risk of major birth defects (RR = 1.26, 95% CI = 1.02 to 1.56) and of cardiac malformations (RR = 1.26, 95% CI = 0.88 to 1.81) in a subgroup of 1566 women exposed to risperidone during the first trimester of pregnancy; however, there is no mechanism of action to explain the difference in malformation rates.

##### Animal data

No developmental toxicity studies were conducted with subcutaneous risperidone suspension.

Oral administration of risperidone to pregnant mice during organogenesis caused cleft palate at 10 mg/kg/day which is 3-times the oral MRHD of 16 mg/day based on mg/m<sup>2</sup> body surface area; maternal toxicity occurred at 4-times the oral MRHD. Risperidone was not teratogenic when administered orally to rats at 0.6 to 10 mg/kg/day and rabbits at 0.3 to 5 mg/kg/day, which are up to 6-times the oral MRHD of 16 mg/day risperidone based on mg/m<sup>2</sup> body surface area. Learning was impaired in offspring of rats dosed orally throughout pregnancy at 1 mg/kg/day which is 0.6-times the oral MRHD and neuronal cell death increased in fetal brains of offspring of rats dosed during pregnancy at 1 and 2 mg/kg/day which are 0.6- and 1.2-times the oral MRHD based on mg/m<sup>2</sup> body surface area; postnatal development and growth of the offspring were also delayed.

Rat offspring mortality increased during the first 4 days of lactation when pregnant rats were dosed throughout gestation at 0.16 to 5 mg/kg/day which are 0.1- to 3-times the oral MRHD of 16 mg/day based on mg/m<sup>2</sup> body surface area. It is not known whether these deaths were due to a direct effect on the fetuses or pups or to effects on the dams; a no-effect dose could not be determined. The rate of stillbirths was increased at 2.5 mg/kg or 1.5-times the oral MRHD based on mg/m<sup>2</sup> body surface area.

In a rat cross-fostering study the number of live offspring was decreased, the number of stillbirths increased, and the birth weight was decreased in offspring of drug-treated pregnant rats. In addition, the number of deaths increased by Day 1 among offspring of drug-treated pregnant rats, regardless of whether or not the offspring were cross-fostered. Risperidone also appeared to impair maternal behavior in that offspring body weight gain and survival (from Day 1 to 4 of lactation) were reduced in offspring born to control but reared by drug-treated dams. All of these effects occurred at 5 mg/kg which is 3-times the oral MRHD based on mg/m<sup>2</sup> and the only dose tested in the study.

## 8.2 Lactation

### Risk Summary

Limited data from published literature reports the presence of risperidone and its metabolite, 9-hydroxyrisperidone, in human breast milk at relative infant dose ranging between 2.3 and 4.7% of the maternal weight-adjusted dosage. There are reports of sedation, failure to thrive, jitteriness, and extrapyramidal symptoms (tremors and abnormal muscle movements) in breastfed infants exposed to risperidone (see *Clinical Considerations*).

There is no information on the effects of risperidone on milk production. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for UZEDY and any potential adverse effects on the breastfed child from UZEDY or from the mother's underlying condition.

### Clinical Considerations

Infants exposed to UZEDY through breastmilk should be monitored for excess sedation, failure to thrive, jitteriness, and extrapyramidal symptoms (tremors and abnormal muscle movements).

## 8.3 Females and Males of Reproductive Potential

### Infertility

#### Females

Based on the pharmacologic action of risperidone (D<sub>2</sub> receptor antagonism), treatment with UZEDY may result in an increase in serum prolactin levels, which may lead to a reversible reduction in fertility in females of reproductive potential [see *Warnings and Precautions* (5.6)].

## 8.4 Pediatric Use

The safety and effectiveness of UZEDY have not been established in pediatric patients.

### Juvenile Animal Toxicity Data

No juvenile animal studies were conducted with subcutaneous risperidone suspension. Juvenile dogs were treated with oral risperidone from weeks 10 to 50 of age (equivalent to the period of childhood through adolescence in humans), at doses of 0.31, 1.25, or 5 mg/kg/day. Bone length and density were decreased with a no-effect dose of 0.31 mg/kg/day; this dose produced plasma AUC of risperidone plus its active metabolite paliperidone (9-hydroxyrisperidone) that were similar to those in children and adolescents receiving the oral MRHD of 6 mg/day. In addition, sexual maturation was delayed at all doses in both males and females. The above effects showed little or no reversibility in females after a 12 week drug-free recovery period.

Juvenile rats, treated with oral risperidone from days 12 to 50 of age (equivalent to the period of infancy through adolescence in humans) showed impaired learning and memory performance (reversible only in females), with a no-effect dose of 0.63 mg/kg/day which is 0.5 times the oral MRHD of 6 mg/day for children, based on mg/m<sup>2</sup> body surface area. This dose produced plasma AUC of risperidone plus paliperidone about half the exposure observed in humans at the oral MRHD. No other consistent effects on neurobehavioral or reproductive development were seen up to the highest tested dose of 1.25 mg/kg/day which is 1 time the oral MRHD and produced plasma AUC of risperidone plus paliperidone that were about two thirds of those observed in humans at the oral MRHD of 6 mg/day for children.

## 8.5 Geriatric Use

Clinical studies of UZEDY in the treatment of schizophrenia did not include patients older than 65 years to determine whether or not they respond differently from younger patients. In general, dose selection for geriatric patients should be cautious, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function, and of concomitant disease or other drug therapy.

UZEDY is substantially excreted by the kidneys, and the risk of reactions may be greater in patients with impaired renal function. Because geriatric patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function [see *Warnings and Precautions* (5.7)].

Elderly patients with dementia-related psychosis treated with UZEDY are at an increased risk of death compared to placebo. UZEDY is not approved for the treatment of patients with dementia-related psychosis [see *Boxed Warning and Warnings and Precautions* (5.1, 5.2)].

## 8.6 Renal Impairment

In patients with renal impairment, titrate with oral risperidone (up to at least 2 mg daily) before initiating treatment with UZEDY.

UZEDY was not studied in patients with renal impairment.

## 8.7 Hepatic Impairment

In patients with hepatic impairment, titrate with oral risperidone (up to at least 2 mg daily) before initiating treatment with UZEDY.

UZEDY has not been studied in patients with hepatic impairment; however, such effect has been investigated with oral risperidone.

## 8.8 Patients with Parkinson's Disease or Dementia with Lewy Bodies

Patients with Parkinson's disease or dementia with Lewy bodies can experience increased sensitivity to UZEDY. Manifestations can include confusion, obtundation, postural instability with frequent falls, extrapyramidal symptoms, and clinical features consistent with neuroleptic malignant syndrome.

Manufactured for:

Teva Neuroscience, Inc.

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This Brief Summary is based on the full Prescribing Information for UZEDY UZE-002.

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 **Auvelity**<sup>®</sup>  
(dextromethorphan HBr and bupropion HCl)  
extended-release tablets 45mg/105mg

# NOT JUST ANOTHER ANTIDEPRESSANT

**Auvelity is the first and  
only oral NMDA receptor  
antagonist for adults  
with MDD<sup>1-3</sup>**

## INDICATION

Auvelity is indicated for the treatment of major depressive disorder (MDD) in adults.

## IMPORTANT SAFETY INFORMATION

### WARNING: SUICIDAL THOUGHTS AND BEHAVIORS

- Antidepressants increased the risk of suicidal thoughts and behaviors in pediatric and young adult patients in short-term studies.
- Closely monitor all antidepressant-treated patients for clinical worsening, and emergence of suicidal thoughts and behaviors.
- Auvelity is not approved for use in pediatric patients.

Please see additional Important Safety Information and the Brief Summary of Prescribing Information on the following pages, including **Boxed Warning** for suicidal thoughts and behaviors.



## PROVEN EFFICACY THAT IS:



# RAPID

### Rapid symptom improvement at Week 1\*†

Statistically significant improvement from baseline in MADRS total score at Week 1 with Auvelity vs placebo (key secondary endpoint: LS mean change of -7.2 vs -5.0;  $P=0.007$ ).<sup>1,4</sup>

### Rapid remission starting at Week 2\*‡

Significantly more patients achieved remission at Week 2 with Auvelity vs placebo (key secondary endpoint: 17% [24/142] vs 8% [12/159];  $P=0.013$ ).<sup>4</sup>



# SUSTAINED

### Sustained symptom improvement at Week 6\*†

Statistically significant improvement from baseline in MADRS total score at Week 6 with Auvelity vs placebo (primary endpoint: LS mean change of -15.9 vs -12.1;  $P=0.002$ ).<sup>1,4</sup>

### Sustained clinical response at Week 6\*‡

Over half of the patients taking Auvelity achieved clinical response at Week 6 with Auvelity (key secondary endpoint: 54% [67/124] vs 34% with placebo [51/150];  $P<0.001$ ).<sup>4</sup>

## IMPROVEMENT IN PATIENT-REPORTED FUNCTIONAL AND QUALITY OF LIFE ASSESSMENT SCORES

### Improvements on Sheehan Disability Scale (SDS) scores vs placebo.<sup>§</sup>

Patients taking Auvelity saw an improvement in SDS scores from Week 1 to Week 6 vs placebo (LS mean change from baseline: 4.6 vs 3.4 at Week 1; 9.0 vs 6.3 at Week 6).<sup>4-6</sup>

### Improvements on Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q-SF) scores vs placebo.<sup>¶</sup>

Patients taking Auvelity saw an increase in Q-LES-Q-SF scores from Week 1 to Week 6 vs placebo (LS mean change from baseline: 9.0 vs 5.8 at Week 1; 19.8 vs 14.4 at Week 6).<sup>4,5,7,8</sup>

**The most common adverse reactions in a 6-week study ( $\geq 5\%$  and  $>2\times$  placebo) were: dizziness, headache, diarrhea, somnolence, dry mouth, sexual dysfunction, and hyperhidrosis.<sup>1</sup>**

**Explore long-term open-label data and full clinical profile at [AuvelityHCP.com](https://www.aavelity.com/HCP)**

Actor Portrayal

\*GEMINI Phase 3 study evaluated Auvelity vs placebo in 327 patients (N=163 Auvelity and N=164 placebo) with MDD for 6 weeks. N denotes randomized patients. The mITT population, defined as all randomized patients who took at least 1 dose of study drug and had at least 1 post-baseline assessment, was n=156 Auvelity and n=162 placebo. Remission defined as MADRS total score  $\leq 10$ . Response defined as  $\geq 50\%$  improvement in MADRS total score from baseline. The safety population was n=162 Auvelity and n=164 placebo.

†Missing data were not imputed. Endpoints analyzed using MMRM.

‡Missing data were considered failures. Endpoint analyzed using a chi-squared test.

§Functioning was measured in the domains of work/school, social, and family life. P-values for comparisons were not adjusted for multiplicity and are therefore not presented.

¶Enjoyment and satisfaction experienced by patients were measured in various areas of daily functioning. P-values for comparisons were not adjusted for multiplicity and are therefore not presented.

LS=least squares; MADRS=Montgomery-Åsberg Depression Rating Scale; mITT=modified intent-to-treat; MMRM=mixed model with repeated measures; NMDA=N-methyl-D-aspartate

## IMPORTANT SAFETY INFORMATION (CONT'D)

### CONTRAINDICATIONS

**Seizure:** Do not use Auvelity in patients with a seizure disorder.

**Current or prior diagnosis of bulimia or anorexia nervosa:** A higher incidence of seizure was observed in such patients treated with bupropion.

**Undergoing abrupt discontinuation of alcohol, benzodiazepines, barbiturates, and antiepileptic drugs:** Due to risk of seizure.

**Monoamine Oxidase Inhibitors (MAOIs):** Do not use Auvelity concomitantly with, or within 14 days of stopping, an MAOI due to the risk of serious and possibly fatal drug interactions, including hypertensive crisis and serotonin syndrome. Conversely, at least 14 days must be allowed after stopping Auvelity before starting an MAOI antidepressant. Do not use Auvelity with reversible MAOIs such as linezolid or intravenous methylene blue.

**Hypersensitivity:** Do not use in patients with known hypersensitivity to dextromethorphan, bupropion, or any component of Auvelity. Anaphylactoid/anaphylactic reactions and Stevens-Johnson syndrome have been reported with bupropion. Arthralgia, myalgia, fever with rash, and other serum sickness-like symptoms suggestive of delayed hypersensitivity have also been reported with bupropion.

### WARNINGS AND PRECAUTIONS

**Suicidal Thoughts and Behaviors in Pediatrics and Young Adults:** Monitor all antidepressant-treated patients for any indication for clinical worsening and emergence of suicidal thoughts and behaviors, especially during the initial few months of drug therapy, and at times of dosage changes. Counsel family members or caregivers of patients to monitor for changes in behavior and to alert the healthcare provider. Consider changing the therapeutic regimen, including possibly discontinuing Auvelity, in patients whose depression is persistently worse, or who are experiencing emergent suicidal thoughts or behaviors.

**Seizure:** Bupropion, a component of Auvelity, can cause seizure and the risk is dose related. Because the risk of seizure with bupropion is dose-related, screen patients for use of other bupropion-containing products prior to initiating Auvelity. If concomitant use of Auvelity with other bupropion-containing products is clinically warranted, inform patients of the risk. Discontinue Auvelity and do not restart treatment if the patient experiences a seizure.

**Increased Blood Pressure and Hypertension:** Treatment with bupropion, a component of Auvelity, can cause elevated blood pressure and hypertension. The risk of hypertension is increased if Auvelity is used concomitantly with MAOIs or other drugs that increase dopaminergic or noradrenergic activity. Assess blood pressure before initiating treatment with Auvelity and monitor periodically during treatment. Monitor blood pressure, particularly in patients who receive the combination of bupropion and nicotine replacement.

**Activation of Mania/Hypomania:** Antidepressant treatment can precipitate a manic, mixed, or hypomanic episode. The risk appears to be increased in patients with bipolar disorder or who have risk factors for bipolar disorder. Prior to initiating Auvelity, screen patients for a history of bipolar disorder and the presence of risk factors for bipolar disorder (e.g., family history of bipolar disorder, suicide, or depression). Auvelity is not approved for use in treating bipolar depression.

**Psychosis and Other Neuropsychiatric Reactions:** Auvelity contains bupropion and dextromethorphan. Depressed patients treated with bupropion have had a variety of neuropsychiatric signs and symptoms, including delusions, hallucinations, psychosis, concentration disturbance, paranoia, and confusion. In some cases, these symptoms abated upon dose reduction and/or withdrawal of treatment. Dextromethorphan overdose can cause toxic psychosis, stupor, coma, and hyperexcitability. Because the risks of neuropsychiatric reactions are dose-related, screen patients for use of other bupropion- or dextromethorphan-containing products prior to initiating Auvelity. If concomitant use of Auvelity with other bupropion- or dextromethorphan-containing products is clinically warranted, monitor patients for neuropsychiatric reactions and instruct patients to contact a healthcare provider if such reactions occur.

**Angle-Closure Glaucoma:** The pupillary dilation that occurs following use of many antidepressants, including Auvelity, may trigger an angle closure attack in a patient with anatomically narrow angles who does not have a patent iridectomy. Avoid use of antidepressants, including Auvelity, in patients with untreated anatomically narrow angles.

**Dizziness:** Auvelity may cause dizziness. Precautions to reduce the risk of falls should be taken, particularly for patients with motor impairment affecting gait or a history of falls. Caution patients about operating hazardous machinery, including motor vehicles, until they are reasonably certain that Auvelity therapy does not affect them adversely.

**Serotonin Syndrome:** Auvelity contains dextromethorphan. Concomitant use with selective serotonin reuptake inhibitors (SSRIs) or tricyclic antidepressants increases the risk of serotonin syndrome, a potentially life-threatening condition. Prior to initiating therapy with Auvelity, screen patients for use of other dextromethorphan-containing products. If concomitant use of Auvelity with other serotonergic drugs is clinically warranted, inform patients of the increased risk for serotonin syndrome, and monitor for symptoms. Discontinue Auvelity and/or concomitant serotonergic drug(s) immediately if symptoms of serotonin syndrome occur and initiate supportive symptomatic treatment.



## WARNINGS AND PRECAUTIONS (CONT'D)

**Embryo-fetal Toxicity:** Based on animal studies, Auvelity may cause fetal harm when administered during pregnancy. Discontinue treatment in pregnant females and advise the patient about the potential risk to a fetus. Use alternative treatment for females who are planning to become pregnant.

## DRUG INTERACTIONS

**Strong Inhibitors of CYP2D6:** Concomitant use with Auvelity increases plasma concentrations of dextromethorphan. Dosage adjustment is necessary. Monitor patients for adverse reactions potentially attributable to dextromethorphan, such as somnolence and dizziness.

**Strong CYP2B6 Inducers:** Concomitant use with Auvelity decreases plasma concentrations of dextromethorphan and bupropion and may decrease efficacy of Auvelity. Avoid co-administration of Auvelity.

**CYP2D6 Substrates:** Concomitant use with Auvelity can increase the exposures of drugs that are substrates of CYP2D6. It may be necessary to decrease the dose of CYP2D6 substrates, particularly for drugs with a narrow therapeutic index.

**Digoxin:** Concomitant use with Auvelity may decrease plasma digoxin levels. Monitor plasma digoxin levels in patients treated concomitantly with Auvelity.

**Drugs that Lower Seizure Threshold:** Concomitant use with Auvelity may increase risk of seizure. Use Auvelity with caution. Discontinue Auvelity and do not restart treatment if the patient experiences a seizure.

**Dopaminergic Drugs:** Concomitant use with Auvelity can result in central nervous system toxicity. Use Auvelity with caution.

## USE IN SPECIFIC POPULATIONS

**Lactation:** Because of the potential for neurotoxicity, advise patients that breast-feeding is not recommended during treatment with Auvelity and for 5 days following final dose.

**Renal Impairment:** Dosage adjustment is recommended in patients with moderate renal impairment (eGFR 30 to 59 mL/minute/1.73 m<sup>2</sup>). Auvelity is not recommended in patients with severe renal impairment (eGFR 15 to 29 mL/minute/1.73 m<sup>2</sup>).

**Hepatic Impairment:** Auvelity is not recommended in patients with severe hepatic impairment.

## ADVERSE REACTIONS

Most common adverse reactions (≥5% and twice the rate of placebo): dizziness (16%), headache (8%), diarrhea (7%), somnolence (7%), dry mouth (6%), sexual dysfunction (6%), and hyperhidrosis (5%).

Please see Brief Summary of Prescribing Information on the following pages, including **Boxed Warning** for suicidal thoughts and behaviors.

AUV HCP ISI 10/2022

**References:** 1. Auvelity [Prescribing Information]. Axsome Therapeutics, Inc.: New York, NY. 2. Machado-Vieira R, Henter ID, and Zarate CA Jr. New targets for rapid antidepressant action. *Prog Neurobiol.* 2017;152:21-37. 3. FDA Depression Medicines. <https://www.fda.gov/media/132665/download>. Accessed March 21, 2022. 4. Iosifescu DV, Jones A, O’Gorman C, et al. Efficacy and safety of AXS-05 (dextromethorphan-bupropion) in patients with major depressive disorder: A phase 3 randomized clinical trial (GEMINI). *J Clin Psychiatry.* 2022;83(4):21m14345. 5. Data on File. AXS0020921. 6. Sheehan Disability Scale (SDS) – Overview. [http://memorialparkpsychiatry.com/doc/doc/sheehan\\_disability\\_scale.pdf](http://memorialparkpsychiatry.com/doc/doc/sheehan_disability_scale.pdf). Accessed September 17, 2023. 7. Quality of Life Enjoyment and Satisfaction Questionnaire Short Form. <https://datashare.nida.nih.gov/instrument/quality-of-life-enjoyment-and-satisfaction-questionnaire-short-form>. Accessed June 17, 2021. 8. Quality of Life Enjoyment and Satisfaction Questionnaire – Short Form (Q-LES-Q-SF). <http://www.maternalwellnessclinic.ca/assets/files/Q-LES-Q-SF.pdf>. Accessed June 17, 2021.

# axsome

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 **Auvelity**<sup>®</sup>  
(dextromethorphan HBr and bupropion HCl)  
extended-release tablets 45mg/105mg



Explore the difference  
at **AuvelityHCP.com**

Actor Portrayal

AUVELITY® (dextromethorphan Hbr-bupropion HCl) extended-release tablets, for oral use

### Brief Summary of Prescribing Information

BEFORE PRESCRIBING AUVELITY, PLEASE SEE FULL PRESCRIBING INFORMATION, INCLUDING BOXED WARNING.

#### WARNING: SUICIDAL THOUGHTS AND BEHAVIORS

See full prescribing information for complete boxed warning.

- Antidepressants increased risk of suicidal thoughts and behavior in pediatric and young adult patients in short-term studies.
- Closely monitor all antidepressant-treated patients for clinical worsening, and emergence of suicidal thoughts and behaviors.
- AUVELITY is not approved for use in pediatric patients.

### INDICATIONS AND USAGE

AUVELITY is indicated for the treatment of major depressive disorder (MDD) in adults.

### CONTRAINDICATIONS

AUVELITY is contraindicated in patients:

- with a seizure disorder
- with a current or prior diagnosis of bulimia or anorexia nervosa as a higher incidence of seizures was observed in such patients treated with the immediate release formulation of bupropion
- undergoing abrupt discontinuation of alcohol, benzodiazepines, barbiturates, and antiepileptic drugs
- taking, or within 14 days of stopping, MAOIs due to the risk of serious and possibly fatal drug interactions, including hypertensive crisis and serotonin syndrome. Starting AUVELITY in a patient treated with reversible MAOIs such as linezolid or intravenous methylene blue is contraindicated.
- with known hypersensitivity to bupropion, dextromethorphan, or other components of AUVELITY. Anaphylactoid / anaphylactic reactions and Stevens-Johnson syndrome have been reported with bupropion. Arthralgia, myalgia, fever with rash, and other serum sickness-like symptoms suggestive of delayed hypersensitivity have also been reported with bupropion.

### WARNINGS AND PRECAUTIONS

#### Suicidal Thoughts and Behaviors in Adolescents and Young Adults

In pooled analyses of placebo-controlled trials of antidepressant drugs (SSRIs and other antidepressant classes) that included approximately 77,000 adult patients and 4,500 pediatric patients, the incidence of suicidal thoughts and behaviors in antidepressant-treated patients age 24 years and younger was greater than in placebo-treated patients. There was considerable variation in risk of suicidal thoughts and behaviors among drugs, but there was an increased risk identified in young patients for most drugs studied. There were differences in absolute risk of suicidal thoughts and behaviors across the different indications, with the highest incidence in patients with MDD. The drug-placebo differences in the number of cases of suicidal thoughts and behaviors per 1000 patients treated are provided in Table 1.

Table 1: Risk Differences of the Number of Patients of Suicidal Thoughts and Behavior in the Pooled Placebo-Controlled Trials of Antidepressants in Pediatric\* and Adult Patients

Age Range	Drug-Placebo Difference in Number of Patients of Suicidal Thoughts or Behaviors per 1000 Patients Treated
	<b>Increases Compared to Placebo</b>
<18 years old	14 additional patients
18-24 years old	5 additional patients
	<b>Decreases Compared to Placebo</b>
25-64 years old	1 fewer patient
≥65 years old	6 fewer patients

\*AUVELITY is not approved for use in pediatric patients.

It is unknown whether the risk of suicidal thoughts and behaviors in children, adolescents, and young adults extends to longer-term use, i.e., beyond four months. However, there is substantial evidence from placebo-controlled maintenance studies in adults with MDD that antidepressants delay the recurrence of depression and that depression itself is a risk factor for suicidal thoughts and behaviors.

Monitor all antidepressant-treated patients for any indication for clinical worsening and emergence of suicidal thoughts and behaviors, especially during the initial few months of drug therapy, and at times of dosage changes. Counsel family members or caregivers of patients to monitor for changes in behavior and to alert the healthcare provider. Consider changing the therapeutic regimen, including possibly discontinuing AUVELITY, in patients whose depression is persistently worse, or who are experiencing emergent suicidal thoughts or behaviors.

#### Seizure

Bupropion, a component of AUVELITY, can cause seizure. The risk of seizure with bupropion is dose-related.

When a bupropion hydrochloride (HCl) sustained-release tablet was dosed up to 300 mg per day (approximately 1.5 times the maximum recommended daily dosage of AUVELITY), the incidence of seizure was approximately 0.1% (1/1,000) and increased to approximately 0.4% (4/1,000) at the maximum recommended dosage for the sustained-release tablet of 400 mg per day (approximately 2 times the maximum recommended daily dosage of AUVELITY).

The risk of seizures is also related to patient factors, clinical situations, and concomitant medications that lower the seizure threshold. Consider these risks before initiating treatment

with AUVELITY. AUVELITY is contraindicated in patients with a seizure disorder, current or prior diagnosis of anorexia nervosa or bulimia, or undergoing abrupt discontinuation of alcohol, benzodiazepines, barbiturates, and antiepileptic drugs. The following conditions can also increase the risk of seizure: severe head injury; arteriovenous malformation; CNS tumor or CNS infection; severe stroke; concomitant use of other medications that lower the seizure threshold (e.g., other bupropion products, antipsychotics, tricyclic antidepressants, theophylline, and systemic corticosteroids); metabolic disorders (e.g., hypoglycemia, hyponatremia, severe hepatic impairment, and hypoxia); use of illicit drugs (e.g., cocaine); or abuse or misuse of prescription drugs such as CNS stimulants. Additional predisposing conditions include diabetes mellitus treated with oral hypoglycemic drugs or insulin; use of anorectic drugs; and excessive use of alcohol, benzodiazepines, sedative/hypnotics, or opiates.

Because the risk of seizure with bupropion is dose-related, screen patients for use of other bupropion-containing products prior to initiating AUVELITY. If concomitant use of AUVELITY with other bupropion-containing products is clinically warranted, inform patients of the risk. Discontinue AUVELITY and do not restart treatment if the patient experiences a seizure.

#### Increased Blood Pressure and Hypertension

AUVELITY contains bupropion, which can cause elevated blood pressure and hypertension. The risk of hypertension is increased if AUVELITY is used concomitantly with MAOIs or other drugs that increase dopaminergic or noradrenergic activity. Assess blood pressure prior to initiating treatment, and periodically monitor blood pressure during treatment with AUVELITY.

#### Activation of Mania/Hypomania

Antidepressant treatment can precipitate a manic, mixed, or hypomanic episode. The risk appears to be increased in patients with bipolar disorder or who have risk factors for bipolar disorder. Prior to initiating AUVELITY, screen patients for a history of bipolar disorder and the presence of risk factors for bipolar disorder (e.g., family history of bipolar disorder, suicide, or depression). AUVELITY is not approved for use in treating bipolar depression.

#### Psychosis and Other Neuropsychiatric Reactions

AUVELITY contains bupropion and dextromethorphan. Depressed patients treated with bupropion have had a variety of neuropsychiatric signs and symptoms, including delusions, hallucinations, psychosis, concentration disturbance, paranoia, and confusion. Some of these patients had a diagnosis of bipolar disorder. In some cases, these symptoms abated upon dose reduction and/or withdrawal of treatment. Dextromethorphan overdose can cause toxic psychosis, stupor, coma, and hyperexcitability.

Because the risks of neuropsychiatric reactions are dose-related, screen patients for use of other bupropion- or dextromethorphan-containing products prior to initiating AUVELITY. If concomitant use of AUVELITY with other bupropion- or dextromethorphan-containing products is clinically warranted, monitor patients for neuropsychiatric reactions and instruct patients to contact a healthcare provider if such reactions occur.

#### Angle-Closure Glaucoma

The pupillary dilation that occurs following use of many antidepressant drugs including bupropion, a component of AUVELITY, may trigger an angle-closure attack in a patient with anatomically narrow angles who does not have a patent iridectomy. Avoid use of antidepressants, including AUVELITY, in patients with untreated anatomically narrow angles.

#### Dizziness

AUVELITY may cause dizziness. In controlled studies of AUVELITY, 14% of patients receiving AUVELITY and 6% of patients on placebo experienced dizziness. Take precautions to reduce the risk of falls, particularly for patients with motor impairment affecting gait or those with a history of falls. Caution patients about operating hazardous machinery, including motor vehicles, until they are reasonably certain that AUVELITY therapy does not affect them adversely.

#### Serotonin Syndrome

AUVELITY contains dextromethorphan. Concomitant use of AUVELITY with SSRIs or tricyclic antidepressants may cause serotonin syndrome, a potentially life-threatening condition with changes including altered mental status, hypertension, restlessness, myoclonus, hyperthermia, hyperreflexia, diaphoresis, shivering, and tremor.

Prior to initiating AUVELITY, screen patients for use of other dextromethorphan-containing products. If concomitant use of AUVELITY with other serotonergic drugs is clinically warranted, inform patients of the increased risk for serotonin syndrome and monitor for symptoms. Discontinue AUVELITY and/or concomitant serotonergic drug(s) immediately if the above symptoms occur and initiate supportive symptomatic treatment.

#### Embryo-fetal Toxicity

Based on animal studies, AUVELITY may cause fetal harm when administered during pregnancy. In developmental toxicity studies in rats and rabbits, when a combination of dextromethorphan/quinidine was given to pregnant animals, fetal malformations (rabbits) and embryolethality were demonstrated in offspring. Neurotoxicity findings were observed in juvenile rats treated with a combination of dextromethorphan/quinidine on postnatal day (PND) 7, which corresponds to the third trimester of gestation through the first few months of life and may extend through the first three years of life in humans. The separate effect of dextromethorphan on developmental toxicity at the recommended clinical dose is unclear. Discontinue treatment in pregnant females and advise the patient about the potential risk to a fetus. Use alternative treatment for females who are planning to become pregnant.

### ADVERSE REACTIONS

#### Clinical Trials Experience

AUVELITY was evaluated for safety in a total of 1114 patients with MDD or another indication from four studies (two 6-week studies in MDD, one 6-week study in another indication, and one long-term study in MDD and another indication). One 6-week study in MDD employed placebo as a control arm. Two 6-week studies, one in MDD and one in another indication, employed bupropion as a control arm. In the patients treated with AUVELITY in the long-term study (n=876), 597 received at least 6 months of treatment, and 110 received at least 12 months of treatment. The data below are based on the 6-week, placebo-controlled study in which either AUVELITY (n=162) or placebo (n=164) was administered twice daily to patients with MDD (Study 1).

### Adverse Reactions Leading to Discontinuation

In the 6-week placebo-controlled study, 4% of patients treated with AUVELITY and 0% of placebo-treated patients discontinued participation due to adverse reactions. The adverse reaction that led to study discontinuation in ≥1% of patients treated with AUVELITY was anxiety (2%).

### Most Common Adverse Reactions

In the 6-week placebo-controlled clinical study, the most common (incidence ≥5% for AUVELITY and more than twice as frequently as placebo) adverse reactions were dizziness (16%), headache (8%), diarrhea (7%), somnolence (7%), dry mouth (6%), sexual dysfunction (6%), and hyperhidrosis (5%).

**Table 2: Adverse Reactions Occurring in ≥ 2% of Adult Patients with MDD Treated with AUVELITY and More Frequently than in Patients Treated with Placebo in a 6-Week Placebo-Controlled Study (Study 1)**

Adverse Reaction	AUVELITY (N=162) %	Placebo (N=164) %
Dizziness	16	6
Nausea	13	9
Headache	8	4
Diarrhea	7	3
Somnolence	7	3
Dry mouth	6	2
Sexual dysfunction <sup>a</sup>	6	0
Hyperhidrosis	5	0
Anxiety	4	1
Constipation	4	2
Decreased appetite	4	1
Insomnia	4	2
Arthralgia	3	0
Fatigue <sup>b</sup>	3	2
Paraesthesia <sup>c</sup>	3	0
Vision blurred	3	0

<sup>a</sup>Sexual dysfunction includes orgasm abnormal, erectile dysfunction, libido decreased, anorgasmia

<sup>b</sup>Fatigue includes fatigue, lethargy

<sup>c</sup>Paraesthesia includes paraesthesia, hypoaesthesia

### DRUG INTERACTIONS

**Table 3: Clinically Important Drug Interactions with AUVELITY**

Monoamine Oxidase Inhibitors (MAOIs)	
<i>Clinical Impact</i>	The concomitant use of AUVELITY with MAOIs increases the risk of hypertensive crisis and serotonin syndrome.
<i>Intervention</i>	AUVELITY is contraindicated in patients taking MAOIs (including MAOIs such as linezolid or intravenous methylene blue) or in patients who have taken MAOIs within the preceding 14 days. Allow at least 14 days after stopping AUVELITY before starting an MAOI.
Serotonergic Drugs	
<i>Clinical Impact</i>	Concomitant use of AUVELITY with other serotonergic drugs increases the risk of serotonin syndrome.
<i>Intervention</i>	Monitor for symptoms of serotonin syndrome when AUVELITY is used concomitantly with other drugs that may affect the serotonergic neurotransmitter systems. If serotonin syndrome occurs, consider discontinuation of AUVELITY and/or concomitant serotonergic drugs.
Drugs that Lower Seizure Threshold	
<i>Clinical Impact</i>	AUVELITY contains bupropion which can cause seizure. Co-administration with other drugs that lower seizure threshold may increase risk of seizure.
<i>Intervention</i>	Use caution when administering AUVELITY concomitantly with drugs that lower the seizure threshold. Discontinue AUVELITY and do not restart treatment if the patient experiences a seizure.
Strong Inhibitors of CYP2D6	
<i>Clinical Impact</i>	Concomitant use of AUVELITY with strong CYP2D6 inhibitors increases plasma concentrations of dextromethorphan.
<i>Intervention</i>	Dosage adjustment is necessary when AUVELITY is coadministered with strong inhibitors of CYP2D6. Monitor patients for adverse reactions potentially attributable to dextromethorphan, such as somnolence and dizziness.
Strong Inducers of CYP2B6	
<i>Clinical Impact</i>	Concomitant use of AUVELITY with strong CYP2B6 inducers decreases plasma concentrations of dextromethorphan and bupropion and may decrease efficacy of AUVELITY.
<i>Intervention</i>	Avoid co-administration of AUVELITY with strong inducers of CYP2B6. Consider alternatives to strong CYP2B6 inducers if needed.

Drugs Metabolized by CYP2D6	
<i>Clinical Impact</i>	<b>CYP2D6 Substrates</b> Coadministration of AUVELITY with drugs that are metabolized by CYP2D6 can increase the exposures of drugs that are substrates of CYP2D6. <b>Drugs that Require Metabolic Activation by CYP2D6</b> Drugs that require metabolic activation by CYP2D6 to be effective could have reduced efficacy when administered concomitantly with AUVELITY.
<i>Intervention</i>	<b>CYP2D6 Substrates</b> When used concomitantly with AUVELITY, it may be necessary to decrease the dose of CYP2D6 substrates, particularly for drugs with a narrow therapeutic index. <b>Drugs that Require Metabolic Activation by CYP2D6</b> Patients treated concomitantly with AUVELITY may require increased doses of drugs that require activation by CYP2D6 to be effective.
Digoxin	
<i>Clinical Impact</i>	Coadministration of AUVELITY with digoxin may decrease plasma digoxin levels.
<i>Intervention</i>	Monitor plasma digoxin levels in patients treated concomitantly with AUVELITY and digoxin.
Dopaminergic Drugs	
<i>Clinical Impact</i>	CNS toxicity was reported when bupropion was co-administered with levodopa or amantadine. Adverse reactions have included restlessness, agitation, tremor, ataxia, gait disturbance, vertigo, and dizziness.
<i>Intervention</i>	Use caution when administering AUVELITY concomitantly with dopaminergic drugs.
Alcohol	
<i>Clinical Impact</i>	AUVELITY contains bupropion which can increase adverse neuropsychiatric events or reduce alcohol tolerance.
<i>Intervention</i>	The consumption of alcohol should be minimized or avoided during treatment with AUVELITY.

### USE IN SPECIFIC POPULATIONS

#### Pregnancy

##### Pregnancy Exposure Registry

There is a pregnancy exposure registry that monitors pregnancy outcomes in women exposed to antidepressants, including AUVELITY, during pregnancy. Healthcare providers are encouraged to register patients by contacting the National Pregnancy Registry for Antidepressants at 1-866-961-2388 or online at: <https://womensmentalhealth.org/research/pregnancyregistry/antidepressants/>

##### Risk Summary

Based on animal studies, AUVELITY may cause fetal harm when administered during pregnancy. AUVELITY is not recommended during pregnancy. If a female becomes pregnant while being treated with AUVELITY, discontinue treatment and counsel the patient about the potential risk to a fetus.

##### Clinical Considerations

##### Disease-Associated Maternal and/or Embryo/Fetal Risk

Women who discontinued antidepressants during pregnancy were more likely to experience a relapse of major depression than women who continued antidepressants. Consider the risks to the mother of untreated depression and potential effects on the fetus when discontinuing or changing treatment with antidepressant medications during pregnancy and postpartum.

#### Lactation

##### Risk Summary

Because of the potential for neurotoxicity, advise patients that breast-feeding is not recommended during treatment with AUVELITY and for 5 days following final dose.

#### Renal Impairment

Dosage adjustment of AUVELITY is recommended in patients with moderate renal impairment (eGFR 30 to 59 mL/minute/1.73 m<sup>2</sup>). The pharmacokinetics of AUVELITY have not been evaluated in patients with severe renal impairment. AUVELITY is not recommended in patients with severe renal impairment (eGFR 15 to 29 mL/minute/1.73 m<sup>2</sup>).

#### Hepatic Impairment

No dose adjustment of AUVELITY is recommended in patients with mild (Child-Pugh A) or moderate hepatic impairment (Child-Pugh B). The pharmacokinetics of AUVELITY have not been evaluated in patients with severe hepatic impairment (Child-Pugh C). AUVELITY is not recommended in patients with severe hepatic impairment.

#### CYP2D6 Poor Metabolizers

Dosage adjustment is recommended in patients known to be poor CYP2D6 metabolizers because these patients have higher dextromethorphan concentrations than extensive/intermediate CYP2D6 metabolizers.

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# THE AMERICAN PSYCHIATRIC ASSOCIATION

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## AJP in Advance

*Discover the latest research advances before they appear in print*

### **Recent Secular Trends of Body Mass Index in Individuals With Bipolar Disorders and in the General Population**

Twelve years of nationally representative data were analyzed to determine the distribution and secular trends in body mass index (BMI) in individuals with bipolar disorders compared with the general population. It was found that not only do individuals with bipolar disorders have higher BMI but that the gap relative to the general population has also widened in recent years. These findings translate to an increasingly higher cardiometabolic risk for individuals with bipolar disorders.

## AJP Audio and Video

Winston Chung, M.D., joins AJP Audio to discuss inequalities in the incidence of psychotic disorders among racial and ethnic groups in the United States (p. 805).

In an issue highlights video, AJP Deputy Editor Danny Pine also discusses "Inequalities in the Incidence of Psychotic Disorders Among Racial and Ethnic Groups" (Chung et al., p. 805) as well as "A Functional Connectome-Based Neural Signature for Individualized Prediction of Antipsychotic Response in First-Episode Psychosis" (Cao et al., p. 827).

## AJP CME

You can earn CME credits by reading articles in *The American Journal of Psychiatry*. Three articles in this issue form a short course that consists of reading the article and answering three multiple-choice questions with a single correct answer for up to 1 AMA PRA Category 1 Credit™ each. Credit is issued only to subscribers of the online AJP CME Course Program.

See the list below for articles in this month's issue that are the subject of a CME quiz.

### **In this issue**

---

Inequalities in the Incidence of Psychotic Disorders Among Racial and Ethnic Groups (Chung et al., p. 805)

---

Characterizing the Shared Genetic Underpinnings of Schizophrenia and Cardiovascular Disease Risk Factors (Rødevand et al., p. 815)

---

A Functional Connectome-Based Neural Signature for Individualized Prediction of Antipsychotic Response in First-Episode Psychosis (Cao et al., p. 827)

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# Assistant/Associate/Professor of Clinical Pediatrics /Physician Surgeon/Psychiatry

**Hiring Department:** Pediatrics  
**Location:** Peoria, IL USA  
**Requisition ID:** 1020638  
**Posting Close Date:** 11/16/2023

The University of Illinois College of Medicine at Peoria (UICOMP) seeks physicians for positions at the level of Professor, Associate Professor or Assistant Professor to enhance an important clinical program.

Pediatric Psychiatrist positions require candidates who are BC in Psychiatry and have completed 4 years in residency and 2 years in fellowship training in Pediatric Psychiatry. Candidates with scholarly and research interests are highly desirable, along with experience in teaching medical students and residents.

UICOMP is one of the regional campuses that make up the nation's largest public medical school. The Peoria campus is known among students for its small class sizes, rigorous curriculum and hands-on clerkships; to residents and fellows for the strong academic setting, large referral base and exceptional facilities; and by physicians seeking the ideal combination of teaching and practicing medicine in a research-based university setting.

UICOMP's main clinical partner is OSF Healthcare Children's Hospital of Illinois, a 136-bed, full-service hospital, with physicians in more than 140 subspecialties. Located on the campus of OSF St. Francis Medical Center, it's the pediatric teaching affiliate of UICOMP, the state's only major pediatric teaching hospital outside Chicago—and home to groundbreaking pediatric research in medicine. The hospital is also proud to house the St. Jude Midwest Affiliate, which brings some of the care and services offered by St. Jude in Memphis to central Illinois.

Malpractice insurance is provided by the University of Illinois system and an excellent benefits package is available including vacations, sick time, CME, health and life insurance and retirement plan.

### Position Summary

Provide outpatient diagnostic and management services for patients in the region with general psychiatric and behavioral needs. Participate in undergraduate, graduate and continuing education program of the Department.

### Duties & Responsibilities

- The Department of Pediatrics, University of Illinois College of Medicine at Peoria is seeking psychiatrist who has completed a fellowship in Child and Adolescent Psychiatry at the level of Assistant/Associate Professor or Professor.
- Responsibilities – Child Psychiatrist
- Participate in undergraduate, graduate and continuing education program of the Department.
- Provide outpatient diagnostic and management services for patients in the region with general psychiatric and behavioral needs.
- Provide inpatient psychiatric consultation for children and adolescents.
- Organize and conduct research programs in Child Psychiatry.
- Perform other duties of a university faculty member including committee assignments, curriculum development, student counseling, and administration.

### Minimum Qualifications

- Eligible for licensure in Illinois
- Board Certified in Psychiatry
- Board Certified/Board Eligible in Child and Adolescent Psychiatry

For fullest consideration, please submit your application by 9/6/2023 at:

<https://uic.csod.com/ux/ats/careersite/1/home/requisition/6600?c=uic>

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*The University of Illinois conducts background checks on all job candidates upon acceptance of a contingent offer of employment. Background checks will be performed in compliance with the Fair Credit Reporting Act.*

*As an EOE/AA employer, the University of Illinois encourages applications from individuals regardless of an applicant's race, color, religion, sex, gender identity, sexual orientation, national origin, and Veteran or disability status.*

*The university provides accommodations to applicants and employees. Request an Accommodation at <https://jobs.uic.edu/request-and-accommodation/>*

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