

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use TUSSIONEX® Pennkinetic® safely and effectively. See full prescribing information for TUSSIONEX Pennkinetic.

TUSSIONEX Pennkinetic (hydrocodone polistirex and chlorpheniramine polistirex) extended-release suspension, for oral administration, CII
Initial U.S. Approval: 1987

WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; MEDICATION ERRORS; CYTOCHROME P450 3A4 INTERACTION; CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CNS DEPRESSANTS; INTERACTION WITH ALCOHOL; NEONATAL OPIOID WITHDRAWAL SYNDROME

See full prescribing information for complete boxed warning.

- TUSSIONEX Pennkinetic exposes users to risks of addiction, abuse, and misuse, which can lead to overdose and death. Assess patient's risk before prescribing and monitor closely for these behaviors and conditions. (5.1)
- Serious, life-threatening, or fatal respiratory depression may occur. Monitor closely, especially upon initiation or when used in patients at higher risk. (5.2)
- Accidental ingestion of TUSSIONEX Pennkinetic, especially by children, can result in a fatal overdose of hydrocodone. (5.2)
- Ensure accuracy when prescribing, dispensing, and administering TUSSIONEX Pennkinetic. Dosing errors can result in accidental overdose and death. (2.1, 5.5)
- Concomitant use with CYP3A4 inhibitors (or discontinuation of CYP3A4 inducers) can result in a fatal overdose of hydrocodone. Avoid the use of TUSSIONEX Pennkinetic in patients taking CYP3A4 inhibitors or inducers. (5.7, 7.2, 7.3)
- Concomitant use of opioids with benzodiazepines or other central nervous system (CNS) depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death. Avoid the use of TUSSIONEX Pennkinetic in patients taking benzodiazepines, other CNS depressants, or alcohol. (5.8, 7.5)
- Instruct patients not to consume alcohol or any products containing alcohol while taking TUSSIONEX Pennkinetic because co-ingestion can result in fatal plasma hydrocodone levels. (5.8, 7.1)
- TUSSIONEX Pennkinetic is not recommended for use in pregnant women. Prolonged use of TUSSIONEX Pennkinetic during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated. If TUSSIONEX Pennkinetic is used for a prolonged period in a pregnant woman, advise the patient of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available. (5.13, 8.1)

RECENT MAJOR CHANGES

Boxed Warning	6/2018
Indications and Usage (1)	6/2018
Dosage and Administration (2.1, 2.3)	6/2018
Dosage and Administration, Children under 18 years (2.2)	Removed 6/2018
Contraindications (4)	6/2018
Warnings and Precautions (5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.11, 5.12, 5.13, 5.14, 5.15)	6/2018

INDICATIONS AND USAGE

TUSSIONEX Pennkinetic is a combination of hydrocodone, an opioid agonist; and chlorpheniramine, a histamine-1 (H1) receptor antagonist, indicated for the temporary relief of cough and upper respiratory symptoms associated with allergy or the common cold in patients 18 years of age and older. (1)

Important Limitations of Use (1)

- Not indicated for pediatric patients under 18 years of age.
- Because of the risks of addiction, abuse, and misuse with opioids, even at recommended doses, reserve TUSSIONEX Pennkinetic for use in adult patients for whom the benefits of cough suppression are expected to outweigh the risks, and in whom an adequate assessment of the etiology of the cough has been made.

DOSAGE AND ADMINISTRATION

- **Adults 18 years of age and older:** 5 mL every 12 hours as needed, not to exceed 2 doses (10 mL) in 24 hours. (2.2)

- Measure TUSSIONEX Pennkinetic with an accurate milliliter measuring device. (2.1, 5.5)
- Do not increase the dose or dosing frequency. (2.1)
- Prescribe for the shortest duration consistent with treatment goals. (2.3)
- Reevaluate patients with unresponsive cough in 5 days or sooner for possible underlying pathology. (2.3)
- Reevaluate patient prior to refilling. (2.3)

DOSAGE FORMS AND STRENGTHS

Extended-release suspension: Each 5 mL contains hydrocodone polistirex equivalent to 10 mg of hydrocodone bitartrate; and chlorpheniramine polistirex equivalent to 8 mg of chlorpheniramine maleate. (3)

CONTRAINDICATIONS

- Children younger than 6 years of age. (4)
- Significant respiratory depression. (4)
- Acute or severe bronchial asthma in an unmonitored setting or in absence of resuscitative equipment. (4)
- Known or suspected gastrointestinal obstruction, including paralytic ileus. (4)
- Hypersensitivity to hydrocodone, chlorpheniramine, or any of the inactive ingredients in TUSSIONEX Pennkinetic. (4)

WARNINGS AND PRECAUTIONS

See Boxed WARNINGS

- **Life-threatening respiratory depression in patients with chronic pulmonary disease or in elderly, cachectic, or debilitated patients:** Monitor closely, particularly during initiation of therapy. (5.4)
- **Activities requiring mental alertness:** Avoid engaging in hazardous tasks requiring mental alertness such as driving or operating machinery. (5.6)
- **Risks of use in patients with head injury, impaired consciousness, increased intracranial pressure, or brain tumors:** Avoid use. May increase intracranial pressure and obscure the clinical course of head injuries. (5.10)
- **Seizures in patients with seizure disorders:** Monitor during therapy. (5.11)
- **Severe hypotension:** Monitor during initiation of therapy. Avoid use in patients with circulatory shock. (5.12)
- **Adrenal insufficiency:** If diagnosed, treat with physiologic replacement of corticosteroids, and wean patient off of the opioid. (5.14)

ADVERSE REACTIONS

Common adverse reactions include: Sedation (somnolence, mental clouding, lethargy), impaired mental and physical performance, lightheadedness, dizziness, headache, dry mouth, nausea, vomiting, and constipation (6)

To report SUSPECTED ADVERSE REACTIONS, contact UCB, Inc. at 1-866-822-0068 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

- **Phenytoin:** Avoid concomitant use; may increase phenytoin levels. (7.4)
- **Serotonergic drugs:** Concomitant use may result in serotonin syndrome. Discontinue if serotonin syndrome is suspected. (7.6)
- **Monoamine Oxidase Inhibitors (MAOIs):** Can potentiate the effects of hydrocodone. Avoid concomitant use in patients receiving MAOIs or within 14 days of stopping an MAOI. (7.7)
- **Muscle relaxants:** Avoid concomitant use. (7.8)
- **Diuretics:** Hydrocodone may reduce the efficacy of diuretics. Monitor for reduced effect. (7.9)
- **Anticholinergic drugs:** Concomitant use may cause paralytic ileus. (5.9, 7.10)

USE IN SPECIFIC POPULATIONS

- **Pregnancy:** Avoid use in pregnant women. May cause fetal harm. (8.1)
- **Lactation:** Breastfeeding not recommended. (8.2)
- **Renal Impairment:** Use with caution in patients with severe renal impairment. (8.6)
- **Hepatic Impairment:** Use with caution in patients with severe hepatic impairment. (8.7)

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 6/2018

FULL PRESCRIBING INFORMATION: CONTENTS*

WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; MEDICATION ERRORS; CYTOCHROME P450 3A4 INTERACTION; CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CNS DEPRESSANTS; INTERACTION WITH ALCOHOL; NEONATAL OPIOID WITHDRAWAL SYNDROME

1 INDICATIONS AND USAGE

2 DOSAGE AND ADMINISTRATION

- 2.1 Important Dosage and Administration Instructions
- 2.2 Recommended Dosage
- 2.3 Monitoring, Maintenance, and Discontinuation of Therapy

3 DOSAGE FORMS AND STRENGTHS

4 CONTRAINDICATIONS

5 WARNINGS AND PRECAUTIONS

- 5.1 Addiction, Abuse, and Misuse
- 5.2 Life-Threatening Respiratory Depression
- 5.3 Risks of Use in Pediatric Populations
- 5.4 Risks of Use in Other At-Risk Populations
- 5.5 Risks of Accidental Overdose and Death due to Medication Errors
- 5.6 Activities Requiring Mental Alertness: Risks of Driving and Operating Machinery
- 5.7 Risks from Concomitant Use or Discontinuation of Cytochrome P450 3A4 Inhibitors and Inducers
- 5.8 Risks from Concomitant Use with Benzodiazepines or other CNS Depressants
- 5.9 Risks of Use in Patients with Gastrointestinal Conditions
- 5.10 Risks of Use in Patients with Head Injury, Impaired Consciousness, Increased Intracranial Pressure, or Brain Tumors
- 5.11 Increased Risk of Seizures in Patients with Seizure Disorders
- 5.12 Severe Hypotension
- 5.13 Neonatal Opioid Withdrawal Syndrome
- 5.14 Adrenal Insufficiency
- 5.15 Drug/Laboratory Test Interactions

6 ADVERSE REACTIONS

7 DRUG INTERACTIONS

- 7.1 Alcohol
- 7.2 Inhibitors of CYP3A4 and CYP2D6
- 7.3 CYP3A4 Inducers
- 7.4 Phenytoin
- 7.5 Benzodiazepines, and Other CNS Depressants
- 7.6 Serotonergic Drugs
- 7.7 Monoamine Oxidase Inhibitors (MAOIs)
- 7.8 Muscle Relaxants
- 7.9 Diuretics
- 7.10 Anticholinergic Drugs

8 USE IN SPECIFIC POPULATIONS

- 8.1 Pregnancy
- 8.2 Lactation
- 8.3 Females and Males of Reproductive Potential
- 8.4 Pediatric Use
- 8.5 Geriatric Use
- 8.6 Renal Impairment
- 8.7 Hepatic Impairment

9 DRUG ABUSE AND DEPENDENCE

- 9.1 Controlled Substance
- 9.2 Abuse
- 9.3 Dependence

10 OVERDOSAGE

11 DESCRIPTION

12 CLINICAL PHARMACOLOGY

- 12.1 Mechanism of Action
- 12.2 Pharmacodynamics
- 12.3 Pharmacokinetics

13 NONCLINICAL TOXICOLOGY

- 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

16 HOW SUPPLIED/STORAGE AND HANDLING

17 PATIENT COUNSELING INFORMATION

* Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; ACCIDENTAL INGESTION; MEDICATION ERRORS; CYTOCHROME P450 3A4 INTERACTION; CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CNS DEPRESSANTS; INTERACTION WITH ALCOHOL; NEONATAL OPIOID WITHDRAWAL SYNDROME

Addiction, Abuse, and Misuse

TUSSIONEX Pennkinetic exposes patients and other users to the risks of opioid addiction, abuse, and misuse, which can lead to overdose and death. Reserve TUSSIONEX Pennkinetic for use in adult patients for whom the benefits of cough suppression are expected to outweigh the risks, and in whom an adequate assessment of the etiology of the cough has been made. Assess each patient's risk prior to prescribing TUSSIONEX Pennkinetic, prescribe TUSSIONEX Pennkinetic for the shortest duration that is consistent with individual patient treatment goals, monitor all patients regularly for the development of addition or abuse, and refill only after reevaluation of the need for continued treatment. [*see Warnings and Precautions (5.1)*]

Life-Threatening Respiratory Depression

Serious, life-threatening, or fatal respiratory depression may occur with use of TUSSIONEX Pennkinetic. Monitor for respiratory depression, especially during initiation of TUSSIONEX Pennkinetic therapy or when used in patients at higher risk [*see Warnings and Precautions (5.2)*].

Accidental Ingestion

Accidental ingestion of even one dose of TUSSIONEX Pennkinetic, especially by children, can result in a fatal overdose of hydrocodone [*see Warnings and Precautions (5.2)*].

Risk of Medication Errors

Ensure accuracy when prescribing, dispensing, and administering TUSSIONEX Pennkinetic. Dosing errors can result in accidental overdose and death. Always use an accurate milliliter measuring device when measuring and administering TUSSIONEX Pennkinetic [*see Dosage and Administration (2.1), Warnings and Precautions (5.5)*].

Cytochrome P450 3A4 Interaction

The concomitant use of TUSSIONEX Pennkinetic with all cytochrome P450 3A4 inhibitors may result in an increase in hydrocodone plasma concentrations, which could increase or prolong adverse drug effects and may cause potentially fatal respiratory depression. In addition, discontinuation of a concomitantly used cytochrome P450 3A4 inducer may result in an increase in hydrocodone plasma concentration. Avoid the use of TUSSIONEX Pennkinetic in patients taking a CYP3A4 inhibitor or inducer [*see Warnings and Precautions (5.7), Drug Interactions (7.2, 7.3)*].

Risks from Concomitant Use with Benzodiazepines or Other CNS Depressants

Concomitant use of opioids with benzodiazepines or other central nervous system (CNS) depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death. Avoid the use of TUSSIONEX Pennkinetic in patients taking benzodiazepines, other CNS depressants, or alcohol. [*see Warning and Precautions (5.8), Drug Interactions (7.5)*]

Interaction with Alcohol

Instruct patients not to consume alcoholic beverages or use prescription or non-prescription products that contain alcohol while taking TUSSIONEX Pennkinetic. The co-ingestion of alcohol with TUSSIONEX Pennkinetic may result in increased plasma levels and a potentially fatal overdose of hydrocodone [see *Warnings and Precautions (5.8) and Drug Interactions (7.1)*].

Neonatal Opioid Withdrawal Syndrome

TUSSIONEX Pennkinetic is not recommended for use in pregnant women [see *Use in Specific Populations (8.1)*]. Prolonged use of TUSSIONEX Pennkinetic during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated, and requires management according to protocols developed by neonatology experts. If TUSSIONEX Pennkinetic is used for a prolonged period in a pregnant woman, advise the patient of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available [see *Warnings and Precautions (5.13)*].

1 INDICATIONS AND USAGE

TUSSIONEX Pennkinetic extended-release suspension is indicated for the temporary relief of cough and upper respiratory symptoms associated with allergy or the common cold in patients 18 years of age and older.

Important Limitations of Use:

- Not indicated for pediatric patients under 18 years of age [see *Use in Specific Populations (8.4)*].
- Contraindicated in pediatric patients less than 6 years of age [see *Contraindications (4)*].
- Because of the risks of addiction, abuse, and misuse with opioids, even at recommended doses [see *Warnings and Precautions (5.1)*], reserve TUSSIONEX Pennkinetic for use in adult patients for whom the benefits of cough suppression are expected to outweigh the risks, and in whom an adequate assessment of the etiology of the cough has been made.

2 DOSAGE AND ADMINISTRATION

2.1 Important Dosage and Administration Instructions

Administer TUSSIONEX Pennkinetic by the oral route only. TUSSIONEX Pennkinetic can be taken with or without food. Shake well before using. **Do not** mix TUSSIONEX Pennkinetic with other liquids or medicines. Mixing may change how TUSSIONEX Pennkinetic works.

Always use an accurate milliliter measuring device when administering TUSSIONEX Pennkinetic to ensure that the dose is measured and administered accurately. A household teaspoon is not an accurate measuring device and could lead to overdosage [see *Warnings and Precautions (5.5)*]. For prescriptions where a measuring device is not provided, a pharmacist can provide an appropriate measuring device and can provide instructions for measuring the correct dose. Do not overfill. Rinse the measuring device with water after each use.

Advise patients not to increase the dose or dosing frequency of TUSSIONEX Pennkinetic because serious adverse events such as respiratory depression may occur with overdosage [see *Warnings and Precautions (5.2) and Overdosage (10)*]. The dosage of TUSSIONEX Pennkinetic should not be increased if cough fails to respond; an unresponsive cough should be reevaluated for possible underlying pathology [see *Dosage and Administration (2.3) and Warnings and Precautions (5.4)*].

2.2 Recommended Dosage

Adults 18 years of age and older: 5 mL every 12 hours as needed, not to exceed 2 doses (10 mL) in 24 hours

2.3 Monitoring, Maintenance, and Discontinuation of Therapy

Prescribe TUSSIONEX Pennkinetic for the shortest duration that is consistent with individual patient treatment goals [see *Warnings and Precautions* (5.1)].

Monitor patients closely for respiratory depression, especially within the first 24-72 hours of initiating therapy [see *Warnings and Precautions* (5.2)].

Reevaluate patients with unresponsive cough in 5 days or sooner for possible underlying pathology, such as foreign body or lower respiratory tract disease [see *Warnings and Precautions* (5.4)]. If a patient requires a refill, reevaluate the cause of the cough and assess the need for continued treatment with TUSSIONEX Pennkinetic, the relative incidence of adverse reactions, and the development of addiction, abuse, or misuse [see *Warnings and Precautions* (5.1)].

Do not abruptly discontinue TUSSIONEX Pennkinetic in a physically-dependent patient [see *Drug Abuse and Dependence* (9.3)]. When a patient who has been taking TUSSIONEX Pennkinetic regularly and may be physically dependent no longer requires therapy with TUSSIONEX Pennkinetic, taper the dose gradually, by 25% to 50% every 2 to 4 days, while monitoring carefully for signs and symptoms of withdrawal. If the patient develops these signs or symptoms, raise the dose to the previous level and taper more slowly, either by increasing the interval between decreases, decreasing the amount of change in dose, or both.

3 DOSAGE FORMS AND STRENGTHS

Extended-release suspension: Each 5 mL contains hydrocodone polistirex, which contains 6.66 mg of hydrocodone (equivalent to 10 mg of hydrocodone bitartrate); and chlorpheniramine polistirex, which contains 5.62 mg of chlorpheniramine (equivalent to 8 mg of chlorpheniramine maleate). TUSSIONEX Pennkinetic is a gold-colored suspension. [see *Description* (11)]

4 CONTRAINDICATIONS

TUSSIONEX Pennkinetic is contraindicated for:

- All children younger than 6 years of age [see *Warnings and Precautions* (5.2, 5.3), *Use in Specific Populations* (8.4)].

TUSSIONEX Pennkinetic is also contraindicated in patients with:

- Significant respiratory depression [see *Warnings and Precautions* (5.2)].
- Acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment [see *Warnings and Precautions* (5.4)].
- Known or suspected gastrointestinal obstruction, including paralytic ileus [see *Warnings and Precautions* (5.9)].
- Hypersensitivity to hydrocodone, chlorpheniramine, or any of the inactive ingredients in TUSSIONEX Pennkinetic [see *Adverse Reactions* (6)].

5 WARNINGS AND PRECAUTIONS

5.1 Addiction, Abuse, and Misuse

TUSSIONEX Pennkinetic contains hydrocodone, a Schedule II controlled substance. As an opioid, TUSSIONEX Pennkinetic exposes users to the risks of addiction, abuse, and misuse [see *Drug Abuse and Dependence* (9)], which can lead to overdose and death [see *Overdosage* (10)]. **Reserve TUSSIONEX Pennkinetic Extended-Release Suspension for use in adult patients for whom the benefits of cough suppression are expected to outweigh the risks, and in whom an adequate assessment of the etiology of the cough has been made. Assess each patient's risk prior to prescribing TUSSIONEX Pennkinetic**

Extended-Release Suspension, prescribe TUSSIONEX Pennkinetic Extended-Release Suspension for the shortest duration that is consistent with individual patient treatment goals, monitor all patients regularly for the development of addiction or abuse, and refill only after reevaluation of the need for continued treatment.

Although the risk of addiction in any individual is unknown, it can occur in patients appropriately prescribed TUSSIONEX Pennkinetic. Addiction can occur at recommended dosages and if the drug is misused or abused. Risks are increased in patients with a personal or family history of substance abuse (including drug or alcohol abuse or addiction) or mental illness (e.g., major depression).

Opioids are sought by drug abusers and people with addiction disorders and are subject to criminal diversion. Consider these risks when prescribing or dispensing TUSSIONEX Pennkinetic. Strategies to reduce these risks include prescribing the drug in the smallest appropriate quantity and advising the patient on the proper disposal of unused drug [see *Patient Counseling Information (17)*]. Contact local state professional licensing board or state controlled substances authority for information on how to prevent and detect abuse or diversion of this product.

5.2 Life-Threatening Respiratory Depression

Serious, life-threatening, or fatal respiratory depression has been reported with the use of opioids, including hydrocodone, one of the active ingredients in TUSSIONEX Pennkinetic. Hydrocodone produces dose-related respiratory depression by directly acting on the brain stem respiratory center that controls respiratory rhythm and may produce irregular and periodic breathing. Respiratory depression, if not immediately recognized and treated, may lead to respiratory arrest and death. Management of respiratory depression includes discontinuation of TUSSIONEX Pennkinetic, close observation, supportive measures, and use of opioid antagonists (e.g. naloxone), depending on the patient's clinical status [see *Overdosage (10)*]. Carbon dioxide (CO₂) retention from opioid-induced respiratory depression can exacerbate the sedating effects of opioids.

While serious, life-threatening, or fatal respiratory depression can occur at any time during the use of TUSSIONEX Pennkinetic, the risk is greatest during the initiation of therapy, when TUSSIONEX Pennkinetic is used concomitantly with other drugs that may cause respiratory depression [see *Warnings and Precautions (5.8)*], in patients with chronic pulmonary disease or decreased respiratory reserve, and in patients with altered pharmacokinetics or altered clearance (e.g. elderly, cachectic, or debilitated patients) [see *Warnings and Precautions (5.4)*].

To reduce the risk of respiratory depression, proper dosing of TUSSIONEX Pennkinetic is essential [see *Dosage and Administration (2.1)*, *Warnings and Precautions (5.5)*]. Monitor patients closely, especially within the first 24-72 hours of initiating therapy or when used in patients at higher risk.

Overdose of hydrocodone in adults has been associated with fatal respiratory depression, and the use of hydrocodone in children younger than 6 years of age has been associated with fatal respiratory depression when used as recommended. Accidental ingestion of even one dose of TUSSIONEX Pennkinetic, especially by children, can result in respiratory depression and death.

5.3 Risks of Use in Pediatric Populations

Children are particularly sensitive to the respiratory depressant effects of hydrocodone [see *Warnings and Precautions (5.2)*]. Because of the risk of life-threatening respiratory depression and death, TUSSIONEX Pennkinetic is contraindicated in children less than 6 years of age [see *Contraindications (4)*].

Use of TUSSIONEX Pennkinetic in children also exposes them to the risks of addiction, abuse, and misuse [see *Drug Abuse and Dependence (9)*], which can lead to overdose and death [see *Warnings and Precautions (5.1)*, *Overdosage (10)*]. Because the benefits of symptomatic treatment of cough associated with allergies or the common cold do not outweigh the risks of use of hydrocodone in pediatric patients, TUSSIONEX Pennkinetic is not indicated for use in patients younger than 18 years of age [see *Indications (1)*, *Use in Specific Populations (8.4)*].

5.4 Risks of Use in Other At-Risk Populations

Unresponsive Cough

The dosage of TUSSIONEX Pennkinetic should not be increased if cough fails to respond; an unresponsive cough should be reevaluated in 5 days or sooner for possible underlying pathology, such as foreign body or lower respiratory tract disease [*see Dosage and Administration (2.3)*].

Asthma and Other Pulmonary Disease

The use of TUSSIONEX Pennkinetic in patients with acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment is contraindicated [*see Contraindications (4)*].

Opioid analgesics and antitussives, including hydrocodone, one of the active ingredients in TUSSIONEX Pennkinetic, should not be used in patients with acute febrile illness associated with productive cough or in patients with chronic respiratory disease where interference with ability to clear the tracheobronchial tree of secretions would have a deleterious effect on the patient's respiratory function.

TUSSIONEX Pennkinetic-treated patients with significant chronic obstructive pulmonary disease or cor pulmonale, and those with a substantially decreased respiratory reserve, hypoxia, hypercapnia, or pre-existing respiratory depression are at increased risk of decreased respiratory drive including apnea, even at recommended dosages of TUSSIONEX Pennkinetic [*see Warnings and Precautions (5.2)*].

Elderly, Cachectic, or Debilitated Patients: Life-threatening respiratory depression is more likely to occur in elderly, cachectic, or debilitated patients because they may have altered pharmacokinetics or altered clearance compared to younger, healthier patients [*see Warnings and Precautions (5.2)*].

Because of the risk of respiratory depression, avoid the use of opioid antitussives, including TUSSIONEX Pennkinetic in patients with compromised respiratory function, patients at risk of respiratory failure, and in elderly, cachectic, or debilitated patients. If TUSSIONEX Pennkinetic is prescribed, monitor such patients closely, particularly when initiating TUSSIONEX Pennkinetic and when TUSSIONEX Pennkinetic is given concomitantly with other drugs that depress respiration [*see Warnings and Precautions (5.8)*].

5.5 Risk of Accidental Overdose and Death due to Medication Errors

Dosing errors can result in accidental overdose and death. To reduce the risk of overdose and respiratory depression, ensure that the dose of TUSSIONEX Pennkinetic is communicated clearly and dispensed accurately [*see Dosage and Administration (2.1)*].

Advise patients to always use an accurate milliliter measuring device when measuring and administering TUSSIONEX Pennkinetic. Inform patients that household teaspoon is not an accurate measuring device and such use could lead to overdosage and serious adverse reactions [*see Overdosage (10)*]. For prescriptions where a measuring device is not provided, a pharmacist can provide an appropriate calibrated measuring device and can provide instructions for measuring the correct dose.

5.6 Activities Requiring Mental Alertness: Risks of Driving and Operating Machinery

Hydrocodone and chlorpheniramine, two of the active ingredients in TUSSIONEX Pennkinetic, may produce marked drowsiness and impair the mental and/or physical abilities required for the performance of potentially hazardous tasks such as driving a car or operating machinery. Advise patients to avoid engaging in hazardous tasks requiring mental alertness and motor coordination after ingestion of TUSSIONEX Pennkinetic. Avoid concurrent use of TUSSIONEX Pennkinetic with alcohol or other central nervous system depressants because additional impairment of central nervous system performance may occur [*see Warnings and Precautions (5.8)*].

5.7 Risks from Concomitant Use or Discontinuation of Cytochrome P450 3A4 Inhibitors and Inducers

Concomitant use of TUSSIONEX Pennkinetic with a CYP3A4 inhibitor, such as macrolide antibiotics (e.g., erythromycin), azole-antifungal agents (e.g., ketoconazole), and protease inhibitors (e.g., ritonavir), may increase plasma concentrations of hydrocodone and prolong opioid adverse reactions, which may cause

potentially fatal respiratory depression [*see Warnings and Precautions (5.2)*], particularly when an inhibitor is added after a stable dose of TUSSIONEX Pennkinetic is achieved. Similarly, discontinuation of a CYP3A4 inducer, such as rifampin, carbamazepine, and phenytoin, in TUSSIONEX Pennkinetic-treated patients may increase hydrocodone plasma concentrations and prolong opioid adverse reactions.

Concomitant use of TUSSIONEX Pennkinetic with CYP3A4 inducers or discontinuation of an CYP3A4 inhibitor could decrease hydrocodone plasma concentrations, decrease opioid efficacy or, possibly, lead to a withdrawal syndrome in a patient who had developed physical dependence to hydrocodone.

Avoid the use of TUSSIONEX Pennkinetic in patients who are taking a CYP3A4 inhibitor or inducer. If concomitant use of TUSSIONEX Pennkinetic with a CYP3A4 inhibitor or inducer is necessary, monitor patients for signs and symptoms that may reflect opioid toxicity and opioid withdrawal [*see Drug Interactions (7.2, 7.3)*].

5.8 Risks from Concomitant Use with Benzodiazepines or other CNS Depressants

Concomitant use of opioids, including TUSSIONEX Pennkinetic, with benzodiazepines, or other CNS depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death. Because of these risks, avoid use of opioid cough medications in patients taking benzodiazepines, other CNS depressants, or alcohol [*see Drug Interactions (7.1, 7.5)*].

Observational studies have demonstrated that concomitant use of opioid analgesics and benzodiazepines increases the risk of drug-related mortality compared to use of opioids alone. Because of similar pharmacologic properties, it is reasonable to expect similar risk with concomitant use of opioid cough medications and benzodiazepines, other CNS depressants, or alcohol.

Advise both patients and caregivers about the risks of respiratory depression and sedation if TUSSIONEX Pennkinetic is used with benzodiazepines, alcohol, or other CNS depressants [*see Patient Counseling Information (17)*].

Patients must not consume alcoholic beverages, or prescription or non-prescription products containing alcohol, while on TUSSIONEX Pennkinetic therapy. The co-ingestion of alcohol with TUSSIONEX Pennkinetic may result in increased plasma levels and a potentially fatal overdose of hydrocodone [*see Drug Interactions (7.1)*].

5.9 Risks of Use in Patients with Gastrointestinal Conditions

TUSSIONEX Pennkinetic is contraindicated in patients with known or suspected gastrointestinal obstruction, including paralytic ileus [*see Contraindications (4)*]. The use of hydrocodone in TUSSIONEX Pennkinetic may obscure the diagnosis or clinical course of patients with acute abdominal conditions.

The concurrent use of anticholinergics with TUSSIONEX Pennkinetic may produce paralytic ileus [*see Drug Interactions (7.10)*].

The hydrocodone in TUSSIONEX Pennkinetic may result in constipation or obstructive bowel disease, especially in patients with underlying intestinal motility disorders. Use with caution in patients with underlying intestinal motility disorders.

The hydrocodone in TUSSIONEX Pennkinetic may cause spasm of the sphincter of Oddi, resulting in an increase in biliary tract pressure. Opioids may cause increases in serum amylase [*see Warnings and Precautions (5.15)*]. Monitor patients with biliary tract disease, including acute pancreatitis for worsening symptoms.

5.10 Risks of Use in Patients with Head Injury, Impaired Consciousness, Increased Intracranial Pressure, or Brain Tumors

Avoid the use of TUSSIONEX Pennkinetic in patients with head injury, intracranial lesions, or a pre-existing increase in intracranial pressure. In patients who may be susceptible to the intracranial effects of CO₂ retention (e.g., those with evidence of increased intracranial pressure or brain tumors), TUSSIONEX Pennkinetic may reduce respiratory drive, and the resultant CO₂ retention can further increase intracranial pressure. Furthermore, opioids produce adverse reactions that may obscure the clinical course of patients with head injuries.

5.11 Increased Risk of Seizures in Patients with Seizure Disorders

The hydrocodone and chlorpheniramine in TUSSIONEX Pennkinetic may increase the frequency of seizures in patients with seizure disorders, and may increase the risk of seizures occurring in other clinical settings associated with seizures. Monitor patients with a history of seizure disorders for worsened seizure control during TUSSIONEX Pennkinetic therapy.

5.12 Severe Hypotension

TUSSIONEX Pennkinetic may cause severe hypotension including orthostatic hypotension and syncope in ambulatory patients. There is increased risk in patients whose ability to maintain blood pressure has already been compromised by a reduced blood volume or concurrent administration of certain CNS depressant drugs (e.g., phenothiazines or general anesthetics) [see *Drug Interactions* (7.5)]. Monitor these patients for signs of hypotension after initiating TUSSIONEX Pennkinetic.

In patients with circulatory shock, TUSSIONEX Pennkinetic may cause vasodilation that can further reduce cardiac output and blood pressure. Avoid the use of TUSSIONEX Pennkinetic in patients with circulatory shock.

5.13 Neonatal Opioid Withdrawal Syndrome

TUSSIONEX Pennkinetic is not recommended for use in pregnant women. Prolonged use of TUSSIONEX Pennkinetic during pregnancy can result in withdrawal in the neonate. Neonatal opioid withdrawal syndrome, unlike opioid withdrawal syndrome in adults, may be life-threatening if not recognized and treated, and requires management according to protocols developed by neonatology experts. Observe newborns for signs of neonatal opioid withdrawal syndrome and manage accordingly. Advise pregnant women using opioids for a prolonged period of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available. [see *Use in Specific Populations* (8.1), *Patient Counseling Information* (17)]

5.14 Adrenal Insufficiency

Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use. Presentation of adrenal insufficiency may include non-specific symptoms and signs including nausea, vomiting, anorexia, fatigue, weakness, dizziness, and low blood pressure. If adrenal insufficiency is suspected, confirm the diagnosis with diagnostic testing as soon as possible. If adrenal insufficiency is diagnosed, treat with physiologic replacement doses of corticosteroids. Wean the patient off of the opioid to allow adrenal function to recover and continue corticosteroid treatment until adrenal function recovers. Other opioids may be tried as some cases reported use of a different opioid without recurrence of adrenal insufficiency. The information available does not identify any particular opioids as being more likely to be associated with adrenal insufficiency.

5.15 Drug/Laboratory Test Interactions

Because opioid agonists may increase biliary tract pressure, with resultant increase in plasma amylase or lipase levels, determination of these enzyme levels may be unreliable for 24 hours after administration of a dose of TUSSIONEX Pennkinetic.

6 ADVERSE REACTIONS

The following serious adverse reactions are described, or described in greater detail, in other sections:

- Addiction, abuse, and misuse [see *Warnings and Precautions* (5.1), *Drug Abuse and Dependence* (9.3)]
- Life-threatening respiratory depression [see *Warnings and Precautions* (5.2, 5.3, 5.4, 5.8), *Overdosage* (10)]
- Accidental overdose and death due to medication errors [see *Warnings and Precautions* (5.5)]

- Decreased mental alertness with impaired mental and/or physical abilities [*see Warnings and Precautions (5.6)*]
- Interactions with benzodiazepines and other CNS depressants [*see Warnings and Precautions (5.8), Drug Interactions (7.1, 7.5)*]
- Paralytic ileus, gastrointestinal adverse reactions [*see Warnings and Precautions (5.9)*]
- Increased intracranial pressure [*see Warnings and Precautions (5.10)*]
- Obscured clinical course in patients with head injuries [*see Warnings and Precautions (5.10)*]
- Seizures [*see Warnings and Precautions (5.11)*]
- Severe hypotension [*see Warnings and Precautions (5.12)*]
- Neonatal Opioid Withdrawal Syndrome [*see Warnings and Precautions (5.13)*]
- Adrenal insufficiency [*see Warnings and Precautions (5.14)*]

The following adverse reactions have been identified during clinical studies, in the literature, or during post-approval use of hydrocodone and/or chlorpheniramine. Because these reactions may be 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.

The most common adverse reactions to TUSSIONEX Pennkinetic include: Sedation (somnolence, mental clouding, lethargy), impaired mental and physical performance, lightheadedness, dizziness, headache, dry mouth, nausea, vomiting, and constipation.

Other reactions include:

Anaphylaxis: Anaphylaxis has been reported with hydrocodone, one of the ingredients in TUSSIONEX Pennkinetic.

Body as a whole: Coma, death, fatigue, falling injuries, lethargy.

Cardiovascular: Peripheral edema, increased blood pressure, decreased blood pressure, tachycardia, chest pain, palpitation, syncope, orthostatic hypotension, prolonged QT interval, hot flush.

Central Nervous System: Ataxia, facial dyskinesia, insomnia, migraine, increased intracranial pressure, seizure, tremor, tinnitus, vertigo.

Dermatologic: Flushing, hyperhidrosis, pruritus, rash.

Endocrine/Metabolic: Cases of serotonin syndrome, a potentially life-threatening condition, have been reported during concomitant use of opioids with serotonergic drugs. Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use. Cases of androgen deficiency have occurred with chronic use of opioids [*see Clinical Pharmacology (12.2)*].

Gastrointestinal: Abdominal pain, bowel obstruction, decreased appetite, diarrhea, difficulty swallowing, GERD, indigestion, pancreatitis, paralytic ileus, biliary tract spasm (spasm of the sphincter of Oddi).

Genitourinary: Urinary tract infection, ureteral spasm, spasm of vesicle sphincters, urinary retention.

Hematologic: Agranulocytosis, aplastic anemia, and thrombocytopenia have been reported.

Laboratory: Increases in serum amylase.

Musculoskeletal: Arthralgia, backache, muscle spasm.

Ophthalmic: Blurred vision, diplopia, miosis (constricted pupils), visual disturbances.

Psychiatric: Agitation, anxiety, confusion, fear, dysphoria, depression, hallucinations.

Reproductive: Hypogonadism, infertility.

Respiratory: Bronchitis, cough, dyspnea, nasal congestion, nasopharyngitis, respiratory depression, sinusitis, upper respiratory tract infection, thickening of bronchial secretions, tightness of chest and wheezing, dry nose, dry throat.

Other: Drug abuse, drug dependence, opioid withdrawal syndrome.

7 DRUG INTERACTIONS

No specific drug interaction studies have been conducted with TUSSIONEX Pennkinetic.

7.1 Alcohol

Concomitant use of alcohol with TUSSIONEX Pennkinetic can result in an increase of hydrocodone plasma levels and potentially fatal overdose of hydrocodone. Instruct patients not to consume alcoholic beverages or use prescription or nonprescription products containing alcohol while on TUSSIONEX Pennkinetic therapy [*see Warnings and Precautions (5.8), Clinical Pharmacology (12.3)*].

7.2 Inhibitors of CYP3A4 and CYP2D6

The concomitant use of TUSSIONEX Pennkinetic and CYP3A4 inhibitors, such as macrolide antibiotics (e.g., erythromycin), azole-antifungal agents (e.g. ketoconazole), or protease inhibitors (e.g., ritonavir), can increase the plasma concentration of hydrocodone, resulting in increased or prolonged opioid effects. These effects could be more pronounced with concomitant use of TUSSIONEX Pennkinetic and CYP2D6 and CYP3A4 inhibitors, particularly when an inhibitor is added after a stable dose of TUSSIONEX Pennkinetic is achieved [*see Warnings and Precautions (5.7)*]. After stopping a CYP3A4 inhibitor, as the effects of the inhibitor decline, the hydrocodone plasma concentration will decrease [*see Clinical Pharmacology (12.3)*], resulting in decreased opioid efficacy or a withdrawal syndrome in patients who had developed physical dependence to hydrocodone.

Avoid the use of TUSSIONEX Pennkinetic while taking a CYP3A4 or CYP2D6 inhibitor. If concomitant use is necessary, monitor patients for respiratory depression and sedation at frequent intervals.

7.3 CYP3A4 Inducers

The concomitant use of TUSSIONEX Pennkinetic and CYP3A4 inducers such as rifampin, carbamazepine, or phenytoin, can decrease the plasma concentration of hydrocodone [*see Clinical Pharmacology (12.3)*], resulting in decreased efficacy or onset of a withdrawal syndrome in patients who have developed physical dependence to hydrocodone [*see Warnings and Precautions (5.7)*]. After stopping a CYP3A4 inducer, as the effects of the inducer decline, the hydrocodone plasma concentration will increase [*see Clinical Pharmacology (12.3)*], which could increase or prolong both the therapeutic effects and adverse reactions, and may cause serious respiratory depression.

Avoid the use of TUSSIONEX Pennkinetic in patients who are taking CYP3A4 inducers. If concomitant use of a CYP3A4 inducer is necessary, follow the patient for reduced efficacy.

7.4 Phenytoin

Adverse event reports in the literature suggest a possible drug interaction involving increased serum phenytoin levels and phenytoin toxicity when chlorpheniramine and phenytoin are co-administered. The exact mechanism for this interaction is not known, however it is believed that chlorpheniramine may inhibit the hepatic metabolism of phenytoin. Avoid the use of TUSSIONEX Pennkinetic in patients who are taking phenytoin.

7.5 Benzodiazepines, and Other CNS Depressants

Due to additive pharmacologic effect, the concomitant use of benzodiazepines or other CNS depressants, including alcohol, other sedatives/hypnotics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, and other opioids, can increase the risk of hypotension, respiratory depression, profound sedation, coma, and death. Avoid the use of TUSSIONEX Pennkinetic in patients who are taking benzodiazepines or other CNS depressants [*see Warnings and Precautions (5.8)*], and instruct patients to avoid consumption of alcohol while on TUSSIONEX Pennkinetic [*see Drug Interactions (7.1), Patient Counseling Information (17)*].

7.6 Serotonergic Drugs

The concomitant use of opioids with other drugs that affect the serotonergic neurotransmitter system has resulted in serotonin syndrome. If concomitant use is warranted, carefully observe the patient, particularly during treatment initiation. Discontinue TUSSIONEX Pennkinetic if serotonin syndrome is suspected.

7.7 Monoamine Oxidase Inhibitors (MAOIs)

Avoid the use of TUSSIONEX Pennkinetic in patients who are taking monoamine oxidase inhibitors (MAOIs) or have taken MAOIs within 14 days. The use of MAOIs or tricyclic antidepressants with hydrocodone, one of the active ingredients in TUSSIONEX Pennkinetic, may increase the effect of either the antidepressant or hydrocodone. MAOI interactions with opioids may manifest as serotonin syndrome or opioid toxicity (e.g., respiratory depression, coma).

7.8 Muscle Relaxants

Hydrocodone may enhance the neuromuscular blocking action of skeletal muscle relaxants and produce an increased degree of respiratory depression. Avoid the use of TUSSIONEX Pennkinetic in patients taking muscle relaxants. If concomitant use is necessary, monitor patients for signs of respiratory depression that may be greater than otherwise expected.

7.9 Diuretics

Opioids can reduce the efficacy of diuretics by inducing the release of antidiuretic hormone. Monitor patients for signs of diminished diuresis and/or effects on blood pressure and increase the dosage of the diuretic as needed.

7.10 Anticholinergic Drugs

The concomitant use of anticholinergic drugs with TUSSIONEX Pennkinetic may increase risk of urinary retention and/or severe constipation, which may lead to paralytic ileus [*see Warnings and Precautions (5.9)*]. Monitor patients for signs of urinary retention or reduced gastric motility when TUSSIONEX Pennkinetic is used concomitantly with anticholinergic drugs.

Additive adverse effects resulting from cholinergic blockade (e.g., xerostomia, blurred vision, or constipation) may occur when anticholinergic drugs are administered with chlorpheniramine.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

TUSSIONEX Pennkinetic is not recommended for use in pregnant women, including during or immediately prior to labor.

Prolonged use of opioids during pregnancy may cause neonatal opioid withdrawal syndrome [*see Warnings and Precautions (5.13), Clinical Considerations*].

There are no available data with TUSSIONEX Pennkinetic use in pregnant women to inform a drug-associated risk for adverse developmental outcomes. Published studies with hydrocodone have reported inconsistent findings and have important methodological limitations (*see Data*).

Reproductive toxicity studies have not been conducted with TUSSIONEX Pennkinetic; however, studies are available with individual active ingredients or related active ingredients (*see Data*).

In animal reproduction studies, hydrocodone administered by the subcutaneous route to pregnant hamsters during the period of organogenesis produced a teratogenic effect at a dose approximately 70 times the maximum recommended human dose (MRHD) (*see Data*).

Chlorpheniramine administered by the oral route to mice throughout pregnancy was embryolethal at a dose approximately 9 times the MRHD and decreased postnatal survival when dosing was continued after parturition. Chlorpheniramine administered by the oral route to male and female rats prior to mating produced embryolethality at a dose approximately 9 times the MRHD (*see Data*).

Based on the animal data, advise pregnant women of the potential risk to a fetus.

The estimated background risk 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

Fetal/Neonatal Adverse Reactions

Prolonged use of opioid analgesics during pregnancy for medical or nonmedical purposes can result in physical dependence in the neonate and neonatal opioid withdrawal syndrome shortly after birth.

Neonatal opioid withdrawal syndrome presents as irritability, hyperactivity and abnormal sleep pattern, high pitched cry, tremor, vomiting, diarrhea and failure to gain weight. The onset, duration, and severity of neonatal opioid withdrawal syndrome vary based on the specific opioid used, duration of use, timing and amount of last maternal use, and rate of elimination of the drug by the newborn. Observe newborns for symptoms of neonatal opioid withdrawal syndrome and manage accordingly [*see Warnings and Precautions (5.13)*].

Labor or Delivery

Opioids cross the placenta and may produce respiratory depression and psycho-physiologic effects in neonates. An opioid antagonist, such as naloxone, must be available for reversal of opioid-induced respiratory depression in the neonate. Opioids, including TUSSIONEX Pennkinetic, can prolong labor through actions which temporarily reduce the strength, duration, and frequency of uterine contractions. However, this effect is not consistent and may be offset by an increased rate of cervical dilation, which tends to shorten labor. Monitor neonates exposed to opioids during labor for signs of excess sedation and respiratory depression.

Data

Human Data

Hydrocodone

A limited number of pregnancies have been reported in published observational studies and postmarketing reports describing hydrocodone use during pregnancy. However, these data cannot definitely establish or exclude any drug-associated risk during pregnancy. Methodological limitations of these observational studies include small sample size and lack of details regarding dose, duration and timing of exposure.

Chlorpheniramine

The majority of studies examining the use of chlorpheniramine in pregnancy did not find an association with an increased risk of congenital anomalies. In the few studies reporting an association, there was no consistent pattern of malformations noted.

Animal Data

Reproductive toxicity studies have not been conducted with TUSSIONEX Pennkinetic; however, studies are available with individual active ingredients or related active ingredients.

Hydrocodone

In an embryofetal development study in pregnant hamsters dosed on gestation day 8 during the period of organogenesis, hydrocodone induced cranioschisis, a malformation, at approximately 70 times the MRHD (on a mg/m² basis with a maternal subcutaneous dose of 102 mg/kg). Reproductive toxicology studies were also conducted with codeine, an opiate related to hydrocodone. In an embryofetal development study in pregnant

rats dosed throughout the period of organogenesis, codeine increased resorptions and decreased fetal weights at a dose approximately 95 times the MRHD of hydrocodone (on a mg/m² basis with a maternal oral dose of codeine at 120 mg/kg/day); however, these effects occurred in the presence of maternal toxicity. In embryofetal development studies with pregnant rabbits and mice dosed throughout the period of organogenesis, codeine produced no adverse developmental effects at doses approximately 50 and 240 times, respectively, the MRHD of hydrocodone (on a mg/m² basis with maternal oral doses of codeine at 30 mg/kg/day in rabbits and 600 mg/kg/day in mice).

Chlorpheniramine

In embryofetal development studies with pregnant rats and rabbits dosed throughout the period of organogenesis, chlorpheniramine produced no adverse developmental effects at oral doses up to approximately 35 and 45 times, respectively, the MRHD on a mg/m² basis. However, in a reproduction study with pregnant mice dosed throughout pregnancy, chlorpheniramine produced embryoletality at a dose approximately 9 times the MRHD (on a mg/m² basis with a maternal oral dose of 20 mg/kg/day) and decreased postnatal survival when dosing was continued after parturition. In a fertility and reproduction study with male and female rats dosed prior to mating, chlorpheniramine produced embryoletality at a dose approximately 9 times the MRHD (on a mg/m² basis with an oral parental dose of 10 mg/kg/day).

8.2 Lactation

Risk Summary

Because of the potential for serious adverse reactions, including excess sedation, respiratory depression, and death in a breastfed infant, advise patients that breastfeeding is not recommended during treatment with TUSSIONEX Pennkinetic.

There are no data on the presence of TUSSIONEX Pennkinetic in human milk, the effects of TUSSIONEX Pennkinetic on the breastfed infant, or the effects of TUSSIONEX Pennkinetic on milk production; however, data are available with hydrocodone and chlorpheniramine.

Hydrocodone

Hydrocodone is present in breast milk. Published cases report variable concentrations of hydrocodone and hydromorphone (an active metabolite) in breast milk with administration of immediate-release hydrocodone to nursing mothers in the early post-partum period with relative infant doses of hydrocodone ranging between 1.4 and 3.7%. There are case reports of excessive sedation and respiratory depression in breastfed infants exposed to hydrocodone. No information is available on the effects of hydrocodone on milk production.

Chlorpheniramine

Chlorpheniramine is present in human milk. Chlorpheniramine has not been reported to cause effects on the breastfed infant. The published literature suggests that chlorpheniramine may decrease milk production based on its anticholinergic effects. (*see Clinical Considerations*)

Clinical Considerations

Infants exposed to TUSSIONEX Pennkinetic through breast milk should be monitored for excess sedation and respiratory depression. Withdrawal symptoms can occur in breastfed infants when maternal administration of an opioid is stopped, or when breastfeeding is stopped.

8.3 Females and Males of Reproductive Potential

Infertility

Chronic use of opioids, such as hydrocodone, a component of TUSSIONEX Pennkinetic, may cause reduced fertility in females and males of reproductive potential. It is not known whether these effects on fertility are reversible [*see Adverse Reactions (6), Clinical Pharmacology (12.2)*].

8.4 Pediatric Use

TUSSIONEX Pennkinetic is not indicated for use in patients younger than 18 years of age because the benefits of symptomatic treatment of cough associated with allergies or the common cold do not outweigh the risks for use of hydrocodone in these patients [*see Indications (1), Warnings and Precautions (5.3)*].

Life-threatening respiratory depression and death have occurred in children who received hydrocodone [*see Warnings and Precautions (5.2)*]. Because of the risk of life-threatening respiratory depression and death, TUSSIONEX Pennkinetic is contraindicated in children less than 6 years of age [*see Contraindications (4)*].

8.5 Geriatric Use

Clinical studies have not been conducted with TUSSIONEX Pennkinetic in geriatric populations.

Use caution when considering the use of TUSSIONEX Pennkinetic in patients 65 years of age or older. Elderly patients may have increased sensitivity to hydrocodone; greater frequency of decreased hepatic, renal, or cardiac function; or concomitant disease or other drug therapy [*see Warnings and Precautions (5.4)*].

Respiratory depression is the chief risk for elderly patients treated with opioids, including TUSSIONEX Pennkinetic. Respiratory depression has occurred after large initial doses of opioids were administered to patients who were not opioid-tolerant or when opioids were co-administered with other agents that depress respiration [*see Warnings and Precautions (5.4, 5.8)*].

Hydrocodone is known to be substantially excreted by the kidney, and the risk of adverse reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, monitor these patients closely for respiratory depression, sedation, and hypotension.

8.6 Renal Impairment

The pharmacokinetics of TUSSIONEX Pennkinetic has not been characterized in patients with renal impairment. Patients with renal impairment may have higher plasma concentrations than those with normal function [*see Clinical Pharmacology (12.3)*]. Chlorpheniramine is cleared substantially by the kidney. As such, impaired renal function could potentially lead to the risk of decreased clearance and thereby increased retention or systemic levels of chlorpheniramine. Therefore, TUSSIONEX Pennkinetic should be used with caution in patients with severe impairment of renal function, and patients should be monitored closely for signs of hydrocodone toxicity (respiratory depression, sedation, and hypotension) and chlorpheniramine toxicity.

8.7 Hepatic Impairment

The pharmacokinetics of TUSSIONEX Pennkinetic has not been characterized in patients with hepatic impairment. Patients with severe hepatic impairment may have higher plasma concentrations than those with normal hepatic function [*see Clinical Pharmacology (12.3)*]. Chlorpheniramine is extensively metabolized by liver before elimination from the body. As such, impaired hepatic function could potentially lead to the risk of decreased metabolism and thereby increased systemic levels of chlorpheniramine. Therefore, TUSSIONEX Pennkinetic should be used with caution in patients with severe impairment of hepatic function, and patients should be monitored closely for signs of hydrocodone toxicity (respiratory depression, sedation, and hypotension) and chlorpheniramine toxicity.

9 DRUG ABUSE AND DEPENDENCE

9.1 Controlled Substance

TUSSIONEX Pennkinetic contains hydrocodone bitartrate, a Schedule II controlled substance.

9.2 Abuse

Hydrocodone

TUSSIONEX Pennkinetic contains hydrocodone, a substance with a high potential for abuse similar to other opioids including morphine and codeine. TUSSIONEX Pennkinetic can be abused and is subject to misuse, addiction, and criminal diversion [*see Warnings and Precautions (5.1)*].

All patients treated with opioids require careful monitoring for signs of abuse and addiction, since use of opioid analgesic and antitussive products carries the risk of addiction even under appropriate medical use.

Prescription drug abuse is the intentional non-therapeutic use of a prescription drug, even once, for its rewarding psychological or physiological effects.

Drug addiction is a cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use and includes: a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal.

“Drug-seeking” behavior is very common in persons with substance use disorders. Drug-seeking tactics include emergency calls or visits near the end of office hours, refusal to undergo appropriate examination, testing, or referral, repeated “loss” of prescriptions, tampering with prescriptions, and reluctance to provide prior medical records or contact information for other treating health care provider(s). “Doctor shopping” (visiting multiple prescribers to obtain additional prescriptions) is common among drug abusers and people suffering from untreated addiction. Preoccupation with achieving adequate pain relief can be appropriate behavior in a patient with poor pain control.

Abuse and addiction are separate and distinct from physical dependence and tolerance. Health care providers should be aware that addiction may not be accompanied by concurrent tolerance and symptoms of physical dependence in all addicts. In addition, abuse of opioids can occur in the absence of true addiction.

TUSSIONEX Pennkinetic, like other opioids, can be diverted for non-medical use into illicit channels of distribution. Careful record-keeping of prescribing information, including quantity, frequency, and renewal requests, as required by state and federal law, is strongly advised.

Proper assessment of the patient, proper prescribing practices, periodic re-evaluation of therapy, and proper dispensing and storage are appropriate measures that help to limit abuse of opioid drugs.

Risks Specific to Abuse of TUSSIONEX Pennkinetic

TUSSIONEX Pennkinetic is for oral use only. Abuse of TUSSIONEX Pennkinetic poses a risk of overdose and death. The risk is increased with concurrent use of TUSSIONEX Pennkinetic with alcohol and other central nervous system depressants [*see Warnings and Precautions (5.8), Drug Interactions (7.1, 7.5)*].

Parenteral drug abuse is commonly associated with transmission of infectious diseases such as hepatitis and HIV.

9.3 Dependence

Psychological dependence, physical dependence, and tolerance may develop upon repeated administration of opioids; therefore, TUSSIONEX Pennkinetic should be prescribed and administered for the shortest duration that is consistent with individual patient treatment goals and patients should be reevaluated prior to refills [*see Dosage and Administration (2.3), Warnings and Precautions (5.1)*].

Physical dependence, the condition in which continued administration of the drug is required to prevent the appearance of a withdrawal syndrome, assumes clinically significant proportions only after several weeks of continued oral opioid use, although some mild degree of physical dependence may develop after a few days of opioid therapy.

If TUSSIONEX Pennkinetic is abruptly discontinued in a physically-dependent patient, a withdrawal syndrome may occur. Withdrawal also may be precipitated through the administration of drugs with opioid antagonist activity (e.g., naloxone, nalmefene), mixed agonist/antagonist analgesics (e.g., pentazocine, butorphanol, nalbuphine), or partial agonists (e.g., buprenorphine). Some or all of the following can characterize this syndrome: restlessness, lacrimation, rhinorrhea, yawning, perspiration, chills, myalgia, and mydriasis. Other signs and symptoms also may develop, including irritability, anxiety, backache, joint pain, weakness, abdominal cramps, insomnia, nausea, anorexia, vomiting, diarrhea, or increased blood pressure, respiratory rate, or heart rate.

Infants born to mothers physically dependent on opioids will also be physically dependent and may exhibit respiratory difficulties and withdrawal signs [*see Use in Specific Populations (8.1)*].

10 OVERDOSAGE

Clinical Presentation

Hydrocodone

Acute overdose with hydrocodone is characterized by respiratory depression (a decrease in respiratory rate and/or tidal volume, Cheyne-Stokes respiration, cyanosis), extreme somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, constricted pupils, and, in some cases, pulmonary edema, bradycardia, partial or complete airway obstruction, atypical snoring, hypotension, circulatory collapse, cardiac arrest, and death.

Hydrocodone may cause miosis, even in total darkness. Pinpoint pupils are a sign of opioid overdose but are not pathognomonic (e.g., pontine lesions of hemorrhagic or ischemic origin may produce similar findings). Marked mydriasis rather than miosis may be seen with hypoxia in overdose situations [*see Clinical Pharmacology (12.2)*].

Chlorpheniramine

Signs and symptoms of chlorpheniramine overdosage may vary from central nervous system depression to stimulation. Central toxic effects are characterized by agitation, anxiety, delirium, disorientation, hallucinations, hyperactivity, sedation, and seizures. Severe overdosage may produce coma, medullary paralysis, and death. Peripheral toxicity includes hypertension, tachycardia, dysrhythmias, vasodilation, hyperpyrexia, mydriasis, urinary retention, and diminished gastrointestinal motility. Atropine-like signs and symptoms (dry mouth, fixed dilated pupils, flushing, tachycardia, hallucinations, gastrointestinal symptoms, convulsions, urinary retention, cardiac arrhythmias and coma) may be observed.

Impaired secretion from sweat glands following toxic doses of drugs with anticholinergic side effects may predispose to hyperthermia.

Toxic psychosis, a possible class effect from overdose of sedating antihistamines, has been reported.

Treatment of Overdose

Treatment of overdosage is driven by the overall clinical presentation, and consists of discontinuation of TUSSIONEX Pennkinetic together with institution of appropriate therapy. Give primary attention to the reestablishment of adequate respiratory exchange through provision of a patent and protected airway and the institution of assisted or controlled ventilation. Employ other supportive measures (including oxygen and vasopressors) in the management of circulatory shock and pulmonary edema as indicated. Cardiac arrest or arrhythmias will require advanced life-support techniques. Gastric emptying may be useful in removing unabsorbed drug.

The opioid antagonists, naloxone and nalmefene, are specific antidotes for respiratory depression resulting from opioid overdose. For clinically significant respiratory or circulatory depression secondary to hydrocodone overdose, administer an opioid antagonist. An antagonist should not be administered in the absence of clinically significant respiratory depression. Because the duration of opioid reversal is expected to be less than

the duration of action of hydrocodone in TUSSIONEX Pennkinetic, carefully monitor the patient until spontaneous respiration is reliably reestablished. TUSSIONEX Pennkinetic will continue to release hydrocodone and add to the hydrocodone load for 12 hours or longer following ingestion, necessitating prolonged monitoring. If the response to an opioid antagonist is suboptimal or only brief in nature, administer additional antagonist as directed by the product's prescribing information.

Hemodialysis is not routinely used to enhance the elimination of hydrocodone or chlorpheniramine from the body.

Urinary excretion of chlorpheniramine is increased when the pH of the urine is acidic; however, acid diuresis is NOT recommended to enhance elimination in overdose, as the risks of acidemia and acute tubular necrosis in patients with rhabdomyolysis far outweigh any potential benefits.

11 DESCRIPTION

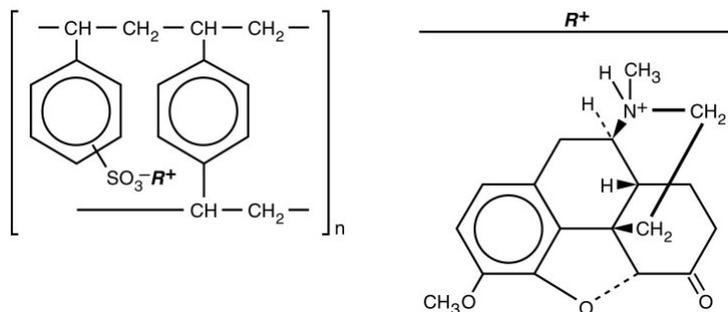
TUSSIONEX[®] Pennkinetic[®] (hydrocodone polistirex and chlorpheniramine polistirex) extended-release suspension contains hydrocodone, an opioid agonist; and chlorpheniramine, a histamine-1 (H1) receptor antagonist.

Each 5 mL of TUSSIONEX Pennkinetic extended-release suspension contains 6.66 mg of hydrocodone and 5.62 mg of chlorpheniramine bound to sulfonated styrene-divinylbenzene copolymer (polistirex) for oral administration.

TUSSIONEX Pennkinetic also contains the following inactive ingredients: Ascorbic acid, D&C Yellow No. 10, ethylcellulose, FD&C Yellow No. 6, flavor, high fructose corn syrup, methylparaben, polyethylene glycol 3350, polysorbate 80, pregelatinized starch, propylene glycol, propylparaben, purified water, sucrose, vegetable oil, xanthan gum.

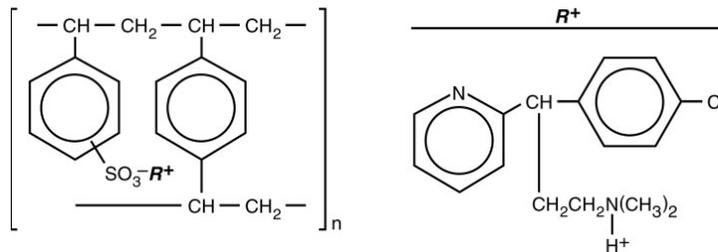
Hydrocodone Polistirex

The chemical name for hydrocodone, a centrally-acting narcotic antitussive, is 4,5 α -epoxy-3-methoxy-17-methylmorphinan-6-one. Hydrocodone polistirex is a complex of sulfonated styrene-divinylbenzene copolymer. The molecular weight for hydrocodone and the polistirex resin is 298.364 g/mol and $n \times 315$ g/mol-1, respectively. The molecular formula for hydrocodone and the polistirex resin is $C_{18}H_{21}NO_3$ and $(C_{18}SO_3H_{19})_n$, respectively. It has the following structural formula:



Chlorpheniramine Polistirex

The chemical name for chlorpheniramine, an antihistamine, is 2-[p-chloro- α -[2-(dimethylamino)ethyl]-benzyl]pyridine. Chlorpheniramine polistirex is a complex of sulfonated styrene-divinylbenzene copolymer. The molecular weight for chlorpheniramine and the polistirex resin is 274.79 g/mol and $n \times 315$ g/mol-1, respectively. The molecular formula for chlorpheniramine and the polistirex resin is $C_{16}N_2H_{19}Cl$ and $(C_{18}SO_3H_{19})_n$, respectively. It has the following structural formula:



12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Hydrocodone

Hydrocodone is an opioid agonist with relative selectivity for the mu-opioid receptor, although it can interact with other opioid receptors at higher doses. The precise mechanism of action of hydrocodone and other opiates is not known; however, hydrocodone is believed to act centrally on the cough center. In excessive doses, hydrocodone will depress respiration.

Chlorpheniramine

Chlorpheniramine is a propylamine derivative antihistamine (H₁-receptor antagonist) of the alkylamine class that also possesses anticholinergic and sedative activity. It prevents released histamine from dilating capillaries and causing edema of the respiratory mucosa.

12.2 Pharmacodynamics

Hydrocodone

Effects on the Central Nervous System

Hydrocodone produces respiratory depression by direct action on brain stem respiratory centers. The respiratory depression involves a reduction in the responsiveness of the brain stem respiratory centers to both increases in carbon dioxide tension and to electrical stimulation.

Hydrocodone causes miosis, even in total darkness. Pinpoint pupils are a sign of opioid overdose but are not pathognomonic (e.g., pontine lesions of hemorrhagic or ischemic origins may produce similar findings). Marked mydriasis rather than miosis may be seen due to hypoxia in overdose situations.

Effects on the Gastrointestinal Tract and Other Smooth Muscle

Hydrocodone causes a reduction in motility associated with an increase in smooth muscle tone in the antrum of the stomach and duodenum. Digestion of food in the small intestine is delayed and propulsive contractions are decreased. Propulsive peristaltic waves in the colon are decreased, while tone may be increased to the point of spasm resulting in constipation. Other opioid-induced effects may include a reduction in biliary and pancreatic secretions, spasm of sphincter of Oddi, and transient elevations in serum amylase.

Effects on the Cardiovascular System

Hydrocodone produces peripheral vasodilation which may result in orthostatic hypotension or syncope. Manifestations of histamine release and/or peripheral vasodilation may include pruritus, flushing, red eyes and sweating and/or orthostatic hypotension.

Effects on the Endocrine System

Opioids inhibit the secretion of adrenocorticotropic hormone (ACTH), cortisol, and luteinizing hormone (LH) in humans [see *Adverse Reactions* (6)]. They also stimulate prolactin, growth hormone (GH) secretion, and pancreatic secretion of insulin and glucagon.

Chronic use of opioids may influence the hypothalamic-pituitary-gonadal axis, leading to androgen deficiency that may manifest as low libido, impotence, erectile dysfunction, amenorrhea, or infertility. The causal role of

opioids in the clinical syndrome of hypogonadism is unknown because the various medical, physical, lifestyle, and psychological stressors that may influence gonadal hormone levels have not been adequately controlled for in studies conducted to date [see *Adverse Reactions* (6)].

Effects on the Immune System

Opioids have been shown to have a variety of effects on components of the immune system in in vitro and animal models. The clinical significance of these findings is unknown. Overall, the effects of opioids appear to be modestly immunosuppressive.

Concentration–Adverse Reaction Relationships

There is a relationship between increasing hydrocodone plasma concentration and increasing frequency of dose-related opioid adverse reactions such as nausea, vomiting, CNS effects, and respiratory depression. In opioid-tolerant patients, the situation may be altered by the development of tolerance to opioid-related adverse reactions.

12.3 Pharmacokinetics

Absorption

Following multiple dosing with TUSSIONEX Pennkinetic, hydrocodone mean (S.D.) peak plasma concentrations of 22.8 (5.9) ng/mL occurred at 3.4 hours. Food has no significant effect on the extent of absorption of hydrocodone.

Chlorpheniramine mean (S.D.) peak plasma concentrations of 58.4 (14.7) ng/mL occurred at 6.3 hours following multiple dosing.

Distribution

Although the extent of protein binding of hydrocodone in human plasma has not been definitively determined, structural similarities to related opioid analgesics suggest that hydrocodone is not extensively protein bound. As most agents in the 5-ring morphinan group of semi-synthetic opioids bind plasma protein to a similar degree (range 19% [hydromorphone] to 45% [oxycodone]), hydrocodone is expected to fall within this range.

Chlorpheniramine is widely distributed throughout the tissues of the body, including the central nervous system. It reportedly has an apparent steady-state volume of distribution of approximately 3.2 L/kg in adults and children and is about 70% bound to plasma proteins. Chlorpheniramine and its metabolites likely cross the placental barrier and are excreted into human breast milk.

Elimination

Metabolism

Hydrocodone exhibits a complex pattern of metabolism, including N-demethylation, O-demethylation, and 6keto reduction to the corresponding 6- α - and 6- β -hydroxy metabolites. CYP3A4 mediated N-demethylation to norhydrocodone is the primary metabolic pathway of hydrocodone with a lower contribution from CYP2D6 mediated O-demethylation to hydromorphone. Hydromorphone is formed from the O-demethylation of hydrocodone and may contribute to the total analgesic effect of hydrocodone. Therefore, the formation of these and related metabolites can, in theory, be affected by other drugs [see *Drug Interactions* (7)]. Published in vitro studies have shown that N-demethylation of hydrocodone to form norhydrocodone can be attributed to CYP3A4 while O-demethylation of hydrocodone to hydromorphone is predominantly catalyzed by CYP2D6 and to a lesser extent by an unknown low affinity CYP enzyme.

Chlorpheniramine is rapidly and extensively metabolized via demethylation in the liver, forming mono- and didesmethyl derivatives. Oxidative metabolism of chlorpheniramine is catalyzed by cytochrome P-450 2D6.

Excretion

Hydrocodone and its metabolites are eliminated primarily in the kidneys. The mean plasma half-life of hydrocodone is approximately 4 hours.

Chlorpheniramine and its metabolites are primarily excreted through the kidneys, with large individual variation. Urinary excretion depends on urine pH and flow rate. The mean plasma half-life of chlorpheniramine is approximately 21-24 hours.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenicity, mutagenicity, and fertility studies have not been conducted with TUSSIONEX Pennkinetic; however, published information is available for the individual active ingredients or related active ingredients.

Hydrocodone

Carcinogenicity studies were conducted with codeine, an opiate related to hydrocodone. Two-year studies in F344/N rats and B6C3F1 mice were conducted to assess the carcinogenic potential of codeine. No evidence of tumorigenicity was observed in male and female rats at codeine dietary doses up to 70 and 80 mg/kg/day (approximately equivalent to 55 and 65 times the MRHD of hydrocodone on a mg/m² basis, respectively). No evidence of tumorigenicity was observed in male and female mice at codeine dietary doses up to 400 mg/kg/day (approximately equivalent to 160 times the MRHD of hydrocodone on a mg/m² basis).

Mutagenicity studies with hydrocodone have not been conducted.

Fertility studies with hydrocodone have not been conducted.

Chlorpheniramine

Carcinogenicity studies were conducted with chlorpheniramine maleate. Two-year studies in F344/N rats and B6C3F1 mice were conducted to assess the carcinogenic potential of chlorpheniramine. No evidence of tumorigenicity was observed in male and female rats at chlorpheniramine oral doses up to 30 and 60 mg/kg/day for 5 days/week (approximately equivalent to 25 and 50 times the MRHD on a mg/m² basis, respectively). No evidence of tumorigenicity was observed in male and female mice at chlorpheniramine oral doses up to 50 and 200 mg/kg/day for 5 days/week (approximately equivalent to 20 and 85 times the MRHD on a mg/m² basis, respectively).

Chlorpheniramine maleate was not mutagenic in the *in vitro* bacterial reverse mutation assay or the *in vitro* mouse lymphoma forward mutation assay. Chlorpheniramine maleate was clastogenic in the *in vitro* Chinese hamster ovary (CHO) cell chromosomal aberration assay.

Chlorpheniramine maleate had no effects on fertility in rats and rabbits at oral doses approximately 35 and 45 times the MRHD on a mg/m² basis, respectively.

16 HOW SUPPLIED/STORAGE AND HANDLING

TUSSIONEX Pennkinetic (hydrocodone polistirex and chlorpheniramine polistirex) extended-release suspension, equivalent to 10 mg hydrocodone bitartrate and 8 mg chlorpheniramine maleate per 5 mL, is a gold-colored suspension, available as:

NDC 50474-150-49 4 oz amber plastic bottle containing 115 mL of suspension.

Store at 20 to 25°C (68 to 77°F); excursions permitted to 15 to 30°C (59 to 86°F). [see USP Controlled Room Temperature.]

Dispense in a tight, light-resistant container, as defined in the USP, with a child resistant closure.

Ensure that patients have an oral dosing dispenser that measures the appropriate volume in milliliters. Counsel patients on how to utilize the oral dosing dispenser and correctly measure the oral suspension as prescribed.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Medication Guide).

Addiction, Abuse, and Misuse

Inform patients that the use of TUSSIONEX Pennkinetic, even when taken as recommended, can result in addiction, abuse, and misuse, which can lead to overdose and death [*see Warnings and Precautions (5.1)*]. Instruct patients not to share TUSSIONEX Pennkinetic with others and to take steps to protect TUSSIONEX Pennkinetic from theft or misuse.

Important Dosing and Administration Instructions

Instruct patients how to measure and take the correct dose of TUSSIONEX Pennkinetic. Advise patients to measure TUSSIONEX Pennkinetic with an accurate milliliter measuring device. Patients should be informed that a household teaspoon is not an accurate measuring device and could lead to overdosage. Advise patients to ask their pharmacist to recommend an appropriate measuring device and for instructions for measuring the correct dose [*see Dosage and Administration (2.1) and Warnings and Precautions (5.5)*]. Advise patients not to increase the dose or dosing frequency of TUSSIONEX Pennkinetic because serious adverse events such as respiratory depression may occur with overdosage [*see Warnings and Precautions (5.2) and Overdosage (10)*].

Life-Threatening Respiratory Depression

Inform patients of the risk of life-threatening respiratory depression, including information that the risk is greatest when starting TUSSIONEX Pennkinetic and that it can occur even at recommended dosages [*see Warnings and Precautions (5.2)*]. Advise patients how to recognize respiratory depression and to seek medical attention if breathing difficulties develop.

Accidental Ingestion

Inform patients that accidental ingestion, especially by children, may result in respiratory depression or death [*see Warnings and Precautions (5.2)*]. Instruct patients to take steps to store TUSSIONEX Pennkinetic securely and to properly dispose of unused TUSSIONEX Pennkinetic in accordance with the local state guidelines and/or regulations.

Activities Requiring Mental Alertness

Advise patients to avoid engaging in hazardous tasks that require mental alertness and motor coordination such as operating machinery or driving a motor vehicle as TUSSIONEX Pennkinetic may produce marked drowsiness [*see Warnings and Precautions (5.6)*].

Interactions with Benzodiazepines and Other Central Nervous System Depressants, Including Alcohol

Inform patients and caregivers that potentially fatal additive effects may occur if TUSSIONEX Pennkinetic is used with benzodiazepines or other CNS depressants, including alcohol. Advise patients to avoid concomitant use of TUSSIONEX Pennkinetic with benzodiazepines or other CNS depressants and instruct patients not to consume alcoholic beverages, as well as prescription and over-the-counter products that contain alcohol, during treatment with TUSSIONEX Pennkinetic [*see Warnings and Precautions (5.8), Drug Interactions (7.1, 7.5)*].

Constipation

Advise patients of the potential for severe constipation [*see Warnings and Precautions (5.9), Adverse Reactions (6)*].

Anaphylaxis

Inform patients that anaphylaxis has been reported with ingredients contained in TUSSIONEX Pennkinetic. Advise patients how to recognize such a reaction and when to seek medical attention [*see Contraindications (4), Adverse Reactions (6)*].

MAOI Interaction

Inform patients not to take TUSSIONEX Pennkinetic while using or within 14 days of stopping any drugs that inhibit monoamine oxidase. Patients should not start MAOIs while taking TUSSIONEX Pennkinetic [*see Drug*

Interactions (7.7)].

Hypotension

Inform patients that TUSSIONEX Pennkinetic may cause orthostatic hypotension and syncope. Instruct patients how to recognize symptoms of low blood pressure and how to reduce the risk of serious consequences should hypotension occur (e.g., sit or lie down, carefully rise from a sitting or lying position) [*see Warnings and Precautions (5.12)].*

Pregnancy

Advise patients that use of TUSSIONEX Pennkinetic is not recommended during pregnancy [*see Use in Specific Populations (8.1)].*

Neonatal Opioid Withdrawal Syndrome

Inform female patients of reproductive potential that use of TUSSIONEX Pennkinetic during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated [*see Warnings and Precautions (5.13), Use in Specific Populations (8.1)].*

Embryo-Fetal Toxicity

Inform female patients of reproductive potential that TUSSIONEX Pennkinetic can cause fetal harm and to inform their healthcare provider of a known or suspected pregnancy [*see Use in Specific Populations (8.1)].*

Lactation

Advise women that breastfeeding is not recommended during treatment with TUSSIONEX Pennkinetic [*see Use in Specific Populations (8.2)].*

Infertility

Inform patients that chronic use of opioids, such as hydrocodone, a component of TUSSIONEX Pennkinetic, may cause reduced fertility. It is not known whether these effects on fertility are reversible [*see Use in Specific Populations (8.3)].*

Adrenal Insufficiency

Inform patients that TUSSIONEX Pennkinetic could cause adrenal insufficiency, a potentially life-threatening condition. Adrenal insufficiency may present with non-specific symptoms and signs such as nausea, vomiting, anorexia, fatigue, weakness, dizziness, and low blood pressure. Advise patients to seek medical attention if they experience a constellation of these symptoms [*see Warnings and Precautions (5.14)].*

Serotonin Syndrome

Inform patients that TUSSIONEX Pennkinetic could cause a rare but potentially life-threatening condition resulting from concomitant administration of serotonergic drugs. Warn patients of the symptoms of serotonin syndrome and to seek medical attention right away if symptoms develop. Instruct patients to inform their physicians if they are taking, or plan to take serotonergic medications. [*see Adverse Reactions (6), Drug Interactions (7.6)].*

Disposal of Unused TUSSIONEX Pennkinetic

Advise patients to properly dispose of unused TUSSIONEX Pennkinetic. Advise patients to throw the drug in the household trash following these steps. 1) Remove them from their original containers and mix them with an undesirable substance, such as used coffee grounds or kitty litter (this makes the drug less appealing to children and pets, and unrecognizable to people who may intentionally go through the trash seeking drugs). 2) Place the mixture in a sealable bag, empty can, or other container to prevent the drug from leaking or breaking out of a garbage bag, or to dispose of in accordance with local state guidelines and/or regulations.

TUSSIONEX Pennkinetic Extended-Release Suspension

Manufactured for:

UCB, Inc.

Smyrna, GA 30080



TUSSIONEX and PENNKINETIC are registered trademarks of the UCB Group of companies.

© 2018, UCB, Inc., Smyrna, GA 30080. All rights reserved. Printed in the U.S.A.

MEDICATION GUIDE
TUSSIONEX® Pennkinetic ® (Tuss-i-necks Pen-ki-ne-tik)
(hydrocodone polistirex and chlorpheniramine polistirex)
extended-release suspension, C-II

What is the most important information I should know about TUSSIONEX Pennkinetic?

TUSSIONEX Pennkinetic is not for children under 18 years of age.

TUSSIONEX Pennkinetic can cause serious side effects, including:

- **Addiction, abuse and misuse.** Taking TUSSIONEX Pennkinetic or other medicines that contain an opioid can cause addiction, abuse and misuse, which can lead to overdose and death. This can happen even if you take TUSSIONEX Pennkinetic exactly as prescribed by your healthcare provider. Your risk of addiction, abuse, and misuse is increased if you or a family member has a history of drug or alcohol abuse or addiction, or mental health problems.
 - **Do not** share your TUSSIONEX Pennkinetic with other people.
 - Keep TUSSIONEX Pennkinetic in a safe place away from children.
- **Life-threatening breathing problems (respiratory depression).** TUSSIONEX Pennkinetic can cause breathing problems (respiratory depression) that can happen at any time during treatment and can lead to death. Your risk of breathing problems is greatest when you first start taking TUSSIONEX Pennkinetic, are taking other medicines that can cause breathing problems, have certain lung problems, are elderly, or have certain other health problems.

Children are at higher risk for respiratory depression. Breathing problems can happen even if you take TUSSIONEX Pennkinetic exactly as prescribed by your healthcare provider.

Call your healthcare provider or get emergency medical help right away if anyone taking TUSSIONEX Pennkinetic has any of the symptoms below:

- increased sleepiness
- confusion
- difficulty breathing
- shallow breathing
- limpness

Keep TUSSIONEX Pennkinetic in a safe place away from children. Accidental use of even 1 dose of TUSSIONEX Pennkinetic, especially by a child, is a medical emergency and can cause breathing problems (respiratory depression) which can lead to death. If a child accidentally takes TUSSIONEX Pennkinetic, get emergency medical help right away.

- **Overdose and death due to medicine dosing errors.** Overdose and death can happen if you measure the wrong dose of TUSSIONEX Pennkinetic. Always use an accurate milliliter measuring device to measure the correct amount of TUSSIONEX Pennkinetic. **Do not** use a household teaspoon to measure your medicine. You may accidentally take too much. You can ask your pharmacist for the measuring device you should use and how to measure the correct dose.
- **Breathing problems (respiratory depression) that can lead to death and opioid withdrawal** can happen if you start taking or stop taking other medicines while taking TUSSIONEX Pennkinetic, including:
 - certain antibiotics
 - certain medicines to treat a fungal infection
 - certain medicines to treat Human Immunodeficiency Virus (HIV)-1 infection, Acquired Immune Deficiency Syndrome (AIDS), or Hepatitis C
 - rifampin
 - carbamazepine
 - phenytoin

Tell your healthcare provider if you take any of these medicines. Ask your healthcare provider or pharmacist if you are not sure if your medicine is listed above.

- **Severe drowsiness, breathing problems (respiratory depression), coma, and death** can happen in people who take TUSSIONEX Pennkinetic with benzodiazepines or other central nervous system depressants, including alcohol.
 - **Do not** take benzodiazepines or any medicine that can cause drowsiness or sleepiness during treatment with TUSSIONEX Pennkinetic.
 - **Do not** drink alcohol or take prescription or over-the-counter medicines that contain alcohol during treatment with TUSSIONEX Pennkinetic.
- **Opioid withdrawal in a newborn.** Use of TUSSIONEX Pennkinetic during pregnancy can cause withdrawal symptoms in your newborn baby that could be life-threatening if not recognized and treated. You should not take TUSSIONEX Pennkinetic if you are pregnant. Tell your healthcare provider right away if you are pregnant or think you may be pregnant.

What is TUSSIONEX Pennkinetic Extended-Release Suspension?

- TUSSIONEX Pennkinetic is a prescription medicine used in adults to treat cough and upper respiratory symptoms that you can have with allergies or a common cold. TUSSIONEX Pennkinetic contains 2 medicines, hydrocodone and chlorpheniramine. Hydrocodone is an opioid (narcotic) cough suppressant. Chlorpheniramine is an antihistamine.
- **TUSSIONEX Pennkinetic is a federal controlled substance (CII) because it contains hydrocodone that can be**

abused or lead to dependence. Keep TUSSIONEX Pennkinetic in a safe place to prevent misuse and abuse. Selling or giving away TUSSIONEX Pennkinetic may harm others, and is against the law. Tell your healthcare provider if you have abused or been dependent on alcohol, prescription medicines or street drugs.

Who should not take TUSSIONEX Pennkinetic?

TUSSIONEX Pennkinetic is not for children under 18 years of age. See “**What is the most important information I should know about TUSSIONEX Pennkinetic?**”

Do not take TUSSIONEX Pennkinetic if you:

- have severe breathing problems (respiratory depression) or breathing problems caused by asthma. See “**What is the most important information I should know about TUSSIONEX Pennkinetic?**”
- have a blockage (obstruction) in your bowel such as a paralytic ileus.
- are allergic to hydrocodone, chlorpheniramine, or any of the ingredients in TUSSIONEX Pennkinetic. See the end of this Medication Guide for a complete list of ingredients.

Ask your healthcare provider if you have any questions about this information.

Before you take TUSSIONEX Pennkinetic, tell your healthcare provider about all of your medical conditions, including if you:

- have a drug addiction
- have lung or breathing problems
- have a fever and are coughing up mucus
- have had a recent head injury
- have had a brain tumor or other brain problems
- have or have had seizures
- have pain in your stomach-area (abdomen)
- have constipation or bowel problems
- are pregnant or plan to become pregnant. TUSSIONEX Pennkinetic can harm your unborn baby. See “**What is the most important information I should know about TUSSIONEX Pennkinetic?**”
- are breastfeeding or plan to breastfeed. Hydrocodone and chlorpheniramine pass into your breast milk and can cause serious side effects in your baby including increased sleepiness, breathing problems (respiratory depression), and death. You and your healthcare provider should decide if you will take TUSSIONEX Pennkinetic or breastfeed. You should not do both. See “**What should I avoid while taking TUSSIONEX Pennkinetic?**”
- plan to have children. TUSSIONEX Pennkinetic may affect the ability to have a child in females and males (fertility problems). It is not known if these fertility problems will be reversible, even after you stop taking TUSSIONEX Pennkinetic. Talk to your healthcare provider if this is a concern for you.
- have bile duct or pancreas problems
- have prostate problems
- have problems with your urinary tract or difficulty urinating
- have kidney or liver problems
- have adrenal gland problems
- have low blood pressure
- plan to have surgery

Tell your healthcare provider about all the medicines you take, including prescription and over-the-counter medicines, vitamins, and herbal supplements.

Taking TUSSIONEX Pennkinetic with certain other medicines can cause side effects or affect how well TUSSIONEX Pennkinetic or the other medicines work. Do not start or stop taking other medicines without talking to your healthcare provider.

Especially tell your healthcare provider if you:

- See “**What should I avoid while taking TUSSIONEX Pennkinetic?**”
- take pain medicines such as opioids (narcotics).
- take cold or allergy medicines that contain antihistamines or cough suppressants.
- drink alcohol.
- take muscle relaxants.
- take certain medicines used to treat mood, anxiety, psychotic or thought disorders, or depression, including monoamine oxidase inhibitors (MAOIs), tricyclics, selective serotonin reuptake inhibitors (SSRIs), selective serotonin-norepinephrine reuptake inhibitors (SNRIs), or antipsychotics.
- take medicines to lower your blood pressure.
- take water pills (diuretics).
- take medicines called “anticholinergics” used to treat health problems such as asthma, chronic obstructive pulmonary disease (COPD), or stomach problems.
- take a medicine called “phenytoin” used to treat seizures or epilepsy.

Ask your healthcare provider if you are not sure if you take any of these medicines.

How should I take TUSSIONEX Pennkinetic?

- See “**What is the most important information I should know about TUSSIONEX Pennkinetic?**”
- Take TUSSIONEX Pennkinetic exactly as your healthcare provider tells you to take it. Do not change your dose without talking to your healthcare provider.
- Take TUSSIONEX Pennkinetic by mouth only.
- Take TUSSIONEX Pennkinetic using an accurate milliliter measuring device. If you do not have a device, ask your pharmacist to give you a measuring device to help you measure the correct amount of TUSSIONEX Pennkinetic. **Do**

not use a household teaspoon to measure your medicine. You may accidentally take too much.

- **Do not** overfill the measuring device.
- Rinse the measuring device with water after each use.
- If you take too much TUSSIONEX Pennkinetic, call your healthcare provider or go to the nearest hospital emergency room right away.
- Tell your healthcare provider if your cough does not get better within 5 days of treatment with TUSSIONEX Pennkinetic.

What should I avoid while taking TUSSIONEX Pennkinetic?

- Avoid driving a car or operating machinery during treatment with TUSSIONEX Pennkinetic. TUSSIONEX Pennkinetic can cause you to be drowsy, slow your thinking and motor skills, and may affect your vision.
- **Do not** drink alcohol during treatment with TUSSIONEX Pennkinetic. Drinking alcohol can increase your chances of having serious side effects.

Avoid the use of TUSSIONEX Pennkinetic if you:

- are pregnant. Use of TUSSIONEX Pennkinetic during pregnancy can cause withdrawal symptoms in your newborn baby that could be life-threatening if not recognized and treated. Tell your healthcare provider right away if you are pregnant or think you may be pregnant.
- are breastfeeding. Use of TUSSIONEX Pennkinetic while breastfeeding can cause severe breathing problems (respiratory depression) in your breastfed infant that could be life-threatening.
- take a medicine called a monoamine oxidase inhibitor (MAOI). Avoid taking an MAOI within 14 days after you stop taking TUSSIONEX Pennkinetic. Avoid starting TUSSIONEX Pennkinetic if you stopped taking an MAOI in the last 14 days.

What are the possible side effects of TUSSIONEX Pennkinetic?

TUSSIONEX Pennkinetic can cause serious side effects, including:

- See “**What is the most important information I should know about TUSSIONEX Pennkinetic?**”
- **Bowel problems including severe constipation or stomach pain.** See “**Who should not take TUSSIONEX Pennkinetic?**”
- **Increased pressure in your head (intracranial).** Avoid the use of TUSSIONEX Pennkinetic if you have a head injury or have been told that you have changes in the tissue of your brain (brain lesions) or increased pressure in your head.
- **Increased risk of seizures in people with seizure disorders.** If you have a seizure disorder, TUSSIONEX Pennkinetic may increase how often you have a seizure.
- **Low blood pressure.** A sudden drop in blood pressure can happen in some people during treatment with TUSSIONEX Pennkinetic and this may cause you to feel dizzy, faint, lightheaded, or weak, especially when you stand up (orthostatic hypotension). Your risk of having this problem may be increased if you take TUSSIONEX Pennkinetic with certain other medicines that lower blood pressure. If you have any of these symptoms while taking TUSSIONEX Pennkinetic, sit or lie down. Do not change your body position too fast. Get up slowly from sitting or lying down.
- **Adrenal gland problems.** TUSSIONEX Pennkinetic can cause serious and life-threatening adrenal gland problems. Your healthcare provider may do blood tests to check for adrenal gland problems. Call your healthcare provider right away if you have any of these symptoms:
 - nausea
 - vomiting
 - not wanting to eat (anorexia)
 - fatigue
 - weakness
 - dizziness
 - low blood pressure

The most common side effects of TUSSIONEX Pennkinetic include:

- sleepiness
- confusion
- coordination problems
- decrease in mental and physical performance
- lack of energy
- lightheadedness
- dizziness
- headache
- dry mouth
- nausea
- vomiting
- constipation

These are not all the possible side effects of TUSSIONEX Pennkinetic.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

How should I store TUSSIONEX Pennkinetic?

- Store TUSSIONEX Pennkinetic at room temperature between 68°F to 77°F (20°C to 25°C).
- Store TUSSIONEX Pennkinetic in a tightly closed container, in a dry, cool place away from heat or direct sunlight.
- **Keep TUSSIONEX Pennkinetic Extended-Release Suspension and all medicines out of the reach of children.**

How should I dispose of TUSSIONEX Pennkinetic?

Remove unused TUSSIONEX Pennkinetic from the container and mix it with an undesirable, non-toxic substance such as cat litter or used coffee grounds to make it less appealing to children and pets. Place the mixture in a container such as a

sealed plastic bag and throw it away in the household trash. You can also follow your state or local guidelines on how to safely throw away TUSSIONEX Pennkinetic.

General information about the safe and effective use of TUSSIONEX Pennkinetic.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not use TUSSIONEX Pennkinetic for a condition for which it was not prescribed. Do not give TUSSIONEX Pennkinetic to other people, even if they have the same symptoms that you have. It may harm them.

You can ask your pharmacist or healthcare provider for information about TUSSIONEX Pennkinetic that is written for health professionals.

What are the ingredients in TUSSIONEX Pennkinetic?

Active Ingredients: hydrocodone polistirex and chlorpheniramine polistirex

Inactive Ingredients: ascorbic acid, D&C Yellow No. 10, ethylcellulose, FD&C Yellow No. 6, flavor, high fructose corn syrup, methylparaben, polyethylene glycol 3350, polysorbate 80, pregelatinized starch, propylene glycol, propylparaben, purified water, sucrose, vegetable oil, xanthan gum

Manufactured for: UCB, Inc. Smyrna, GA 30080

For more information about TUSSIONEX Pennkinetic Extended-Release Suspension call 1-844-599-2273.

This Medication Guide has been approved by the U.S. Food and Drug Administration.

Revised: June 2018