

## HIGHLIGHTS OF PRESCRIBING INFORMATION

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

HYSINGLA® ER (hydrocodone bitartrate) extended-release tablets, for oral use, CII  
Initial U.S. Approval: 1943

### WARNING: SERIOUS AND LIFE-THREATENING RISKS FROM USE OF HYSINGLA ER

See full prescribing information for complete boxed warning.

- HYSINGLA ER exposes users to risks of addiction, abuse, and misuse, which can lead to overdose and death. Assess patient's risk before prescribing, and reassess regularly for these behaviors and conditions. (5.1)
- Serious, life-threatening, or fatal respiratory depression may occur, especially upon initiation or following a dosage increase. To reduce the risk of respiratory depression, proper dosing and titration of HYSINGLA ER are essential. Instruct patients to swallow HYSINGLA ER whole to avoid exposure to a potentially fatal dose of hydrocodone. (5.2)
- Accidental ingestion of HYSINGLA ER, especially by children, can result in fatal overdose of hydrocodone. (5.2)
- 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. Reserve concomitant prescribing for use in patients for whom alternative treatment options are inadequate. (5.3, 7)
- If opioid use is required for an extended period of time in a pregnant woman, advise the patient of the risk of Neonatal Opioid Withdrawal Syndrome, which may be life-threatening if not recognized and treated. Ensure that management by neonatology experts will be available at delivery (5.4)
- Healthcare providers are strongly encouraged to complete a REMS-compliant education program and to counsel patients and caregivers on serious risks, safe use, and the importance of reading the Medication Guide with each prescription. (5.5)
- Concomitant use with CYP3A4 inhibitors (or discontinuation of CYP3A4 inducers) can result in a fatal overdose of hydrocodone. (5.6, 7, 12.3)

### RECENT MAJOR CHANGES

Boxed Warning	12/2023
Indications and Usage (1)	12/2023
Dosage and Administration (2.1, 2.3, 2.4)	12/2023
Warnings and Precautions (5.7)	12/2023

### INDICATIONS AND USAGE

HYSINGLA ER is an opioid agonist indicated for the management of severe and persistent pain that requires an extended period with a daily opioid analgesic and for which alternative treatment options are inadequate. (1)

#### Limitations of Use (1)

- Because of the risks of addiction, abuse, and misuse with opioids, which can occur at any dosage or duration, and because of the greater risks of overdose and death with extended-release/long-acting opioid formulations, reserve HYSINGLA ER for use in patients for whom alternative treatment options (e.g., non-opioid analgesics or immediate-release opioids) are ineffective, not tolerated, or would be otherwise inadequate to provide sufficient management of pain.
- HYSINGLA ER is not indicated as an as-needed (prn) analgesic.

### DOSAGE AND ADMINISTRATION

- HYSINGLA ER should be prescribed only by healthcare professionals who are knowledgeable about the use of extended-release/long-acting opioids and how to mitigate the associated risks. (2.1)
- Daily doses of HYSINGLA ER greater than or equal to 80 mg are only for use in patients in whom tolerance to an opioid of comparable potency has been established.
- Patients considered opioid-tolerant are those taking, for one week or longer, at least 60 mg oral morphine per day, 25 mcg transdermal fentanyl per hour, 30 mg oral oxycodone per day, 8 mg oral hydromorphone per day, 25 mg oral oxymorphone per day, 60 mg oral hydrocodone per day, or an equianalgesic dose of another opioid. (2.1)

- Use the lowest effective dosage for the shortest duration of time consistent with individual patient treatment goals (2.1). Reserve titration to higher doses of HYSINGLA ER for patients in whom lower doses are insufficiently effective and in whom the expected benefits of using a higher dose opioid clearly outweigh the substantial risks. (2.1, 5)
- Initiate the dosing regimen for each patient individually, taking into account the patient's underlying cause and severity of pain, prior analgesic treatment and response, and risk factors for addiction, abuse, and misuse. (2.1, 5.1)
- Respiratory depression can occur at any time during opioid therapy, especially when initiating and following dosage increases with HYSINGLA ER. Consider this risk when selecting an initial dose and when making dose adjustments. (2.1, 5.2)
- Discuss availability of naloxone with the patient and caregiver and assess each patient's need for access to naloxone, both when initiating and renewing treatment with HYSINGLA ER. Consider prescribing naloxone based on the patient's risk factors for overdose (2.2, 5.1, 5.2, 5.3)
- Instruct patients to swallow HYSINGLA ER intact, and not to crush, chew, or dissolve the tablets (risk of potentially fatal overdose). (2.1, 5.1)
- Instruct patients to take tablets one at a time, with enough water to ensure complete swallowing immediately after placing in the mouth (2.1, 5.13)
- For opioid-naïve patients, initiate with 20 mg tablets orally every 24 hours. (2.3)
- To convert to HYSINGLA ER from another opioid, follow the conversion instructions to obtain an estimated dose. (2.3)
- Dose titration of HYSINGLA ER may occur every 3 to 5 days (2.4)
- Patients with Severe Hepatic Impairment: Initiate dosing with one half of the recommended starting dosage and titrate carefully. Regularly evaluate for respiratory depression, sedation, and hypotension. (2.5)
- Patients with Moderate to Severe Renal Impairment and End-Stage Renal Disease: Initiate dosing at one half the recommended starting dosage and titrate carefully. Regularly evaluate for signs of respiratory depression, sedation, and hypotension. (2.6)
- Do not abruptly discontinue HYSINGLA ER in a physically dependent patient because rapid discontinuation of opioid analgesics has resulted in serious withdrawal symptoms, uncontrolled pain, and suicide. (2.7)

### DOSAGE FORMS AND STRENGTHS

Extended-release tablets: 20, 30, 40, 60, 80, 100, and 120 mg (3)

### CONTRAINDICATIONS

- Significant respiratory depression (4)
- Acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment (4)
- Known or suspected gastrointestinal obstruction, including paralytic ileus (4)
- Hypersensitivity to hydrocodone or to any other components of HYSINGLA ER (4)

### WARNINGS AND PRECAUTIONS

- Opioid-Induced Hyperalgesia and Allodynia: Opioid-Induced Hyperalgesia (OIH) occurs when an opioid analgesic paradoxically causes an increase in pain, or an increase in sensitivity to pain. If OIH is suspected, carefully consider appropriately decreasing the dose of the current opioid analgesic, or opioid rotation. (5.7)
- Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients: Regularly evaluate, particularly during initiation and titration. (5.8)
- Adrenal Insufficiency: If diagnosed, treat with physiologic replacement of corticosteroids, and wean patient off of the opioid. (5.9)
- Severe Hypotension: Regularly evaluate during dosage initiation and titration. Avoid use of HYSINGLA ER in patients with circulatory shock. (5.10)
- QTc Prolongation: Avoid use in patients with congenital long QTc syndrome. In patients who develop QTc prolongation, consider reducing the dose. (5.11, 12.2)
- Risks of Use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness: Monitor for sedation and respiratory depression. Avoid use of HYSINGLA ER in patients with circulatory shock. (5.12)
- Risk of Obstruction in Patients who have Difficulty Swallowing or have Underlying GI Disorders that may Predispose them to Obstruction: Consider use of an alternative analgesic. (5.14)

### ADVERSE REACTIONS

**This label may not be the latest approved by FDA.**  
**For current labeling information, please visit <https://www.fda.gov/drugsatfda>**

Most common treatment-emergent adverse events (incidence  $\geq$  5%) are constipation, nausea, vomiting, fatigue, upper respiratory tract infection, dizziness, headache, and somnolence. (6.1)

**To report SUSPECTED ADVERSE REACTIONS, contact Purdue Pharma L.P. at 1-888-726-7535 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).**

-----**DRUG INTERACTIONS**-----

- Serotonergic Drugs: Concomitant use may result in serotonin syndrome. Discontinue HYSINGLA ER if serotonin syndrome is suspected. (7)
- Mixed Agonists/Antagonists and Partial Agonist Opioid Analgesics: Avoid use with HYSINGLA ER because they may reduce analgesic effect of HYSINGLA ER or precipitate withdrawal symptoms. (7)

- 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)

-----**USE IN SPECIFIC POPULATIONS**-----

- Pregnancy: May cause fetal harm. (8.1)
- Lactation: Not recommended. (8.2)

**See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.**

**Revised: 12/2023**

**FULL PRESCRIBING INFORMATION: CONTENTS\***

**WARNING: SERIOUS AND LIFE-THREATENING RISKS FROM USE OF HYSINGLA ER**

**1 INDICATIONS AND USAGE**

**2 DOSAGE AND ADMINISTRATION**

- 2.1 Important Dosage and Administration Instructions
- 2.2 Patient Access to Naloxone for Emergency Treatment of Opioid Overdose
- 2.3 Initial Dosage
- 2.4 Titration and Maintenance of Therapy
- 2.5 Dosage Modifications in Patients with Severe Hepatic Impairment
- 2.6 Dosage Modifications in Patients with Moderate to Severe Renal Impairment
- 2.7 Safe Reduction or Discontinuation of HYSINGLA ER

**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 Concomitant Use with Benzodiazepines or Other CNS Depressants
- 5.4 Neonatal Opioid Withdrawal Syndrome
- 5.5 Opioid Analgesic Risk Evaluation and Mitigation Strategy (REMS)
- 5.6 Risks of Concomitant Use or Discontinuation of Cytochrome P450 3A4 Inhibitors and Inducers
- 5.7 Opioid-Induced Hyperalgesia and Allodynia
- 5.8 Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients
- 5.9 Adrenal Insufficiency
- 5.10 Severe Hypotension
- 5.11 QTc Interval Prolongation
- 5.12 Risks of use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness

- 5.13 Gastrointestinal Obstruction, Dysphagia, and Choking
- 5.14 Risks of Use in Patients with Gastrointestinal Conditions
- 5.15 Increased Risk of Seizures in Patients with Seizure Disorders
- 5.16 Withdrawal
- 5.17 Risk of Driving and Operating Machinery

**6 ADVERSE REACTIONS**

- 6.1 Clinical Trial Experience
- 6.2 Postmarketing Experience

**7 DRUG INTERACTIONS**

**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 Hepatic Impairment
- 8.7 Renal 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

**14 CLINICAL STUDIES**

- 14.1 Moderate to Severe Chronic Lower Back Pain Study

**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: SERIOUS AND LIFE-THREATENING RISKS FROM USE OF HYSINGLA ER**

#### **Addiction, Abuse, and Misuse**

Because the use of HYSINGLA ER exposes patients and other users to the risks of opioid addiction, abuse, and misuse, which can lead to overdose and death, assess each patient's risk prior to prescribing and reassess all patients regularly for the development of these behaviors and conditions [see *Warnings and Precautions (5.1)*].

#### **Life-Threatening Respiratory Depression**

Serious, life-threatening, or fatal respiratory depression may occur with use of HYSINGLA ER, especially during initiation or following a dosage. To reduce the risk of respiratory depression, proper dosing and titration of HYSINGLA ER are essential. Instruct patients to swallow HYSINGLA ER tablets whole; crushing, chewing, or dissolving HYSINGLA ER tablets can cause rapid release and absorption of a potentially fatal dose of hydrocodone [see *Warnings and Precautions (5.2)*].

#### **Accidental Ingestion**

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

#### **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. Reserve concomitant prescribing of HYSINGLA ER and benzodiazepines or other CNS depressants for use in patients for whom alternative treatment options are inadequate [see *Warnings and Precautions (5.3), Drug Interactions (7)*].

#### **Neonatal Opioid Withdrawal Syndrome (NOWS)**

If opioid use is required for an extended period of time in a pregnant woman, advise the patient of the risk of NOWS, which may be life-threatening if not recognized and treated. Ensure that management by neonatology experts will be available at delivery [see *Warnings and Precautions (5.4)*].

#### **Opioid Analgesic Risk Evaluation and Mitigation Strategy (REMS)**

Healthcare providers are strongly encouraged to complete a REMS-compliant education program and to counsel patients and caregivers on serious risks, safe use, and the importance of reading the Medication Guide with each prescription [see *Warnings and Precautions (5.5)*].

#### **Cytochrome P450 3A4 Interaction**

The concomitant use of HYSINGLA ER with all cytochrome P450 3A4 inhibitors may result in an increase in hydrocodone plasma concentrations, which could increase or prolong adverse reactions 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. Regularly evaluate patients receiving HYSINGLA ER and any CYP3A4 inhibitor or inducer [see *Warnings and Precautions (5.6), Drug Interactions (7), and Clinical Pharmacology (12.3)*].

## 1 INDICATIONS AND USAGE

HYSINGLA ER is indicated for the management of severe and persistent pain that requires an extended treatment period with a daily opioid analgesic and for which alternative treatment options are inadequate.

### Limitations of Use

- Because of the risks of addiction, abuse, and misuse with opioids, which can occur at any dosage or duration, and because of the greater risks of overdose and death with extended-release/long-acting opioid formulations [see *Warnings and Precautions (5.1)*], reserve HYSINGLA ER for use in patients for whom alternative treatment options (e.g., non-opioid analgesics or immediate-release opioids) are ineffective, not tolerated, or would be otherwise inadequate to provide sufficient management of pain.
- HYSINGLA ER is not indicated as an as-needed (prn) analgesic.

## **2 DOSAGE AND ADMINISTRATION**

### **2.1 Important Dosage and Administration Instructions**

- HYSINGLA ER should be prescribed only by healthcare professionals who are knowledgeable about the use of extended-release/long-acting opioids and how to mitigate the associated risks.
- Daily doses of HYSINGLA ER greater than or equal to 80 mg are only for use in patients in whom tolerance to an opioid of comparable potency has been established. Patients who are opioid tolerant are those receiving, for one week or longer, at least 60 mg oral morphine per day, 25 mcg transdermal fentanyl per hour, 30 mg oral oxycodone per day, 8 mg oral hydromorphone per day, 25 mg oral oxymorphone per day, 60 mg oral hydrocodone per day, or an equianalgesic dose of another opioid.
- Use the lowest effective dosage for the shortest duration of time consistent with individual patient treatment goals [see *Warnings and Precautions (5)*]. Because the risk of overdose increases as opioid doses increase, reserve titration to higher doses of HYSINGLA ER for patients in whom lower doses are insufficiently effective and in whom the expected benefits of using a higher dose opioid clearly outweigh the substantial risks.
- Initiate the dosing regimen for each patient individually, taking into account the patient's underlying cause and severity of pain, prior analgesic treatment and response, and risk factors for addiction, abuse, and misuse [see *Warnings and Precautions (5.1)*].
- Respiratory depression can occur at any time during opioid therapy, especially when initiating and following dosage increases with HYSINGLA ER. Consider this risk when selecting an initial dose and when making dose adjustments [see *Warnings and Precautions (5.2)*].
- Instruct patients to swallow HYSINGLA ER tablets whole, one tablet at a time, with enough water to ensure complete swallowing immediately after placing in the mouth. Instruct patients not to pre-soak, lick, or otherwise wet the tablet prior to placing in the mouth [see *Warnings and Precautions (5.13)*]. Crushing, chewing, or dissolving HYSINGLA ER tablets will result in uncontrolled delivery of hydrocodone and can lead to overdose or death [see *Warnings and Precautions (5.1)*].
- HYSINGLA ER is administered orally once daily (every 24 hours). Multiple tablets of lower dose strengths that provide the desired total daily dose can be taken as a once daily dose.

## 2.2 Patient Access to Naloxone for the Emergency Treatment of Opioid Overdose

Discuss the availability of naloxone for the emergency treatment of opioid overdose with the patient and caregiver and assess the potential need for access to naloxone, both when initiating and renewing treatment with HYSINGLA ER [see *Warnings and Precautions (5.2)*].

Inform patients and caregivers about the various ways to obtain naloxone as permitted by individual state naloxone dispensing and prescribing requirements or guidelines (e.g., by prescription, directly from a pharmacist, or as part of a community-based program).

Consider prescribing naloxone, based on the patient's risk factors for overdose, such as concomitant use of CNS depressants, a history of opioid use disorder, or prior opioid overdose. The presence of risk factors for overdose should not prevent the proper management of pain in any given patient [see *Warnings and Precautions (5.1, 5.2, 5.3)*].

Consider prescribing naloxone if the patient has household members (including children) or other close contacts at risk for accidental ingestion or overdose.

## 2.3 Initial Dosage

### Use of HYSINGLA ER as the First Opioid Analgesic (opioid-naïve patients)

Initiate treatment with HYSINGLA ER at a dose of 20 mg orally every 24 hours.

### Use of HYSINGLA ER in Patients who are not Opioid Tolerant (opioid non-tolerant patients)

The starting dose for patients who are not opioid tolerant is HYSINGLA ER 20 mg orally every 24 hours.

Use of higher starting doses in patients who are not opioid tolerant may cause fatal respiratory depression [see *Warnings and Precautions (5.2)*].

### Conversion from Oral Hydrocodone Formulations to HYSINGLA ER

Patients receiving other oral hydrocodone-containing formulations may be converted to HYSINGLA ER by administering the patient's total daily oral hydrocodone dose as HYSINGLA ER once daily.

### Conversion from Other Opioids to HYSINGLA ER

When HYSINGLA ER therapy is initiated, discontinue all other opioid analgesics other than those used on an as needed basis for breakthrough pain when appropriate.

There is inter-patient variability in the relative potency of opioid drugs and formulations. Therefore, a conservative approach is advised when determining the total daily dosage of HYSINGLA ER. It is safer to underestimate a patient's 24-hour oral hydrocodone dosage and provide rescue medication (e.g., immediate-release opioid) than to overestimate the 24-hour oral hydrocodone dosage and manage an adverse reaction due to an overdose.

In a HYSINGLA ER clinical trial with an open-label titration period, patients were converted from their prior opioid to HYSINGLA ER using Table 1 as a guide for the initial HYSINGLA ER dose. To obtain the initial HYSINGLA ER dose, first use Table 1 to convert the prior oral opioids to a total hydrocodone daily dose and then reduce the calculated daily hydrocodone dose by 25% to account for interpatient variability in relative potency of different opioids.

Consider the following when using the information found in Table 1.

- This is **not** a table of equianalgesic doses.
- The conversion factors in this table are only for the conversion **from** one of the listed oral opioid analgesics to HYSINGLA ER.

- The table **cannot** be used to convert **from** HYSINGLA ER to another opioid. Doing so will result in an over-estimation of the dose of the new opioid and may result in fatal overdose

**Table 1. Conversion factors to HYSINGLA ER (Not Equianalgesic Doses)**

Opioid	Oral dose (mg)	Approximate oral conversion factor
Codeine	133	0.15
Hydromorphone	5	4
Methadone	13.3	1.5
Morphine	40	0.5
Oxycodone	20	1
Oxymorphone	10	2
Tramadol	200	0.1

To calculate the estimated total hydrocodone daily dose using Table 1:

- For patients on a single opioid, sum the current total daily dose of the opioid and then multiply the total daily dose by the approximate oral conversion factor to calculate the approximate oral hydrocodone daily dose.
- For patients on a regimen of more than one opioid, calculate the approximate oral hydrocodone dose for each opioid and sum the totals to obtain the approximate oral hydrocodone daily dose.
- For patients on a regimen of fixed-ratio opioid/non-opioid analgesic products, use only the opioid component of these products in the conversion.
- Reduce the calculated daily oral hydrocodone dose by 25%

Always round the dose down, if necessary, to the nearest HYSINGLA ER tablet strength available and initiate therapy with that dose. If the converted HYSINGLA ER dose using Table 1 is less than 20 mg, initiate therapy with HYSINGLA ER 20 mg.

Example conversion from a single opioid to HYSINGLA ER:

For example, a total daily dose of oxycodone 50 mg would be converted to hydrocodone 50 mg based on the table above, and then multiplied by 0.75 (i.e., take a 25 % reduction) resulting in a dose of 37.5 mg hydrocodone. Round this down to the nearest dose strength available, HYSINGLA ER 30 mg, to initiate therapy.

Close observation and frequent titration are warranted until pain management is stable on the new opioid. Monitor patients for signs and symptoms of opioid withdrawal or for signs of over-sedation/toxicity after converting patients to HYSINGLA ER.

#### Conversion from Methadone to HYSINGLA ER

Regular evaluation is of particular importance when converting from methadone to other opioid agonists. The ratio between methadone and other opioid agonists may vary widely as a function of previous dose exposure. Methadone has a long half-life and can accumulate in the plasma.

#### Conversion from Transdermal Fentanyl to HYSINGLA ER

Eighteen hours following the removal of the transdermal fentanyl patch, HYSINGLA ER treatment can be initiated. For each 25 mcg/hr fentanyl transdermal patch, a dose of HYSINGLA ER 20 mg every 24 hours represents a conservative initial dose. Follow the patient closely during conversion from transdermal fentanyl to HYSINGLA ER, as there is limited experience with this conversion.

#### Conversion from Transdermal Buprenorphine to HYSINGLA ER

All patients receiving transdermal buprenorphine ( $\leq 20$  mcg/hr) should initiate therapy with HYSINGLA ER 20 mg every 24 hours. Follow the patient closely during conversion from transdermal buprenorphine to HYSINGLA ER, as there is limited experience with this conversion.

## 2.4 Titration and Maintenance of Therapy

Individually titrate HYSINGLA ER to a dose that provides adequate analgesia and minimizes adverse reactions. Continually reevaluate patients receiving HYSINGLA ER to assess the maintenance of pain control, signs and symptoms of opioid withdrawal, and other relative incidence of adverse reactions, as well as to reassess for the development of addiction, abuse, or misuse [see *Warnings and Precautions (5.1, 5.16)*]. Frequent communication is important among the prescriber, other members of the healthcare team, the patient, and the caregiver/family during periods of changing analgesic requirements, including initial titration. During use of opioid therapy for an extended period of time, periodically reassess the continued need for the use of opioid analgesics.

Patients who experience breakthrough pain may require a dosage adjustment of HYSINGLA ER, or may need rescue medication with an appropriate dose of an immediate-release analgesic.

If the level of pain increases after dose stabilization, attempt to identify the source of increased pain before increasing the HYSINGLA ER dosage. If after increasing the dosage, unacceptable opioid-related adverse reactions are observed (including an increase in pain after a dosage increase), consider reducing the dosage [see *Warnings and Precautions (5)*]. Adjust the dosage to obtain an appropriate balance between management of pain and opioid-related adverse reactions. Adjust the dose of HYSINGLA ER in increments of 10 mg to 20 mg every 3 to 5 days as needed to achieve adequate analgesia.

## 2.5 Dosage Modifications in Patients with Severe Hepatic Impairment

Patients with severe hepatic impairment may have higher plasma concentrations of hydrocodone than those with normal function. Initiate therapy with one half the initial dose of HYSINGLA ER in these patients and regularly evaluate for respiratory depression, sedation, and hypotension [see *Clinical Pharmacology (12.3)*].

## 2.6 Dosage Modifications in Patients with Moderate to Severe Renal Impairment

Patients with moderate to severe renal impairment, and end-stage renal disease may have higher plasma concentrations than those with normal function. Initiate therapy with one half the initial dose of HYSINGLA ER in these patients and regularly evaluate for respiratory depression, sedation, and hypotension [see *Clinical Pharmacology (12.3)*].

## 2.7 Safe Reduction or Discontinuation of HYSINGLA ER

Do not abruptly discontinue HYSINGLA ER in patients who may be physically dependent on opioids. Rapid discontinuation of opioid analgesics in patients who are physically dependent on opioids has resulted in serious withdrawal symptoms, uncontrolled pain, and suicide. Rapid discontinuation has also been associated with attempts to find other sources of opioid analgesics, which may be confused with drug-seeking for abuse. Patients may also attempt to treat their pain or withdrawal symptoms with illicit opioids, such as heroin, and other substances.

When a decision has been made to decrease the dose or discontinue therapy in an opioid-dependent patient taking HYSINGLA ER, there are a variety of factors that should be considered, including the total daily dose opioid (including HYSINGLA ER) the patient has been taking, the duration of treatment, the type of pain being treated, and the physical and psychological attributes of the patient. It is important to

ensure ongoing care of the patient and to agree on an appropriate tapering schedule and follow-up plan so that patient and provider goals and expectations are clear and realistic. When opioid analgesics are being discontinued due to a suspected substance use disorder, evaluate and treat the patient, or refer for evaluation and treatment of the substance use disorder. Treatment should include evidence-based approaches, such as medication assisted treatment of opioid use disorder. Complex patients with comorbid pain and substance use disorders may benefit from referral to a specialist.

There are no standard opioid tapering schedules that are suitable for all patients. Good clinical practice dictates a patient-specific plan to taper the dose of the opioid gradually. For patients on HYSINGLA ER who are physically opioid-dependent, initiate the taper by a small enough increment (e.g., no greater than 10% to 25% of the total daily dose) to avoid withdrawal symptoms, and proceed with dose-lowering at an interval of every 2 to 4 weeks. Patients who have been taking opioids for briefer periods of time may tolerate a more rapid taper.

It may be necessary to provide the patient with lower dosage strengths to accomplish a successful taper. Reassess the patient frequently to manage pain and withdrawal symptoms, should they emerge. Common withdrawal symptoms include 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. If withdrawal symptoms arise, it may be necessary to pause the taper for a period of time or raise the dose of the opioid analgesic to the previous dose, and then proceed with a slower taper. In addition, evaluate patients for any changes in mood, emergence of suicidal thoughts, or use of other substances.

When managing patients taking opioid analgesics, particularly those who have been treated for an extended period of time, and/or with high doses for chronic pain, ensure that a multimodal approach to pain management, including mental health support (if needed), is in place prior to initiating an opioid analgesic taper. A multimodal approach to pain management may optimize the treatment of chronic pain, as well as assist with the successful tapering of the opioid analgesic [*see Warnings and Precautions (5.16), Drug Abuse and Dependence (9.3)*].

### 3 DOSAGE FORMS AND STRENGTHS

- 20 mg film-coated extended-release tablets (round, green-colored, bi-convex tablets printed with “HYD 20”)
- 30 mg film-coated extended-release tablets (round, yellow-colored, bi-convex tablets printed with “HYD 30”)
- 40 mg film-coated extended-release tablets (round, grey-colored, bi-convex tablets printed with “HYD 40”)
- 60 mg film-coated extended-release tablets (round, beige-colored, bi-convex tablets printed with “HYD 60”)
- 80 mg film-coated extended-release tablets (round, pink-colored, bi-convex tablets printed with “HYD 80”)
- 100 mg film-coated extended-release tablets (round, blue-colored, bi-convex tablets printed with “HYD 100”)
- 120 mg film-coated extended-release tablets (round, white-colored, bi-convex tablets printed with “HYD 120”)

### 4 CONTRAINDICATIONS

HYSINGLA ER is 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 (5.8)*]
- Known or suspected gastrointestinal obstruction, including paralytic ileus [see *Warnings and Precautions (5.13, 5.14)*]
- Hypersensitivity to hydrocodone or any component of HYSINGLA ER.

## 5 WARNINGS AND PRECAUTIONS

### 5.1 Addiction, Abuse, and Misuse

HYSINGLA ER contains hydrocodone, a Schedule II controlled substance. As an opioid, HYSINGLA ER exposes users to the risks of addiction, abuse, and misuse. Because extended-release products such as HYSINGLA ER deliver the opioid over an extended period of time, there is a greater risk for overdose and death due to the larger amount of hydrocodone present [see *Drug Abuse and Dependence (9)*].

Although the risk of addiction in any individual is unknown, it can occur in patients appropriately prescribed HYSINGLA ER. Addiction can occur at recommended doses and if the drug is misused or abused.

Assess each patient's risk for opioid addiction, abuse, or misuse prior to prescribing HYSINGLA ER, and reassess all patients receiving HYSINGLA ER for the development of these behaviors and conditions. 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). The potential for these risks should not, however, prevent the prescribing of HYSINGLA ER for the proper management of pain in any given patient. Patients at increased risk may be prescribed opioids such as HYSINGLA ER, but use in such patients necessitates intensive counseling about the risks and proper use of HYSINGLA ER along with frequent reevaluation for signs of addiction, abuse, and misuse. Consider prescribing naloxone for the emergency treatment of opioid overdose [see *Dosage and Administration (2.2), Warnings and Precautions (5.2)*].

Abuse or misuse of HYSINGLA ER by crushing, chewing, snorting, or injecting the dissolved product will result in the uncontrolled delivery of the hydrocodone and can result in overdose and death [see *Drug Abuse and Dependence (9.2), and Overdosage (10)*].

Opioids are sought for nonmedical use and are subject to diversion from legitimate prescribed use. Consider these risks when prescribing or dispensing HYSINGLA ER. Strategies to reduce these risks include prescribing the drug in the smallest appropriate quantity and advising the patient on careful storage of the drug during the course of treatment and the proper disposal of unused drug. 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, even when used as recommended. Respiratory depression, if not immediately recognized and treated, may lead to respiratory arrest and death. Management of respiratory depression may include close observation, supportive measures, and use of opioid antagonists, depending on the patient's clinical status [see *Overdosage (10)*]. Carbon dioxide (CO<sub>2</sub>) 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 HYSINGLA ER, the risk is greatest during the initiation of therapy or following a dosage increase.

To reduce the risk of respiratory depression, proper dosing and titration of HYSINGLA ER are essential [see *Dosage and Administration (2.1, 2.3)*]. Overestimating the HYSINGLA ER dosage when converting patients from another opioid product can result in fatal overdose with the first dose.

Accidental ingestion of even one dose of HYSINGLA ER, especially by children, can result in respiratory depression and death due to an overdose of hydrocodone.

Educate patients and caregivers on how to recognize respiratory depression and emphasize the importance of calling 911 or getting emergency medical help right away in the event of a known or suspected overdose.

Opioids can cause sleep-related breathing disorders including central sleep apnea (CSA) and sleep-related hypoxemia. Opioid use increases the risk of CSA in a dose-dependent fashion. In patients who present with CSA, consider decreasing the opioid dosage using best practices for opioid taper [see *Dosage and Administration (2.4)*].

Patient Access to Naloxone for the Emergency Treatment of Opioid Overdose: Discuss the availability of naloxone for the emergency treatment of opioid overdose with the patient and caregiver and assess the potential need for access to naloxone, both when initiating and renewing treatment with HYSINGLA ER. Inform patients and caregivers about the various ways to obtain naloxone as permitted by individual state naloxone dispensing and prescribing requirements or guidelines (e.g., by prescription, directly from a pharmacist, or as part of a community-based program). Educate patients and caregivers on how to recognize respiratory depression and emphasize the importance of calling 911 or getting emergency medical help, even if naloxone is administered.

Consider prescribing naloxone, based on the patient's risk factors for overdose, such as concomitant use of CNS depressants, a history of opioid use disorder, or prior opioid overdose. The presence of risk factors for overdose should not prevent the proper management of pain in any given patient. Also consider prescribing naloxone if the patient has household members (including children) or other close contacts at risk for accidental ingestion or overdose. If naloxone is prescribed, educate patients and caregivers on how to treat with naloxone [see *Dosage and Administration (2.2), Warnings and Precautions (5.1, 5.3), Overdosage (10)*].

### **5.3 Risks from Concomitant Use with Benzodiazepines or Other CNS Depressants**

Profound sedation, respiratory depression, coma, and death may result from the concomitant use of HYSINGLA ER with benzodiazepines and/or other CNS depressants, including alcohol (e.g., non-benzodiazepine sedatives/hypnotics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, other opioids). Because of these risks, reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate.

Observational studies have demonstrated that concomitant use of opioid analgesics and benzodiazepines increases the risk of drug-related mortality compared to use of opioid analgesics alone. Because of similar pharmacological properties, it is reasonable to expect similar risk with the concomitant use of other CNS depressant drugs with opioid analgesics [see *Drug Interactions (7)*].

If the decision is made to prescribe a benzodiazepine or other CNS depressant concomitantly with an opioid analgesic, prescribe the lowest effective dosages and minimum durations of concomitant use. In patients already receiving an opioid analgesic, prescribe a lower initial dose of the benzodiazepine or other CNS depressant than indicated in the absence of an opioid, and titrate based on clinical response. If an opioid analgesic is initiated in a patient already taking a benzodiazepine or other CNS depressant, prescribe a lower initial dose of the opioid analgesic, and titrate based on clinical response. Inform patients and caregivers of this potential interaction and educate them on the signs and symptoms of respiratory depression (including sedation).

If concomitant use is warranted, consider prescribing naloxone for the emergency treatment of opioid overdose [see *Dosage and Administration (2.2)*, *Warnings and Precautions (5.2)*, *Overdosage (10)*].

Advise both patients and caregivers about the risks of respiratory depression and sedation when HYSINGLA ER is used with benzodiazepines or other CNS depressants (including alcohol and illicit drugs). Advise patients not to drive or operate heavy machinery until the effects of concomitant use of the benzodiazepine or other CNS depressant have been determined. Screen patients for risk of substance use disorders, including opioid abuse and misuse, and warn them of the risk for overdose and death associated with the use of additional CNS depressants including alcohol and illicit drugs [see *Drug Interactions (7)*].

#### **5.4 Neonatal Opioid Withdrawal Syndrome**

Use of HYSINGLA ER for an extended period of time 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 an extended period of time of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available [see *Use in Specific Populations (8.1)*].

#### **5.5 Opioid Analgesic Risk Evaluation and Mitigation Strategy (REMS)**

To ensure that the benefits of opioid analgesics outweigh the risks of addiction, abuse, and misuse, the Food and Drug Administration (FDA) has required a Risk Evaluation and Mitigation Strategy (REMS) for these products. Under the requirements of the REMS, drug companies with approved opioid analgesic products must make REMS-compliant education programs available to healthcare providers. Healthcare providers are strongly encouraged to do all of the following:

- Complete a REMS-compliant education program offered by an accredited provider of continuing education (CE) or another education program that includes all the elements of the FDA Education Blueprint for Health Care Providers Involved in the Management or Support of Patients with Pain.
- Discuss the safe use, serious risks, and proper storage and disposal of opioid analgesics with patients and/or their caregivers every time these medicines are prescribed. The Patient Counseling Guide (PCG) can be obtained at this link: [www.fda.gov/OpioidAnalgesicREMSPCG](http://www.fda.gov/OpioidAnalgesicREMSPCG).
- Emphasize to patients and their caregivers the importance of reading the Medication Guide that they will receive from their pharmacist every time an opioid analgesic is dispensed to them.
- Consider using other tools to improve patient, household, and community safety, such as patient- prescriber agreements that reinforce patient-prescriber responsibilities.

To obtain further information on the opioid analgesic REMS and for a list of accredited REMS CME/CE, call 1-800-503-0784, or log on to [www.opioidanalgesicrems.com](http://www.opioidanalgesicrems.com). The FDA Blueprint can be found at [www.fda.gov/OpioidAnalgesicREMSBlueprint](http://www.fda.gov/OpioidAnalgesicREMSBlueprint)

#### **5.6 Risks of Concomitant Use or Discontinuation of Cytochrome P450 3A4 Inhibitors and Inducers**

Concomitant use of HYSINGLA ER 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 HYSINGLA ER is achieved. Similarly, discontinuation of a CYP3A4 inducer, such as rifampin, carbamazepine, and phenytoin, in HYSINGLA ER treated patients may increase hydrocodone plasma concentrations and prolong opioid adverse reactions. When using HYSINGLA ER with CYP3A4 inhibitors or discontinuing CYP3A4 inducers in HYSINGLA ER-treated patients, evaluate patients at frequent intervals and consider dosage reduction of HYSINGLA ER until stable drug effects are achieved [see *Drug Interactions (7)*].

Concomitant use of HYSINGLA ER 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. When using HYSINGLA ER with CYP3A4 inducers or discontinuing CYP3A4 inhibitors, monitor patients closely at frequent intervals and consider increasing the opioid dosage if needed to maintain adequate analgesia or if symptoms of opioid withdrawal occur [see *Drug Interactions (7)*].

### **5.7 Opioid-Induced Hyperalgesia and Allodynia**

Opioid-Induced Hyperalgesia (OIH) occurs when an opioid analgesic paradoxically causes an increase in pain, or an increase in sensitivity to pain. This condition differs from tolerance, which is the need for increasing doses of opioids to maintain a defined effect [see *Dependence (9.3)*]. Symptoms of OIH include (but may not be limited to) increased levels of pain upon opioid dosage increase, decreased levels of pain upon opioid dosage decrease, or pain from ordinarily non-painful stimuli (allodynia). These symptoms may suggest OIH only if there is no evidence of underlying disease progression, opioid tolerance, opioid withdrawal, or addictive behavior.

Cases of OIH have been reported, both with short-term and longer-term use of opioid analgesics. Though the mechanism of OIH is not fully understood, multiple biochemical pathways have been implicated. Medical literature suggests a strong biologic plausibility between opioid analgesics and OIH and allodynia. If a patient is suspected to be experiencing OIH, carefully consider appropriately decreasing the dose of the current opioid analgesic, or opioid rotation (safely switching the patient to a different opioid moiety) [see *Dosage and Administration (2.7)*, *Warnings and Precautions (5.16)*].

### **5.8 Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients**

The use of HYSINGLA ER in patients with acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment is contraindicated.

Patients with Chronic Pulmonary Disease: HYSINGLA ER-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 HYSINGLA ER [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 (5.3)*].

Regularly evaluate patients, particularly when initiating and titrating HYSINGLA ER and when HYSINGLA ER is given concomitantly with other drugs that depress respiration [see *Warnings and Precautions (5.2, 5.3)*, *Drug Interactions (7)*]. Alternatively, consider the use of non-opioid analgesics in these patients.

### **5.9 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.

### **5.10 Severe Hypotension**

HYSINGLA ER may cause severe hypotension including orthostatic hypotension and syncope in ambulatory patients. There is an increased risk in patients whose ability to maintain blood pressure has already been compromised by a reduced blood volume, or after concurrent administration of certain CNS depressant drugs (e.g., phenothiazines or general anesthetics) [see *Drug Interactions (7)*]. Regularly evaluate these patients for signs of hypotension after initiating or titrating the dosage of HYSINGLA ER. In patients with circulatory shock, HYSINGLA ER may cause vasodilation that can further reduce cardiac output and blood pressure. Avoid the use of HYSINGLA ER in patients with circulatory shock.

### **5.11 QTc Interval Prolongation**

QTc prolongation has been observed with HYSINGLA ER following daily doses of 160 mg [see *Clinical Pharmacology (12.2)*]. This observation should be considered in making clinical decisions regarding patient monitoring when prescribing HYSINGLA ER in patients with congestive heart failure, bradyarrhythmias, electrolyte abnormalities, or who are taking medications that are known to prolong the QTc interval.

HYSINGLA ER should be avoided in patients with congenital long QT syndrome. In patients who develop QTc prolongation, consider reducing the dose by 33 – 50%, or changing to an alternate analgesic.

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

In patients who may be susceptible to the intracranial effects of CO<sub>2</sub> retention (e.g., those with evidence of increased intracranial pressure or brain tumors), HYSINGLA ER may reduce respiratory drive, and the resultant CO<sub>2</sub> retention can further increase intracranial pressure. Monitor such patients for signs of sedation and respiratory depression, particularly when initiating therapy with HYSINGLA ER.

Opioids may also obscure the clinical course in a patient with a head injury. Avoid the use of HYSINGLA ER in patients with impaired consciousness or coma.

### **5.13 Gastrointestinal Obstruction, Dysphagia, and Choking**

In the clinical studies with specific instructions to take HYSINGLA ER with adequate water to swallow the tablet, 11 out of 2476 subjects reported difficulty swallowing HYSINGLA ER. These reports included esophageal obstruction, dysphagia, and choking, one of which had required medical intervention to remove the tablet [see *Adverse Reactions (6)*].

Instruct patients not to pre-soak, lick, or otherwise wet HYSINGLA ER tablets prior to placing in the mouth, and to take one tablet at a time with enough water to ensure complete swallowing immediately after placing in the mouth.

Patients with underlying gastrointestinal disorders such as esophageal cancer or colon cancer with a small gastrointestinal lumen are at greater risk of developing these complications. Consider use of an alternative analgesic in patients who have difficulty swallowing and patients at risk for underlying gastrointestinal disorders resulting in a small gastrointestinal lumen.

Pediatric patients may be at increased risk of esophageal obstruction, dysphagia, and choking because of a smaller gastrointestinal lumen if they ingest HYSINGLA ER [see *Use in Specific Populations (8.4)*].

#### **5.14 Risks of Use in Patients with Gastrointestinal Conditions**

HYSINGLA ER is contraindicated in patients with known or suspected gastrointestinal obstruction, including paralytic ileus.

The hydrocodone in HYSINGLA ER may cause spasm of the sphincter of Oddi. Opioids may cause increases in serum amylase. Regularly evaluate patients with biliary tract disease, including acute pancreatitis, for worsening symptoms.

#### **5.15 Increased Risk of Seizures in Patients with Seizure Disorders**

The hydrocodone in HYSINGLA ER 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. Regularly evaluate patients with a history of seizure disorders for worsened seizure control during HYSINGLA ER therapy.

#### **5.16 Withdrawal**

Do not abruptly discontinue HYSINGLA ER in a patient physically dependent on opioids. When discontinuing HYSINGLA ER in a physically dependent patient, gradually taper the dosage. Rapid tapering of hydrocodone in a patient physically dependent on opioids may lead to a withdrawal syndrome and return of pain [see *Dosage and Administration (2.7)*, *Drug Abuse and Dependence (9.3)*].

Additionally, avoid the use of mixed agonist/antagonist analgesics (e.g., pentazocine, nalbuphine, and butorphanol) or partial agonist (e.g., buprenorphine) analgesics in patients who are receiving a full opioid agonist analgesic, including HYSINGLA ER. In these patients, mixed agonist/antagonist and partial agonist analgesics may reduce the analgesic effect and/or may precipitate withdrawal symptoms [see *Drug Interactions (7)*].

#### **5.17 Risks of Driving and Operating Machinery**

HYSINGLA ER may impair the mental and physical abilities needed to perform potentially hazardous activities such as driving a car or operating machinery. Peak blood levels of hydrocodone may occur 14 – 16 hours (range 6 – 30 hours) after initial dosing of HYSINGLA ER tablet administration. Blood levels of hydrocodone, in some patients, may be high at the end of 24 hours after repeated-dose administration. Warn patients not to drive or operate dangerous machinery unless they are tolerant to the effects of HYSINGLA ER and know how they will react to the medication.

### **6 ADVERSE REACTIONS**

The following serious adverse reactions are described elsewhere in the labeling:

- Addiction, Abuse, and Misuse [see *Warnings and Precautions (5.1)*]
- Life-Threatening Respiratory Depression [see *Warnings and Precautions (5.2)*]
- Interactions with Benzodiazepine or Other CNS Depressants [see *Warnings and Precautions (5.3)*]
- Neonatal Opioid Withdrawal Syndrome [see *Warnings and Precautions (5.4)*]
- Opioid-Induced Hyperalgesia and Allodynia [see *Warnings and Precautions (5.7)*]
- Adrenal Insufficiency [see *Warnings and Precautions (5.9)*]
- Severe Hypotension [see *Warnings and Precautions (5.10)*]
- Gastrointestinal Adverse Reactions [see *Warnings and Precautions (5.13, 5.14)*]
- Seizures [see *Warnings and Precautions (5.15)*]
- Withdrawal [see *Warnings and Precautions (5.16)*]

## 6.1 Clinical Trial Experience

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

A total of 1,827 patients were treated with HYSINGLA ER in controlled and open-label chronic pain clinical trials. Five hundred patients were treated for 6 months and 364 patients were treated for 12 months. The clinical trial population consisted of opioid-naïve and opioid-experienced patients with persistent moderate to severe chronic pain.

The common adverse reactions ( $\geq 2\%$ ) reported by patients in clinical trials comparing HYSINGLA ER (20-120 mg/day) with placebo are shown in Table 2 below:

**Table 2: Adverse Reactions Reported in  $\geq 2\%$  of Patients during the Open-Label Titration Period and Double-Blind Treatment Period: Opioid-Naïve and Opioid-Experienced Patients**

MedDRA Preferred Term	Open-label	Double-blind	
	Titration	Treatment Period	
	Period	HYSINGLA	
	(N=905)	Placebo	ER
	(%)	(N=292)	(N=296)
		(%)	(%)
Nausea	16	5	8
Constipation	9	2	3
Vomiting	7	3	6
Dizziness	7	2	3
Headache	7	2	2
Somnolence	5	1	1
Fatigue	4	1	1
Pruritus	3	<1	0
Tinnitus	2	1	2
Insomnia	2	2	3
Decreased appetite	1	1	2
Influenza	1	1	3

The adverse reactions seen in controlled and open-label chronic pain studies are presented below in the following manner: most common ( $\geq 5\%$ ), common ( $\geq 1\%$  to  $< 5\%$ ), and less common ( $< 1\%$ ).

The most common adverse reactions ( $\geq 5\%$ ) reported by patients treated with HYSINGLA ER in the chronic pain clinical trials were constipation, nausea, vomiting, fatigue, upper respiratory tract infection, dizziness, headache, somnolence.

The common ( $\geq 1\%$  to  $< 5\%$ ) adverse events reported by patients treated with HYSINGLA ER in the chronic pain clinical trials organized by MedDRA (Medical Dictionary for Regulatory Activities) System Organ Class were:

<u>Ear and labyrinth disorders</u>	tinnitus
<u>Gastrointestinal disorders</u>	abdominal pain, abdominal pain upper, diarrhea, dry mouth, dyspepsia, gastroesophageal reflux disease
<u>General disorders and administration site conditions</u>	chest pain, chills, edema peripheral, pain, pyrexia
<u>Infections and infestations</u>	bronchitis, gastroenteritis, gastroenteritis viral, influenza, nasopharyngitis, sinusitis, urinary tract infection
<u>Injury, poisoning and procedural complications</u>	fall, muscle strain
<u>Metabolism and nutrition disorders</u>	decreased appetite
<u>Musculoskeletal and connective tissue disorders</u>	arthralgia, back pain, muscle spasms, musculoskeletal pain, myalgia, pain in extremity
<u>Nervous system disorders</u>	lethargy, migraine, sedation
<u>Psychiatric disorders</u>	anxiety, depression, insomnia
<u>Respiratory, thoracic and mediastinal disorders</u>	cough, nasal congestion, oropharyngeal pain
<u>Skin and subcutaneous tissue disorders</u>	hyperhidrosis, pruritus, rash
<u>Vascular disorders</u>	hot flush, hypertension

Other less common adverse reactions that were seen in  $< 1\%$  of the patients in the HYSINGLA ER chronic pain clinical trials include the following in alphabetical order: abdominal discomfort, abdominal distention, agitation, asthenia, choking, confusional state, depressed mood, drug hypersensitivity, drug withdrawal syndrome, dysphagia, dyspnea, esophageal obstruction, flushing, hypogonadism, hypotension, hypoxia, irritability, libido decreased, malaise, mental impairment, mood altered, muscle twitching, edema, orthostatic hypotension, palpitations, presyncope, retching, syncope, thinking abnormal, thirst, tremor, and urinary retention.

## 6.2 Postmarketing Experience

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

Serotonin syndrome: Cases of serotonin syndrome, a potentially life-threatening condition, have been reported during concomitant use of opioids with serotonergic drugs.

**Adrenal insufficiency:** Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use.

**Anaphylaxis:** Anaphylaxis has been reported with ingredients contained in HYSINGLA ER.

**Androgen deficiency:** Cases of androgen deficiency have occurred with use of opioids for an extended period of time [see *Clinical Pharmacology (12.2)*].

**Hyperalgesia and Allodynia:** Cases of hyperalgesia and allodynia have been reported with opioid therapy of any duration [see *Warnings and Precautions (5.7)*].

**Hypoglycemia:** Cases of hypoglycemia have been reported in patients taking opioids. Most reports were in patients with at least one predisposing risk factor (e.g., diabetes).

## 7 DRUG INTERACTIONS

Table 3 includes clinically significant drug interactions with HYSINGLA ER.

**Table 3: Clinically Significant Drug Interactions with HYSINGLA ER**

<b>Inhibitors of CYP3A4</b>	
<i>Clinical Impact:</i>	The concomitant use of HYSINGLA ER and CYP3A4 inhibitors can increase the plasma concentration of hydrocodone, resulting in increased or prolonged opioid effects. These effects could be more pronounced with concomitant use of HYSINGLA ER and CYP3A4 inhibitors, particularly when an inhibitor is added after a stable dose of HYSINGLA ER is achieved [see <i>Warnings and Precautions (5.6)</i> ]. After stopping a CYP3A4 inhibitor, as the effects of the inhibitor decline, the hydrocodone plasma concentration will decrease [see <i>Clinical Pharmacology (12.3)</i> ], resulting in decreased opioid efficacy or a withdrawal syndrome in patients who had developed physical dependence to hydrocodone.
<i>Intervention:</i>	If concomitant use is necessary, consider dosage reduction of HYSINGLA ER until stable drug effects are achieved. Evaluate patients at frequent intervals for respiratory depression and sedation. If a CYP3A4 inhibitor is discontinued, consider increasing the HYSINGLA ER dosage until stable drug effects are achieved. Assess for signs of opioid withdrawal.
<i>Examples</i>	Macrolide antibiotics (e.g., erythromycin), azole-antifungal agents (e.g., ketoconazole), protease inhibitors (e.g., ritonavir).
<b>CYP3A4 Inducers</b>	
<i>Clinical Impact:</i>	The concomitant use of HYSINGLA ER and CYP3A4 inducers can decrease the plasma concentration of hydrocodone [see <i>Clinical Pharmacology (12.3)</i> ], resulting in decreased efficacy or onset of a withdrawal syndrome in patients who have developed physical dependence to hydrocodone [see <i>Warnings and Precautions (5.6)</i> ]. After stopping a CYP3A4 inducer, as the effects of the inducer decline, the hydrocodone plasma concentration will increase [see <i>Clinical Pharmacology (12.3)</i> ], which could increase or prolong both the therapeutic effects and adverse reactions, and may cause serious respiratory depression.
<i>Intervention:</i>	If concomitant use is necessary, consider increasing the HYSINGLA ER dosage until stable drug effects are achieved. Evaluate for signs of opioid withdrawal. If a CYP3A4 inducer is discontinued, consider HYSINGLA ER dosage reduction and evaluate patients at frequent intervals for signs of respiratory depression and sedation.
<i>Examples:</i>	Rifampin, carbamazepine, phenytoin
<b>Benzodiazepines and Other Central Nervous System (CNS) Depressants</b>	

<i>Clinical Impact:</i>	Due to additive pharmacologic effect, the concomitant use of benzodiazepines or other CNS depressants, including alcohol, can increase the risk of hypotension, respiratory depression, profound sedation, coma, and death [see <i>Warnings and Precautions (5.3)</i> ].
<i>Intervention:</i>	Reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate. Limit dosages and durations to the minimum required. Inform patients and caregivers of this potential interaction and educate them on the signs and symptoms of respiratory depression (including sedation). If concomitant use is warranted, consider prescribing naloxone for the emergency treatment of opioid overdose [see <i>Dosage and Administration (2.2), Warnings and Precautions (5.1, 5.2, 5.3)</i> ].
<i>Examples:</i>	Benzodiazepines and other sedatives/hypnotics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, other opioids, alcohol.
<b>Serotonergic Drugs</b>	
<i>Clinical Impact:</i>	The concomitant use of opioids with other drugs that affect the serotonergic neurotransmitter system has resulted in serotonin syndrome.
<i>Intervention:</i>	If concomitant use is warranted, frequently evaluate the patient, particularly during treatment initiation and dose adjustment. Discontinue HYSINGLA ER if serotonin syndrome is suspected.
<i>Examples:</i>	Selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), triptans, 5-HT <sub>3</sub> receptor antagonists, drugs that affect the serotonin neurotransmitter system (e.g., mirtazapine, trazodone, tramadol), certain muscle relaxants (i.e., cyclobenzaprine, metaxalone), monoamine oxidase inhibitors (those intended to treat psychiatric disorders and also others, such as linezolid and intravenous methylene blue).
<b>Monoamine Oxidase Inhibitors (MAOIs)</b>	
<i>Clinical Impact:</i>	MAOI interactions with opioids may manifest as serotonin syndrome or opioid toxicity (e.g., respiratory depression, coma) [see <i>Warnings and Precautions (5.3)</i> ].
<i>Intervention:</i>	The use of HYSINGLA ER is not recommended for patients taking MAOIs or within 14 days of stopping such treatment.
<i>Examples:</i>	Phenelzine, tranylcypromine, linezolid
<b>Mixed Agonist/Antagonist and Partial Agonist Opioid Analgesics</b>	
<i>Clinical Impact:</i>	May reduce the analgesic effect of HYSINGLA ER and/or precipitate withdrawal symptoms.
<i>Intervention:</i>	Avoid concomitant use.
<i>Examples:</i>	butorphanol, nalbuphine, pentazocine, buprenorphine
<b>Muscle Relaxants</b>	
<i>Clinical Impact:</i>	Hydrocodone may enhance the neuromuscular blocking action of skeletal muscle relaxants and produce an increased degree of respiratory depression.
<i>Intervention:</i>	Because respiratory depression may be greater than otherwise expected, decrease the dosage of HYSINGLA ER and/or the muscle relaxant as necessary. Due to the risk of respiratory depression with concomitant use of skeletal muscle relaxants and opioids, consider prescribing naloxone for the emergency treatment of opioid overdose [see <i>Dosage and Administration (2.2), Warnings and Precautions (5.2, 5.3)</i> ].
<i>Example:</i>	Cyclobenzaprine, metaxalone
<b>Diuretics</b>	
<i>Clinical Impact:</i>	Opioids can reduce the efficacy of diuretics by inducing the release of antidiuretic hormone.
<i>Intervention:</i>	Evaluate patients for signs of diminished diuresis and/or effects on blood pressure and increase the dosage of the diuretic as needed.
<b>Anticholinergic Drugs</b>	
<i>Clinical Impact:</i>	The concomitant use of anticholinergic drugs may increase risk of urinary retention and/or severe constipation, which may lead to paralytic ileus.

<i>Intervention:</i>	Evaluate patients for signs of urinary retention or reduced gastric motility when HYSINGLA ER is used concomitantly with anticholinergic drugs.
<b>Strong Laxatives</b>	
<i>Clinical Impact:</i>	Concomitant use of HYSINGLA ER with strong laxatives that rapidly increase gastrointestinal motility, may decrease hydrocodone absorption and result in decreased hydrocodone plasma levels.
<i>Intervention:</i>	If HYSINGLA ER is used in these patients, regularly evaluate for the development of adverse events as well as changing analgesic requirements.
<i>Example:</i>	lactulose

## 8 USE IN SPECIFIC POPULATIONS

### 8.1 Pregnancy

#### Risk Summary

Use of opioid analgesics for an extended period of time during pregnancy may cause neonatal opioid withdrawal syndrome [see *Warnings and Precautions (5.4)*]. Available data with HYSINGLA ER in pregnant women are insufficient to inform a drug-associated risk for major birth defects and miscarriage. In animal reproduction studies with hydrocodone in rats and rabbits no embryotoxicity or teratogenicity was observed. However, reduced pup survival rates, reduced fetal/pup body weights, and delayed ossification were observed at doses causing maternal toxicity. In all of the studies conducted, the exposures in animals were less than the human exposure [see *Data*].

The 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*

Use of opioid analgesics for extended period of time 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 (5.4)*].

##### *Labor and 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. HYSINGLA ER is not recommended for use in pregnant women during or immediately prior to labor, when use of shorter-acting analgesics or other analgesic techniques are more appropriate. Opioid analgesics, including HYSINGLA ER, 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 opioid analgesics during labor for signs of excess sedation and respiratory depression.

#### Data

#### *Animal Data*

No evidence of embryotoxicity or teratogenicity was observed after oral administration of hydrocodone throughout the period of organogenesis in rats and rabbits at doses up to 30 mg/kg/day (approximately 0.1 and 0.3 times, respectively, the human hydrocodone dose of 120 mg/day based on AUC exposure comparisons). However, in these studies, reduced fetal body weights and delayed ossification were observed in rat at 30 mg/kg/day and reduced fetal body weights were observed in rabbits at 30 mg/kg/day (approximately 0.1 and 0.3 times, respectively, the human hydrocodone dose of 120 mg/day based on AUC exposure comparisons). In a pre- and post-natal development study pregnant rats were administered oral hydrocodone throughout the period of gestation and lactation. At a dose of 30 mg/kg/day decreased pup viability, pup survival indices, litter size and pup body weight were observed. This dose is approximately 0.1 times the human hydrocodone dose of 120 mg/day based on AUC exposure comparisons.

## **8.2 Lactation**

### Risk Summary

Hydrocodone is present in human milk. A published lactation study reports 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. This lactation study did not assess breastfed infants for potential adverse drug reactions. Lactation studies have not been conducted with HYSINGLA, and no information is available on the effects of the drug on the breastfed infant or the effects of the drug on milk production. Because of the potential for serious adverse reactions, including excess sedation and respiratory depression in a breastfed infant, advise patients that breastfeeding is not recommended during treatment with HYSINGLA ER.

### Clinical Considerations

Monitor infants exposed to HYSINGLA ER through breast milk for excess sedation and respiratory depression. Withdrawal symptoms can occur in breastfed infants when maternal administration of an opioid analgesic is stopped, or when breastfeeding is stopped.

## **8.3 Females and Males of Reproductive Potential**

### Infertility

Use of opioids for an extended period of time 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 (6.2), Clinical Pharmacology (12.2), Nonclinical Toxicology (13.1)*].

## **8.4 Pediatric Use**

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

HYSINGLA ER gradually forms a viscous hydrogel (i.e., a gelatinous mass) when exposed to water or other fluids. Pediatric patients may be at increased risk of esophageal obstruction, dysphagia, and choking because of a smaller gastrointestinal lumen if they ingest HYSINGLA ER [*see Warnings and Precautions (5.13)*]

## **8.5 Geriatric Use**

In a controlled pharmacokinetic study, elderly subjects (greater than 65 years) compared to young adults had similar plasma concentrations of hydrocodone [*see Clinical Pharmacology (12.3)*]. Of the 1827 subjects exposed to HYSINGLA ER in the pooled chronic pain studies, 241 (13%) were age 65 and older (including those age 75 and older), while 42 (2%) were age 75 and older. In clinical trials with appropriate initiation of therapy and dose titration, no untoward or unexpected adverse reactions were seen in the elderly patients who received HYSINGLA ER.

In general, use caution when selecting a dosage for an elderly patient, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function and of concomitant disease or other drug therapy.

Respiratory depression is the chief risk for elderly patients treated with opioids, and has occurred after large initial doses were administered to patients who were not opioid-tolerant or when opioids were co-administered with other agents that depress respiration. Titrate the dosage of HYSINGLA ER slowly in geriatric patients and frequently reevaluate the patient for signs of central nervous system and respiratory depression [see *Warnings and Precautions (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, care should be taken in dose selection, and it may be useful to regularly evaluate renal function.

### **8.6 Hepatic Impairment**

No adjustment in starting dose with HYSINGLA ER is required in patients with mild or moderate hepatic impairment. Patients with severe hepatic impairment may have higher plasma concentrations than those with normal hepatic function [see *Clinical Pharmacology (12.3)*]. Therefore, a dosage reduction is recommended for these patients [see *Dosage and Administration (2.5)*]. Regularly evaluate closely for respiratory depression, sedation, and hypotension.

### **8.7 Renal Impairment**

No dose adjustment is needed in patients with mild renal impairment. Patients with moderate or severe renal impairment or end stage renal disease have higher plasma concentrations than those with normal renal function [see *Clinical Pharmacology (12.3)*]. Therefore, a dosage reduction is recommended for these patients [see *Dosage and Administration (2.6)*]. Regularly evaluate closely for respiratory depression, sedation, and hypotension.

## **9 DRUG ABUSE AND DEPENDENCE**

### **9.1 Controlled Substance**

HYSINGLA ER contains hydrocodone bitartrate, a Schedule II controlled substance.

### **9.2 Abuse**

HYSINGLA ER contains hydrocodone, a substance with high potential for misuse and abuse, which can lead to the development of substance use disorder, including addiction [see *Warnings and Precautions (5.1)*].

Misuse is the intentional use, for therapeutic purposes, of a drug by an individual in a way other than prescribed by a healthcare provider or for whom it was not prescribed.

Abuse is the intentional, non-therapeutic use of a drug, even once, for its desirable psychological or physiological effects.

Drug addiction is a cluster of behavioral, cognitive, and physiological phenomena that may include a strong desire to take the drug, difficulties in controlling drug use (e.g., continuing drug use despite

harmful consequences, giving a higher priority to drug use than other activities and obligations), and possible tolerance or physical dependence.

Misuse and abuse of HYSINGLA ER increases risk of overdose, which may lead to central nervous system and respiratory depression, hypotension, seizures, and death. The risk is increased with concurrent abuse of HYSINGLA ER with alcohol and other CNS depressants. Abuse of and addiction to opioids in some individuals may not be accompanied by concurrent tolerance and symptoms of physical dependence. In addition, abuse of opioids can occur in the absence of addiction.

All patients treated with opioids require careful and frequent reevaluation for signs of misuse, abuse, and addiction, because use of opioid analgesic products carries the risk of addiction even under appropriate medical use. Patients at high risk of HYSINGLA ER abuse include those with a history of prolonged use of any opioid, including products containing hydrocodone, those with a history of drug or alcohol abuse, or those who use HYSINGLA ER in combination with other abused drugs.

“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 healthcare provider(s). “Doctor shopping” (visiting multiple prescribers to obtain additional prescriptions) is common among people who abuse drugs and people with substance use disorder. Preoccupation with achieving adequate pain relief can be appropriate behavior in a patient with inadequate pain control.

HYSINGLA ER, like other opioids, can be diverted for nonmedical 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 reevaluation of therapy, and proper dispensing and storage are appropriate measures that help to limit abuse of opioid drugs.

#### Risks Specific to Abuse of HYSINGLA ER

Abuse of HYSINGLA ER poses a risk of overdose and death. This risk is increased with concurrent use of HYSINGLA ER with alcohol and/or other CNS depressants [*see Warnings and Precautions (5.1, 5.3), Drug Interactions (7)*].

Abuse may occur by taking intact tablets in quantities greater than prescribed or without legitimate purpose, by crushing and chewing or snorting the crushed formulation, or by injecting a solution made from the crushed formulation. Taking cut, broken, chewed, crushed, or dissolved HYSINGLA ER increases the risk of overdose and death.

HYSINGLA ER is approved for oral use only.

With parenteral abuse, the inactive ingredients in HYSINGLA ER can result in local tissue necrosis, infection, pulmonary granulomas, increased risk of endocarditis and valvular heart injury, embolism, and death. Parenteral drug abuse is commonly associated with transmission of infectious diseases such as hepatitis and HIV.

#### Abuse Deterrence Studies

HYSINGLA ER is formulated with physicochemical properties intended to make the tablet more difficult to manipulate for misuse and abuse, and maintains some extended-release characteristics even if the tablet is physically compromised. To evaluate the ability of these physicochemical properties to reduce the potential for abuse of HYSINGLA ER, a series of *in vitro* laboratory studies, pharmacokinetic studies and clinical abuse potential studies was conducted. A summary is provided at the end of this section.

### *In Vitro Testing*

*In vitro* physical and chemical tablet manipulation studies were performed to evaluate the success of different extraction methods in defeating the extended-release formulation. Results support that HYSINGLA ER resists crushing, breaking, and dissolution using a variety of tools and solvents and retains some extended-release properties despite manipulation. When subjected to an aqueous environment, HYSINGLA ER gradually forms a viscous hydrogel (i.e., a gelatinous mass) that resists passage through a hypodermic needle.

### *Clinical Abuse Potential Studies*

#### Studies in Non-dependent Opioid Abusers:

Two randomized, double-blind, placebo and active-comparator studies in non-dependent opioid abusers were conducted to characterize the abuse potential of HYSINGLA ER following physical manipulation and administration via the intranasal and oral routes. For both studies, drug liking was measured on a bipolar drug liking scale of 0 to 100 where 50 represents a neutral response of neither liking nor disliking, 0 represents maximum disliking, and 100 represents maximum liking. Response to whether the subject would take the study drug again was measured on a unipolar scale of 0 to 100 where 0 represents the strongest negative response (“definitely would not take drug again”) and 100 represents the strongest positive response (“definitely would take drug again”).

#### Intranasal Abuse Potential Study:

In the intranasal abuse potential study, 31 subjects were dosed and 25 subjects completed the study. Treatments studied included intranasally administered tampered HYSINGLA ER 60 mg tablets, powdered hydrocodone bitartrate 60 mg, and placebo. Incomplete dosing due to granules falling from the subjects’ nostrils occurred in 82% (n = 23) of subjects receiving tampered HYSINGLA ER compared to no subjects with powdered hydrocodone or placebo.

The intranasal administration of tampered HYSINGLA ER was associated with statistically significantly lower mean and median scores for drug liking and take drug again ( $P < 0.001$  for both), compared with powdered hydrocodone as summarized in Table 4.

**Table 4. Summary of Maximum Scores ( $E_{max}$ ) on Drug Liking and Take Drug Again VAS Following intranasal Administration of HYSINGLA ER and Hydrocodone Powder in Non-dependent Opioid Abusers**

<u>VAS Scale (100 point)</u>	<u>HYSINGLA ER</u>	<u>Hydrocodone</u>
<u>Intranasal (n=25)</u>	<u>Manipulated</u>	<u>Powder</u>
Drug Liking*		
Mean (SE)	65.4 (3.7)	90.4 (2.6)
Median (Range)	56 (50–100)	100 (51–100)
Take Drug Again**		
Mean (SE)	36.4 (8.2)	85.2 (5.0)
Median (Range)	14 (0-100)	100 (1-100)

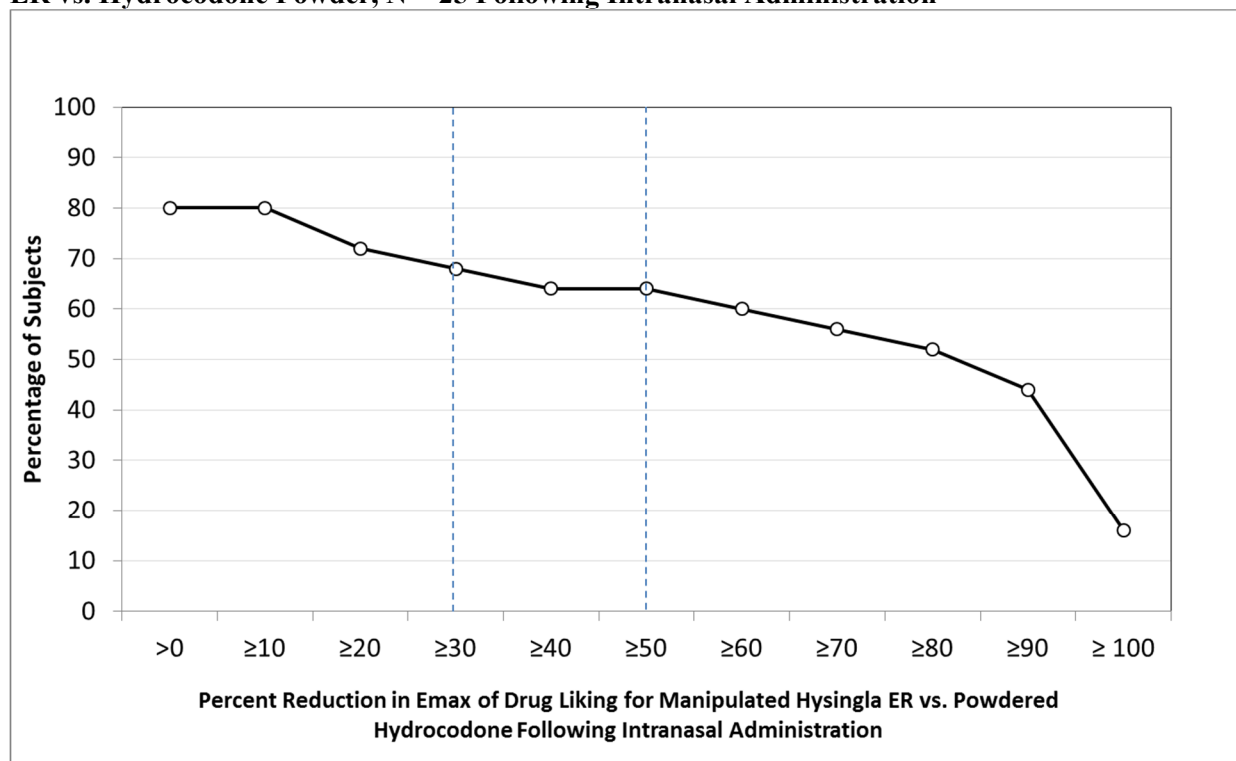
\*Bipolar scale (0=maximum negative response, 50=neutral response, 100=maximum positive response)

\*\* Unipolar scale (0=maximum negative response, 100=maximum positive response)

Figure 1 demonstrates a comparison of peak drug liking scores for tampered HYSINGLA ER compared with powdered hydrocodone in subjects (n = 25) who received both treatments intranasally. The Y-axis represents the percent of subjects attaining a percent reduction in peak drug liking scores for tampered HYSINGLA ER vs. hydrocodone powder greater than or equal to the value on the X-axis.

Approximately 80% (n = 20) of subjects had some reduction in drug liking with tampered HYSINGLA ER relative to hydrocodone powder. Sixty-eight percent (n = 17) of subjects had a reduction of at least 30% in drug liking with tampered HYSINGLA ER compared with hydrocodone powder, and approximately 64% (n = 16) of subjects had a reduction of at least 50% in drug liking with tampered HYSINGLA ER compared with hydrocodone powder. Approximately 20% (n = 5) of subjects had no reduction in liking with tampered HYSINGLA ER relative to hydrocodone powder.

**Figure 1: Percent Reduction Profiles for  $E_{max}$  of Drug Liking VAS for Manipulated HYSINGLA ER vs. Hydrocodone Powder, N = 25 Following Intranasal Administration**



Oral Abuse Potential Study:

In the oral abuse potential study, 40 subjects were dosed and 35 subjects completed the study. Treatments studied included oral administrations of chewed HYSINGLA ER 60 mg tablets, intact HYSINGLA ER 60 mg tablets, 60 mg aqueous hydrocodone bitartrate solution, and placebo.

The oral administration of chewed and intact HYSINGLA ER was associated with statistically lower mean and median scores on scales that measure drug liking and desire to take drug again ( $P < 0.001$ ), compared to hydrocodone solution as summarized in Table 5.

**Table 5. Summary of Maximum Scores ( $E_{max}$ ) on Drug Liking and Take Drug Again VAS Following Oral Administration of HYSINGLA ER and Hydrocodone Solution in Non-dependent Recreational Opioid Users**

VAS Scale (100 point) <i>Oral (n=35)</i>	HYSINGLA ER		Hydrocodone Solution
	Intact	Chewed	
Drug Liking*			
Mean (SE)	63.3 (2.7)	69.0 (3.0)	94.0 (1.7)
Median (Range)	58 (50–100)	66 (50–100)	100 (51–100)
Take Drug Again**			
Mean (SE)	34.3 (6.1)	44.3 (6.9)	89.7 (3.6)
Median (Range)	24 (0-100)	55 (0-100)	100 (1-100)

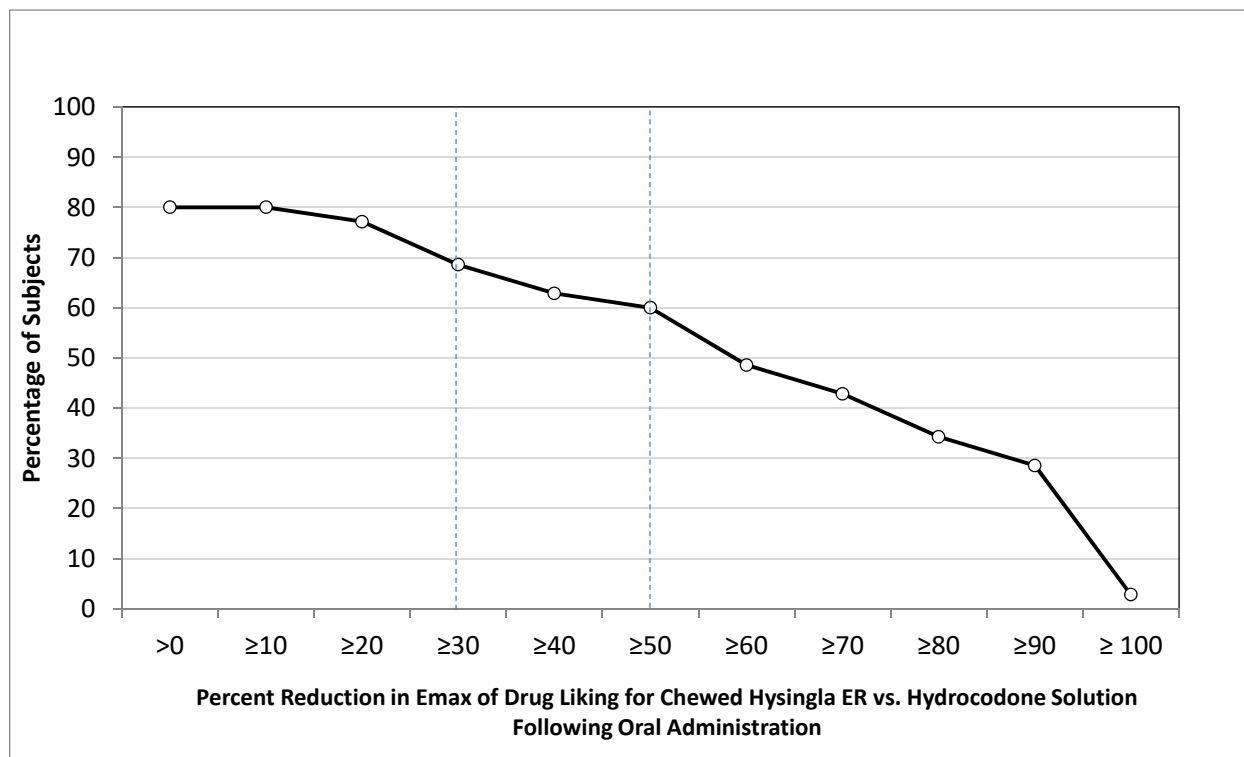
\*Bipolar scale (0=maximum negative response, 50=neutral response, 100=maximum positive response)

\*\* Unipolar scale (0=maximum negative response, 100=maximum positive response)

Figure 2 demonstrates a comparison of peak drug liking scores for chewed HYSINGLA ER compared with hydrocodone solution in subjects who received both treatments orally. The Y-axis represents the percent of subjects attaining a percent reduction in peak drug liking scores for chewed HYSINGLA ER vs. hydrocodone solution greater than or equal to the value on the X-axis.

Approximately 80% (n = 28) of subjects had some reduction in drug liking with chewed HYSINGLA ER relative to hydrocodone solution. Approximately 69% (n = 24) of subjects had a reduction of at least 30% in drug liking with chewed HYSINGLA ER compared with hydrocodone solution, and approximately 60% (n = 21) of subjects had a reduction of at least 50% in drug liking with chewed HYSINGLA ER compared with hydrocodone solution. Approximately 20% (n = 7) of subjects had no reduction in drug liking with chewed HYSINGLA ER relative to hydrocodone solution.

**Figure 2. Percent Reduction Profiles for E<sub>max</sub> of Drug Liking VAS for Chewed HYSINGLA ER vs. Hydrocodone Solution, N = 35 Following Oral Administration**



The results of a similar analysis of drug liking for intact HYSINGLA ER relative to hydrocodone solution were comparable to the results of chewed HYSINGLA ER relative to hydrocodone solution. Approximately 83% (n = 29) of subjects had some reduction in drug liking with intact HYSINGLA ER relative to hydrocodone solution. Eighty-three percent (n = 29) of subjects had a reduction of at least 30%

in peak drug liking scores with intact HYSINGLA ER compared to hydrocodone solution, and approximately 74% (n = 26) of subjects had a reduction of at least 50% in peak drug liking scores with intact HYSINGLA ER compared with hydrocodone solution. Approximately 17% (n = 6) had no reduction in drug liking with intact HYSINGLA ER relative to hydrocodone solution.

#### *Summary*

The *in vitro* data demonstrate that HYSINGLA ER has physical and chemical properties that are expected to deter intranasal and intravenous abuse. The data from the clinical abuse potential studies, along with support from the *in vitro* data, also indicate that HYSINGLA ER has physicochemical properties that are expected to reduce intranasal abuse and oral abuse when chewed. However, abuse of HYSINGLA ER by the intravenous, intranasal, and oral routes is still possible.

Additional data, including epidemiological data, when available, may provide further information on the impact of HYSINGLA ER on the abuse liability of the drug. Accordingly, this section may be updated in the future as appropriate.

### **9.3 Dependence**

Both tolerance and physical dependence can develop during use of opioid therapy.

Tolerance is a physiological state characterized by a reduced response to a drug after repeated administration (i.e., a higher dose of a drug is required to produce the same effect that was once obtained at a lower dose).

Physical dependence is a state that develops as a result of a physiological adaptation in response to repeated drug use, manifested by withdrawal signs and symptoms after abrupt discontinuation or a significant dose reduction of a drug.

Withdrawal may be precipitated through the administration of drugs with opioid antagonist activity (e.g., naloxone), mixed agonist/antagonist analgesics (e.g., pentazocine, butorphanol, nalbuphine), or partial agonists (e.g., buprenorphine). Physical dependence may not occur to a clinically significant degree until after several days to weeks of continued use.

Do not abruptly discontinue HYSINGLA ER in a patient physically dependent on opioids. Rapid tapering of HYSINGLA ER in a patient physically dependent on opioids may lead to serious withdrawal symptoms, uncontrolled pain, and suicide. Rapid discontinuation has also been associated with attempts to find other sources of opioid analgesics, which may be confused with drug-seeking for abuse.

When discontinuing HYSINGLA ER, gradually taper the dosage using a patient-specific plan that considers the following: the dose of HYSINGLA ER the patient has been taking, the duration of treatment, and the physical and psychological attributes of the patient. To improve the likelihood of a successful taper and minimize withdrawal symptoms, it is important that the opioid tapering schedule is agreed upon by the patient. In patients taking opioids for an extended period of time at high doses, ensure that a multimodal approach to pain management, including mental health support (if needed), is in place prior to initiating an opioid analgesic taper [see *Dosage and Administration* (2.7), *Warnings and Precautions* (5.16)].

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

Acute overdosage with hydrocodone can be manifested by respiratory depression, somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, constricted pupils, and, in some cases, pulmonary edema, bradycardia, hypotension, hypoglycemia, partial or complete airway obstruction, atypical snoring, and death. Marked mydriasis rather than miosis may be seen with hypoxia in overdose situations [see *Clinical Pharmacology* (12.2)].

### Treatment of Overdose

In case of overdose, priorities are the re-establishment of a patent airway and institution of assisted or controlled ventilation, if needed. Employ other supportive measures (including oxygen and vasopressors) in the management of circulatory shock and pulmonary edema accompanying overdose as indicated. Cardiac arrest or arrhythmias will require advanced life support measures.

Opioid antagonists, such as naloxone, are specific antidotes to respiratory depression resulting from opioid overdosage. For clinically significant respiratory or circulatory depression secondary to hydrocodone overdose, administer an opioid antagonist.

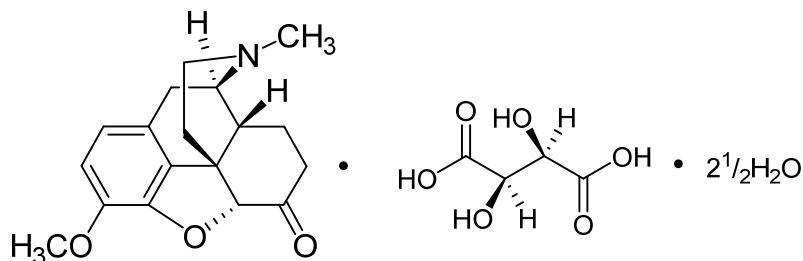
Because the duration of opioid reversal is expected to be less than the duration of action of hydrocodone in HYSINGLA ER, carefully monitor the patient until spontaneous respiration is reliably reestablished. HYSINGLA ER will continue to release hydrocodone and add to the hydrocodone load for 24 to 48 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.

In an individual physically dependent on opioids, administration of the recommended dose of the antagonist will precipitate an acute withdrawal syndrome. The severity of the withdrawal syndrome produced will depend on the degree of physical dependence and the dose of the antagonist administered. If a decision is made to treat serious respiratory depression in the physically dependent patient, administration of the antagonist should be initiated with care and by titration with smaller than usual doses of the antagonist.

## 11 DESCRIPTION

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets are supplied in 20 mg, 30 mg, 40 mg, 60 mg, 80 mg, 100 mg and 120 mg film-coated tablets for oral administration. The tablet strengths describe the amount of hydrocodone per tablet as the bitartrate salt.

Hydrocodone bitartrate is an opioid agonist. Its chemical name is 4,5 $\alpha$ -epoxy-3-methoxy-17-methylmorphinan-6-one tartrate (1:1) hydrate (2:5). Its structural formula is:



Empirical formula: C<sub>18</sub>H<sub>21</sub>NO<sub>3</sub> • C<sub>4</sub>H<sub>6</sub>O<sub>6</sub> • 2½H<sub>2</sub>O;      Molecular weight: 494.49.

Hydrocodone bitartrate exists as fine white crystals or a crystalline powder. It is affected by light. It is soluble in water, slightly soluble in alcohol, and insoluble in ether and chloroform.

The 20 mg, 30 mg, 40 mg, 60 mg, 80 mg, 100 mg and 120 mg tablets contain the following inactive ingredients: Butylated Hydroxytoluene (BHT, an additive in Polyethylene Oxide), Hydroxypropyl Cellulose, Macrogol/PEG 3350, Magnesium Stearate, Microcrystalline Cellulose, Polyethylene Oxide, Polysorbate 80, Polyvinyl Alcohol, Talc, Titanium Dioxide, and Black Ink.

The 20 mg tablets also contain Iron Oxide Yellow and FD&C Blue #2 Aluminum Lake/Indigo Carmine Aluminum Lake.

The 30 mg tablets also contain Iron Oxide Yellow.

The 40 mg tablets also contain Iron Oxide Yellow, Iron Oxide Red, and Iron Oxide Black.

The 60 mg tablets also contain Iron Oxide Yellow and Iron Oxide Red.

The 80 mg tablets also contain Iron Oxide Red.

The 100 mg tablets also contain FD&C Blue #2 Aluminum Lake.

Black Ink Contains: Shellac Glaze (in Ethanol), Isopropyl Alcohol, Iron Oxide Black, N-Butyl Alcohol, Propylene Glycol and Ammonium Hydroxide.

## 12 CLINICAL PHARMACOLOGY

### 12.1 Mechanism of Action

Hydrocodone is a full opioid agonist with relative selectivity for the mu-opioid receptor, although it can interact with other opioid receptors at higher doses. The principal therapeutic action of hydrocodone is analgesia. Like all full opioid agonists, there is no ceiling effect for analgesia with hydrocodone. Clinically, dosage is titrated to provide adequate analgesia and may be limited by adverse reactions, including respiratory and CNS depression.

The precise mechanism of the analgesic action is unknown. However, specific CNS opioid receptors for endogenous compounds with opioid-like activity have been identified throughout the brain and spinal cord and are thought to play a role in the analgesic effects of this drug.

### 12.2 Pharmacodynamics

#### Cardiac Electrophysiology

QTc interval prolongation was studied in a double-blind, placebo- and positive-controlled 3-treatment parallel-group, dose-escalating study of HYSINGLA ER in 196 healthy subjects. QTc interval prolongation was observed following HYSINGLA ER 160 mg per day. The maximum mean (90% upper confidence bound) difference in the QTc interval between HYSINGLA ER and placebo (after baseline-correction) at steady state was 6 (9) milliseconds, 7 (10) milliseconds, and 10 (13) milliseconds at HYSINGLA ER doses of 80 mg, 120 mg and 160 mg respectively. For clinical implications of the prolonged QTc interval, [see *Warnings and Precautions* (5.11)].

#### Effects on the Central Nervous System

Hydrocodone produces respiratory depression by direct action on brainstem 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 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 origin may produce similar findings). Marked mydriasis rather than miosis may be seen with hypoxia in overdose situations [see *Overdosage* (10)].

#### 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 is 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, 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 (6.2)*]. They also stimulate prolactin, growth hormone (GH) secretion, and pancreatic secretion of insulin and glucagon.

Use of opioids for an extended period of time 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 (6.2)*].

#### 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—Efficacy Relationships

The minimum effective analgesic concentration will vary widely among patients especially among patients who have been previously treated with opioid agonists. The minimum effective analgesic concentration of hydrocodone for any individual patient may increase over time due to an increase in pain, the development of a new pain syndrome, and/or the development of analgesic tolerance [see *Dosage and Administration (2.1, 2.4)*].

#### Concentration—Adverse Experience Relationships

There is a relationship between increasing hydrocodone plasma concentration and increasing frequency of 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 [see *Dosage and Administration (2.1, 2.3., 2.4)*].

### **12.3 Pharmacokinetics**

#### Absorption

HYSINGLA ER is a single-entity extended-release formulation of hydrocodone that yields a gradual increase in plasma hydrocodone concentrations with a median  $T_{max}$  of 14 – 16 hours noted for different dose strengths. Peak plasma levels may occur in the range of 6 -30 hours after single dose HYSINGLA ER administration.

Systemic exposure (AUC and  $C_{max}$ ) increased linearly with doses from 20 to 120 mg. Both  $C_{max}$  and AUC increased slightly more than dose proportionally (Table 6). The mean terminal half-life ( $t_{1/2}$ ) was similar for all HYSINGLA ER dose strengths ranging from 7 to 9 hours.

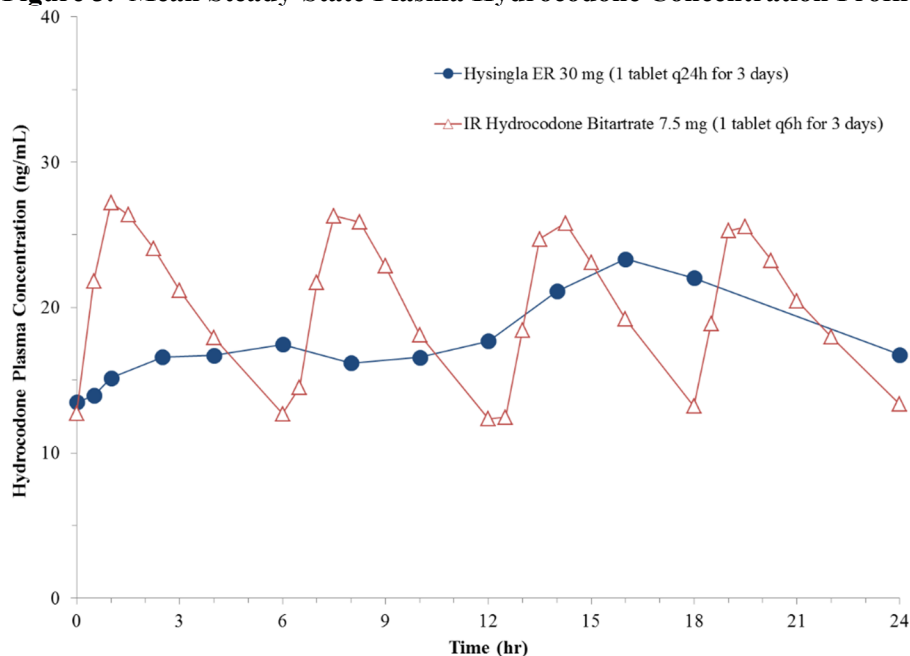
**Table 6 Mean (SD) Single-Dose Pharmacokinetic Parameters of HYSINGLA ER**

Dose Strength (mg)	AUC <sub>inf</sub> (ng•h/mL)	C <sub>max</sub> (ng/mL)	T <sub>max</sub> * (h)
20	284 (128)	14.6 (5.5)	16 (6, 24)
40	622 (252)	33.9 (11.8)	16 (6, 24)
60	1009 (294)	53.6 (15.4)	14 (10, 30)
80	1304 (375)	69.1 (17.2)	16 (10, 24)
120	1787 (679)	110 (44.1)	14 (6, 30)

\* median (minimum, maximum)

As compared to an immediate-release hydrocodone combination product, HYSINGLA ER at the same daily dose results in similar bioavailability but with lower maximum concentrations at steady state (Figure 3).

**Figure 3. Mean Steady-State Plasma Hydrocodone Concentration Profile**



Steady-state plasma hydrocodone concentrations were confirmed on day 3 of once-daily dosing of HYSINGLA ER. The extent of accumulation of systemic exposure was 1.3 and 1.1 fold with respect to AUC and C<sub>max</sub> at steady-state. The mean terminal half-life (t<sub>1/2</sub>) at steady state was 7 hours. Median T<sub>max</sub> values were 14 hours (range: 12 to 24 hours) on both Day 1 and Day 5 following once daily administration of HYSINGLA ER for five days. Daily fluctuation in peak to trough plasma levels of hydrocodone were higher at 80 mg and 120 mg doses of HYSINGLA ER compared to 30 mg dose (Table 7).

**Table 7 Mean (SD) Steady-State Hydrocodone Pharmacokinetic Parameters**

Regimen	AUC <sub>24,ss</sub> (ng•h/mL)	C <sub>max,ss</sub> (ng/mL)	C <sub>min,ss</sub> (ng/mL)	%Fluctuation*
HYSINGLA ER				
30 mg q24h	443 (128)	26.4 (7.4)	16.7 (5.2)	61 (6.4,113)
80 mg q24h	1252 (352)	82.6 (25.7)	28.2 (12)	105 (36,214)
120 mg q24h	1938 (729)	135 (50)	63.6 (29)	97.9 (32, 250)

\* Mean (minimum, maximum); Percentage fluctuation in plasma concentration is derived as  $(C_{\max,ss} - C_{\min,ss}) * 100 / C_{\text{avg},ss}$ .

### Food Effects

C<sub>max</sub> and AUC of HYSINGLA ER 120 mg tablets were similar under low fat conditions relative to fasting conditions (17% and 9% higher, respectively). C<sub>max</sub> was higher (54%) under high fat conditions relative to fasting conditions; however, AUC of HYSINGLA ER 120 mg tablets was only 20% higher when co-administered with a high fat meal. HYSINGLA ER may be administered without regard to meals.

### Distribution

Following administration of HYSINGLA ER, the typical (70 kg adult) value of apparent volume of distribution (V/F) is 402 L, suggesting extensive tissue distribution. The extent of *in vivo* binding of hydrocodone to human plasma proteins was minimal with a mean % bound at 36%.

### Elimination

#### Metabolism

Hydrocodone exhibits a complex pattern of metabolism, including *N*-demethylation, *O*-demethylation, and 6-keto reduction to the corresponding 6- $\alpha$ - and 6- $\beta$ -hydroxy metabolites. CYP3A4 mediated *N*-demethylation to inactive norhydrocodone is the primary metabolic pathway of hydrocodone with a lower contribution from CYP2B6 and CYP2C19. The minor metabolite hydromorphone (<3% of the circulating parent hydrocodone) was mainly formed by CYP2D6 mediated *O*-demethylation with a smaller contribution by CYP2B6 and CYP2C19. Hydromorphone may contribute to the total analgesic effect of hydrocodone.

#### Excretion

Hydrocodone and its metabolites are cleared primarily by renal excretion. The percent of administered dose excreted unchanged as hydrocodone in urine was 6.5% in subjects with normal renal function, and 5.0%, 4.8%, and 2.3% in subjects with mild, moderate, and severe renal impairment, respectively. Renal clearance (CL<sub>r</sub>) of hydrocodone in healthy subjects was small (5.3 L/h) compared to apparent oral clearance (CL/F, 83 L/h); suggesting that non-renal clearance is the main elimination route. Ninety-nine percent of the administered dose is eliminated within 72 hours. The mean terminal half-life (t<sub>1/2</sub>) was similar for all HYSINGLA ER dose strengths ranging from approximately 7 to 9 hours across the range of doses.

### Specific Populations

#### Age: Geriatric Patients

Following administration of 40 mg HYSINGLA ER, the pharmacokinetics of hydrocodone in healthy elderly subjects (65 to 77 years) are similar to the pharmacokinetics in healthy younger subjects (20 to 45 years). There were no clinically meaningful increase in C<sub>max</sub> (16%) and AUC (15%) of hydrocodone in elderly as compared with younger adult subjects [see *Use in Specific Populations (8.5)*].

#### Sex

Systemic exposure of hydrocodone ( $C_{\max}$  and AUC) was similar between males and females.

#### *Hepatic Impairment*

After a single dose of 20 mg HYSINGLA ER in subjects (8 each) with normal hepatic function, mild, moderate or severe hepatic impairment based on Child-Pugh classifications, mean hydrocodone  $C_{\max}$  values were 16, 15, 17, and 18 ng/mL, respectively. Mean hydrocodone AUC values were 342, 310, 390, and 415 ng.hr/mL for subjects with normal hepatic function, mild, moderate or severe hepatic impairment, respectively. Geometric mean hydrocodone  $C_{\max}$  values were -6%, 5%, and 5% and AUC values were -14%, 13%, and 4% in patients with mild, moderate or severe hepatic impairment, respectively, when compared with subjects with normal hepatic function.

The mean *in vivo* plasma protein binding of hydrocodone across the groups was similar, ranging from 33% to 37% [see *Use in Specific Populations (8.6)*].

#### *Renal Impairment*

After a single dose of 60 mg HYSINGLA ER in subjects (8 each) with normal renal function, mild, moderate, or severe renal impairment based on Cockcroft-Gault criteria and end stage renal disease (with dialysis) patients, mean hydrocodone  $C_{\max}$  values were 40, 50, 51, 46, and 38 ng/mL, respectively. Mean hydrocodone AUC values were 754, 942, 1222, 1220, and 932 ng.hr/mL for subjects with normal renal function, mild, moderate or severe renal impairment and ESRD with dialysis, respectively. Hydrocodone  $C_{\max}$  values were 14%, 23%, 11% and -13% and AUC values were 13%, 61%, 57% and 4% higher in patients with mild, moderate or severe renal impairment or end stage renal disease with dialysis, respectively [see *Use in Specific Populations (8.7)*].

#### Drug Interaction Studies

##### *CYP3A4*

Co-administration of HYSINGLA ER (20 mg single dose) and CYP3A4 inhibitor ketoconazole (200 mg BID for 6 days) increased mean hydrocodone AUC and  $C_{\max}$  by 135% and 78%, respectively [see *Warnings and Precautions (5.6) and Drug Interactions (7)*].

##### *CYP2D6*

The 90% confidence interval (CI) of the geometric means for hydrocodone  $AUC_{\text{inf}}$  (98 to 115%),  $AUC_t$  (98 to 115%), and  $C_{\max}$  (93 to 121%) values were within the range of 80 to 125% when a single dose of HYSINGLA ER 20 mg was co-administered with CYP2D6 inhibitor paroxetine (20 mg treatment each morning for 12 days). No differences in systemic exposure of hydrocodone were observed in the presence of paroxetine.

## **13 NONCLINICAL TOXICOLOGY**

### **13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility**

#### Carcinogenesis

Hydrocodone was evaluated for carcinogenic potential in rats and mice. In a two-year bioassay in rats, doses up to 25 mg/kg in males and females were administered orally and no treatment-related neoplasms were observed (exposure is equivalent to 0.2 times the human hydrocodone dose of 120 mg/day based on AUC exposure comparisons). In a two-year bioassay in mice, doses up to 200 mg/kg in males and 100 mg/kg in females were administered orally and no treatment-related neoplasms were observed (exposure is equivalent to 3.5 times and 3.0 times, respectively, the human hydrocodone dose of 120 mg/day based on AUC exposure comparisons).

#### Mutagenesis

Hydrocodone was genotoxic in the mouse lymphoma assay in the presence of rat S9 metabolic activation but not in the absence of rat metabolic activation. However, hydrocodone was not genotoxic in the mouse lymphoma assay with or without human S9 metabolic activation. There was no evidence of genotoxic

potential with hydrocodone in an in vitro bacterial reverse mutation assay with Salmonella typhimurium and Escherichia coli with or without metabolic activation or in an in vivo mouse bone marrow micronucleus test with or without metabolic activation.

#### Impairment of Fertility

No effect on fertility or general reproductive performance was seen with oral administration of hydrocodone to male and female rats at doses up to 25 mg/kg/day (approximately 0.06 times and 0.08 times, respectively, the human hydrocodone dose of 120 mg/day based on AUC exposure comparisons).

## 14 CLINICAL STUDIES

### 14.1 Moderate to Severe Chronic Lower Back Pain Study

The efficacy and safety of HYSINGLA ER was evaluated in a randomized double-blind, placebo-controlled, multi-center, 12-week clinical trial in both opioid-experienced and opioid-naïve patients with moderate to severe chronic low back pain.

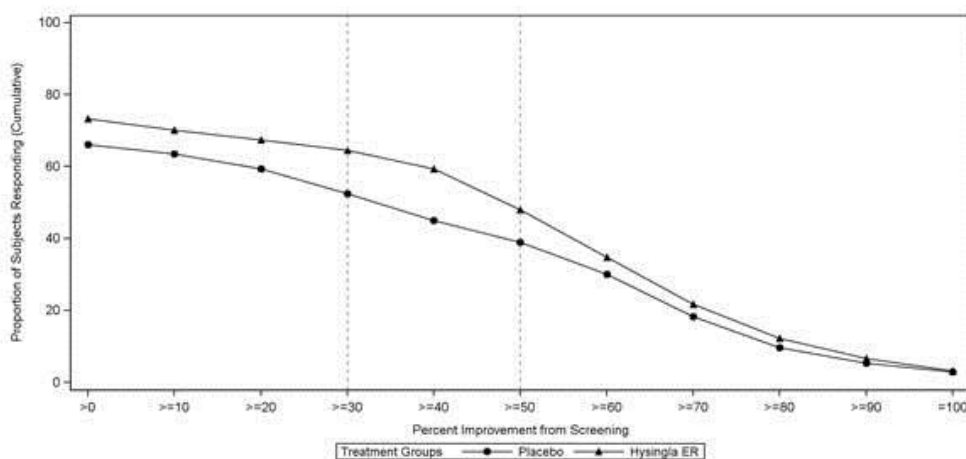
A total of 905 chronic low back pain patients (opioid naïve and opioid-experienced) who were not responsive to their prior analgesic therapy entered an open-label conversion and dose-titration period for up to 45 days with HYSINGLA ER. Patients were dosed once daily with HYSINGLA ER (20 to 120 mg). Patients stopped their prior opioid analgesics and/or nonopioid analgesics prior to starting HYSINGLA ER treatment. Optional use of rescue medication (immediate-release oxycodone 5 mg) up to 2 doses (2 tablets) was permitted during the dose titration period. For inadequately controlled pain, HYSINGLA ER dose was allowed to be increased once every 3–5 days until a stabilized and tolerable dose was identified. During the dose-titration period, 65% of the patients achieved a stable HYSINGLA ER dose and entered the double-blind treatment period. The remaining subjects discontinued from the dose-titration period for the following reasons: adverse events (10%); lack of therapeutic effect (5%); confirmed or suspected diversion (3%); subject's choice (5%); lost to follow-up (2%); administrative reasons (2%); and failure to achieve protocol-defined reduction in pain score (7%).

Following the dose titration period, 588 patients (65%) were randomized at a ratio of 1:1 into a 12-week double-blind treatment period with their fixed stabilized dose of HYSINGLA ER (or matching placebo). These patients met the study randomization criteria of adequate analgesia (pain reduction of at least 2 points to a score of 4 or less on a 0-10 numerical rating scale) and acceptable tolerability of HYSINGLA ER. Patients randomized to placebo were given a blinded taper of HYSINGLA ER according to a pre-specified tapering schedule, 3 days on each step-down dose (reduced by 25-50% from the previous dose). Patients were allowed to use rescue medication (immediate-release oxycodone 5 mg) up to 6 doses (6 tablets) per day depending on their randomized HYSINGLA ER dose. During the double-blind period, 229 treated patients (77%) completed the 12-week treatment with HYSINGLA ER and 210 patients (72%) completed on placebo. Overall, 10% of patients discontinued due to lack of therapeutic effect (5% in HYSINGLA patients and 15% in placebo patients); 5% of patients discontinued due to adverse events (6% in HYSINGLA ER treated patients and 3% in placebo patients).

HYSINGLA ER provided greater analgesia compared with placebo. There was a statistically significant difference in the weekly average pain scores at Week 12 between the two groups.

The percentage of patients (responders) in each group who demonstrated improvement in their weekly average pain scores at Week 12, as compared with screening is shown in Figure 4. The figure is cumulative, so that patients whose change from screening is, for example, 30%, are also included at every level of improvement below 30%. Patients who did not complete the study were classified as non-responders. Treatment with HYSINGLA ER resulted in a higher proportion of responders, defined as patients with at least a 30% and 50% improvement, as compared with placebo.

#### **Figure 4. Percent Improvement in Pain Intensity**



## 16 HOW SUPPLIED/STORAGE AND HANDLING

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets 20 mg are round, green-colored, bi-convex tablets printed with “HYD 20” and are supplied in child-resistant closure, opaque plastic bottles of 60 (NDC 59011-271-60).

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets 30 mg are round, yellow-colored, bi-convex tablets printed with “HYD 30” and are supplied in child-resistant closure, opaque plastic bottles of 60 (NDC 59011-272-60).

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets 40 mg are round, grey-colored, bi-convex tablets printed with “HYD 40” and are supplied in child-resistant closure, opaque plastic bottles of 60 (NDC 59011-273-60).

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets 60 mg are round, beige-colored, bi-convex tablets printed with “HYD 60” and are supplied in child-resistant closure, opaque plastic bottles of 60 (NDC 59011-274-60).

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets 80 mg are round, pink-colored, bi-convex tablets printed with “HYD 80” and are supplied in child-resistant closure, opaque plastic bottles of 60 (NDC 59011-275-60).

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets 100 mg are round, blue-colored, bi-convex tablets printed with “HYD 100” and are supplied in child-resistant closure, opaque plastic bottles of 60 (NDC 59011-276-60).

HYSINGLA ER (hydrocodone bitartrate) extended-release tablets 120 mg are round, white-colored, bi-convex tablets printed with “HYD 120” and are supplied in child-resistant closure, opaque plastic bottles of 60 (NDC 59011-277-60).

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

Dispense in tight, light-resistant container, as defined by the USP.

Store HYSINGLA ER securely and dispose of properly.

## 17 PATIENT COUNSELING INFORMATION

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

### Storage and Disposal:

Because of the risks associated with accidental ingestion, misuse, and abuse, advise patients to store HYSINGLA ER securely, out of sight and reach of children, and in a location not accessible by others, including visitors to the home. Inform patients that leaving HYSINGLA ER unsecured can pose a deadly risk to others in the home [see *Warnings and Precautions (5.1, 5.2)*, *Drug Abuse and Dependence (9.2)*].

Advise patients and caregivers that when medicines are no longer needed, they should be disposed of promptly. Expired, unwanted, or unused HYSINGLA ER should be disposed of by flushing the unused medication down the toilet if a drug take-back option is not readily available. Inform patients that they can visit [www.fda.gov/drugdisposal](http://www.fda.gov/drugdisposal) for a complete list of medicines recommended for disposal by flushing, as well as additional information on disposal of unused medicines.

### Addiction, Abuse, and Misuse

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

### Life-Threatening Respiratory Depression

Inform patients of the risk of life-threatening respiratory depression, including information that the risk is greatest when starting HYSINGLA ER or when the dosage is increased, and that it can occur even at recommended dosages.

Educate patients and caregivers on how to recognize respiratory depression and emphasize the importance of calling 911 or getting emergency medical help right away in the event of a known or suspected overdose [see *Warnings and Precautions (5.2)*, *Overdosage (10)*].

### Accidental Ingestion

Inform patients that accidental ingestion, especially by children, may result in respiratory depression or death [see *Warnings and Precautions (5.2)*].

### Interaction with Benzodiazepines and other CNS Depressants

Inform patients and caregivers that potentially fatal additive effects may occur if HYSINGLA ER is used with benzodiazepines or other CNS depressants, including alcohol, and not to use these concomitantly unless supervised by a health care provider [see *Warnings and Precautions (5.3)*, *Drug Interactions (7)*].

### Patient Access to Naloxone for the Emergency Treatment of Opioid Overdose

Discuss with the patient and caregiver the availability of naloxone for the emergency treatment of opioid overdose, both when initiating and renewing treatment with HYSINGLA ER. Inform patients and caregivers about the various ways to obtain naloxone as permitted by individual state naloxone dispensing and prescribing requirements or guidelines (e.g., by prescription, directly from a pharmacist, or as part of a community-based program) [see *Dosage and Administration (2.2)*, *Warnings and Precautions (5.2)*].

Educate patients and caregivers on how to recognize the signs and symptoms of an overdose.

Explain to patients and caregivers that naloxone's effects are temporary, and that they must call 911 or get emergency medical help right away in all cases of known or suspected opioid overdose, even if naloxone is administered [see *Overdosage (10)*].

If naloxone is prescribed, also advise patients and caregivers:

- How to treat with naloxone in the event of an opioid overdose
- To tell family and friends about their naloxone and to keep it in a place where family and friends can access it in an emergency
- To read the Patient Information (or other educational material) that will come with their naloxone. Emphasize the importance of doing this before an opioid emergency happens, so the patient and caregiver will know what to do.

#### Hyperalgesia and Allodynia

Inform patients and caregivers not to increase opioid dosage without first consulting a clinician. Advise patients to seek medical attention if they experience symptoms of hyperalgesia, including worsening pain, increased sensitivity to pain, or new pain [see *Warnings and Precautions (5.7)*, *Adverse Reactions (6.2)*].

#### Serotonin Syndrome

Inform patients that opioids could cause a rare but potentially life-threatening condition called serotonin syndrome 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 healthcare providers if they are taking, or plan to take serotonergic medications [see *Drug Interactions (7)*].

#### MAOI Interaction

Inform patients to avoid taking HYSINGLA ER while using any drugs that inhibit monoamine oxidase. Patients should not start MAOIs while taking HYSINGLA ER [see *Drug Interactions (7)*].

#### Important Administration Instructions

Instruct patients how to properly take HYSINGLA ER, including the following:

- Use HYSINGLA ER exactly as prescribed to reduce the risk of life-threatening adverse reactions (e.g., respiratory depression) [see *Warnings and Precautions (5.2)*].
- Swallow tablets whole, one tablet at a time, with enough water to ensure swallowing immediately after placing in the mouth [see *Dosage and Administration (2.1)*].
- Do not pre-soak, lick, or otherwise wet the tablet prior to placing in the mouth [see *Dosage and Administration (2.1)*].
- Do not chew, crush, or dissolve the tablets [see *Dosage and Administration (2.1)*].

#### Important Discontinuation Instructions

In order to avoid developing withdrawal symptoms, instruct patients not to discontinue HYSINGLA ER without first discussing a tapering plan with the prescriber [see *Dosage and Administration (2.7)*].

#### Driving or Operating Heavy Machinery

Inform patients that HYSINGLA ER may impair the ability to perform potentially hazardous activities such as driving a car or operating heavy machinery. Blood levels of hydrocodone, in some patients, may be high at the end of 24 hours after repeated dose administration. Advise patients not to perform such tasks until they know how they will react to the medication [see *Warnings and Precautions (5.17)*].

#### Constipation

Advise patients of the potential for severe constipation, including management instructions and when to seek medical attention. Instruct patients to monitor their analgesic response following the use of strong laxatives and to contact the prescriber if changes are noted [see *Adverse Reactions (6)*, *Clinical Pharmacology (12.2)*].

#### Adrenal Insufficiency

Inform patients that HYSINGLA ER 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 (5.9)*].

#### Hypotension

Inform patients that HYSINGLA ER 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 (5.10)*].

#### QTc interval prolongation

Inform patients that QT prolongation has been observed with HYSINGLA ER [*see Clinical Pharmacology (12.2)*]. HYSINGLA ER should be avoided in patients with congenital long QT syndrome. Instruct patients with a history of congestive heart failure or bradyarrhythmias, and patients at risk for electrolyte abnormalities or who are taking other medications known to prolong the QT interval, that periodic monitoring of electrocardiograms and electrolytes may be necessary during therapy with HYSINGLA ER [*see Warnings and Precautions (5.11)*].

#### Anaphylaxis

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

#### Pregnancy

##### *Neonatal Opioid Withdrawal Syndrome*

Inform female patients of reproductive potential that use of HYSINGLA ER for an extended period of time during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated [*see Warnings and Precautions (5.4), Use in Specific Populations (8.1)*].

##### *Embryo-Fetal Toxicity*

Inform female patients of reproductive potential that HYSINGLA ER 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 patients that breastfeeding is not recommended during treatment with HYSINGLA ER [*see Use in Specific Populations (8.2)*].

#### Infertility

Inform patients that chronic use of opioids for an extended period of time may cause reduced fertility. It is not known whether these effects on fertility are reversible [*see Adverse Reactions (6.2) Use in Specific Populations (8.3)*].

Healthcare professionals can telephone Purdue Pharma's Medical Services Department (1-888-726-7535) for information on this product.

**Purdue Pharma L.P.**  
**Stamford, CT 06901-3431**

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**This label may not be the latest approved by FDA.  
For current labeling information, please visit <https://www.fda.gov/drugsatfda>**

U.S. Patent Numbers: 6,733,783; 8,309,060; 8,361,499; 8,529,948; 8,551,520; 8,647,667;  
8,808,740; 9,084,816; 9,101,661; 9,095,614; 9,095,615; 9,205,055; 9,393,206; 9,486,412;  
9,486,413; 9,492,389; 9,492,390; 9,492,391; 9,545,380; 9,572,779; 9,669,023; 9,669,024;  
9,675,610; 9,675,611; 9,682,077; 9,744,136; 9,750,703; 9,763,886; 9,763,933; 9,770,416;  
9,770,417; 9,775,809; 9,775,810; 9,861,584; 9,872,837; 10,130,591 and 10,369,109

## Medication Guide

### **HYSINGLA® ER (hye-SING-luh)**

### **(hydrocodone bitartrate) extended-release tablets, CII**

#### **HYSINGLA ER is:**

- A strong prescription pain medicine that contains an opioid (narcotic) that is used to manage severe and persistent pain that requires an extended treatment period with a daily opioid pain medicine, when other non-opioid pain medicines do not treat your pain well enough or you cannot tolerate them.
- A long-acting (extended-release) opioid pain medicine that can put you at risk for overdose and death. Even if you take your dose correctly as prescribed you are at risk for opioid addiction, abuse, and misuse that can lead to death.
- Not to be taken on an "as needed" basis.

#### **Important information about HYSINGLA ER:**

- **Get emergency help or call 911 right away if you take too much HYSINGLA ER (overdose).** When you first start taking HYSINGLA ER, when your dose is changed, or if you take too much (overdose), serious or life-threatening breathing problems that can lead to death may occur. Talk to your healthcare provider about naloxone, a medicine for the emergency treatment of an opioid overdose.
- Taking HYSINGLA ER with other opioid medicines, benzodiazepines, alcohol, or other central nervous system depressants (including street drugs) can cause severe drowsiness, decreased awareness, breathing problems, coma, and death.
- Never give anyone else your HYSINGLA ER. They could die from taking it. Selling or giving away HYSINGLA ER is against the law.
- Store HYSINGLA ER securely, out of sight and reach of children, and in a location not accessible by others, including visitors to the home.

#### **Do not take HYSINGLA ER if you have:**

- severe asthma, trouble breathing, or other lung problems.
- a bowel blockage or have narrowing of the stomach or intestines.

#### **Before taking HYSINGLA ER, tell your healthcare provider if you have a history of:**

- head injury, seizures
- liver, kidney, thyroid problems
- problems urinating
- abuse of street or prescription drugs, alcohol addiction, opioid overdose, or mental health problems
- pancreas or gallbladder problems
- heart rhythm problems (long QT syndrome)

#### **Tell your healthcare provider if you are:**

- noticing your pain getting worse. If your pain gets worse after you take HYSINGLA ER, do not take more of HYSINGLA ER without first talking to your healthcare provider. Talk to your healthcare provider if the pain that you have increases, if you feel more sensitive to pain, or if you have new pain after taking HYSINGLA ER.
- **pregnant or planning to become pregnant.** Use of HYSINGLA ER for an extended period of time during pregnancy can cause withdrawal symptoms in your newborn baby that could be life-threatening if not recognized and treated.
- **breastfeeding.** Not recommended during treatment with HYSINGLA ER. It may harm your baby.
- living in a household where there are small children or someone who has abused street or prescription drugs.
- taking prescription or over-the-counter medicines, vitamins, or herbal supplements. Taking HYSINGLA ER with certain other medicines can cause serious side effects and could lead to death.

#### **When taking HYSINGLA ER:**

- Do not change your dose. Take HYSINGLA ER exactly as prescribed by your healthcare provider. Use the lowest dose possible for the shortest time needed.
- Take your prescribed dose every 24 hours, at the same time every day. Do not take more than your prescribed dose in 24 hours. If you miss a dose, take your next dose at your usual time the next day.
- Swallow HYSINGLA ER whole. Do not cut, break, chew, crush, dissolve, snort, or inject HYSINGLA ER because this may cause you to overdose and die.
- HYSINGLA ER should be taken 1 tablet at a time. Do not pre-soak, lick, or wet the tablet before placing it in your mouth to avoid choking on the tablet.

**Call your healthcare provider if the dose you are taking does not control your pain.**

- **Do not stop taking HYSINGLA ER without talking to your healthcare provider.**
- **Dispose of expired, unwanted, or unused HYSINGLA ER, by promptly flushing down the toilet, if a drug take-back option is not readily available. Visit [www.fda.gov/drugdisposal](http://www.fda.gov/drugdisposal) for additional information on disposal of unused medicines.**

**While taking HYSINGLA ER, DO NOT:**

- Drive or operate heavy machinery until you know how HYSINGLA ER affects you. HYSINGLA ER can make you sleepy, dizzy, or lightheaded.
- Drink alcohol or use prescription or over-the-counter medicines that contain alcohol. Using products containing alcohol during treatment with HYSINGLA ER may cause you to overdose and die.

**The possible side effects of HYSINGLA ER are:**

- constipation, nausea, sleepiness, vomiting, tiredness, headache, dizziness, abdominal pain. Call your healthcare provider if you have any of these symptoms and they are severe.

**Get emergency medical help or call 911 right away if you have:**

- trouble breathing, shortness of breath, fast heartbeat, chest pain, swelling of your face, tongue or throat, extreme drowsiness, light-headedness when changing positions, feeling faint, agitation, high body temperature, trouble walking, stiff muscles, or mental changes such as confusion.

These are not all the possible side effects of HYSINGLA ER. Call your healthcare provider for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088. **For more information go to [dailymed.nlm.nih.gov](http://dailymed.nlm.nih.gov).**

Manufactured by: Purdue Pharma L.P., Stamford, CT 06901-3431, [www.purduepharma.com](http://www.purduepharma.com) or call 1-888-726-7535

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

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