

## HYDROCODONE

(Trade Names: Vicodin®, Lortab®, Lorcet-HD®, Hycodan®, Vicoprofen®)

### Introduction:

Hydrocodone is a prescription medication approved by the United States Food and Drug Administration (FDA) for the treatment of severe chronic pain. This drug continues to be encountered by law enforcement, documented in national crime lab reports, reported to poison control centers, and diverted for illicit use and abuse.

### Licit Uses:

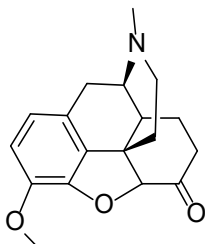
Hydrocodone is an antitussive (cough suppressant) and narcotic analgesic agent for the treatment of moderate to moderately severe pain. Studies indicate that hydrocodone is as effective, or more effective, than codeine for cough suppression and nearly equipotent to morphine for pain relief.

According to the IQVIA National Prescription Audit™, total prescriptions dispensed in the United States for hydrocodone-containing products reached a peak of approximately 144.5 million in 2011 before declining to 93.7 million in 2016, 56.5 million in 2021, and 47.4 million in 2024. Hydrocodone is marketed in several hundred brand name and generic products, most of which are combination products. The most frequently prescribed combination is hydrocodone and acetaminophen (e.g., Vicodin, Lortab).

Ongoing efforts in response to the opioid crisis and revised clinical guidelines for prescribing opioids for chronic pain include implementing best practices and reducing prescriptions.

### Chemistry:

Hydrocodone [4,5 $\alpha$ -epoxy-3-methoxy-17-methyl-morphinan-6-one tartrate (1:1) hydrate (2:5), dihydrocodeinone] is a semi-synthetic opioid most closely related to codeine in structure and morphine in producing opiate-like effects. The chemical structure of hydrocodone is shown below:



### Pharmacology:

The first report that suggested that hydrocodone produces euphoria and habituation symptoms was published in 1923. The first report of hydrocodone dependence and addiction was published in 1961.

Hydrocodone exerts its principle pharmacological effects through agonistic binding to opioid receptors. Hydrocodone primarily binds and activates the mu-opioid receptor in the central nervous system and possesses analgesic and antitussive effects. Binding of hydrocodone to this receptor also results in analgesia, euphoria, respiratory depression, decreased gastrointestinal motility, and physical dependence. Additionally, hydrocodone is converted to hydromorphone by the cytochrome P450 enzyme, CYP2D6.

As with most opiates, abuse of hydrocodone is associated with tolerance, dependence, and addiction. The co-formulation with acetaminophen carries an additional risk of liver toxicity when high, acute doses are consumed. Some individuals who abuse very high doses of acetaminophen-containing hydrocodone products may be spared this liver toxicity if they have been chronically taking these

products and have escalated their dose slowly over a long period of time.

### Illicit Uses:

Hydrocodone is abused for its opioid effects. Widespread diversion via bogus call-in prescriptions, altered prescriptions, theft, and illicit purchases from internet sources are made easier by the present controls placed on hydrocodone products. Hydrocodone pills are the most frequently encountered dosage form in illicit traffic. Hydrocodone is generally abused orally, often in combination with alcohol.

The prevalence of illicit hydrocodone use among school-aged children is particularly concerning. The 2024 Monitoring the Future Survey reported a continuing decrease since 2010; 0.9%, 1.0%, and 0.7% of 8th, 10th, and 12th graders, respectively, used Vicodin for nonmedical purposes in the previous year. However, among 10th graders, use in the past 12 months increased from 0.5% to 1.0%, while the overall prevalence continued to decrease from previous years.

America's Poison Centers reported that in 2022, hydrocodone was associated with 1,420 case mentions, 514 single exposures, and 3 deaths in the United States. The 2023 National Survey on Drug Use and Health reported that in the United States, hydrocodone was misused by 3.6 million people (aged 12 and older) in the previous year, compared to 3.7 million in 2022. This misuse has significantly decreased in recent years, from 6.9 million people in 2017 to 3.6 million in 2023.

### User Population:

Every age group has been affected by the relative ease of hydrocodone availability and the perceived safety of these products by medical prescribers. Sometimes viewed as a "white collar" addiction, hydrocodone abuse has increased among all ethnic and economic groups.

### Illicit Distribution:

Hydrocodone has been encountered in tablets, capsules, and liquid form in the illicit market. However, hydrocodone tablets with the co-ingredient, acetaminophen, is the most frequently encountered form. Hydrocodone is not typically found to be clandestinely produced; diverted pharmaceuticals are the primary source of the drug for abuse purposes. Doctor shopping, altered or fraudulent prescriptions, bogus call-in prescriptions, diversion by some physicians and pharmacists, and drug theft are also major sources of the diverted drug.

The Drug Enforcement Administration's National Forensic Laboratory Information System (NFLIS) Drug database collects scientifically verified data on drug items and cases submitted to and analyzed by participating federal, state, and local forensic laboratories. NFLIS-Drug received 9,258 reports of hydrocodone in 2020; 6,545 in 2022; and 3,989 in 2024 (reports still pending)—a continued decrease from its peak at 45,595 reports in 2010.

### Control Status:

Hydrocodone is controlled in schedule II of the Controlled Substances Act.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 571-362-4250, Telephone 571-362-3249, or Email [DPE@dea.gov](mailto:DPE@dea.gov).