



## NDEWS Reports from the Field: Loperamide

May 13, 2016

### Loperamide Query, April 2016

On Friday, April 1, NDEWS staff posted the following query to the NDEWS Network and the AAPCC listserv: “The NDEWS Coordinating Center is seeking your input on the abuse potential of loperamide (Imodium®). Have any of you heard about this drug being used to get high or alleviate opioid withdrawal symptoms?”

A total of 18 responses were received from 9 poison centers and from 9 other Network members, including poison center medical directors and other staff, clinical toxicologists, a professor of emergency medicine, a federal law enforcement agent, and a drug court staff member. These responses are summarized in the following sections.

### Forms of Loperamide

Loperamide is an over-the-counter anti-diarrheal that is available in tablet, capsule, or liquid form and is designed to be taken orally in 2–4-mg doses for 24–48 hours. It is sold under brand names such as Imodium®, Kaopectate 1-D®, Maalox® Anti-Diarrheal, and Pepto® Diarrhea Control.

### Misuse of Loperamide

The misuse of loperamide does not seem to be a new phenomenon, and the number of people purposely misusing loperamide seems to be low but widespread. For example, the Washington Poison Center stated that its first reported case occurred in 2006, and the Texas Poison Control Program reported its first case occurred in 2003. Washington reported approximately 9 cases from 2006 to 2015 (and 1 in early 2016), and Texas reported 19 from 2003 to 2015. Nationwide, the number of calls to poison centers involving the intentional abuse or misuse of loperamide increased from 87 in 2010 to 190 in 2014 (AAPCC annual reports; <http://www.aapcc.org/annual-reports/>).

### States Reporting Misuse

At least one contact in each of the following 13 states and Europe reported on specific cases or other evidence of misuse:

- **Northeast:** Massachusetts, New York, Pennsylvania
- **South:** Maryland, Virginia, Kentucky
- **North Central:** Indiana, Michigan, Ohio
- **Southwest:** Texas, Arizona
- **Northwest:** Washington, Oregon

### The National Drug Early Warning System (NDEWS)

Established with funding from NIH/NIDA, the NDEWS Coordinating Center has been monitoring emerging drugs and changing drug use trends in the United States since 2015. NDEWS has implemented two mechanisms for collecting and sharing rapid real-time information: 1) the NDEWS Network—an online information-sharing community of more than 1,200 researchers, practitioners, and concerned citizens across the world; and 2) a collaboration with the American Association of Poison Control Centers (AAPCC) to access its listserv to communicate with medical directors from 55 poison centers across the United States. This inaugural issue of *NDEWS Reports from the Field* summarizes information about loperamide received from these sources.

*NOTE: The information provided in this document is a summary of observations received in response to a query sent to the NDEWS Network and AAPCC listserv in April 2016. Additional sources of information about loperamide are provided on p. 3.*

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## Reasons for Loperamide Misuse

Some indications show that loperamide has been used by drug users to stave off or moderate opioid withdrawal symptoms and to get high.

## Methods of Misuse

Although some posters disagreed about the ability to get an opioid-like high from loperamide, there were reports of users who had found and followed instructions on the Internet for how to cross the blood-brain barrier and increase the effects of loperamide. Reports were received of large numbers of pills taken per day for extended periods. Consumption reported by respondents ranged from 25–30 pills per day for 2 weeks to 80 per day for 6 months to 60–100 per day for 1 year, and even as much as 600–800 per day. Reports were also received of loperamide taken in combination with grapefruit juice and cimetidine to increase loperamide absorption or with Unisom®.

## Demographics of People Misusing Loperamide

Most cases cited in response to the NDEWS query did not provide demographic characteristics. However, the Washington Poison Center reported that most of the 9 cases (2006–2015) it has seen involved adults 20–39 years of age. For the 19 cases reported by the Texas Poison Control Program from 2003 to 2015, the mean age was 29 and the range was 13 to 67. The Cincinnati Drug and Poison Info Center reported on 2 cases involving a 53-year-old female and a 22-year-old female. The Upstate New York Poison Center has published case studies about 5 cases that occurred in the past 2–3 years. Links to these articles are provided on p. 3.

## Reported Effects

A variety of effects were mentioned, including fainting, abdominal pain, constipation, cardiovascular toxicity (including Torsades de Pointes, ventricular tachycardia, and cardiac arrest), pupil dilation, and acute renal failure from urinary retention. Anecdotes and case reports indicated that the potential harm is high.

There were also reports of opioid withdrawal symptoms when users stopped taking loperamide, including severe anxiety, vomiting, and diarrhea.

## Reports from Law Enforcement

Loperamide is reported to have been purchased in mass quantities from local pharmacies in the “southern tier” of New York State. Loperamide is also reported to have been used by drug court participants in Kentucky who were looking for an opioid high.

## Summary

These reports from the NDEWS Network and the AAPCC listserv indicate that the misuse of loperamide has been found across the United States since at least 2003 and that the potential harm (e.g., cardiac toxicity) from taking high doses for an extended period may be considerable.

## For Additional Information:

### Journal Articles

Daniulaityte, Raminta; Carlson, Robert; Falck, Russel; Cameron, Delroy; Perera, Sujana; Chen, Lu; and Sheth, Amit. "I just wanted to tell you that loperamide will work": A web based study of extra-medical use of loperamide. *Drug and Alcohol Dependence*, 2013, 130:241–244. Retrieved May 16, 2016, from [http://www.drugandalcoholdependence.com/article/S0376-8716\(12\)00429-2/fulltext](http://www.drugandalcoholdependence.com/article/S0376-8716(12)00429-2/fulltext)

Eggleston, William; Clark, Kenneth H.; and Marraffa, Jeanna M. Loperamide abuse associated with cardiac dysrhythmia and death. *Annals of Emergency Medicine*, 2016, epub ahead of print. Retrieved May 16, 2016, from [http://www.annemergmed.com/article/S0196-0644\(16\)30052-X/fulltext](http://www.annemergmed.com/article/S0196-0644(16)30052-X/fulltext)

Eggleston, William; Nacca, Nicholas; and Marraffa, Jeanna M. Loperamide toxicokinetics: Serum concentrations in the overdose setting [Letter to the Editor]. *Clinical Toxicology*, 2015, epub ahead of print. Retrieved May 16, 2016, from <http://www.tandfonline.com/doi/full/10.3109/15563650.2015.1026971>

Marraffa, Jeanna M.; Holland, Michael G.; and Hodgman, Michael J. Reply to: "Torsade de Pointes associated with high-dose loperamide ingestion" [Letter to the Editor]. *The Journal of Innovations in Cardiac Rhythm Management*, 2015, 15:1958.

Marraffa, Jeanna M.; Holland, Michael G.; Sullivan, Ross W.; Morgan, B.W.; Oakes, J.A.; Wiegand, Timothy J.; and Hodgman, Michael J. Cardiac conduction disturbance after loperamide abuse. *Clinical Toxicology*, 2014, 52:952–957. Retrieved May 16, 2016, from <http://www.ncbi.nlm.nih.gov/pubmed/25345436?dopt=Abstract>

Marzec, Lucas N.; Katz, David F.; Peterson, Pamela N.; Thompson, Lauren E.; Haigney, Mark C.; and Krantz, Mori J. Torsade de Pointes associated with high-dose loperamide ingestion. *The Journal of Innovations in Cardiac Rhythm Management*, 2015, 6:1897–1899.

MacDonald, Ryan; Heiner, Jason; Villarreal, Joshua; and Strote, Jared. Loperamide dependence and abuse. *BMJ Case Reports*, 2015, epub ahead of print. Retrieved May 16, 2016, from <http://casereports.bmj.com/content/2015/bcr-2015-209705>

### Newspaper Articles

Guarino, Ben. "Abuse of diarrhea medicine you know well is alarming physicians," *Washington Post*, May 4, 2016. Retrieved May 16, 2016, from <https://www.washingtonpost.com/news/morning-mix/wp/2016/05/04/physicians-alarmed-by-abuse-of-over-the-counter-diarrhea-medicine-you-know-well/>

Saint Louis, Catherine. "Addicts Who Can't Find Painkillers Turn to Anti-Diarrhea Drugs," *New York Times*, May 11, 2016. Retrieved May 16, 2016, from <http://www.nytimes.com/2016/05/11/health/imodium-opioid-addiction.html?smid=tw-nytnational&smtyp=cur&r=0>

### Local Releases

Maryland Poison Center. *ToxTidbits*. November 2015:

Retrieved May 16, 2016, from

<http://www.mdpoison.com/media/SOP/mdpoisoncom/ToxTidbits/2015/Nov%202015%20ToxTidbits.pdf>

Upstate NY Poison Center news release:

Retrieved May 16, 2016, from <http://newsroom.acep.org/2016-05-03-Imodium-for-a-Legal-High-Is-As-Dumb-and-Dangerous-as-It-Sounds>

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