# Routes of administration of Tapentadol products as reported to poison centers

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## Introduction

- Tapentadol immediate-release (Nucynta®) was launched in June 2009 with the extended-release product (Nucynta® ER) released in August 2011.
- In an effort to deter abuse, the extended-release tablets were manufactured using Intac® technology to be difficult to crush for intranasal abuse and difficult to solubilize for intravenous abuse.
- Data from the Researched Abuse, Diversion, and Addiction-Related Surveillance (RADARS®) System Poison Center Program were analyzed to test whether the proportion of Intentional Exposures reporting use via injection or inhalation is lower for extended-release (ER) tapentadol than for immediate-release (IR) tapentadol.

## Methods

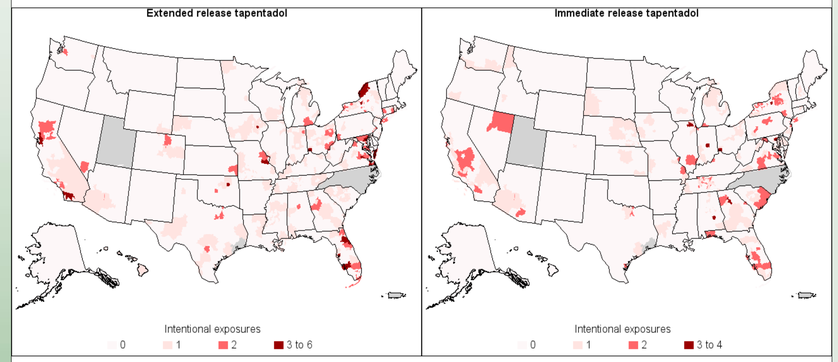
The RADARS System Poison Center Program includes data from 50 US poison centers covering over 90% of the US population. Reports to poison centers are initiated by health care professionals and the general public in response to an acute health event.

Intentional Exposures are “exposures resulting from a purposeful action.”[1] Four intentional exposure categories were examined:

- Intentional Abuse: the intentional improper or incorrect use of a substance where the patient was likely attempting to gain a high, euphoric effect or some other psychotropic effect
- Intentional Misuse: the intentional improper or incorrect use of a substance for reasons other than the pursuit of a psychotropic effect
- Suspected Suicide: the inappropriate use of a substance for self-harm or for self-destructive or manipulative reasons
- Intentional Unknown: An exposure that is determined to be intentional but the specific motive is unknown

## Results

The RADARS® System Poison Center Program
Location of ER and IR tapentadol intentional exposure cases
July 2011 to June 2015




The RADARS® System Poison Center Program
Route of administration by intentional exposure and drug group
July 2011 to June 2015

| **Exposure reason** | **Extended release tapentadol N** (% use via unintended route) | **Immediate release tapentadol N** (% use via unintended route) |
|---|---|---|
| Intentional Abuse | 47 (10.6%) | 31 (25.8%) |
| Intention Misuse | 52 (0.0%) | 43 (2.3%) |
| Suspected Suicide | 178 (0.0%) | 121 (0.8%) |
| Intentional Unknown | 26 (0.0%) | 22 (0.0%) |
| **Total** | **303 (1.7%)** | **217 (4.6%)** |

## Results

- Between July 2011 and June 2015, there were 303 Intentional Exposures involving ER tapentadol and 217 Intentional Exposures involving IR tapentadol.
  - Of the ER tapentadol intentional exposures, 5 (1.7%) reported use via injection or inhalation, all of which were Intentional Abuse exposures.
  - Of the IR tapentadol cases classified as Intentional Exposure, ten (4.6%) of these exposures reported use via injection or inhalation.
- The proportion of tapentadol ER exposures mentioning injection or inhalation use is significantly lower than the proportion of IR tapentadol exposures ($\chi 2=3.95$, $p=0.047$).

## Conclusions

- There were a greater number of intentional exposures to ER tapentadol relative to IR tapentadol.
- Fewer ER tapentadol cases involved use via injection or inhalation.

## Reference

1. American Association of Poison Control Centers National Poison Data System Reference Manual, May 2014.

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