



Researched Abuse, Diversion and Addition-Related Surveillance System

# QUARTERLY Technical REPORT

Second Quarter, 2016

## Declines in the Abuse of Extended Release Morphine Tablets and Capsules Following the Reformulation of OxyContin®

### Key Points

1. From 2011Q1 to 2015Q4, the percentage of respondents endorsing past month abuse of extended release (ER) morphine tablets/capsules declined 60% in the Opioid Treatment Program and 28% in the Survey of Key Informants' Patients Program.
2. In both programs the decreases in ER morphine tablet/capsule abuse could be almost entirely attributed to declines in respondents who also abused OxyContin.
3. Decreases in ER morphine tablets/capsules abuse may not be independent of the effect of the reformulation of OxyContin.

### Background

Coplan and colleagues<sup>1</sup> summarize several studies indicating that abuse of OxyContin declined following the introduction of the abuse deterrent formulation in August 2010. However, the extent to which these declines can be attributed to the reformulation rather than other interventions (e.g. prescription monitoring plans) is complicated by the fact that abuse of some other opioids, such as extended release (ER) morphine, also declined. ER morphine is potentially a good control group to assess the impact of the OxyContin reformulation because it is also indicated for the treatment of pain, it is an extended release opioid, the potency and abuse potential is thought to be equivalent, and the prescription volume is similar to that for OxyContin. Data from the RADARS System Poison Center Program indicate the magnitude of decreases in ER morphine and OxyContin mentions among intentional abuse exposures following the reformulation are similar when adjusting for prescriptions dispensed. However, it is unclear whether the ER morphine tablet/capsule changes may be related to the reformulation of OxyContin. We examined the changes in ER morphine tablet/capsule abuse before and after the introduction of reformulated OxyContin. Past month abuse was assessed using data from the RADARS System Opioid Treatment Program and Survey of Key Informants' Patients Program.

### Methods

The RADARS System Opioid Treatment Program represents information collected from individuals entering treatment for an opioid use disorder (OUD) at medication assisted treatment programs nationwide. The RADARS System Survey of Key Informants' Patients Program collects information from individuals with an OUD entering treatment at public and private substance abuse treatment programs. Both studies share a common questionnaire asking respondents about prescription and illegal opioids used to get high in the past month. The percentage of respondents endorsing abuse (use to get high) of an ER morphine tablet/capsule in the past month is examined. ER morphine tablet/capsule abuse is stratified by OxyContin abuse. Data between July 2009 and December 2015 are used. Note that endorsement of both products does not necessarily indicate that they were used at the same time;

rather, this indicates that both products were used to get high by the respondent at some point in the month prior to taking the survey.

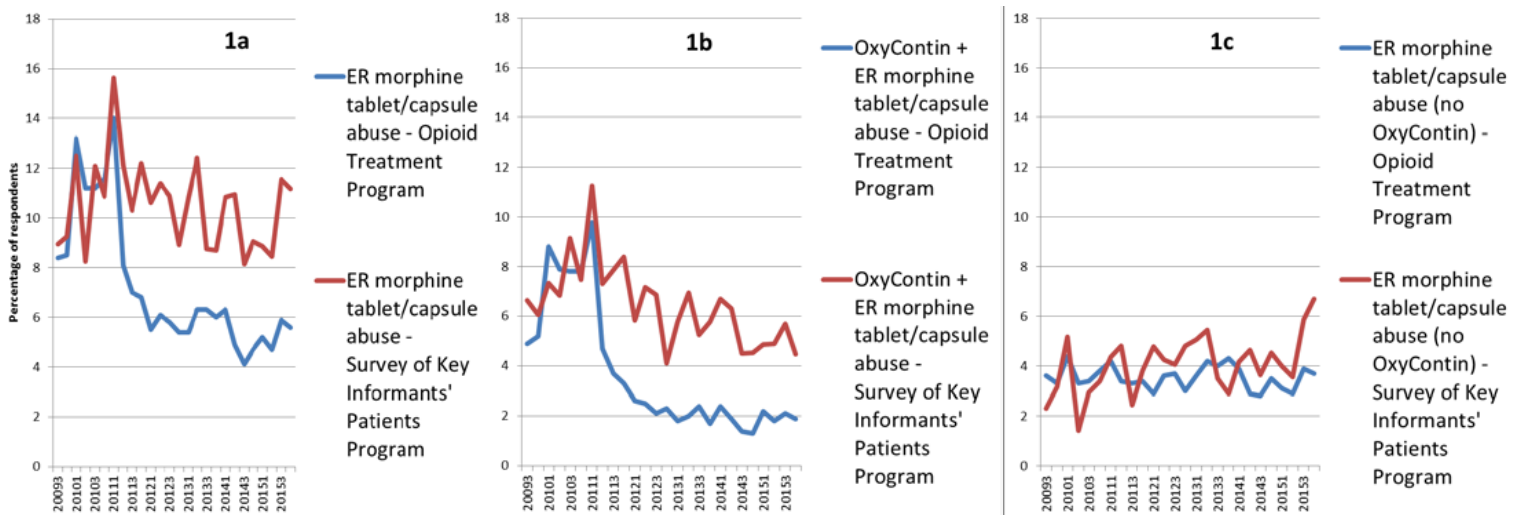
## Results

The proportion of respondents endorsing past month abuse of ER morphine tablet/capsule increased from 2009Q3 to 2011Q1. From 2011Q1 to 2015Q4, the percentage of respondents endorsing abuse of an ER morphine tablet/capsule in the past month decreased from 14.0% to 5.6% in the Opioid Treatment Program and from 15.6% to 11.2% in the Survey of Key Informants' Patients Program (Figure 1a). These represent relative decreases of 60% and 28%. For reference, from 2011Q1 to 2015Q4 past month OxyContin abuse declined 80% in the Opioid Treatment Program and 43% in the Survey of Key Informants' Patients Program.

The percentage of respondents endorsing both OxyContin and ER morphine tablets/ capsules decreased from 9.7% of Opioid Treatment Program respondents to 1.9% in 2015Q4, an 80% decrease. In the Survey of Key Informants' Patients Program the decline was from 11.3% to 4.5%, a 60% decrease (Figure 1b). By contrast, in the Opioid Treatment Program, the percentage of respondents endorsing ER morphine tablets/capsules and not OxyContin was 4.3% in 2011Q1 and 3.7% in 2015Q4 (Figure 1c). In the Survey of Key Informants' Patients Program the percentage increased from 4.4% to 6.7%.

Figure 1

The RADARS System Opioid Treatment and Survey of Key Informants' Patients Programs Percentage of respondents endorsing past month abuse of ER morphine tablets/capsules with and without OxyContin July 2009 to December 2015



## Conclusions

In both programs, the percentage of respondents endorsing ER morphine tablets/capsules declined after 2011Q1. The decrease in ER morphine tablet/capsule abuse is primarily due to declines in the percentage of individuals who also reported abusing OxyContin. The percentage of individuals who abused ER morphine tablets/capsules and not OxyContin remained relatively stable in the Opioid Treatment Program and increased in the Survey of Key Informants' Patients Program. This increase in the Survey of Key Informants' Patients Program did not offset the decline in abuse among respondents endorsing both OxyContin and ER morphine tablets/capsules. The reason for these changes is unclear. There may have been a subset of individuals who abused morphine to enhance the effects

of OxyContin and abuse of both products declined after the reformulation. ER morphine tablets/capsules could be a product individuals used to avoid withdrawal symptoms when they could not obtain OxyContin. Cicero, Ellis, Paradis, and Ortbal<sup>2</sup> note that morphine is not the favored drug of abuse relative to oxycodone. It is possible that morphine abuse increased among individuals previously abused OxyContin after the reformulation and morphine was not identified as a desirable replacement. Though the reason for the decline requires further investigation, these findings suggest that decreases in the abuse of ER morphine tablets/capsules may not be independent of the effects of the reformulation of OxyContin. This should be considered when comparing secular trends in these opioids.

## Suggested Citation

Severtson SG, McDaniel HA, Bucher Bartelson B, Green JL, Ellis M, Fong C, Cicero T, Dart RC (2016). Declines in the abuse of extended release morphine tablets and capsules following the reformulation of OxyContin<sup>®</sup>. RADARS<sup>®</sup> System Technical Report, 2016-Q2.

## References

1. Coplan, PM, Chilcoat, HD, Butler, SF, Sellers, EM, Kadakia, A, Harikrishnan, V, Haddox, JD, Dart, RC. 2016. The effect of an abuse-deterrent opioid formulation (OxyContin) on opioid abuse-related outcomes in the postmarketing setting. *Clin Pharmacol Ther*, 100(3), 275-86.
2. Cicero, TJ, Ellis, MS, Paradis, A, Ortbal, Z. 2010. Determinants of fentanyl and other potent  $\mu$  opioid agonist misuse in opioid-dependent individuals. *Pharmacoepidemiol Drug Saf*, 19(10), 1057-63.