



## ***Facts you need to know about opioid-induced bowel dysfunction***

**Constipation is a common and potentially debilitating adverse effect associated with opioid use.**

- Depending on the population studied and the definitions used, constipation occurs in up to 90% of patients taking opioids<sup>1</sup>
- Opioid-induced constipation (OIC) significantly impacts patients' quality of life and increases healthcare utilization; patients with OIC visit a physician significantly more often than patients without OIC<sup>2,3</sup>

**While constipation can be the most predominant component of opioid-induced bowel dysfunction (OBD), patients taking opioids may experience a spectrum of other troublesome gastrointestinal (GI) effects, including gastroesophageal reflux, abdominal cramping, and bloating.<sup>1</sup>**

**The opioid dose that produces constipation may be 4-fold less than the analgesic dose.<sup>4</sup>**

- While tolerance to the analgesic effects of opioids requires that higher doses be used for effective pain relief, only limited tolerance to opioids develops in the gastrointestinal tracts<sup>5</sup>

**Through their actions on receptors in the central nervous system, exogenous opioids effectively relieve pain; however, opioids also act on receptors in the enteric nervous system, and thereby disrupt normal GI function<sup>1,6</sup>**

- With chronic opioid use, activation of  $\mu$ -opioid receptors in the myenteric and submucosal plexi may result in uncoordinated bowel activity<sup>1,6</sup>
- Exogenous opioids decrease gastrointestinal secretions and relax longitudinal muscles in the colon, thereby decreasing peristalsis, while contractions of the circular muscles are simultaneously increased. The lack of longitudinal propulsion allows stool to dry out and harden, while the increased activity of the circular muscles augments bowel tone, leading to impaired gastrointestinal motility and cramping<sup>1,6</sup>

**Laxatives and stool softeners do not address the root cause of OIC.**

- Although viewed as a potential solution because of their accessibility, laxatives and stool softeners are not always well tolerated, often inconvenient, and provide inadequate relief in many patients<sup>7-9</sup>

## References

1. Panchal SJ, Muller-Schwefe P, Wurzelmann JI. Opioid-induced bowel dysfunction: prevalence, pathophysiology and burden. *Int J Clin Pract*. 2007;61(7):1181-1187.
2. Bell T, Milanova T, Grove G, Williamson R, Bolge S. OBD symptoms impair quality of life and daily activities, regardless of frequency and duration of opioid treatment: Results of a US patient survey (PROBE survey). *J Pain*. 2007;8(4):S71. Abstract 882.
3. Bell T, Annunziata K, Freedman D, Turk D, Leslie J, Muller-Schwefe G. Opioid-induced constipation increases healthcare resource use and impairs work productivity: comparison with other patient groups with and without constipation. *J Pain*. 2007;8(4):S75. Abstract 897.
4. Yuan CS, Foss JF. Antagonism of gastrointestinal opioid effects. *Reg Anesth Pain Med*. 2000;25(6):639-642.
5. Gutstein HB, Akil H. Opioid analgesics. In: Hardman JG, Limbird LE, Gilman AG, eds. *Goodman & Gilman's The Pharmacological Basis of Therapeutics*. 10th ed. New York, NY: McGraw-Hill;2001:569-620.
6. Thomas J. Opioid-induced bowel dysfunction. *J Pain Symptom Manage*. 2008;35(1):103-113.
7. Holzer P. Treatment of opioid-induced gut dysfunction. *Expert Opin Investig Drugs*. 2007;16(2):181-194.
8. Kurz A, Sessler DI. Opioid-induced bowel dysfunction: pathophysiology and potential new therapies. *Drugs*. 2003;63(7):649-671.
9. Pappagallo M. Incidence, prevalence, and management of opioid bowel dysfunction. *Am J Surg*. 2001;182(5A Suppl):11S-18S.



Nektar Therapeutics is a biopharmaceutical company developing novel therapeutics based on its advanced polymer conjugate chemistry technology platform. Nektar's technology and drug development expertise have enabled nine approved products for partners, which include leading biopharmaceutical companies. Nektar is also developing a robust pipeline of its own high-value therapeutics that addresses unmet medical needs by leveraging and expanding its technology platforms to improve and enable molecules. For more information on Nektar Therapeutics, please visit [www.nektar.com](http://www.nektar.com).