

# Breakthrough Cancer Pain

## A systematic review of pharmacologic management

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**BACKGROUND:** Breakthrough cancer pain (BtCP), defined as a transient exacerbation of pain that occurs in conjunction with well-controlled background pain, is a common and burdensome problem in patients with cancer.

**OBJECTIVES:** The aim of this systematic review is to identify evidence-based pharmacologic modalities for adequate management of BtCP.

**METHODS:** PubMed and CINAHL® databases were searched to identify literature regarding pharmacologic strategies for BtCP published from January 2006 to June 2016. These studies were then synthesized by the Oncology Nursing Society Putting Evidence Into Practice pain team.

**FINDINGS:** Forty-four studies provide evidence for the use of opioids for the management of BtCP. Transmucosal immediate-release fentanyl (TIRF) was found to have the most evidence for BtCP. Five studies and guidelines also suggest that oral opioids (not including TIRF products) be dosed proportionally to baseline opioids at 10%–20% of the 24-hour, around-the-clock dose.

### KEYWORDS

breakthrough pain; cancer; opioids; transmucosal; fentanyl

### DIGITAL OBJECT IDENTIFIER

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**BREAKTHROUGH CANCER PAIN (BtCP) IS A TRANSIENT EXACERBATION OF PAIN** that occurs within the context of stable and adequately controlled background pain. BtCP is a challenging problem in patients with cancer, with prevalence estimates ranging from 40%–80% (Deandrea et al., 2014). This broad range is attributable to many factors, including the ability to distinguish BtCP from end-of-dose failure, different conceptual and operational definitions of BtCP across studies, and variation in study designs and settings (Sperlinga et al., 2015). A systematic review of 19 studies reported a pooled BtCP prevalence of 59%, with a significant amount of variability; prevalence was lower in outpatient clinic settings (40%) and much higher in hospice settings (81%) (Deandrea et al., 2014). These findings suggest that BtCP remains a major problem. In addition, BtCP significantly limits the activity level of patients and contributes to poor quality of life. Identification of evidence-based practices to control BtCP is imperative to address this significant problem. The purpose of this systematic review is to identify evidence-based pharmacologic modalities to adequately manage BtCP.

### Methods

A thorough search of PubMed and CINAHL® was conducted using the Putting Evidence Into Practice (PEP) search procedure (Brant, Eaton, & Irwin, 2017). Studies published from January 2006 to June 2016 are included in the review. Those meeting inclusion criteria were critically appraised by a PEP pain team made up of RNs, advanced practice nurses, and nurse scientists. Each study was then summarized into a compiled table of evidence by two team members. Study design flaws and limitations were identified. Once studies were critically examined, the collective weight of each intervention for BtCP was classified by the entire PEP pain team using the Oncology Nursing Society's weight-of-evidence categories adapted by Mitchell and Friese (n.d.).

### Results

Forty-four citations are included in the review for BtCP. They are further broken down into two content areas that can be recommended for practice: (a) 6 systematic reviews/meta-analyses, 25 studies, and 3 clinical guidelines provide evidence for oral and transmucosal opioids to be given for BtCP and