

# Cannabis Use and Bleomycin

## An overview and case study of pulmonary toxicity

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**BACKGROUND:** Legalization efforts in many states have heightened awareness of the medicinal uses of cannabis, and oncology nurses are more frequently caring for patients who have used or are using cannabis. Significant epidemiologic data on the prevalence of cannabis use in patients with cancer are not yet available, and not much is known about the effects of cannabis on cancer treatment.

**OBJECTIVES:** This article describes the effects cannabis may have on the lungs, reviews indications for cannabis use in patients with cancer, and explores an atypical case of progressive pulmonary toxicity in a young patient with a history of Hodgkin lymphoma and cannabis use.

**METHODS:** A review of the literature on cannabis-associated lung injury was conducted, with 32 articles selected for full review.

**FINDINGS:** As cannabis use in cancer care continues to gain support, further research evaluating cannabis use in patients treated with bleomycin is warranted. In addition, the pros and cons of cannabis use must be fully evaluated and discussed with the patient with cancer prior to recommending its use.

### KEYWORDS

marijuana; cannabis; pulmonary toxicity; bleomycin; vaping; lung injury; vaporization

### DIGITAL OBJECT IDENTIFIER

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**AS OF JULY 2018, 30 STATES AND THE DISTRICT OF COLUMBIA** have legalized cannabis for medical purposes, and 8 states and the District of Columbia have legalized cannabis for recreational use, as a result of voter- or legislative-driven initiatives (Governing, 2018). About 43% of U.S. adults have tried cannabis, with 13% using it regularly (Pizzorno, 2016). With increasing legalization, oncology nurses should become familiar with the physiological effects of cannabis, methods of delivery, side effects, and indications for cancer- and cancer treatment-related symptom management (Gordon, Conley, & Gordon, 2013; Ribeiro & Ind, 2016). Research in these interrelated areas continues to evolve. However, not much is known about the impact cannabis intake has on the efficacy and toxicities of cancer treatment. The purpose of this article is to review the current literature and to explore any relationship between the atypical development of pulmonary toxicity in a young patient with Hodgkin lymphoma and the patient's use of cannabis.

### Background

#### Methods of Delivery

Cannabis is delivered to the body in a variety of ways, including through ingestion of foods that are prepared with cannabis oil or butter and via a marijuana cigarette (joint), pipe, vaporizer, or water bong. Oral ingestion can yield a slower onset and longer duration (Clark, 2018). An emerging method of ingestion is the use of a rectal suppository, but the efficacy and indication of this method is still being studied (Clark, 2018).

The method of cannabis delivery can significantly influence its toxicity on the lungs (Lee & Hancox, 2011; Owen, Sutter, & Albertson, 2013; Ribeiro & Ind, 2016). For example, the use of a water bong may decrease the concentration of inhaled carcinogenic compounds (Ribeiro & Ind, 2016), whereas inhaling the smoke from a dried cannabis plant is thought to have a higher risk for adverse effects (He, Oks, Esposito, Steinberg, & Makaryus, 2017).

Inhalation via the vaporization of cannabinoid oils has received attention because it is perceived as being a safer way of inhaling cannabis (Budney, Sargent, & Lee, 2015). Such inhalation, also known as vaping, occurs when a prefilled cartridge of a cannabis product (e.g., liquid, oil) is loaded into a handheld vaporizer, which has a battery-operated heating system and is heated to a temperature that allows for the release of active ingredients