

## **High-Dose Vitamin C (PDQ®)-Patient Version**

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## **Overview**

- Vitamin C is a nutrient found in food and dietary supplements. It is an antioxidant and also plays a key role in making collagen (see Question 1).
- High-dose vitamin C may be given by intravenous (IV) infusion (through a vein into the bloodstream) or orally (taken by mouth). When taken by intravenous infusion, vitamin C can reach much higher levels in the blood than when the same amount is taken by mouth (see Question 1).
- High-dose vitamin C has been studied as a treatment for patients with cancer since the 1970s (see Question 2).
- Laboratory studies have shown that high doses of vitamin C may slow the growth and spread of prostate, pancreatic, liver, colon, and other types of cancer cells (see Question 5).
- Some laboratory and animal studies have shown that combining vitamin C with anticancer therapies may be helpful, while other studies have shown that certain forms of vitamin C may make chemotherapy less effective (see Question 5).
- Animal studies have shown that high-dose vitamin C treatment blocks tumor growth in certain models of pancreatic, liver, prostate, and ovarian cancers, sarcoma, and malignant mesothelioma (see Question 5).
- Some human studies of high-dose IV vitamin C in patients with cancer have shown improved quality of life, as well as improvements in physical, mental, and emotional functions, symptoms of fatigue, nausea and vomiting, pain, and appetite loss (see Question 6).
- Intravenous high-dose ascorbic acid has caused very few side effects in clinical trials (see Question 7).
- While generally approved as a dietary supplement, the U.S. Food and Drug Administration (FDA) has not approved the use of IV high-dose vitamin C as a treatment for cancer or any other medical condition (see Question 9).

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