

About Carcinoid Syndrome

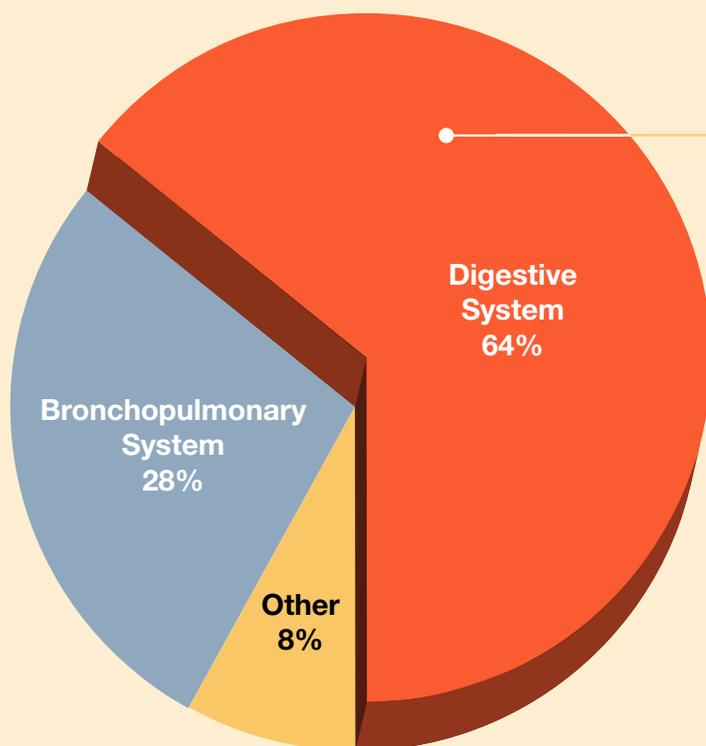
Carcinoid syndrome is a rare disease associated with carcinoid tumors¹

Carcinoid syndrome is the pattern of symptoms sometimes seen in people with carcinoid tumors, which are a type of neuroendocrine tumor (NET).^{1,2}

These symptoms are most often associated with gastrointestinal (GI) carcinoid tumors and may occur if a tumor hypersecretes hormones.^{1,3,4}

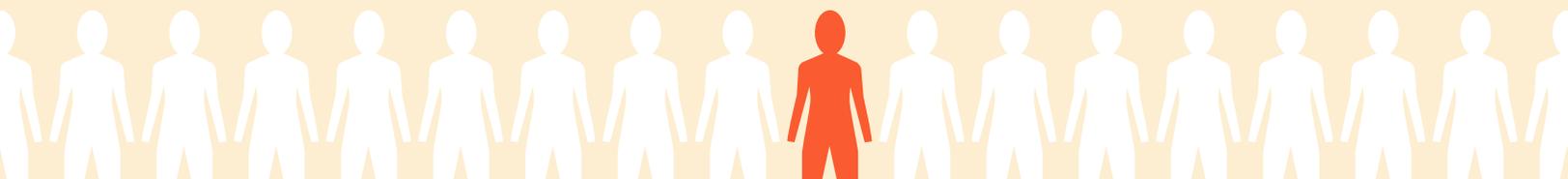
DISTRIBUTION OF CARCINOID TUMORS BY SITE⁵

Carcinoid tumors most frequently originate in the digestive system.⁵



The most common sites for GI carcinoid tumors are the colon, rectum, and small intestine.⁵

In the United States, approximately **15 people** out of **1 million** are diagnosed with carcinoid tumors each year¹

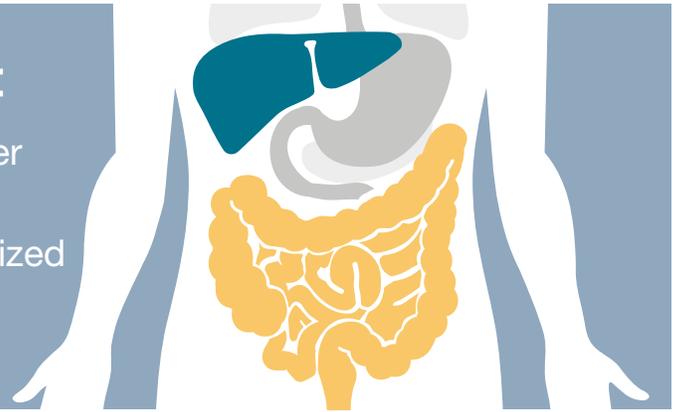


Symptoms of carcinoid syndrome

Carcinoid syndrome is most often associated with carcinoid tumors that originate in the digestive system, particularly neoplasms of the midgut. In 91% of cases, carcinoid syndrome only appears after distant metastasis has occurred.^{3,6}

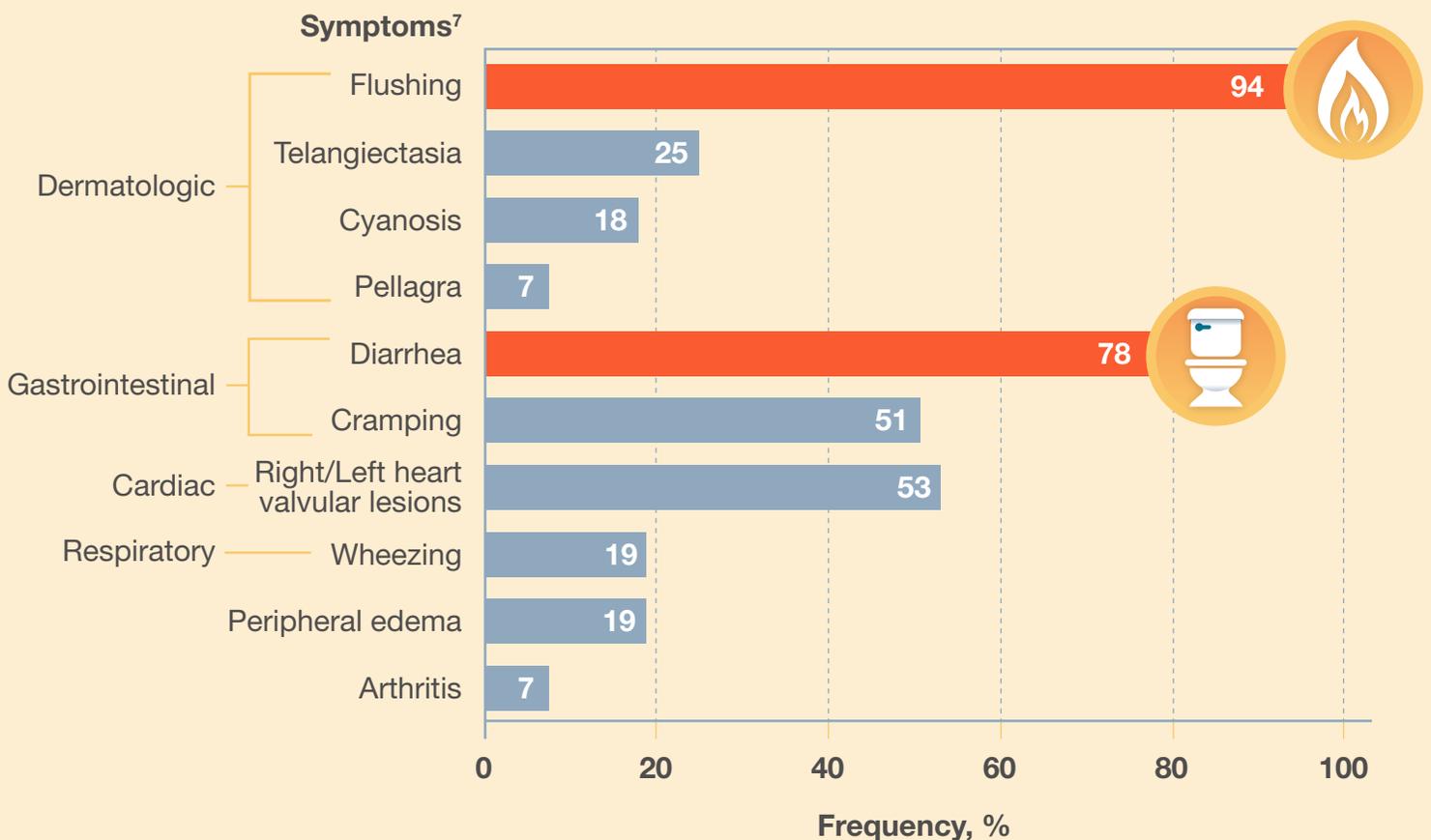
From tumor to syndrome^{1,3,4,7}:

- Carcinoid tumor metastasizes to the liver
- Overproduced substances, such as serotonin, are released by the metastasized tumor and reach systemic circulation, causing symptoms



COMMON SYMPTOMS OF CARCINOID SYNDROME

The 2 most common symptoms of carcinoid syndrome are diarrhea and flushing.^{1,7-9}



Diagnosis of carcinoid syndrome can be delayed by up to 7 years after onset of symptoms¹⁰

Carcinoid syndrome shares a key symptom (ie, diarrhea) with GI disorders, such as irritable bowel syndrome (IBS). This can lead to a delay in diagnosis. The first step toward making an accurate diagnosis of carcinoid syndrome is to recognize the characteristics of its most common symptoms.^{7,9,11}

KEY CHARACTERISTICS OF CARCINOID SYNDROME

FLUSHING

- Flushing occurs in more than 90% of patients^{1,8,9}
- Flushing associated with carcinoid syndrome is usually a **dry** flush and is described as the sudden appearance of erythema on the face, neck, and chest^{1,8}
- Linked to serotonin produced by carcinoid tumors³

DIARRHEA

- Occurs in nearly 80% of patients with carcinoid syndrome^{7,12}
- May be **nocturnal**, as well as occurring during the day⁸
- Can be severe and debilitating, with as many as 30 episodes of watery stool per day having been reported³

→ **Understanding the characteristics of the most common symptoms of carcinoid syndrome may help you make an earlier diagnosis⁹**

Learn more about carcinoid syndrome

VISIT WWW.CARCINOID.COM/HCP-RESOURCES ▶

References: 1. McCormick D. Carcinoid tumors and syndrome. *Gastroenterol Nurs*. 2002;25(3):105-111. 2. Carcinoid syndrome. MedlinePlus Medical Encyclopedia. US National Library of Medicine website. <https://medlineplus.gov/ency/article/000347.htm>. Updated March 5, 2018. Accessed March 26, 2018. 3. Jensen RT, Doherty GM. Carcinoid tumors and the carcinoid syndrome. In: DeVita VT Jr, Hellman S, Rosenberg SA, eds. *Cancer: Principles & Practice of Oncology*. 7th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2005:1559-1574. 4. Rorstad O. Prognostic indicators for carcinoid neuroendocrine tumors of the gastrointestinal tract. *J Surg Oncol*. 2005;89(3):151-160. 5. Modlin IM, Lye KD, Kidd M. A 5-decade analysis of 13,715 carcinoid tumors. *Cancer*. 2003;97(4):934-959. 6. Onaitis M, Kirshbom P, Hayward TZ, et al. Gastrointestinal carcinoids: characterization by site of origin and hormone production. *Ann Surg*. 2000;232(4):549-556. 7. Creutzfeldt W. Carcinoid tumors: development of our knowledge. *World J Surg*. 1996;20(2):126-131. 8. Anthony LB. Practical guide to supportive care of patients with functional neuroendocrine tumors. *Semin Oncol*. 2013;40(1):45-55. 9. Vinik AI, Woltering EA, Warner RR, et al. NANETS consensus guidelines for the diagnosis of neuroendocrine tumor. *Pancreas*. 2010;39(6):713-734. 10. Modlin IM, Moss SF, Oberg K, et al. Gastrointestinal neuroendocrine (carcinoid) tumours: current diagnosis and management. *Med J Aust*. 2010;193(1):46-52. 11. Toth-Fejel S, Pommier RF. Relationships among delay of diagnosis, extent of disease, and survival in patients with abdominal carcinoid tumors. *Am J Surg*. 2004;187(5):575-579. 12. von der Ohe MR, Camilleri M, Kvols LK, Thomforde GM. Motor dysfunction of the small bowel and colon in patients with the carcinoid syndrome and diarrhea. *N Engl J Med*. 1993;329(15):1073-1078.