

# Infectious Complications of Solid Tumor Malignancy



Michael J. Hoffman, MD<sup>a,\*</sup>, Ramona Bhatia, MD, MS<sup>b</sup>

## KEYWORDS

• Infection • Solid tumor • Malignancy • Cancer • Oncology

## HOSPITAL MEDICINE CLINICS CHECKLIST

1. Solid tumor malignancies comprise most of the malignant neoplasms in the United States, with fever and infection being common complications.
2. Predisposition to infection is related to the tumor type and size, primary location, presence and location of metastases, mass effect causing obstruction, barrier disruption, and potential myelosuppressive effects of chemotherapy.
3. A common infection in patients with breast cancer is skin or soft tissue infection, which may be postsurgical or associated with radiation or chemotherapy. Recurrent cellulitis may occur due to lymphedema.
4. Respiratory infection is the most common infectious complication of lung cancer and may be the presenting condition that leads to the diagnosis of malignancy.
5. Infectious complications common to all solid tumor malignancies, such as febrile neutropenia, central line-associated bloodstream infection, and *Clostridium difficile* infection, are important to recognize but beyond the scope of this article. These have been reviewed recently in this journal.
6. Hospital-acquired pneumonia and health care-associated pneumonia are also common to all solid tumor malignancies.
7. Catheter-associated urinary tract infections (CA-UTI) are a concern for all hospitalized patients with cancer but may be prominent in patients who have received radical cystectomy with urinary diversion for bladder cancer. Care must be taken to distinguish asymptomatic bacteriuria from true CA-UTI requiring antibiotics.

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The authors have nothing to disclose.

<sup>a</sup> Division of Hospital Medicine, Northwestern University Feinberg School of Medicine, 251 E. Huron St., Feinberg 16-738, Chicago, IL 60611, USA; <sup>b</sup> Department of Preventative Medicine, Northwestern University Feinberg School of Medicine, 680 N Lakeshore Dr, Suite 1400, Chicago, IL 60611, USA

\* Corresponding author.

E-mail address: [mhoffman@nmh.org](mailto:mhoffman@nmh.org)

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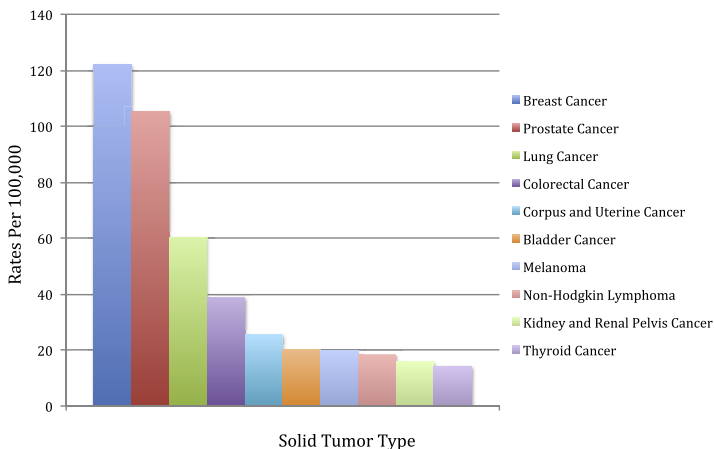
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8. Anastomotic leaks are a complication of colectomy performed for colorectal cancer. Leaks can lead to peritonitis and should be managed with aggressive antibiotics and prompt source control.
9. Hepatocellular cancer may be treated with liver transplantation. These patients are predisposed to fungal infections, including candidiasis.
10. Esophagectomy for esophageal cancer is a highly morbid procedure, in part due to infectious complications such as pneumonia and sepsis.

**EPIDEMIOLOGY***What is the burden of solid tumors in the United States?*

Solid tumors comprise most of the malignant neoplasms in the United States, with the top 10 cancers all being solid tumors (Fig. 1).<sup>1</sup> The American Cancer Society approximates that there will be nearly 1.7 million new cancer diagnoses and almost 600,000 cancer-related deaths in the United States in 2016.<sup>2</sup> Cancer continues to be the second leading cause of death in the United States; however, the age-adjusted death rate has decreased by 1.2% from 2013 to 2014.<sup>3</sup> Because of the increase in new diagnoses of cancer and the decreased death rate, more Americans are living with cancer than ever before. By the end of 2013, there were nearly 14.5 million living Americans with a history of cancer; some were diagnosed recently and undergoing active treatment, while the majority had no evidence of active cancer.<sup>2</sup>

The total health care expenditure for cancer treatment has risen from 56.8 billion dollars in 2001 to 88.3 billion dollars in 2011, with 35% of those expenditures spent on inpatient hospital stays to total approximately 31 billion dollars.<sup>4</sup> Inpatient hospital management for infectious complications of cancer is likely to increase. One study showed a 2.7% per year increased incidence in health care-associated infection after major cancer surgery between 1999 and 2009.<sup>5</sup>



**Fig. 1.** Rates of solid organ tumors in the United States.

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