Sepsis
Symptoms, assessment, diagnosis, and the Hour-1 bundle in patients with cancer

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Sepsis, which is defined as a “life-threatening organ dysfunction caused by a dysregulated host response to infection” (Singer et al., 2016, p. 804), is a result of the role of early inflammatory responses and associated system responses. Patients with cancer are at a higher risk for sepsis, with an estimated 60,000 patients hospitalized annually because of neutropenia, which can lead to infection (Centers for Disease Control and Prevention [CDC], 2019b). The Surviving Sepsis Campaign, which was initiated by the Society of Critical Care Medicine ([SCCM], 2019a) and the European Society of Intensive Care Medicine (ESICM) in 2002, aims to reduce the incidence of sepsis by 25% overall and recommends the use of clinical guidelines to improve quality of patient care.

Definitions
The 2016 SCCM/ESICM evaluation of criteria task force redefined the criteria for and definitions of sepsis, termed sepsis-3 (Rhodes et al., 2017). Previous recommendations, which defined sepsis and the critical criteria for identification using the Systemic Inflammatory Response Syndrome criteria (sepsis-1), were changed in sepsis-3 to using the quick Sequential (sepsis-related) Organ Failure Assessment (qSOFA) score for easier identification of organ dysfunction. The qSOFA score is determined by a systolic blood pressure of less than or equal to 100 mmHg (1 point), a respiratory rate greater than or equal to 22 breaths per minute (1 point), an altered mental status with a Glasgow coma scale less than 15 (1 point), with a score greater than or equal to 2 indicating sepsis. Septic shock has also been redefined in sepsis-3 as a subset of sepsis with circulatory and cellular/metabolic dysfunction that is associated with a higher risk of mortality than with sepsis alone (Singer et al., 2016). Sepsis has further evolved to examine biological markers (Kwan, Hubank, Rashid, Klein, & Peters, 2013) and individual factors, based on age (65 years or older), gender, and medical morbidities (e.g., cancer, diabetes, renal failure), as well as the presence of coagulopathy and intracerebral stress changes (Iskander et al., 2013).

Sepsis in Patients With Cancer
Because of the complications associated with severe sepsis from immunosuppression related to prolonged and aggressive treatments, patients with cancer have a higher risk for mortality from sepsis (Rosolem et al. 2012). Patients with solid tumors can develop infections from medical devices, such as stents or catheters, venous access devices (e.g., central lines, port-a-caths), or clinical syndromes (e.g., enterocolitis) (Rolston, 2017). Hematologic malignancies, such as leukemia, lymphoma, and myelodysplastic syndrome, increase a patient’s susceptibility to infection because of leukopenia from bone marrow infiltration and dysfunction (National Comprehensive Cancer Network [NCCN], 2019).

Respiratory infections, such as pneumonia, are the primary cause of sepsis. The epidemiology for sepsis frequently involves gram-positive (e.g., Staphylococcus

KEYWORDS
sepsis; cancer-related infection; Hour-1 sepsis bundle; symptom management

DIGITAL OBJECT IDENTIFIER
10.1188/20.CJON.99-102