Neutropenic fever is an oncologic emergency requiring prompt assessment and treatment with antibiotics. Although the literature does not specifically define the word “prompt,” the general belief is that the sooner antibiotics are started, the better the clinical outcome (Barber, 2001; Garcia-Carbonero & Paz-Ares, 2002; Hughes et al., 1997; Viscoli, 1998). At Dartmouth-Hitchcock Medical Center (DHMC), a 330-bed teaching hospital and tertiary care referral center in Lebanon, NH, nurses and physicians expressed concern about the length of time adult inpatients were waiting before receiving their initial dose of antibiotics on the hematology and oncology units. This was a concern because during the first 48 hours of infection in untreated patients with severe neutropenia, mortality rates have been reported to exceed 50% (Ellerhorst-Ryan, 2000; Rolston & Brody, 2000; Segal, Walsh, & Holland, 2001).

Discussions with inpatient care providers generated several hypotheses about what was causing these delays in antibiotic administration. To better understand this phenomenon, a quality improvement project was initiated to determine whether the staff’s perceptions were accurate.

**Cycle Time**

Quality improvement literature defines “cycle time” as the length of time it takes to complete a task (Espanosa, 2001; Langley, Nolan, Nolan, Norman, & Provost, 1996). In an effort to determine whether systems could and should be improved, a retrospective chart review was conducted. The purpose of the chart review was to determine the cycle times from the arrival or diagnosis of febrile neutropenia for patients with the condition to the initiation of antibiotic therapy. Cycle times were reviewed for each point of entry into the healthcare system (i.e., hematology and oncology outpatient clinic, emergency department [ED], and direct admissions to the hematology and oncology inpatient units). Thirty-one patients in the hematology and oncology units with the principal discharge diagnosis of agranulocytosis (International Classification of Disease, Ninth Revision [ICD-9], Code 288.0) or fever (ICD-9, Code 780.6) and the secondary diagnosis of agranulocytosis were identified during a five-month period. Patients were excluded on the basis of a white blood cell count greater than or equal to 4,000/mm³ or absolute neutrophil count greater than 1,000/mm³, admission to an inpatient unit other than hematology and oncology, and antibiotic therapy initiated at the transferring institution. Twenty-two patients met the inclusion criteria. Mean cycle times ranged from 70–254 minutes depending on the patients’ points of entry into the DHMC system (see Table 1).

Clearly, the facility had room for improvement. A multidisciplinary team of physicians (representing the oncology, hematology, and infectious disease departments), inpatient staff nurses, an oncology clinical nurse specialist,