This article evaluates the feasibility of developing and implementing a computer-based risk assessment tool (CBRAT) for febrile neutropenia and determines whether it could improve documentation of risk assessment in patients starting myelosuppressive chemotherapy regimens. The CBRAT was designed using a template creator in a commercial electronic medical records system. The effectiveness of the CBRAT was evaluated by comparing medical records data of patients with one or more risk factor for febrile neutropenia who were given prophylactic granulocyte–colony-stimulating factor before and after implementation. CBRAT usage significantly increased the likelihood of documented febrile neutropenia risk assessment from 13% before implementation to 100% after implementation (p < 0.001). No significant changes occurred in febrile neutropenia incidence rates, dose reductions, or dose delays. In addition, healthcare providers quickly learned how to operate the CBRAT and used it routinely, significantly improving the number of patients with documented febrile neutropenia risk assessment. Implementation of a computer-based tool can help nurses follow evidence-based guidelines that recommend routine febrile neutropenia risk assessment for patients initiating myelosuppressive chemotherapy.