QUALITY IMPROVEMENT
PROJECT CHARTER

PROBLEM AND BACKGROUND
What is the core quality issue that you are trying to improve, and what are the factors involved?

This project aims to improve the timeliness of antibiotic administration in patients with febrile neutropenia in the University Health Network (UHN) Emergency Department (ED).

Neutropenia is a common complication in cancer patients, particularly those with hematologic malignancies. Neutropenic patients presenting with fever to the ED have a high risk of sepsis and significant morbidity and mortality. To minimize this risk, prompt empiric antibiotic administration is essential. Current guidelines suggest the target time from presentation to administration of antibiotics is less than 1 hour. An audit of febrile neutropenia patients presenting to the ED at TGH shows that the median time is 3 hours and 22 minutes.

Due to the chaotic reality of the ED, it is difficult to achieve these target times without adversely affecting patients with other time-sensitive presentations, such as acute coronary syndromes and strokes. In working with partners at the Princess Margaret Cancer Centre (PMH), we devised changes to the ED workflow to improve identification of these high-risk patients, to reduce the time to antibiotic administration, and to improve communication between the patients' primary oncologist and the ED and admitting teams in the ED.

RATIONALE AND BENEFITS
Why is this an important problem to tackle, and what are the expected benefits?

This project is important because our current processes are failing this high-risk population. Our time to antibiotic administration is 3.5 times longer than that suggested by current guidelines.

The current literature suggests that by improving the timeliness of care, we can potentially reduce hospital length of stay, reduce ICU admissions, and improve morbidity and mortality.

AIM STATEMENT AND DELIVERABLES
What are the goal and objectives of this project?

The goal of this project is to reduce the median time to antibiotic administration for high-risk febrile neutropenia patients to within 1 hour of presentation to the ED.

SCOPE
What are the things (people, tasks, processes) that this project WILL and WILL NOT touch on?

This project will examine nursing and physician processes from the moment high risk patient presents to the ED to the final disposition decision is made. We will be piloting an early identification system (see below, under *change ideas*) and will track its effect on this high-risk patient population.

MEASURES
What are the outcome, process and balancing measures that you are planning on looking at?

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We will work with UHN decision support services to collect the following aggregate data on patients having a final diagnosis of febrile neutropenia or those with the new febrile neutropenia cards (see below, this list will be internally tracked):

Medical record number
Time of registration
Date of registration
Site visited
Triage vital signs
Patient initial assessment (PIA) time
Time of complete blood count (CBC) sent to the lab
Time of CBC resulted from lab (specifically, time to absolute neutrophil count [ANC] result)
Time to disposition (EP/IP conversion or discharge)
Hospital length of stay (if admitted)
Patient need for ICU admission/monitoring

Through a very limited chart review through the nursing notes and physician orders, we will acquire the following variables:
Use of a standardized febrile neutropenia order set
Time of antibiotic ordering
Time of antibiotic administration

We will be looking at the following process and outcome measures:
Rate of febrile neutropenia order set utilization
PIA time
Time from registration to CBC result
Time from registration to antibiotic administration
Time to disposition
Hospital length of stay
Proportion of patients requiring ICU admission

Through these outcomes, we will also be observing the impact of various interventions as described in the aims and deliverables section.

CHANGE IDEAS
What are you going to be attempting or changing, if already known?

We are attempting to improve patient care by streamlining our processes to ensure that these high-risk patients receive the appropriate standard of care as set out in international guidelines.

Our innovation will be creating a "fever card," which has explicit patient and health care provider instructions on the front and back. This card is to be presented upon arrival to triage to alert the triage nurse that this particular patient is at high risk for febrile neutropenia, based on patient characteristics and clinical history, as determined by the treating oncologist (in this case, practitioners at PMH). The biggest change will be the recommendation that the existing febrile neutropenia order set be initiated, including administration of antibiotics, prior to full MD assessment in this patient group.

Through our internal ED audit, we know that the median time to even detecting neutropenia at our ED is approximately 2 hours, which is already beyond guideline recommendations. For certain high-risk patients, neutropenia can be reasonably predicted. Therefore, with this patient population, it would be reasonable to initiate empiric antibiotics after IV insertion and blood culture sampling. We have

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endorsement from the leadership at the UHN ED, the department of malignant hematology at PMH, and the specialists at the Antimicrobial Stewardship Program at SHS/UHN.

We have also automated the follow up process with PMH. A message will be sent to a pre-defined clinic email address at registration informing the practitioners at the transfusion clinic (TFC) to inform them of patient arrival to the ED. There will also be a message sent upon patient disposition. If the patient is admitted to hospital, the treating oncologist will follow the patient during the admission. If the patient is discharged, the patient will be reassessed automatically by the TFC practitioners the next day.

PROJECT LEADER, TEAM MEMBERS AND RESPONSIBILITIES
Who is the point person accountable for the project's progression, who are the other members, who will do what?

Joseph Choi (ED physician, UHN) – project progression, ED physician education, intervention evaluation, ongoing process improvement, UHN ED process oversight
Debra Davies (ED Nursing Manager, UHN – TGH) – project progression, intervention evaluation, ED nursing education, ongoing process improvement, UHN ED process oversight
Andre Schuh (Hematologist, PMH) – project progression, intervention evaluation, PMH clinician education, PMH process oversight
TFC Nurse Practitioners (Danielle Brandys, Shannon Nixon, Cindy Murray, Mary Doherty) – project progression, card distribution and management, patient follow up, quality assurance
Laurie Macdougall Sookraj (Technical Specialist, UHN) – management of patient alert system

RESOURCES
What resources will you require – human, financial, equipment, authorizations and permissions, etc?

UHN decision support services will help us in obtaining the preliminary data to analyze the outcomes as described above. We have obtained buy-in from UHN ED and PMH leadership and have fully endorsed this project. We will obtain research ethics board exemption to collect this data to ensure continuous quality improvement and monitoring.

The internal messaging system has been created and the relevant authorizations have been obtained.

TIMELINES AND MILESTONES
When do you anticipate STARTING to work on this project, IMPLEMENTING this project, and COMPLETING it?

A presentation will be given on October 13, 2016 at the UHN ED Monthly Business Meeting to introduce the concept and to elicit feedback from ED stakeholders and revise processes as needed.

The fever cards will be distributed to patients starting October 24, 2016, via the TFC.

There will be ongoing PDSA cycles to identify and address issues as the process is put into place. Patient data will be requested after 3 months via UHN Decision Support.