

# Management of Febrile Neutropenia in the Emergency Department

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# Guidelines

- ▶ Antibiotics should be administered within 1 hour of presentation in patients with febrile neutropenia
- ▶ Delays result in adverse events (morbidity and mortality)

# Pre-launch Data

Interval	Time Elapsed (median)
Triage to CBC collection	57 mins
CBC collection to result	56 mins
CBC result to antibiotic administration	1h 08 mins
<b>Total time (triage to antibiotic administration)</b>	<b>3h 26 mins</b>

# Goal

- ▶ Improve time to first antibiotic for patients with high risk for febrile neutropenia

# Febrile Neutropenia Card

## MALIGNANT HEMATOLOGY - LEUKEMIA

### HIGH NEUTROPENIC RISK

Patient MRN Sticker

#### THIS MAY BE A MEDICAL EMERGENCY

- If measured or reported temperature  $> 38.0^{\circ}\text{C}$ , please prioritize this patient's assessment and work-up as EMERGENT (CTAS-2)
- Antibiotics must be initiated within 1 hour of ER presentation as per American Society of Clinical Oncology Guidelines, and **prior** to obtaining neutrophil count, if necessary
- Administer broad spectrum antibiotics as per preprinted febrile neutropenia orders, or as per UHN febrile neutropenia guidelines ([pm-febrileneutropenia.ca](http://pm-febrileneutropenia.ca))
- If you have any questions regarding this patient's medical status, or to discuss this patient's management, please contact the appropriate Princess Margaret leukemia physician on-call (416-946-2000)

#### Instructions for Patients and Families:

If you have a fever  $> 38.0^{\circ}\text{C}$  ( $100.4^{\circ}\text{F}$ ), and you know that your blood counts are low, or you have recently received chemotherapy, please follow these important steps:

1. Go to the closest Emergency Department, present this card immediately to the receptionist or triage nurse, and inform them that you are at high risk for **febrile neutropenia**
2. Bring a list of all medications, herbal products, and vitamins, that you are taking
3. Bring any additional Emergency Department letters or instructions regarding your condition that you may have received from your doctors or nurses
4. Please ask the Emergency Department to notify the Princess Margaret Cancer Centre (PM) of your medical status, and/ or to discuss your management with your doctor or with the leukemia physician on-call (416-946-2000)

# Process

Start date October 25, 2016

- ▶ High risk patients given Febrile Neutropenia Card at PMH
- ▶ Patients registered in Canary Alerting system
- ▶ Patients instructed to provide card to triage or at UCC
- ▶ Automated alerts sent to PMH outlining:
  - ▶ Visit date
  - ▶ Presenting complaint
  - ▶ Temperature
  - ▶ IP conversion (sent to MD at PMH)
  - ▶ Admitting diagnosis

# Alerts - patient presenting at triage

- ▶ Patient name: xxxxx
- ▶ MRN: 4xxxxxxx
- ▶ Date: January 22, 2017 8:22PM
- ▶ Triage time: January 22, 2017 8:28PM
- ▶ Presenting complaint: Abdominal pain
- ▶ History and assessment: Pt had a fever today at home with abdo pain and loss of appetite. Temp is 37.3 at triage. Feeling generally unwell.
- ▶ Temperature: 37.3
  
- ▶ If you have any concerns or questions regarding this alert notification, please contact the UHN Clinical Alerting team at [CanarySupport@uhn.ca](mailto:CanarySupport@uhn.ca)

# IP conversion alert - sent to PMH attending

- ▶ Patient name: xxxxx
- ▶ MRN: 4xxxxxx
- ▶ EP/IP conversion date: January 23, 2017 9:10AM
- ▶ Diagnosis: Fever NYD
- ▶ Attending Physician: Kapral, Moira

# Expectation in the Emergency Department

If patient has temperature > 38C (measured or reported):

- ▶ Triage flags chart and assigns CTAS 2
- ▶ Order set attached to nursing chart
- ▶ Triage approaches Acute side MD with febrile neutropenia order set for antibiotic order
- ▶ MD is to start antibiotics **prior** to assessment and ANC result
  - ▶ Antimicrobial Stewardship Program endorses this practice for this patient population
- ▶ Primary RN completes work up as per order set and starts first dose of antibiotic
- ▶ If patient needs admission - consult GIM

# Results

# PRESENTING WITH FN CARD	<b>60</b>
# WITH FEVER/HISTORY OF FEVER	<b>14</b>
# WITH ELEVATED TEMP. AT TRIAGE	<b>4</b>
# ADMITTED WITH FN	<b>15</b>
# WITH FN ORDERSET	<b>6</b>
# WITH SEPSIS ORDERSET	<b>1</b>
# ADMITTED WITH OTHER DX	<b>21</b>

# Results

Average TTA (hours:minutes)	2:21
Standard Deviation	1:21
Median TTA	2:00
90th Percentile	4:06

- ▶ Pre-implementation median time to antibiotic = 3h 26 min
- ▶ 42% reduction in delay to antibiotic

# Time to first antibiotic

With orderset	Without orderset
4:34	3:25
0:46	4:03
1:18	1:43
1:00	3:08
1:19	
2:17	

Goal - antibiotic within 1 hour of triage

# Next Steps

- ▶ Audit all ED visits admitted for FN for time to antibiotic with and without FN card
- ▶ Time to first antibiotic with and without order set

# Stakeholders

- ▶ TGH ED
- ▶ TGH GIM
- ▶ PMH department of malignant hematology
- ▶ UHN Executive Leadership