

Developing and Piloting an Electronic Telephone Triage Application

Peter G. Ellis MD*, Christine Carlisle RN, OCN*, Colleen F. Ford RN, OCN*, Jan Hartman RN*, Peggy Nikolajski CRNP, MSN, AOCNP*, Carol J. Reidmiller RN, MSN, OCN*, Justin S. Rushford MBA, MHA*, Leslie Stewart RN, BSN, OCN*, Amanda Barry‡, Melinda Krebs‡

Background

With the shift of cancer care to the outpatient setting, telephone triage is a vital part of today's oncology practice. UPMC CancerCenter (UPMC) desires to streamline the current telephone triage process across its 31 outpatient clinics. UPMC and Via Oncology collaborated to develop and pilot a prototype of an electronic telephone triage application.

Key Components of an Electronic Telephone Triage Application

- Workflow Management
- Decision Support
- EHR Integration
- Reporting

Methods

A prototype application, Via Triage (VT), was developed and piloted with 4 nurses at 3 outpatient clinics. A feedback session with the nurse users and institution leadership was held following the pilot.

Front office staff registered inbound calls in VT, which populated a phone triage queue. The nurse was prompted to enter information about the call. Decision support materials were displayed for reference, including algorithms for symptom assessment, adjudication, and treatment. The output was a structured summary of the encounter that was copied to the patient's chart. From the queue, the nurse was also prompted to make outbound calls for symptom reassessment.

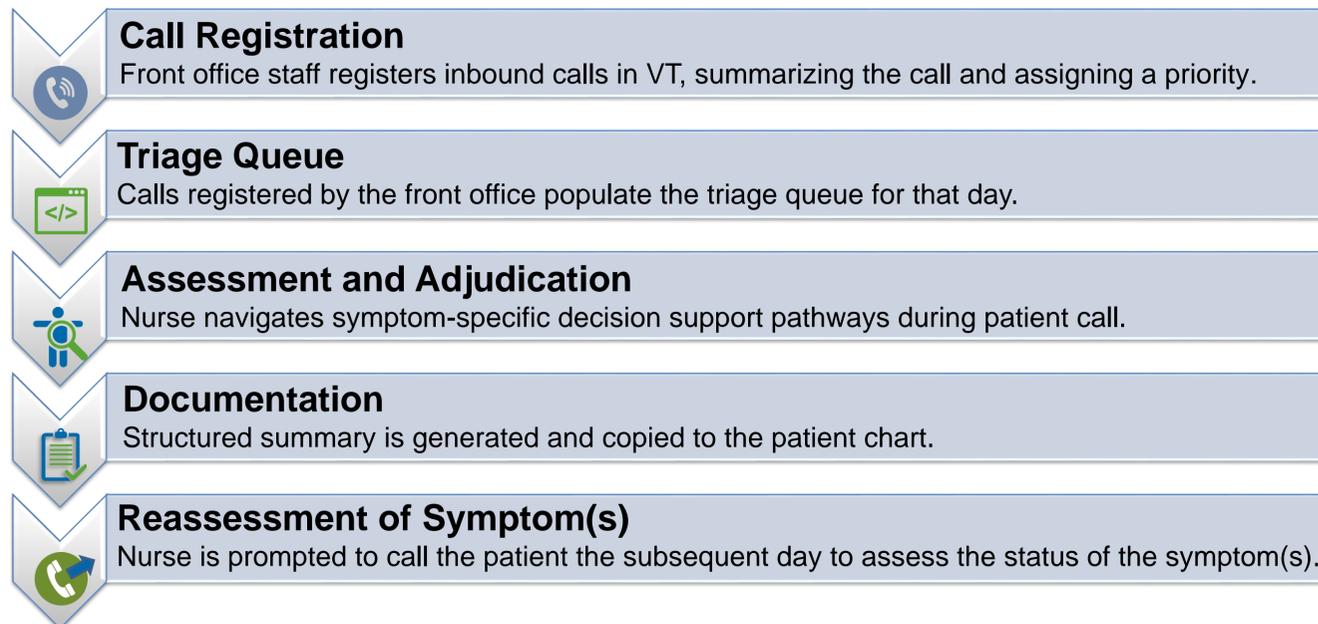


Figure 1: Via Triage Workflow

Methods

Decision support materials were developed for commonly encountered oncology symptoms. A committee of providers, oncology certified nurses, pharmacists, and palliative care specialists used published literature and clinical expertise to develop symptom-specific materials for real-time use by phone triage nurses.

Decision Support Materials

Symptoms Covered:

- Pain
- Nausea
- Diarrhea
- Constipation
- Fatigue
- Fever
- Mucositis
- Weight Loss

Materials for Each Symptom:

- Prevention (Patient & Nurse Education)
- Triage Algorithms (Assessment & Adjudication)
- Treatment Algorithms

Results

A total of 235 inbound calls were captured in the application during the pilot period of 3 weeks. Data from those calls are included in the tables below.

Call Priority	% (n = 235)
Urgent	14.0*
Symptom Related	23.0
Routine/Non-Symptom Related	63.0
Adjudication	% (n = 74)
Emergency Care	13.5
In-Office Care	6.8
Home Care	79.7

*13 non-symptom calls were assigned an urgent priority

Symptom	% (n = 74)
Constipation	9.5
Diarrhea	6.8
Fatigue	0.0
Fever	2.7
Mucositis	13.5
Nausea and Vomiting	8.1
Pain	33.8
Weight Loss	2.7
Other	23.0

Feedback From Nurse Users

The nurse users:

- Praised VT's ease of use
- Felt more confident consulting providers and during independent decision-making after referencing the decision support materials
- Indicated that the standardized documentation increased efficiency
- Requested deeper EHR integration and additional fields for data capture as future enhancements

Conclusions and Future Work

This prototype fulfilled the defined key components of a triage application. Based on the pilot feedback, VT was refined and incorporated into the Via Portal, Via Oncology's decision support software. The full version was implemented at UPMC on February 14, 2017. Impact on patient hospitalization rates will be evaluated in the future using pre- and post-implementation rates.