Optimizing Emergency Department Triage Documentation Workflow in an Urban Hospital

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Optimizing Emergency Department Triage Documentation Workflow in an Urban Hospital

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N670 ME-MSN Internship
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May 12, 2024
Optimizing Emergency Department Triage Documentation Workflow

Abstract

Problem California ranks ninth nationwide in terms of longest emergency department wait times. This project aims to reduce triage assessment time in the emergency department. Context This quality improvement project took place in the emergency department microsystem of a large urban Bay Area hospital. Intervention The proposed intervention was changes to the triage documentation workflow such as: elimination of redundant questions, consolidation of related categories, and logical reorganization of triage topics. Measures Measures used in this project were triage times and nursing opinion surveys. Results Due to time constraints and other limitations, the intervention was not implemented. However, pre-implementation surveys found strong support from staff for the recommended changes. Conclusion Future recommendations for this project includes implementation of the intervention and data collection for comparison. Keywords: emergency department, triage, workflow, optimization, triage, emergency severity index
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Authors Rowe & Knox’s (2023) state that emergency departments (ED) can be described as, “complex, overwhelming, and stressful environments.” Rowe & Knox (2023) further state that EDs can be characterized by, “high patient volumes, rising service demands, overburdened staff, and an atmosphere of continual exigency.” In the United States, ED visits increased from 119.2 million to 145.6 million between 2006 and 2016 (Boutda et al., 2021). Melnick et al. (2022) found that up until 2019, the trend of ED visits continued to increase but dropped in early 2020 due, in part, to the COVID-19 pandemic. Numbers began to increase again in 2021.

The state of California, has to an extent, followed the general national trend: annual number of ED visits increased from 2011-2019, only to drop in 2021 due to the pandemic (Hsia et al., 2023). ED capacity however, has not kept pace with California’s population growth. The state has experienced increased ED crowding and has a median wait time of 164 minutes. The state is ninth in the nation for states with the longest ED wait times (Hsia et al., 2023). These characteristics are concerning owing to the fact that crowding, increased patient volumes, and long waiting times impact patient satisfaction which can ultimately negatively impact patient health outcomes (Wolf et al., 2018; Berlyand et al., 2023; Carter et al., 2014; Nyce et al., 2021).

The emergency department is often the first point of entry into the healthcare system. The first impression experienced by patients can impact the overall stay and satisfaction. This initial perception can influence various factors, including admission rates, adherence to treatment, number of lawsuits, and healthcare costs. For this reason, optimizing operational efficiency is part of the strategy to improve patience experience (Nyce et al., 2021).

Triage

The purpose of triage is to categorize incoming patients according to the severity of their injuries or ailments. Optimal triaging of patients should occur within 10-15 minutes of the
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patient's arrival to the emergency room (Yancey et al., 2023). The most commonly used triage algorithm in the United States is the Emergency Severity Index (ESI). It is composed of five levels: level 1 and 2 are assigned to unstable patients who require immediate interventions, levels 3, 4 and 5 are assigned to stable patients and categorized based on the number of resources anticipated to require (Wolf et al., 2024).

Problem Description

Regulatory bodies require every emergency department patient be screened for various high risk situations such as: intimate partner violence, physical or sexual abuse, and suicidal ideation (Wolf et al., 2024). Individual organizations may have additional screening protocols for sepsis, communicable disease, risk of violence, and risk assessment, which are often tacked onto the triage process. These additional screenings and assessments do not assist in establishing patient acuity and have the potential to overburden and lengthen the triage process. This may delay the assessment of other patients waiting to be triaged.

The focus of this quality improvement project will be to optimize workflow in triage documentation with the aim of decreasing the time it takes for triage nurses to initiate and complete patient triage and thus contribute to decreased wait times.

Setting Description & Proposed Intervention

The microsystem of the adult emergency department is positioned within the larger hospital x mesosystem, located in the greater San Francisco Bay Area. The emergency department has 66 beds with approximately 228 nursing staff, is a level I trauma center, level 2 geriatric emergency department, and treats over 80,000 patients a year. According to Healthgrades (n.d.), hospital x ranks among the nation’s 50 best hospitals and 84% of patients would recommend hospital x, which is 20% higher than the national average.
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The proposed intervention is to analyze triage documentation workflow and identify redundant or duplicate questions which can be condensed. The first step will include identifying questions which do not directly assist in establishing ESI level and can be moved to a more appropriate time later in the visit. The second step is to reorganize the order of the questions to create a more efficient and logical workflow. In this way, the quality improvement team hopes to decrease triage times and contribute to better patient outcomes.

Available Knowledge

PICOT Question

The guiding question for this project was formatted using the criteria for the population, intervention, control, and outcome (PICOT) tool. The question was: for patients visiting an urban emergency department, does the optimization of the triage flow sheet decrease triage times?

Search Methodology

The search was performed on the Pubmed database and results were reviewed using the John Hopkins Literature Review to determine qualifying articles. To facilitate and narrow the volume of articles, the following inclusion criteria were applied: the research articles needed to use electronic health records, the studies needed to be performed on adult patient populations, the studies needed to be in English and they needed to have free full text links. The exclusion criteria was: use of paper records and articles published over 20 years ago. Key search terms were: “rapid triage,” “triage assessment,” and “emergency room,” and “wait times.” Refer to Appendix A: Johns Hopkins Evidence Appraisal Table.

Literature Synthesis

Authors Groot et al., (2022), found that a majority of community nurses perceived organizational documentation activities as contributing to a high workload. Nurses perceived that
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improving user-friendliness of electronic health records, decreasing the time spent on organizational documentation, and inter-communicability of electronic health records as strategies to reduce workload. By removing duplicate questions in the triage assessment workflow, this project has the potential to reduce perceived workload and increase perceived user-friendliness. By reducing the number of overall questions, triage times will also be reduced.

Mackway-Jones et al., (2023), aimed to reduce triage times. To optimize process flow, the interface on the electronic triage system was redesigned and the process was reordered to make the sequential order more logical. The team was able to reduce triage time by a mean average of 2 minutes and 6 seconds. Part of this quality improvement project is to reorder the triage questions to create a more efficient and logical workflow. By reordering the assessment triage questions, the sequential flow will better fit the flow of the triage process and create a smoother and less time consuming process.

Johnson et al., (2021), found that ED nurses categorized assessment questions into questions that determined the patient’s severity and questions that can wait until later. Johnson et al., (2021) suggests that ED with high patient volumes can consider adopting a process where essential questions are immediately asked and nonessential questions are postponed. This supports the project's aim to prioritize essential questions and identify questions that can be deferred to a later time in the encounter. Performing such intervention can have time saving effects which is the overall aim of the project.

Sayah et al., (2014), optimized front end operations through various interventions. The interventions of relevance to this project was the implementation of a three question mini registration process and deferment of the remaining registration process to a later point in the encounter. As a result of these interventions, Press Ganey Patient Satisfaction scores increased,
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ED total length of stay decreased, compliance of ED quality core measurements improved and the mean rate which ED patients left without being seen before treatment decreased. This article provides support to optimize front end operations and to simplify the initial intake process and reduce wait times and improve patient flow.

Gupta et al., (2023), identified key processes to improve workflow in the ED to increase the identification of language needs and offer interpreter services. As a result, interpreter utilization increased from 77% to 86%. In terms of the project, the current state of the workflow process has the question relating to language interpreting at the end of the process. Available evidence supports moving the question sooner in the triage process for a more logical workflow.

Machway-Jones et al., (2019), examined the potential time cost of standardized screening of patients in the emergency department. They found that the mean time taken to ask each question ranged from 4.37-6.26 seconds and the annual time to ask all five questions was about 590.73 hours which equated to $20,675.50 in nursing costs per year. The project seeks to identify which non-essential questions can be removed from the current or be delegated to a later time. Removing these questions can reduce triage assessment time and has potential cost saving for the organization.

Murrell et al., (2011), applied lean principles to redesign ED processes. The triage area was rearranged and the registration process was segmented into an initial quick registration and a more complete registration after the patient was seen by a physician. The authors were able to significantly decrease patient wait times and the rate of patients who left without being seen by a doctor. In relevance to the current project, the project aims to reduce the triage time by simplifying the documentation workflow process. Part of the project is to identify the questions required by regulatory agencies and see if the current placement makes sense or if it is more
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appropriate to defer to a later part of the visit, as done in this study.

Weber et al., (2011), concluded that less than half of all high-acuity patients were seen within recommended time frames. They state that triage has become a site for gathering additional data that does not assist in establishing patient acuity. Their primary recommendation is to reduce triage to key elements. The current project seeks to identify the key elements required in the triage workflow process, both from the organization and regulatory bodies. Identifying and eliminating elements that do not assist in establishing patient acuity will assist in reducing workflow.

In conclusion, available research suggests nurses perceive a reduction in organizational documentation and a user-friendly interface as methods to reduce workload. Nurses recognize that not all questions currently asked during the triage process are essential and nonessential questions can be postponed and completed at a later time. Interventions from other studies suggest that simplifying the registration and triage process can decrease the overall time a patient spends in the emergency department. To summarize, research supports reducing the number of questions during the initial triage process and rearranging them in a logical flow to better optimize workflow thereby reducing the amount of time a patient needs to spend in the emergency department.

Rationale

The change theory applicable to this project is social marketing. First research on the target group and assessment of the available resource was conducted. The target groups are the patients and triage nurses. The resources available for this project are largely human capital. The primary drivers of the project are 5 nursing students with the support of one clinical faculty instructor. Available human capital from the hospital's side is one member of the patient care
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management team and one member of the clinical systems analysts team. Secondly, the specifics of the implementation program were mapped out. This involved creating a prototype of the desired changes in the triage workflow documentation along with the creation of surveys to gather feedback about the pre-intervention workflow documentation process, feedback about the proposed changes, and feedback about post-intervention workflow documentation process along with timelines to hit specific target milestones. Due to time constraints the project was unable to move to the third step. The third step would hypothetically involve piloting the proposed triage flowsheet on a small group of triage nurses, gathering feedback, and evaluating the outcome. The hypothetical final step would be to make adjustments based on the results of the piloting and implement the flowsheet changes across the entire ED.

**Ethical Considerations**

This project meets the criteria for an evidence-based quality improvement project and therefore an IRB review was unnecessary. To validate this quality improvement project, a Statement of Non-Research Determination (SONRD) form was duly completed (Refer to Appendix B), followed by a comprehensive review and approval by the clinical faculty of the University of San Francisco School of Nursing and Health Professions. No external funding was obtained for the described project, and the members of the project group declare no conflicts of interest.

**Project AIM**

In the emergency department setting, the aim is to optimize the triage process for patients seeking medical care by implementing interventions aimed at reducing triage times. This includes reorganizing and consolidating the triage flowsheet and delaying specific triage questions to be asked by the primary nurse. The process begins with the initial assessment of
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patients upon arrival at the ED and ends with assignment of ESI.

Methods

Context

The microsystem was assessed using the 5Ps which are: purpose, patients, professional, process, and patterns.

Purpose: The driving mission behind the hospital is to, “[heal] humanity through science and compassion, one patient at a time,” (Hospital x, n.d.). The emergency department provides quality, effective, and timely emergency healthcare services to all patients within the context of the mission statement. This quality improvement project utilizes best available, science-based, evidence to improve triage workflow. By using evidence based practice to reduce triage assessment time and improve patient outcomes, this project contributes to the organization's overall mission of using science to heal patients.

Patients: The hospital’s ED is a Level 1 Trauma Center, and designated Comprehensive Stroke Center, Chest Pain Center and Level 2 Geriatric ED. It serves the counties of San Mateo and Santa Clara and treats approximately over 80,000 patients a year. (Hospital x, n.d.). The patient population includes patients of all age groups with a wide range of illnesses and/or injuries, insured patients, uninsured patients, patients that come in via ambulance, and in-house staff emergencies (e.g. needle sticks).

Professionals: The staff who work in collaboration within this microsystem are Nurses, Advanced Practice Practitioners, Physicians, Respiratory Therapists, Emergency Department Technicians, Registration Associates, Radiology Technicians, Unit Secretaries, Physical Therapist, Occupational Therapist, Social workers, Case managers, and Phlebotomists. The primary collaborators on this quality improvement project are the nurse manager, student nurses
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and a faculty nursing professor.

**Process:** Upon arriving at the emergency room's main entrance, walk-in patients undergo security screening and then proceed to registration, where their name, insurance information, preferred language, and chief complaint are collected. The hospital utilizes EPIC software for health records. Triage assessment begins once the triage nurse has selected “Triage Start” in the EPIC navigator. The nurses follow and document using a flowlist which includes the headers of: viral screening, chief complaint, vitals, allergies, allergy/latex armband, triage data, interventions and finally triage plan. Each header is subdivided into additional categories with space for additional data collection. The triage process ends when ESI level is determined located under the final header, “Triage Plan.”

**Patterns:** Patterns that characterize the operations of the emergency department include a well-coordinated workflow, defined roles and responsibilities, and strategic resource utilization.

**Intervention**

The goal of the proposed intervention was to eliminate redundant or frequently unused questions, condense similar questions, and reorganize questions for a more logical workflow process (see Appendix C). Students met with the EPIC build team and management to identify specific areas for improvement in the triage flowsheet. Afterwards the students created a survey with the proposed changes and rationale for triage nurses to provide feedback.

A summary of proposed changes were as follows: move “interpreter” directly after “triage start”, eliminate “allergy band verification” as a standalone section and incorporate into “allergy,” remove, “interventions,” add “C-collar” from the former “interventions” and into “chief complaints” as a check box section, remove “Room precautions,” remove “ESI” from “Triage Plan” and create as a standalone section, remove “Triage Destination” from “Triage
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Plan” and create a stand alone section, addition of an unnamed section after “Triage End” which would contain “EKG documentation,” “Disaster,” and, “Treatment PTA.”

**GANTT Chart**

A GANTT chart was developed for this project to aid in planning and scheduling (see Appendix D). The chart is divided into four phases, project initiation, planning, implementation and evaluation. During the project initiation phase nursing students met with the clinical instructor to establish general guidelines and expectations. Students began to assess and evaluate the emergency department microsystem using the 5 P’s, create and develop a PICOT question to guide the literature search and review, created an AIM statement, used a fishbone diagram for cause analysis, and submitted the statement of determination.

During the project planning phase, students created a pre-interventional survey to assess the microsystem’s readiness for change. After, students met with regulatory affairs to get an overview of which questions could not be removed from the workflow. A meeting was held with management to discuss proposed changes to the triage workflow. A poster and QR code were created to assist recruitment of triage nurses. Lastly, pre-interventional data was collected using the survey created earlier in this phase.

During project implementation, a mock triage navigator was created as a visual aid to assist in planning and educating triage nurses about the project. An accompanying survey of the proposed changes with rationales was created to collect feedback from the triage nurses. A second meeting was held with leadership and members of the system analyst team to review the survey’s findings and finalize changes to the flowsheet. Lastly, the changes were made on the triage navigator. Due to time constraints, the final step in this phase, implementation of the new flowsheet on the emergency department, was unable to be completed. Time constraints also did
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not allow for the final step of Project Evaluation. Hypothetically this step would have involved a post-interventional survey to collect triage nurse’s feedback regarding the new flowsheet. The data would be evaluated and summarized in a paper to be submitted and findings would be presented to a wider audience.

**Root Cause Analysis**

Root Cause Analysis was performed using the FishBone Diagram which is one of the seven basic tools for cause analysis provided by the American Society for Quality (See appendix E). Potential factors that contribute to triage times fall into five categories: people, providers, policies, processes/procedures and places. The factors that fall into the people category include the walk-inpatients and adult patients. Factors that fall into providers are the emergency department nurses, triage nurses, registration technicians, and the flow facilitator. Factors that fall into policies are regulations either federal or organizational, such as mandated screenings. Factors that fall into process/procedures are arrival, registration, triage and assigned ESI. Lastly, factors that fall into the place category are the emergency department lobby.

After carefully evaluating the various factors that contributed to the length of triage time, it was concluded that an outdated flowsheet with unnecessary redundancies would be the focus of this quality improvement project.

**SWOT Analysis**

The Strengths, Weakness, Opportunities and Threats (SWOT) analysis can be found in appendix F. Internal strengths include, low cost of project, ease of implementation, and supportive staff. This is important because it creates an environment that is receptive to change. Internal weaknesses include, bureaucracy of the organization, low priority of student projects by organization, no direct access to EPIC health record systems, time constraints, and changing
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project expectations. These weaknesses created delays and barriers that had to be overcomed in order to move the project forward. External opportunities include the organization’s commitment to implement standards that surpass industry norms, access to ample financial resources, and ability to leverage existing resources effectively. These opportunities supported the progression of the project because a commitment to high standards and the resources to do so, support quality improvement projects. External threats include, the bureaucratic nature of shared governance and no current recommendations for standardization of triage intake forms from regulatory bodies or institutions. These threats created barriers because it slowed the progression of the project and having no standardized guidelines to consult required input and consultation from various departments that further slowed the progression of the project.

Financial Analysis

This project incurred expenditure costs in two main categories, those incurred on hospital’s end and those incurred from the students from USF (refer to Appendix. G). Part of the Hospital’s expenditures includes the salary for a clinical nurse leader, senior clinical system analyst, and training for the triage task force. Costs from the University students include the cost of printing fliers and materials. Total expenditures for the project were calculated at $2,542 (refer to Appendix G).

Currently the project does not have a monetized amount on the financial benefit because time spent on triage assessments does not have a straightforward calculation. However, Migdal et al. (2019) estimated annual nursing time cost to ask five questions during triage to the institution was $20,675.50. The nursing salaries in the study were normalized to 35 dollars an hour. Salary expenditures are higher in the Bay Area. If nursing pay is normalized to 90 dollars an hour, potential cost savings equate to $53,165 annually.
Study of the Intervention

The Plan-Do-Study-Act is a four stage model to improve a process or implement change within a microsystem (see Appendix H). In the Plan stage, students identified an outdated triage flowsheet with room for improvement. In the Do stage, students created a survey to assess the readiness of the microsystem for change. Afterwards students met with members of the management and systems analysis team to identify workflow changes and a second survey was created and distributed detailing the proposed changes and rationale. During the Study stage, survey results were summarized in pie charts and questions with a majority of staff support were identified and presented to members of the management and system analysis team. Due to time constraints the project was unable to move to the Act stage. The Act stage would have included implementation and evaluation of the new flowsheet during triage.

Outcome Measures

The measures collected included pre-interventional data in the forms of two surveys and triage assessment times (see Appendix I). The first survey utilized Likert scales and measured satisfaction with the pre-interventional flowsheet and assessed the microsystem’s readiness to experience change. The second survey detailed the proposed changes with rationales. It included multiple choice questions with yes/no/maybe/other options. Additional space was provided for comments. The Senior Clinical Analyst provided the average triage assessment times. Due to time constraints, no post-intervention data was collected. Post-intervention data would have included qualitative feedback from triage nurses and average triage times.

Results

For more detailed results refer to Appendix J. Thirty-seven triage nurses responded to the first survey. 51.4% of respondents reported a 3 when asked how satisfied they were with the
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current triage questions. When asked how they felt about the amount of questions, 40.5% of respondents reported a 3, 59.4% responded 4 or higher. When asked if delaying questions would improve triage efficiency, 86.5% responded 4 or higher. A majority of respondents answer either neutral or in support of possible changes. This was interpreted as openness by staff to changes in the microsystem which allowed the project to move forward.

Ninety-four triage nurses responded to the second survey. Only questions with significant staff support were considered for implementation. Eighty respondents were in favor of moving the Interpreter section after Triage Start. Ninety-one respondents were in favor of combining Allergy Band Verification and Allergy. Seventy respondents were in favor of removing the Interventions tab. Sixty-eight respondents were in favor of adding a C-collar checkbox option to Chief Complaint. Sixty-seven respondents were in favor of removing the Room Precautions section. Seventy-one respondents were in favor of the proposed reordering of triage tabs.

Median triage assessment time pre-intervention was found to be 4.9 minutes for a period between the months of January to March.

**Discussion**

**Summary**

This QI project did not reach the implementation stage. However sufficient data was obtained that demonstrated readiness from the microsystem to accommodate change and significant support from triage nurses to eliminate, create, and reorganize workflow tabs. The recommendations are to proceed with creating the changes on EPIC and pilot the flowsheet and gather post-intervention data. Hypothetically, triage assessment times would decrease and triage nurses would report high levels of satisfaction. These findings would support department wide implementation of the flowsheet. These would increase operational efficiency thereby positively
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affecting patient experiences and contributing to improved patient outcomes. This would aid the organization in fulfilling its mission to heal “humanity through science and compassion, one patient at a time.”

A positive success from the project was the team’s ability to collect survey responses. As the project developed, higher survey response thresholds were required. The team found success by creating a QR code which allowed the survey to be accessed via smartphone. The QR was printed and hung as posters in strategic locations (see Appendix K). Additionally, wallet-sized handouts were created and distributed (see appendix L). A smart tablet was used for staff who did not want to use their smartphones and a 60 second elevator pitch was rehearsed to quickly inform nurses of the project and its significance to operational improvement. The strength of this project is that any organization that uses EPIC can replicate the process with relative ease and low-cost as the primary resources are human capital and photocopies.

Limitations

The primary limitation was time. The project was unable to be implemented within the timeframe. Delays in communication and coordination set the project back. Regulations created additional barriers as the proposed interventions had to be cleared by various departments.

Lastly, the organization believes in shared governance. This required potential changes to be approved by a significant portion of the department staff which resulted in investing additional resources and time into creating surveys and collecting data.

Conclusion

The triage assessment flowsheet was in need of updating due to outdated sections that were necessary during the peak of the COVID-19 pandemic but had since become obsolete. While the proposed changes were not implemented, the project found support by staff to
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continue moving forward. The project can be replicated and spread to other organizations. The implications for current practice is that tools used by staff need periodic monitoring and updating to reflect current states and needs of the population. This can help eliminate redundant or obsolete questions that result in both a benefit to the patients, nursing staff and organization.
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References


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Appendix A

Johns Hopkins Evidence Appraisal Table

<table>
<thead>
<tr>
<th>Journal #</th>
<th>Name of Article</th>
<th>Citation</th>
<th>Evidence Type</th>
<th>Sample, Sample Size, Setting</th>
<th>How Does Article Address Problem?</th>
<th>Quality of Evidence</th>
<th>Other Highlights from Article (consider including limitations &amp; outcomes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Triage knowledge and practice and associated factors among emergency department nurses</td>
<td>AlShatat M, Rayan A, Eshah NF, Baqas MH, Jaber MJ, ALBashtawy M. Triage Knowledge and Practice and Associated Factors Among Emergency Department Nurses. SAGE Open Nursing. 2022;8. doi:10.1177/23779608221130588</td>
<td>Cross-sectional, descriptive, and correlational design</td>
<td>Sample: 147 ER nurses participated in the study, data was collected between February 2021 through April 2021. Setting: Large urban hospital</td>
<td>Authors understand the crucial role of emergency department services and the challenges in providing and maintaining quality care during high patient volume. Authors emphasize the importance of triaging to identify patients who require immediate treatment, and its role in organizing department capacity, and patient outcomes.</td>
<td>Level III</td>
<td>Outcomes: Regulatory data collection during the start of triage makes it challenging for nurses to triage quickly and identify patients who are at high risk for deterioration. Limitations: The subjective nature of triage which can affect the accuracy and consistency of triage classifications. Required screening questions can delay the assessment of patients. Other factors in the emergency department such as patient volume, high risk situations, and other interruptions that impact the triage process.</td>
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<tr>
<td>Page</td>
<td>Title</td>
<td>Authors</td>
<td>Sample</td>
<td>Documentation</td>
<td>Limitations</td>
<td>Level III</td>
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<tr>
<td>2</td>
<td>Optimizing Emergency Department Triage Documentation Workflow</td>
<td>De Groot, K., De Veer, A. J. E., Munster, A. M., Francke, A. L., &amp; Paans, W. (2022).</td>
<td>Online survey with participants from Dutch nationwide research panel, 134 total nurses participated in the survey, 28 in the focus group.</td>
<td>Documentation is perceived as high workload, previous research has found that documentation can be burdensome to nurses, however nurses acknowledge that documentation is important to nursing. Key findings were that electronic health record systems need to be user friendly, duplication in documentation is a problem and is accompanied with negative views on documentation.</td>
<td>There is a difference between clinical documentation and organizational documentation. Nurses view organizational documentation more problematic and pointless. Limitations: differences in age among participants, and researched used a self-developed survey questionnaire</td>
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<tr>
<td>3</td>
<td>Improving Identification of Interpreter Need in the Pediatric Emergency Department</td>
<td>Gupta KM, Campeggio D, Madu C, et al.</td>
<td>6 month study period, 54 922 ED encounters occurred between January 13 and November 1, 2020. There were 1827 interpreter encounters. Setting: Large hospital urban hospital</td>
<td>This article provides justification for moving the language preference question up in the order of questions asked during triage.</td>
<td>Authors were able to increase interpreter utilization from 77% to 86% and the documentation of their use from 38% to 73%. Automated prompts were implemented for language preference for each patient. Limitations: Study is looking at language</td>
<td>Level III</td>
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<td></td>
<td>Title</td>
<td>Authors</td>
<td>Methodology</td>
<td>Sample</td>
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<td>4</td>
<td>Perceptions of the Essential Components of Triage: A Qualitative Study</td>
<td>Johnson, K. D., Punches, B. E., &amp; Smith, C. R. (2021). Perceptions of the Essential Components of Triage: A Qualitative Analysis. Journal of Emergency Nursing, 47(1), 192–197. <a href="https://doi.org/10.1016/j.jen.2020.08.009">https://doi.org/10.1016/j.jen.2020.08.009</a></td>
<td>Qualitative Descriptive Study</td>
<td>Sample: 12 ER triage nurses and 3 focus groups</td>
<td>Setting: urban level 1 trauma center and suburban level 3 trauma center</td>
<td>Identified questions not urgent for triage such as risk behaviors. Identified essential components such, did not find that hospital mandated questions were essential to triage.</td>
<td>Level III</td>
</tr>
<tr>
<td>5</td>
<td>Making more nurses, one minute at a time: an efficiency and quality improvement project in emergency triage</td>
<td>Mackway-Jones, A., Hornby, R., &amp; Mackway-Jones, K. (2023). Making more nurses, one minute at a time: An efficiency and quality improvement project in emergency triage. Emergency Nurse, 31(4),</td>
<td>Quasi-experimental study</td>
<td>Sample: 300-450 adult patients daily between June 2019-September 2022</td>
<td>Setting: Large inner-city teaching hospital</td>
<td>The authors applied the Manchester Triage System which is a 5-level triage system which implements the philosophies of lean waste management in order to reducing waste and waits.</td>
<td>Level II</td>
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</table>

**Limitations:**

- Only performed at one hospital with a relatively specific triage process that may not be applicable to other triage processes at different emergency departments.

**Outcomes:**

- With three discrete interventions they achieved a near doubling of triage capacity without any extra investment or reduction in triage quality.
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<tr>
<th></th>
<th>Optimizing Emergency Department Triage Documentation Workflow</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Prospective Observational Study</th>
<th>Article is able to establish monetary value on the time spent on asking specific questions: Have you received a pneumococcal vaccine? Have you had a tetanus shot within the last five years? What are your allergies? Have you received a flu shot this year? Any recent travel? Less questions at triage have the potential to translate into fiscal savings.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Cost of Standardized Nursing Screens in the Emergency Department</td>
<td>Sample: 200 triage assessments Setting: The emergency department at Augusta University Medical Center (AUMC)</td>
<td>Level III</td>
</tr>
<tr>
<td>Migdal, V. L., Harper, K., Haqqani, N., &amp; Janiak, B. (2019). Time Cost of Standardized Nursing Screens in the Emergency Department. The western journal of emergency medicine, 20(6), 851–854. <a href="https://doi.org/10.5811/westjem.2019.9.44084">https://doi.org/10.5811/westjem.2019.9.44084</a></td>
<td></td>
<td>Limitations: Instruments used to measure time were not highly precise, data was collected at only one hospital so results may not be applicable to other settings.</td>
</tr>
<tr>
<td></td>
<td>Outcome: Asking these questions consume a significant amount of time during triage assessment.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>Retrospective Observational Study</th>
<th>Lean is a set of business operating principles developed by Japanese auto manufacturers and can be applied to other settings, including healthcare. Lean seeks to increase efficiency, decrease waste, and promote flow through the system. Using Lean principles, the authors of this study redesigned the ED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applying Lean: Implementation of a Rapid Triage and Treatment System</td>
<td>Sample: 30,981 records included from the six months prior to rapid triage and treatment (RTT) system and 33,926 records in the study period after RTT. Setting: Kaiser</td>
<td>Level III</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Limitations: those associated with retrospective data collection, time limitations (authors would have preferred a longer data collection time), no data collecting</td>
</tr>
</tbody>
</table>
### Optimizing Emergency Department Triage Documentation Workflow

<table>
<thead>
<tr>
<th>Strategies to improve the quality of nurse triage in emergency departments: A realist review protocol</th>
<th>Ouellet, S., Galliani, M. C., Gélinas, C., Fontaine, G., Archambault, P., Mercier, É., Severino, F., &amp; Bérubé, M. (2022).</th>
<th>The review assess what works in triage, for whom and in what specific context and address improvement strategies for triage in emergency departments</th>
<th>Level V</th>
<th>Limitations: The review is general which limits its applicability to specific triage problems.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategies to improve the quality of nurse triage in emergency departments: A realist review protocol</td>
<td>Sample: 12 experts in nurse triage, emergency nursing, emergency medicine and implementatio science and quality improvement</td>
<td>The review assess what works in triage, for whom and in what specific context and address improvement strategies for triage in emergency departments</td>
<td>Level V</td>
<td>Limitations: The review is general which limits its applicability to specific triage problems.</td>
</tr>
<tr>
<td>Strategies to improve the quality of nurse triage in emergency departments: A realist review protocol</td>
<td>Setting: General Emergency Department triage</td>
<td>The review assess what works in triage, for whom and in what specific context and address improvement strategies for triage in emergency departments</td>
<td>Level V</td>
<td>Limitations: The review is general which limits its applicability to specific triage problems.</td>
</tr>
<tr>
<td>Strategies to improve the quality of nurse triage in emergency departments: A realist review protocol</td>
<td>Permanente South Sacramento Medical Center process. Part of the improvement process was a “quick registration,” including name and medical record number entry into the computer system, armband placement and consent signature. Full registration processes are then completed after patients have been seen by a physician.</td>
<td>The review assess what works in triage, for whom and in what specific context and address improvement strategies for triage in emergency departments</td>
<td>Level V</td>
<td>Limitations: The review is general which limits its applicability to specific triage problems.</td>
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<td>Level V</td>
<td>Limitations: The review is general which limits its applicability to specific triage problems.</td>
</tr>
<tr>
<td>9</td>
<td>Minimizing ED Waiting Times and Improving Patient Flow and Experience of Care</td>
<td>Sayah, A., Rogers, L., Devarajan, K., Kingsley-Rocker, L., &amp; Lobon, L. F. (2014). Minimizing ED Waiting Times and Improving Patient Flow and Experience of Care. <em>Emergency Medicine International</em>. <a href="https://doi.org/10.1155/2014/981472">https://doi.org/10.1155/2014/981472</a></td>
<td>Pre and post intervention analysis</td>
<td>Sample: 6 years worth of data from 2005-2011, with average annual ED census of ~30,000 patients (estimate is at 180,000 total records included)</td>
</tr>
</tbody>
</table>

<p>| 10 | Mandatory triage does not identify high acuity patients within recommended time frames | Weber EJ, McAlpine I, &amp; Grimes B. (2011). Mandatory triage does not identify high-acuity patients within | Cross-sectional study | Sample: 3,932 high acuity walk-in visits to the ED | Setting: Urban, tertiary care hospital | Less than half of high acuity patients completed triage within the recommended 10 minutes | ESI does not have a designated time for completing triage, it | Level III | Limitations: Data collected at a single site, may not be applicable in other settings | Outcomes: Mandatory triage may cause unsafe delays, diverting |</p>
<table>
<thead>
<tr>
<th>Time Frames</th>
<th>Recommendations</th>
<th>Nursing Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annals of Emergency Medicine, 58(2), 137–142. <a href="https://doi.org/10.1016/j.annemergmed.2011.02.001">https://doi.org/10.1016/j.annemergmed.2011.02.001</a></td>
<td>has time recommendations for when physicians should treat the patients. Prolonged triage time delays this care.</td>
<td>from activities that can result in shorter wait time for care.</td>
</tr>
</tbody>
</table>


Optimizing Emergency Department Triage Documentation Workflow

Most common triage system in the US is the simple triage and rapid treatment system. First question is to ask if the patient requires immediate life saving interventions: patent airway, breathing, pulse. Nurse evaluates: pulse, rhythm rate, airway patency, concern for oxygen, blood loss or requires blood volume replacement, Pulselessness, apnea, severe respiratory distress, oxygen saturation, mental status, unresponsiveness? Level 1 & 2 are most severe. Level 3, 4 and 5 are classified according to how many hospital resources will be needed. Limitations
to this system: lack of sensitivity and specificity. However it is difficult to establish a triage system that applies to all situations appropriately. Proper triage should occur in 10-15 mins. In the United States there is misclassification of patients in the triage system. The article states a lack of studies that compare international triage systems to compare outcomes, patterns, and consistencies. Retraining programs in the ER do not yield an increase in triage accuracy.
Appendix B

Statement of Non-Research Determination

Project: Statement of Determination and Non-Research Determination Form

Student Name:

<table>
<thead>
<tr>
<th>Title of Project: Optimization of Triage Documentation in a Large Urban Emergency Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description of Project: North American emergency departments have had a longstanding problem of prolonged waiting times (Stang et al., 2015). This project is prompted by compelling data highlighting the inadequacies in triage times within the emergency department (ED) at Stanford. The identified issue serves as the impetus for the project's aim statement, which outlines a targeted improvement of triage times by 10% by May 2024. The intervention strategy involves conducting pre and post assessments of nurses' perspectives on the current triage workflow. To enhance efficiency, questions deemed &quot;unnecessary&quot; in the triage process will be eliminated, and a more logical order for the remaining questions will be implemented. The overarching goal is to streamline the triage documentation process, thereby reducing overall triage documentation times. The success of the intervention will be measured through diligent tracking and analysis of triage documentation times, providing a tangible metric for assessing the project's impact.</td>
</tr>
</tbody>
</table>

Reference

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (http://answers.hhs.gov/ohrp/categories/1569)

☐ This project meets the guidelines for an Evidence-based Change in Practice Project X
Optimizing Emergency Department Triage Documentation Workflow

as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

**EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST**

*Instructions: Answer YES or NO to each of the following statements:*

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>The aim of the project is to improve the process or delivery of care with established/accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The specific aim is to improve performance on a specific service or program and <strong>is a part of usual care</strong>. ALL participants will receive standard of care.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project is <strong>NOT</strong> designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does <strong>NOT</strong> follow a protocol that overrides clinical decision-making.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does <strong>NOT</strong> develop paradigms or untested methods or new untested standards.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does <strong>NOT</strong> seek to test an intervention that is beyond current science and experience.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>The project has <strong>NO</strong> funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Optimizing Emergency Department Triage Documentation Workflow

The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., not a personal research project that is dependent upon the voluntary participation of colleagues, students and/or patients.

If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: “This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board.”

**ANSWER KEY:** If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to **ANY** of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

**STUDENT NAME (Please print):**

Diego Valencia

**Signature of Student:** ____________________________________________________________________________

DATE 03/07/2024

**SUPERVISING FACULTY MEMBER NAME (Please print):**

Sierra Dias Mcevoy

**Signature of Supervising Faculty Member** ____________________________________________________________________________

DATE 03/07/2024
Appendix C

Current State and Proposed State of Triage Flowsheet
Optimizing Emergency Department Triage Documentation Workflow

Appendix C Continued

Current State and Proposed State of Triage Flowsheet
# Appendix D

## GANTT Chart

<table>
<thead>
<tr>
<th>TASK TITLE</th>
<th>Start Date</th>
<th>End Date</th>
<th>January</th>
<th>February</th>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Initiation</td>
<td></td>
<td></td>
<td>Week</td>
<td>Week</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify Change Theory</td>
<td>1/25/2024</td>
<td>1/28/2024</td>
<td>1 2 3</td>
<td>4 5 1</td>
<td>2 3</td>
<td>4 1</td>
</tr>
<tr>
<td>Evaluate the 5 P's</td>
<td>2/2/2024</td>
<td>2/4/2024</td>
<td>1 2 3 4</td>
<td>5 1 2</td>
<td>3 4</td>
<td>1 2</td>
</tr>
<tr>
<td>Develop PICOT Question &amp; AIM Statement</td>
<td>2/9/2024</td>
<td>2/11/2024</td>
<td>1 2 3 4</td>
<td>5 1 2</td>
<td>3 4</td>
<td>1 2</td>
</tr>
<tr>
<td>Literature Review</td>
<td>2/22/2024</td>
<td>3/3/2024</td>
<td>1 2 3 4</td>
<td>5 1 2</td>
<td>3 4</td>
<td>1 2</td>
</tr>
<tr>
<td>Statement of Determination</td>
<td>3/7/2024</td>
<td>3/8/2024</td>
<td>1 2 3 4</td>
<td>5 1 2</td>
<td>3 4</td>
<td>1 2</td>
</tr>
<tr>
<td>Project Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preintervention survey</td>
<td>2/13/2024</td>
<td>2/21/2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting with Regulatory Affairs &amp; Department Leadership</td>
<td>2/21/2024</td>
<td>2/21/2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Poster &amp; Create QR Code</td>
<td>2/21/2024</td>
<td>2/23/2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collect Preintervention Data</td>
<td>2/23/2024</td>
<td>4/3/2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create Mock Triage Navigator</td>
<td>3/11/2024</td>
<td>3/11/2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Optimizing Emergency Department Triage Documentation Workflow

<table>
<thead>
<tr>
<th>Task</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meet with Clinical System Analyst and Department Leadership to finalize changes</td>
<td>4/17/24</td>
<td>4/17/2024</td>
</tr>
<tr>
<td>Create Final Triage Navigator</td>
<td>4/17/24</td>
<td>4/26/2024</td>
</tr>
<tr>
<td>Intervention Implementation</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>Project Evaluation</td>
<td></td>
<td>4/28/2024</td>
</tr>
<tr>
<td>Postintervention survey</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>Data Evaluation</td>
<td>TBA</td>
<td></td>
</tr>
<tr>
<td>Final Paper Submission</td>
<td>4/28/24</td>
<td>4/28/2024</td>
</tr>
<tr>
<td>Project Presentation</td>
<td>4/30/24</td>
<td>4/30/2024</td>
</tr>
</tbody>
</table>
Appendix E

Fishbone Analysis

Optimizing Emergency Department Triage Documentation Workflow

Abbreviations
ED: emergency department

- Adult ED Patients
  - Varying levels of anxiety and resources needed

- Triage Nurses
  - Varying level of triage training experience
  - Varying order on how triage assessment is conducted

- Triage Flow Facilitator
  - Training/experience

- Hospital X Pharmacy
  - Requires that all allergies be included in the triage assessment

- Civil Rights Act of 1964 requires that interpreter services be offered during the triage assessment

- The Joint Commission requires screening questions be added to all ED patients

- Hospital X Infection Control
  - Department requires travel screening

- Emergency Medical Treatment & Labor Act (EMTALA) requires every patient who enters the ED to be examined and treated equally → high patient volume

- Long Triage Time
  - The only Level I Trauma Center that serves two highly populated counties → crowding in the ED
  - Accept patient transfers from outside the state of California who need specialized care at this facility → crowding in the ED
  - Local, fast-paced environment → multiple distractions during triage assessment

Processes

Place

People

Providers

Policies

Abbreviations
ED: emergency department
## SWOT Analysis

### INTERNAL FACTORS

<table>
<thead>
<tr>
<th>STRENGTHS +</th>
<th>WEAKNESSES –</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Financial Resources - low cost</td>
<td>- Bureaucracy</td>
</tr>
<tr>
<td>- Easy to implement</td>
<td>- Time</td>
</tr>
<tr>
<td>- Staff is empathetic/open to change: easy to recruit, staff buy-in</td>
<td>- No access to EPIC</td>
</tr>
<tr>
<td>- Improved quality metrics</td>
<td>- Inconsistent &amp; unclear expectations</td>
</tr>
<tr>
<td></td>
<td>- Student projects are low priority</td>
</tr>
</tbody>
</table>

### EXTERNAL FACTORS

<table>
<thead>
<tr>
<th>OPPORTUNITIES +</th>
<th>THREATS –</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Sets higher standards than current standards “Standardize”</td>
<td>- Bureaucracy</td>
</tr>
<tr>
<td>- Highly resource hospital</td>
<td>- Shared Governance</td>
</tr>
<tr>
<td>- Magnet Hospital</td>
<td>- No current standardized/recommendations for triage intake from regulatory institutions</td>
</tr>
<tr>
<td>- Leverage existing resources</td>
<td></td>
</tr>
</tbody>
</table>

### Appendix G

**Budget Analysis**

<table>
<thead>
<tr>
<th>Costs</th>
<th>Calculations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Nurse Leader- Hourly</td>
<td>$100 \times 200 \text{ hr} = $20,000</td>
</tr>
<tr>
<td>Senior Clinical Systems Analyst- Hourly</td>
<td>$63 \times 3 \text{ hr} = $189</td>
</tr>
<tr>
<td>Triage Task Force Training</td>
<td>$70 \times 1 \text{ hr} \times 5 \text{ nurses} = $350</td>
</tr>
<tr>
<td>Printing of Flyers</td>
<td>$0.30 \times 30 = $3.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong> $20,542</td>
</tr>
</tbody>
</table>
Optimizing Emergency Department Triage Documentation Workflow

Appendix H

PDSA

![PDSA Cycle Diagram]

- **PLAN**
  - Identify the problem with survey to ED nurses
  - Set objectives to reduce triage times by 10% by April 2024
  - Optimize triage documentation requirements through reorganizing triage tabs

- **DO**
  - Implement change to triage documentation requirements as per the plan

- **ACT**
  - Based on the results, decide whether to adopt, adapt, or abandon changes.
  - If successful, integrate

- **STUDY**
  - Collect data on the impact of the changes
  - Measure triage times before and after implementation
  - Analyze data to see if there’s been improvement
USF/Stanford Quality Improvement Project in ED Triage

Hi there! We’re a group of graduate nursing students from the University of San Francisco working on a quality improvement project in the Stanford ED. Our aim is to optimize triage documentation to improve patient throughput. Your responses are essential in improving workflow and future patient outcomes.

Thank you!

mreynosoprieto@dons.usfca.edu Switch account
Not shared

* Indicates required question

What shift do you work? *

- [ ] Day Shift
- [ ] Mid Shift
- [ ] Night Shift

How do you feel about the current triage questions? *

1  2  3  4  5

Very dissatisfied [ ] [ ] [ ] [ ] [ ] Very Satisfied
Appendix I Continued

Surveys

How do you feel about the amount of questions in the current triage workflow?

1  2  3  4  5
Too little  o  o  o  o  o  Too many

Do you feel that delaying non-essential questions would improve the efficiency of triage?

1  2  3  4  5
Strongly Disagree  o  o  o  o  o  Strongly Agree

Submit  Clear form
Appendix I Continued

Surveys

USF/Stanford ED Triage Navigator QI Project

94 Responses  17:20 Average time to complete

Sync results to Excel for more detail and flexibility.

Results Summary

1. What shift are you?

- Day: 44
- Mids: 7
- Nights: 43

2. How long have you worked at Stanford?

- Less than one year: 17
- 1–3 years: 25
- 3–5 years: 13
- 5–10 years: 18
- 10+ years: 11

3. How long have you been a nurse in the emergency department?

- Less than 1 year: 3
- 1–3 years: 19
- 3–5 years: 20
- 5–10 years: 27
- 10+ years: 13

4. Are you in favor of moving the interpreter section to be directly after triage start?

Rationale: To establish interpreter needs at very beginning of triage to facilitate effective communication with patients with a language barrier.

- Yes: 80
- No: 2
- Maybe: 10
- Other: 2
Appendix I Continued

Surveys

5. If you chose “other” and would like to elaborate on your response or make a suggestion, comment below.

6. Are you in favor of combining the Allergy Band verification question with the allergy section rather than having them as stand-alone sections?
   
   **Rationale:** To condense related sections into one to de-clutter the list.

7. If you chose “other” and would like to elaborate on your response or make a suggestion, comment below.

8. Are you in favor of removing the Interventions section in the triage tab? This section includes a list of interventions (c-collar application, protocol orders, antipyretics, ice, etc.).
   
   **Rationale:** This section was identified as a source of double-charting and doesn’t function to place protocol orders for labs, medication or imaging.
Optimizing Emergency Department Triage Documentation Workflow

Appendix I Continued

Surveys

9. If you chose "other" and would like to elaborate on your response or make a suggestion, comment below.

10. Are you in favor of adding a check box to the Chief Complaint section asking if a C-collar was applied instead of having to click to an intervention tab for this?

**Rationale:** Cervical collar needs are typically identified when determining the chief complaint. Having a checkbox within the chief complaint section would serve as a reminder and allow for efficient documentation of this critical intervention, when necessary.

11. If you chose "other" and would like to elaborate on your response or make a suggestion, comment below.

12. Are you in favor of removing the Room Precautions section?

**Rationale:** This section does not place an order from the provider and does not add value to determining an ESI level.

13. If you chose "other" and would like to elaborate on your response or make a suggestion, comment below.

14. Are you in favor of taking the ESI Tab out of the triage plan section and making it a stand-alone section?

**Rationale:** Creating a stand-alone ESI section at the very end of the section list will serve as a clear end point for triage.
Appendix I Continued

Surveys

15. If you chose “other” and would like to elaborate on your response or make a suggestion, comment below.

Latest Responses

*Prefer not to have the esil algorithm and rather type esil level. Add another li...*

2 Responses

16. Are you in favor of removing the Triage Destination selection in the triage plan section and making it a stand alone section at the very end?

**Rationale:** Creating a stand alone triage destination section at the end of the list is the most logical location as this should be decided after an ESI is assigned.

Latest Responses

*Move triage destination up because it's important to risk adult*

5 Responses

17. If you chose “other” and would like to elaborate on your response or make a suggestion, comment below.

Latest Responses

*Remove disaster and moving to bottom*

6 Responses

18. Are you in favor of adding a section, which has not yet been titled, for EXG Documentation, Disaster, and Treatment RFA sections to be placed after the triage end?

**Rationale:** These sections were identified to be valuable, but not required to be within the primary sections for triage. While seemingly unrelated, placing them in a category together just below the primary triage section list would still allow for easy accessibility, when needed.

Latest Responses

2 respondents (40%) answered pieces for this question.
Optimizing Emergency Department Triage Documentation Workflow

Appendix I Continued

Surveys

20. Are you in favor removing the Triage data section which includes: Tetanus, Medication Pump, Domestic Abuse, Harm to Others, Treatment PTA, and Suicide Screening?

**Rationale:** This section includes several categories which would be more effectively utilized in sections more appropriately labeled. For example, the Suicide Screening will be its own section. The PTA will be in a category with ESI documentation and Disaster. The domestic abuse section will be moved to risk assessment to be asked by the primary nurse as it has no basis in determining an ESI level.

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21. If you chose "other" and would like to elaborate on your response or make a suggestion, comment below.

10 responses

22. The new order of the primary triage documentation tabs in the ED Navigator starting at Triage Start would be:

- Triage Start
- Interpreter Needs
- Chief Complaint
- Vital Signs
- Allergies
- OB/GYN status
- Covid/Viral screen
- Suicide Screening
- ESI level
- Destination

**Rationale:** This list serves as the most logical order of sections that are essential and/or required by law for triage. This would be the default order. You can still customize it in EPIC. If you prefer it ordered differently.

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<td>Other</td>
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</table>
Appendix I Continued

Surveys

23. If you chose “other” and would like to elaborate on your response or make a suggestion, comment below.

48 respondents (48%) answered sections for this question.

- Treatment protocol
- Emergency response
- Public health
- Telehealth
- Information management
- Staffing
- Financial planning
- Policy and procedure
- Education and training
- Remote care
- Clinical follow-up

Latest Responses:

- “Move interpreter down, below EKG.”
Appendix J

Survey Result
Optimizing Emergency Department Triage Documentation Workflow

Appendix J

Survey Result

How do you feel about the amount of questions in the current triage workflow?

- 0 (0%) 0 (0%) 15 (40.5%) 13 (35.1%) 9 (24.3%)

Do you feel that delaying non-essential questions would improve the efficiency of triage?

- 2 (5.4%) 1 (2.7%) 2 (5.4%) 7 (18.9%) 25 (67.0%)

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Google Forms
Hi there! We're a group of graduate nursing students from the University of San Francisco working on a quality improvement project in the Stanford ED. Our aim is to optimize triage documentation to improve patient throughput. Your responses are essential in improving workflow and future patient outcomes.

Thank you!

In partnership with
Appendix L

Printed Material Wallet-Sized Handouts

Scan the QR or use link to join

Scan the QR or use link to join

Scan the QR or use link to join