

ACOG 2020 DISTRICT II VIRTUAL ANNUAL MEETING

Saad Khalil Memorial Junior Fellow Quality Improvement Challenge

**Project Submission Form**

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<b>Project Title:</b> Improving Labor and Delivery Triage at a Large Urban Hospital		
<p><b>1. Please describe the quality problem or issue:</b> Labor and delivery at Mount Sinai sees over 7,000 deliveries per year with 16 labor rooms and 3-4 triage beds. Patients present from various physician offices, hospital Ob/Gyn practices, or via EMS and arrive in different clinical states, from routine induction of labor to placental abruption or severe preeclampsia. Given the high clinical volume, limited space, and mix of non-acute and emergent patient presentations, patient triage is vitally important at Sinai L&amp;D. There may be room for improvement in patient care that could enhance patient safety throughout the triage process.</p>		
<p><b>2. AIM Statement:</b> A team of medical students sought to better understand Mount Sinai's L&amp;D triage process to improve patient safety and decrease adverse patient outcomes by detecting areas for improvement and potential safety hazards. Our goal was two-fold: 1) for medical students to learn and apply the process of quality improvement to a real-time situation and 2) for hospital administration to have these analyses and recommendations for consideration of triage improvement.</p>		

**3. Team Members (please include title and role):**

<b>Name</b>	<b>Title</b>	<b>Role</b>
Ali Antoine	Medical student	Project design, data collection and analysis, final write-up
Sharon Barazani	Medical student	Project design, data collection and analysis, final write-up
Courtney Connolly	Medical student	Project design, data collection and analysis, final write-up
Yoni Kirsch	Medical student	Project design, data collection and analysis, final write-up
Alison Pruzan	Medical student	Project design, data collection and analysis, final write-up
Eileen Wang	Medical student	Project design, data collection and analysis, final write-up
Jessica Kempner	Ob/Gyn resident	Project design, data collection and analysis, final write-up

#### 4. Abstract: Please include the following components

##### a. Background information:

- i. Include relevance of this project, institutional information, baseline data for planning, impact of this project, and/or added value of this project.

##### b. Methods:

- i. Include rapid change cycles used (PDSA, DMAIC, etc.), team composition, meetings, any innovative or effective methods that are data driven. Include any multidisciplinary aspects of team building or integration of services to achieve desired result(s).

##### c. Results:

- i. Include appropriate metrics pre and post intervention.

##### d. Sustainability plans or control of project:

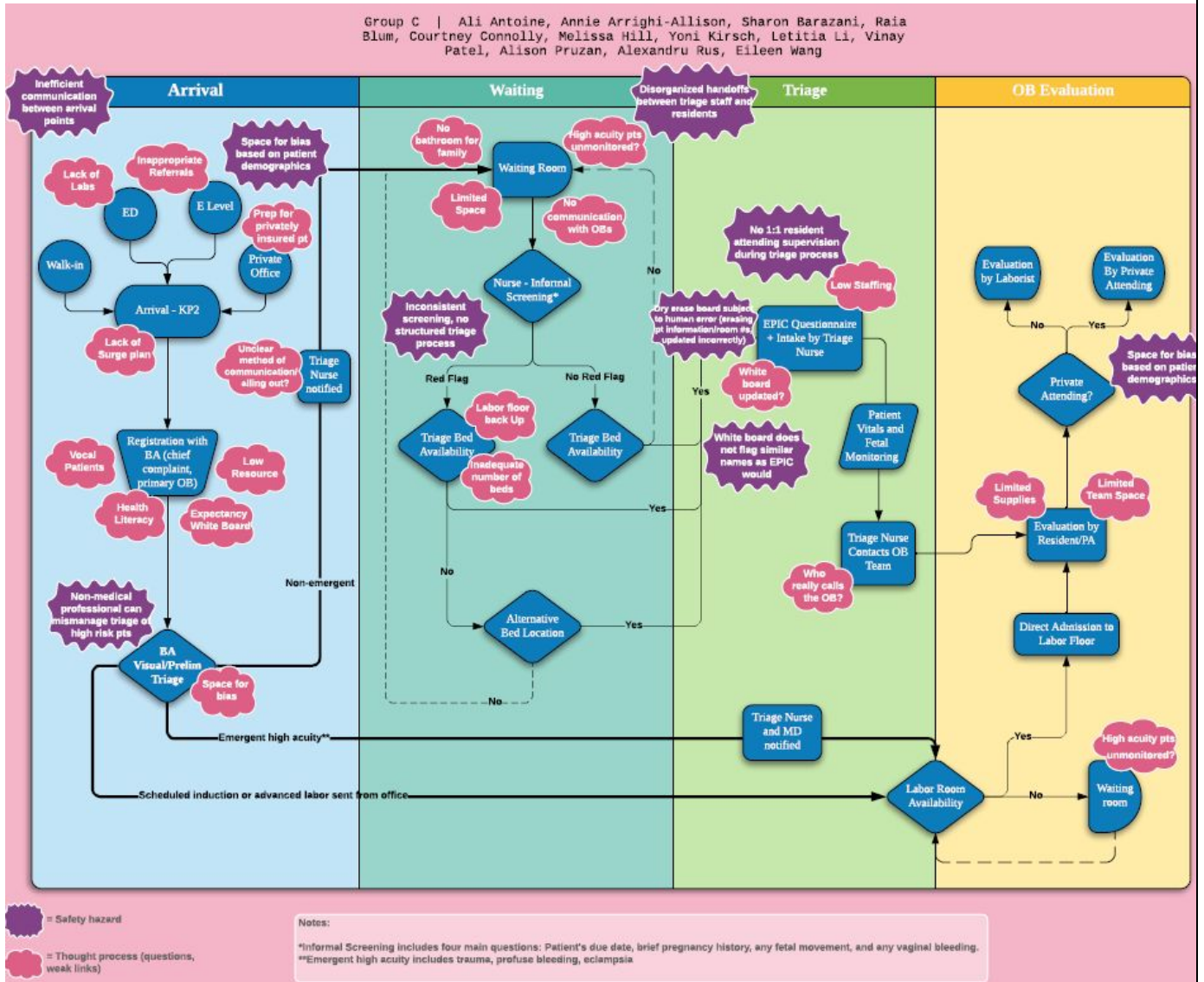
- i. Include efforts or planning for sustainability of the project for institutional and patient benefit.

#### Abstract:

**Background:** Labor and delivery triage receives a high volume of patients and encounters a variety of clinical scenarios that require urgent care. Due to the dynamic nature of L&D and the potential for high risk situations occurring in a busy clinical environment, the process of triage may require additional safety measures to ensure the delivery of safe patient care and optimal management of the clinical conditions, both acute and non-acute. Triage is vital to prioritizing patient care and intervening early in high-risk urgent and emergent situations. InFocus is a course for third year medical students on quality improvement methodology, with various phases throughout the year that teach QI theories and their clinical application. As a part of this course, the medical student team was tasked with understanding and identifying areas of concern on labor and delivery triage to improve patient safety.

**Methods:** The InFocus course is a multi-phase course for medical students that teaches quality improvement methodology with clinical application. The initial portion consisted of brainstorming with mentors in quality improvement, dividing project components amongst the team of students, performing a Gemba walk during various shifts on labor and delivery triage, and interviewing attending obstetricians, Ob/Gyn residents, the nurse manager, charge nurse, triage nurse, and director of L&D. Following data collection, we constructed a QI fishbone diagram; created a process map of triage using LucidChart, which was continually revised based on input of new data; and identified areas of waste and safety concern. The team additionally determined areas in the process that may need improvement, and developed potential solutions.

**Results:** The following diagram demonstrates the process mapping of triage from our starting point, Arrival at Triage, to the end point, Evaluation by a Physician. We divided the process into four phases, Arrival, Waiting, Triage, and OB Evaluation to delineate the flow and clarify areas for improvement at each stage. We also identified safety hazards, highlighted in purple starbursts, and areas of potential concerns or questions, highlighted in pink starbursts.



In addition, two main areas of concern were identified, and potential solutions are outlined below:

**Area of Safety Concern #1:** Currently on the L&D floor, there is a white board system for keeping track of patients in triage, which may be a safety concern in that it is subject to human error, not updated in real time, only accessible in one location (i.e. unable to be projected and viewed on multiple computer monitors around the floor), and unable to clearly flag concerning patients or issues.

**Solution/Intervention #1:** To address this issue, we propose installing a digital board to track and display patient information, which can be updated electronically and in real-time by staff on the unit. This is particularly of use because the triage area and the physician workstations are physically separated. This intervention seems feasible and has the potential to be highly impactful, as it would streamline and

organize information delivery, eliminating the potential for miscommunication and delay of information sharing. Just like the electronic fetal monitoring screens on the unit, it would provide a standard display of patient information that would be clear, visible, and legible to all. By changing to an electronic display, there could also be the possibility of tracking which staff member inputs which data, whereas on the current whiteboard system it is often not possible to ascertain who posted certain pieces of information. This could be useful if someone on the unit had a question or wanted to clarify a piece of information listed and were then able to communicate directly with the staff member who gathered and entered that information. The biggest challenge to this intervention is the expense, as it would likely be costly. In addition, there is the challenge of getting unit staff on board with changing a process that has been established for a long time. Any time new technology is implemented, there is always the possibility of technological malfunction. It would also require some input from the IT department to link the digital board with Epic and current L&D software systems, and it will take some time to train all staff on how to use it. However, just as L&D has incorporated Epic and electronic fetal monitoring, it would be an appropriate step to update the whiteboard technologically as well.

**Area of Waste Concern #2:** Backups in postpartum, delivery, and triage bed availability lead to patient overflow to waiting rooms, delayed rooming of patients, nurses scrambling to find beds for urgent deliveries, and patients delivering in inappropriate places (e.g. storage closets or triage beds). Because those areas are not set up to accommodate deliveries, staff must gather supplies elsewhere in order to prepare for delivery. All of this results in waste of waiting and motion at multiple points in our process map.

**Solution/Intervention #2:** We suggest expanding floor and building space to accommodate more triage, delivery, and postpartum beds. We ultimately chose this intervention given its potential to alleviate the greatest number of staff concerns and workflow inefficiencies while promoting patient safety. Increased bed availability remains the most direct method of improving patient safety because patients would be able to be examined in a triage bed with the appropriate monitors and in a timely fashion, rather than waiting in the waiting room. For high acuity patients, fewer delays in care could potentially lead to better outcomes. Moreover, patient satisfaction is often commensurate with timeliness of treatment, and greater bed availability will likely serve to improve these patient-reported measures. Finally, it would decrease waste of motion and waiting for nurses and physicians who may have to spend time finding and gathering supplies or shuffling other patients around to different beds.

We acknowledge this intervention would require a significant investment of time, money, and other resources, and may even may be financially, physically, or logistically unfeasible given the limited space and difficulties of expanding a hospital within the grid of Manhattan. The biggest pitfall is that it may require that OB/GYN and other services (e.g. the Pediatrics floor adjacent to L&D) be disrupted or moved for a period of time if they are to construct new spaces for these beds. As such, this would require serious consideration by hospital administration. If this is absolutely not feasible, an alternative is increasing the turnover of postpartum patients, freeing up beds, and therefore alleviating any backup. Decreasing the goal length of stay to 24 hours postpartum for vaginal deliveries and 48 hours for cesarean deliveries could be an option for appropriate patient candidates and if safety measures are in place and patients maintain proper follow-up with physicians (e.g. telehealth, home blood pressure monitoring) after discharge. These decreased lengths of stay were implemented during the COVID-19

public health crisis with additional telehealth follow-up provided by a task force of volunteer medical students to bridge patients to their Ob/Gyn postpartum follow-up at 2 and/or 6 weeks post-delivery.

**Sustainability plans or control of project:** The information has been organized with the feedback of mentors in Ob/Gyn quality improvement leadership and submitted to the InFocus course leaders at our medical school for further evaluation.