

Quality Improvement Project: Creating a Trauma Activation Protocol in a Public Hospital in Nairobi, Kenya

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Problem Description

- Kenyatta University Teaching, Referral & Research Hospital (KUTRRH) is a relatively new hospital, began operations in October 2019
- KUTRRH's stated mission includes offering specialized Trauma and Accident & Emergency (A&E) care
- Prior to beginning this project, there was no agreed upon process for the initial evaluation of a trauma patient or involvement of key specialties such as General Surgery and Radiology
- Given the location of the hospital near large highways and within a large metropolis, the hospital sees a high burden of trauma

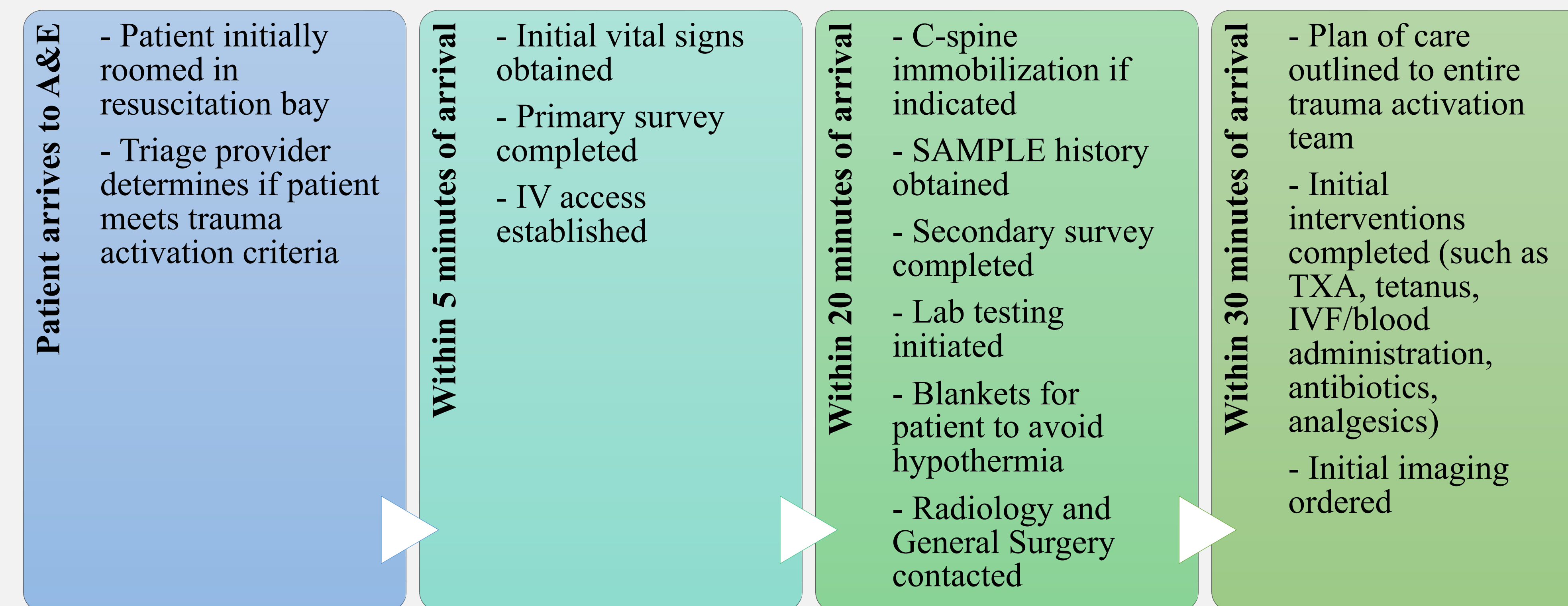
Background

- There are better outcomes for severely injured trauma patients if they are managed by a specialized trauma team [Petrie et al., 1996, Journal of Trauma and Acute Care Surgery]
- Research has shown that application of a checklist during trauma resuscitation may improve ATLS adherence and workflow [van Maarseveen et al., 2020, European Journal of Trauma and Emergency Surgery]
- Initial formative research in the KUTRRH Accident & Emergency Department showed:
 - Arrival of trauma patients without provider knowledge
 - Inconsistencies in completion of full physical exam
 - Challenges with obtaining expedited imaging in unstable trauma patients and necessity to leave the department to obtain US imaging
 - Unclear expectations around involvement of specialist providers

Objectives

1. Establish a Trauma Activation protocol, based on ATLS guidelines, formative research in the Accident & Emergency Department, and key stakeholder feedback
2. Obtain agreement from key specialty departments and hospital leadership
3. Review Trauma Worksheet data to assess adherence to protocol and identify ongoing challenges

Proposed Trauma Activation Protocol



- ### Trauma Activation Criteria
- Systolic BP < 90
 - Respiratory rate <10 breaths/min or >30 breaths/min
 - GCS < 12
 - Any gunshot wound or impalement
 - Any amputation
 - High speed motor vehicle collision or ejection from vehicle
 - Separation from motorbike
 - Pedestrian hit or rolled over by vehicle
 - Proximal long bone fracture
 - Fall from height greater than 6 meters (20 feet)
 - Pregnant patient > 20 weeks gestational age
 - Burns > 15% TBSA
 - Severe maxillofacial injury with airway compromise
 - Emergency Doctor feels trauma activation is necessary for expedited care

Key interventions highlighted in new protocol and reasoning:

- Placing suggested time limits on key trauma activation tasks in order to set clear expectations for the entire Trauma Activation Team and outside departments
- Required involvement of both Radiology and General Surgery providers during trauma activations to ensure improved coordination of care
- Recommending FAST US exam be completed in the A&E department by Radiology or A&E provider in order to limit transport away from A&E department for critically-ill trauma patients
- Additional information about imaging considerations, key medications in trauma, and pelvic sheeting to assist A&E providers with limited trauma experience in real-time during trauma activations
- Trauma Worksheet creation to help with team accountability during activations and ongoing quality improvement of protocol over time

Trauma Activation Team

1. **Primary Doctor:** Responsible for primary and secondary survey, directing patient care
2. **Access Provider:** Either nurse or doctor who will solely focus on obtaining initial access
3. **Primary Nurse:** Vitals, fluid resuscitation and medication administration, complete Trauma Worksheet
4. **Team Leader:** Assisting with care coordination, supporting advanced procedures (such as intubation, IO placement, etc.)

Progress, Thus Far

- ✓ Initial protocol creation
- ✓ Initial presentation to hospital leadership, Radiology Department, and General Surgery Department representatives
- ✓ Revisions to protocol based on stakeholder feedback

Next Steps

- Presentation of protocol to entire KUTRRH A&E staff
- Official agreement on protocol between A&E Department, hospital leadership, Radiology Department, General Surgery Department
- Rollout of protocol in A&E Department
- Initial Trauma Worksheet review to identify protocol successes and ongoing gaps, and revise as needed

TRAUMA WORKSHEET

Patient Name: _____ Time of Arrival: _____

5 minutes

Initial Vital Signs: HR: _____ BP: _____ RR: _____ SpO₂: _____ T: _____

Primary Survey

A	- Is patient protecting their airway? - Severe neck or face trauma with impending airway compromise?
B	- Supplemental Oxygen? - Evidence of tension pneumothorax? Hemothorax?
C	- Peripheral pulses present? - Active Bleeding controlled? - IV access in place? - Begin resuscitation? (IVF / blood?)
D	- GCS? - Pupils? - RBS?
E	- Patient exposed? - Avoid hypo/hyperthermia

IV Access established _____ L/R arm (recommended 18G above midforearm)

20 minutes

C spine immobilization if indicated

Obtain History (SAMPLE)

Secondary Survey (head to toe)

- **HEENT:** Lacerations? Bruising? Skull Fracture?
Hemotympanum? Septal Hematoma?

- **Chest:** Crepitus? Tenderness?

- **Abdomen:** Tenderness? Bruising?

- **Extremities:** Deformities? Lacerations? Tenderness?

- **Neuro:** Focal neurologic deficits?
- **Spine (log-roll patient):** Tenderness? Step-offs?

ABG if indicated, RBS, Labs

Provide patient with blankets to avoid hypothermia

30 minutes

Plan of Care: _____

Initial Interventions

<input type="checkbox"/> TXA	<input type="checkbox"/> FAST US
<input type="checkbox"/> Tetanus	<input type="checkbox"/> CXR
<input type="checkbox"/> IVF / Blood	<input type="checkbox"/> Pelvis XR
<input type="checkbox"/> Antibiotics	<input type="checkbox"/> CTI
<input type="checkbox"/> Analgesics	<input type="checkbox"/> CT Chest
	<input type="checkbox"/> CT Abd/pelvis

Time of Form Completion: _____