Closing the Loop: Utilizing Video Review to Address Performance Improvement & Patient Safety Pitfalls

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Problem/Background

- Event resolution/loop closure is oftentimes perceived as the most difficult task of the trauma performance and patient safety (PIPS) program

- Multiple gaps within our review process hindered our ability to perform thorough, accurate reviews of the initial trauma bay resuscitation for high acuity patients and to formulate corrective action plans, trend and monitor events, and/or close the loop.

- Gaps in our review process included:
  1) *Inability to capture accurate timelines due to delayed, missing, and/or conflicting documentation*
  2) *Inability to evaluate team dynamics as contributing factor to adverse events*
  3) *Delayed/missing vital signs in EMR*
  4) *Delay to volume resuscitation in hemodynamically unstable patients due to inability to obtain IV access/lack of IO*

Purpose/Goal

Implement a trauma video review (TVR) program to enhance our review process and address the identified gaps in our current PIPS process
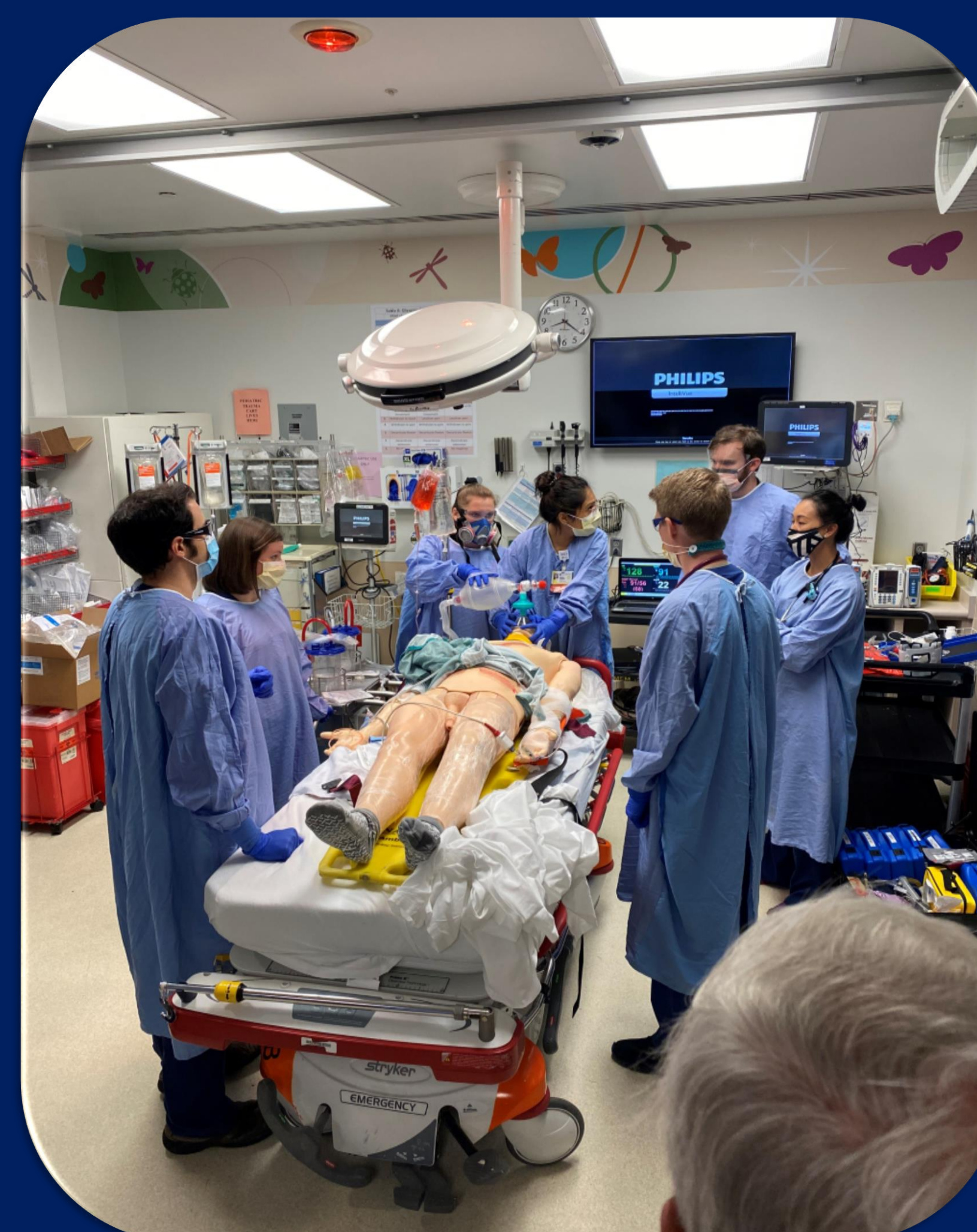
Methods

Study Design
- Quality improvement project
- Urban level 1 trauma center within an academic medical center
- Data collection: 1/1/21-10/31/21
- Convenience sample – 283 patients
  - *Inclusion criteria: within our registry, age > 15, level 1 or level 2 activation, ISS > 15 and/or died in trauma bay*

Figure 1

TVR Data Collection Tool	
Patient Name:	
Admit Date:	
Consent Received/Date:	
Measure	**Comments**
Time to manual blood pressure	
Evidence of use of closed loop communication	
Compliance with personal protective equipment	
Environmenental factors present (noise, crowd, etc.)	
Appropriate and timely medical therapies/procedures	
Opportunity for improvements identified	
Case appropriate for simulation?	

Table 1

Objective Outcomes – Pre vs. Post Implementation Periods		
	% patients	
variable	**Pre-Implementation**	**Post-Implementation**
Intraosseous Access Obtained	1.7%	11.9%
Vital Signs Within 5 Mins.	64.1%	78.2%

trauma team simulation based on TVR case

Methods

Pre-Implementation
- Created data collection tool to standardize TVR PIPS process (Figure 1)
- Disseminated information regarding purpose and logistics of TVR as well as the data collection tool (continued post-implementation as well)

Intervention
- TVR implemented 6/1/2021

Post-Implementation
- TVR utilized in the following settings: 1) primary review, 2) newly created Trauma Surgery and Emergency Medicine TVR conference, 3) Trauma Surgery mortality and morbidity conference, 4) resident performance evaluation (1:1 setting with trauma medical director and resident, and 5) trauma simulation
- Trend and analyze variables within the TVR data collection tool on a monthly basis

Results

During the initial post-implementation phase we have found the following within our initial trauma resuscitation:

Subjective Data
1) Increased ability to provide constructive feedback regarding team dynamics which has subsequently increased our compliance with pre-briefs among the team prior to patient arrival
2) Increased capability to create consistent, accurate timestamped timelines for review presentations
3) Positive behavioral changes, including:
   - Increase in use of effective communication techniques,
   - More effective introductions/role assignments prior to patient arrival
   - Enhanced team dynamic between emergency medicine and trauma surgery services
4) Enriched trauma simulation experiences through use of TVR cases with identified opportunities for improvement

Objective Data (Table 1)
1) Increase in use of intraosseous access
2) Increase in number of patient cases in which vital signs were obtained within 5 minutes of arrival

Discussion/Implications

- For the TVR program concept to implementation, the process took ~1.5 years and included the involvement of the following teams/departments: trauma surgery service, emergency medicine, legal, ethics, information security division, hospital administration, and quality and safety

- TVR has allowed us to obtain accurate reliable data which enhances ability to implement and monitor PI initiatives not readily identified and/or captured within the EMR or trauma registry

- Utilizing TVR as a supplement to case presentations during peer review enhances the educational value of the case for those who were not part of care team during the case

- The positive behavioral changes as a result of our TVR program have been both anecdotally noted on several occasions by various team members and is also evident within the initial reviews of the TVR data collection tools

- We continue to review and revise the TVR process as needed with the goal of having a well-established program by 6/1/22

- There is little data regarding TVR across all trauma centers and this topic warrants further study to ascertain best practiced as well as to establish guidelines in how to mitigate medicolegal and privacy concerns