

# Changes in situational awareness of emergency teams in simulated trauma cases using an RSI checklist.

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## Background:

Situational Awareness (SA) is the ability to identify, process, and comprehend the critical elements of information about patient condition, stability, the team and operational environment and an appropriate clinical course. The New Brunswick Trauma Program delivers a Simulation Based Medical Education (SBME) program to 20 acute hospitals. The simulation program is embedded in a translational research program in collaboration with the Department of Emergency Medicine, Saint John Regional Hospital. [www.sjrhem.ca/research](http://www.sjrhem.ca/research) The priorities for the SBME program are Inter Professional Education (IPE), developing resilient practitioners, and improve teamwork. SBME is part of an education program [www.nbtrauma.ca/education](http://www.nbtrauma.ca/education) Checklists are used in many safety critical industries to reduce errors of omission and commission. An RSI checklist (Figure 1) was developed from case review and published evidence. An equipment silhouette (Figure 2) was designed to aid in the preparation of airway management equipment.

Figure 1. RSI Checklist.

## Methods:

The Team Situational Awareness Global Assessment Technique (TSAGAT- Figure 3) is a validated tool for measuring situational awareness in simulated trauma scenarios <sup>1</sup>. Simulations were facilitated in three hospitals in New Brunswick from April 2017 to October 2017. Learner profiles were collected. The SAGAT tool was completed by a research nurse at the end of each scenario - *this is different from previous TSAGAT methods stop scenarios at preselected points*. TSAGAT scores were non-normally distributed, so results were expressed as medians and interquartile ranges. Mann Whitney U tests were used to calculate statistical significance. To understand the effect of the of an RSI checklist a comparison was made between TSAGAT scores at baseline in scenario 1 without a checklist, and a more complex scenario completed after a washout period with the RSI checklist.

Figure 2. Equipment Silhouette.

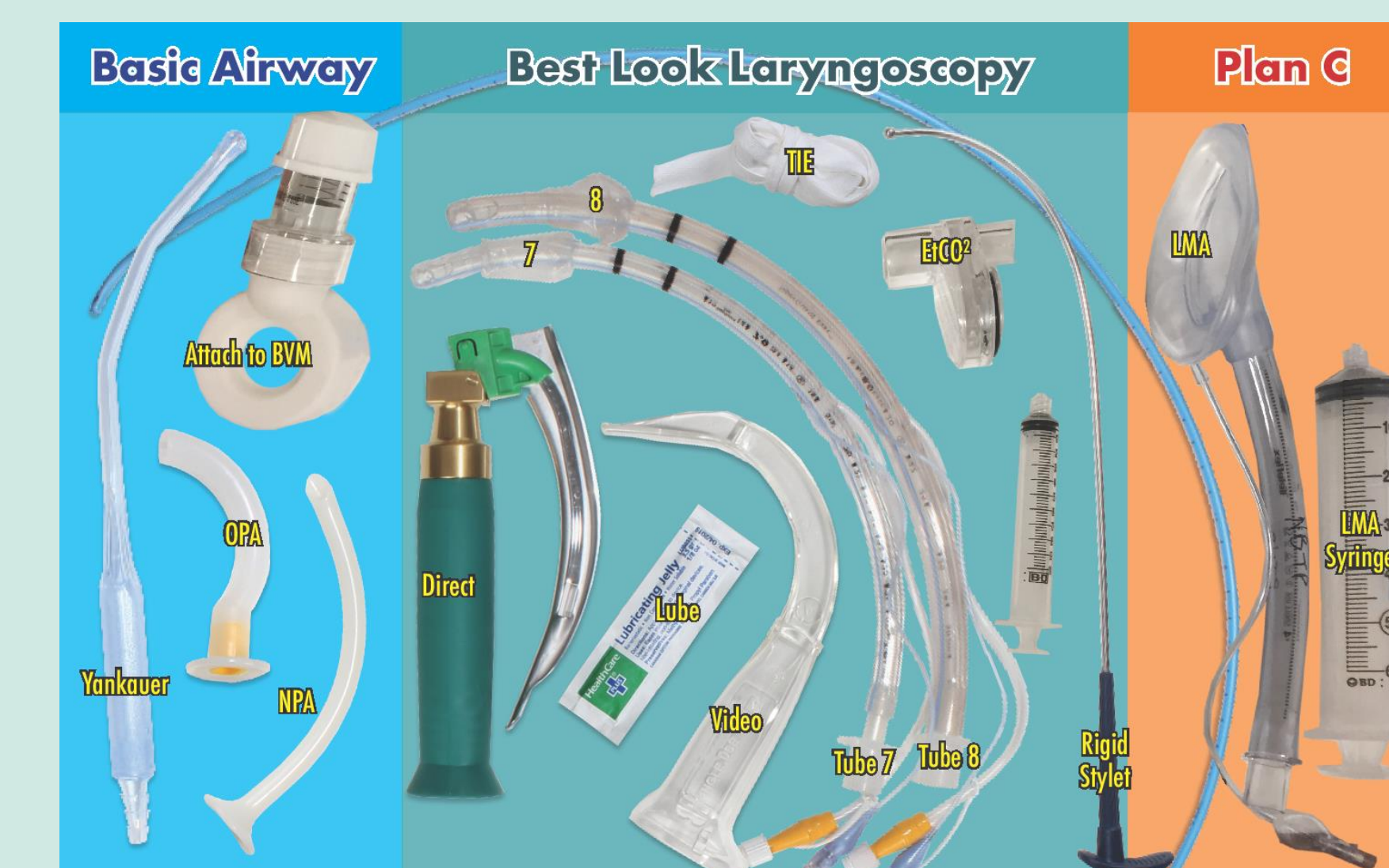


Figure 3. TSAGAT Tool

SAGAT			
Perception	Actual	Response	Correct?
1. What was the #8 prior to induction?			N / Y
2. What was the SpO2 prior to induction?			N / Y
3. What was the heart rate, blood pressure?			N / Y
4. What was found on chest exam?			N / Y
5. What was found on neurological exam?			N / Y
Comprehension			
6. Was the patient hemodynamically stable?			N / Y
7. What was the cause of the abnormal vital?			N / Y
8. What dose of induction agent was given?			N / Y
9. What dose of paralytic was given?			N / Y
10. Was the patient's hypoxia responded as expected after insertion of the definitive airway?			N / Y
Projection			
11. What other drugs and therapies might the patient need to continue their critical care?			N / Y
12. What other tests might the patient need?			N / Y
13. What further definite care might the patient need?			N / Y
Participant:	Total Score:		/ 13

## Results:

The group was composed of Registered Nurses (8), Physicians (7), and Respiratory Therapists (2). The washout period ranged between 5 weeks and 8 weeks. The baseline situational awareness of the whole group during scenario 1 was 9 +/- 1 (median, IQR), and with the RSI checklist was 12 +/-1 (median, IQR). The difference was highly statistically significant, p = < 0.001. This level of situational awareness using checklist is comparable to the SAGAT scores after 10 scenarios in other work.

	No checklist	Checklist
TSAGAT Score	9 +/- 1.0 (IQR)	12 +/- 1 (IQR)

## Discussion:

**Limitations.** This study has the following limitations; 1. The washout period may be too short, 2. These are simulated and not real cases, 3. The whole group is small 4. Important confounders (for example a training effect) were not considered because of small subgroup sizes. **Conclusion.** In this provisional analysis the use of an RSI checklist was associated with an increase in measured situational awareness **Further work.** This is the initial analysis to understand the effects of the RSI checklist. Data collection is continuing. A multivariable model will be used to understand the effects of the RSI checklist on safety, team work, situational awareness whilst considering important confounders. A knowledge translation project is also planned to look at the effect on the system and the patient.

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Research



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## References

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