DEVELOPMENT OF A POST ANESTHESIA CARE UNIT (PACU) AT-RISK SCREENING TOOL

Background
Patient decline must be recognized early in order to implement appropriate interventions and mitigate harm.

The Institute for Healthcare Improvement (IHI) 100,000 Lives Campaign promotes the use of Early Warning Scoring tools to help identify patients at risk for adverse events.

Existing early warning scoring tools, used to identify patients at risk for clinical deterioration, were designed for use with general inpatients and have limitations in the intra-operative setting.

During April 2013 to April 2015 approximately 66 patients experienced an emergency call within 24 hours of PACU discharge.

Early Warning Scoring System

### Background

To develop a screening tool to assist in identifying patients at-risk for an emergency event within 24 hours of PACU discharge.

### Purpose

What are the sensitivity and specificity ratings of the organizational designed PACU At-Risk Screening Tool?

### Methods

**Design:** Retrospective chart review. Institutional Review Board approval obtained. Consent waived.

**Population:** Patients discharged from the PACU to a non-intensive care unit that experienced an emergency event within 24 hours.

**Phase I:** Cohorts comprised of one group who experienced an emergency intervention within 24 hours of PACU discharge (n=31), and a second group discharged during the same time frame but not requiring emergency intervention (n=31).

Tool containing 60 variables was developed from an extensive review of the literature to identify variables predictive of post-operative complications.

Six significant variables were identified for a patient to be at-risk for an emergent event. These six variables were summed and produced a predictor score.

### PACU At-Risk Screening (PARS)

<table>
<thead>
<tr>
<th>Score of 1-2:</th>
<th>Score of 5-6:</th>
<th>Score of 3-4:</th>
<th>Score of 6+:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rescues and resuscitates every 4 hours.</td>
<td>Rescues and resuscitates every 1/2 to 1 hour if on WAC.</td>
<td>Call physician and RRT if on general floor.</td>
<td>Requires continuous monitoring if a chronic condition such as CHF, CHF Heart, Vent.</td>
</tr>
</tbody>
</table>

| Total | 3 | 2 | 1 | 0 | 1 | 2 | 3 | 2 | 1 | 0 | 1 | 2 | 3 | 2 | 1 | 0 | 1 | 2 | 3 |
| Symbols & P | ≤70 | 70-80 | 81-100 | 101-119 | 120-139 | ≥140 |
| RR | ≤8 | 9-10 | 11-12 | 13-14 | 15-16 | ≥17 |
| SpO2 | ≤90 | 91-93 | 94-96 | 97-99 | ≥100 |
| urine output | none | <250/24 h | 250/24 h to 500/24 h | 500/24 h to 1000/24 h | ≥1000/24 h |
| APACHE II | <3 | 3-4 | 5-6 | 7-8 | ≥9 |

### Results

**Phase II:** The PACU At-Risk Screening Tool was then applied to a new cohort group (n=71). A predictor score of 2 or less was determined that the patient would have a LOW risk for an emergent event.

**Results:** Total score greater than 3 risk factors demonstrated tool sensitivity at 64.8 and specificity at 63.6.

*Sensitivity* = true positives/(true positive + false negative) - determines the amount of true positive outcomes.

*Specificity* = true negatives/(true negative + false positives) - determines the true negative outcomes.

### Conclusion

The PACU At-RISK Screening (PARS) tool may assist in mitigating patient harm following PACU discharge.

Next steps: Screen patients prior to PACU discharge to determine risk. Test the effectiveness of organizational interventions to mitigate harm such as anesthesia reassessment for review of planned level of care, and follow-up rounding by RRT nurse.

There is a need for study replication among larger sample sizes in order to validate this study’s results and address the literature gap and lack of evidence-based protocols relevant to this topic.

### References


### Acknowledgements

This research was supported by a grant from the Memorial Medical Center Foundation & Illinois Society of Perianesthesia Nursing (ILSPAN).

### For Further Information

Primary Investigator
Deidra Glisson RN, MSN, MBA, NE-BC
Director Nursing Operations at Memorial Medical Center
Glisson.deidra@mhsil.com