



The G.U.A.R.D.I.A.N. Project: The Guided Use of Assessment and Resuscitation Data in Anesthesia Nursing

A Retrospective Project Focusing on Reducing Postoperative AKI in Abdominal Surgeries

Kelly Shanley MSN, RN and Catherina Stevens MSN, RN
Albany Medical College Nursing Anesthesia Program

Background

- Hemodynamic instability during abdominal surgical procedures is managed with fluid bolus and vasopressors to maintain a target blood pressure.
- Incidence of post operative Acute Renal Injury (AKI) in Non-Cardiac patients can range from 8% - 64% when using creatine and urine output as indicator.
- Multiple studies and the consensus statement have identified a gap focusing on hemodynamic monitoring for patient resuscitation and vasopressor management in non cardiac surgical patients.

Purpose

To evaluate whether intraoperative hemodynamic monitoring reduces postoperative AKI in abdominal surgery following an educational initiative.

Methods

A retrospective chart review from January 2022 to February 2026.

Inclusion criteria: 18 years and older, small bowel resection, colorectal resection, appendectomy, cholecystectomy, ileostomy, colostomy, laparoscopic GI, exploratory laparotomy,

Exclusion: Pregnant patients, cardiac patients, patients with arrhythmias, preexisting renal disease or on dialysis, and gynecological procedures.

Variables collected: Procedure, fluid amount and type, vasopressor converted into norepinephrine equivalents, hypotension duration (MAP < 65 mmHg), urine output, pre serum creatinine and post serum creatinine, estimated blood loss, arterial line, ASA status.

Goal Directed Fluid Therapy

Hemodynamic monitoring using the patient's cardiovascular status to identify if fluid is needed or vasopressors or an inotrope

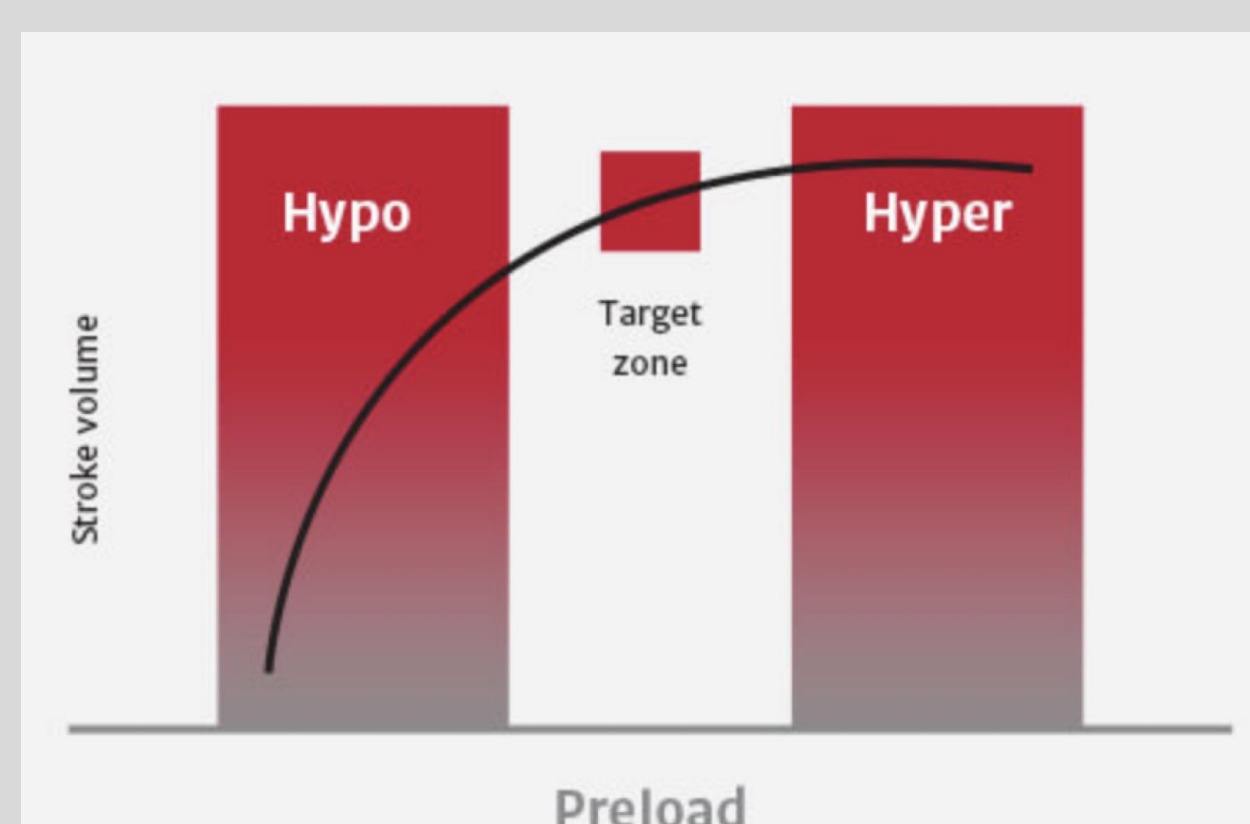
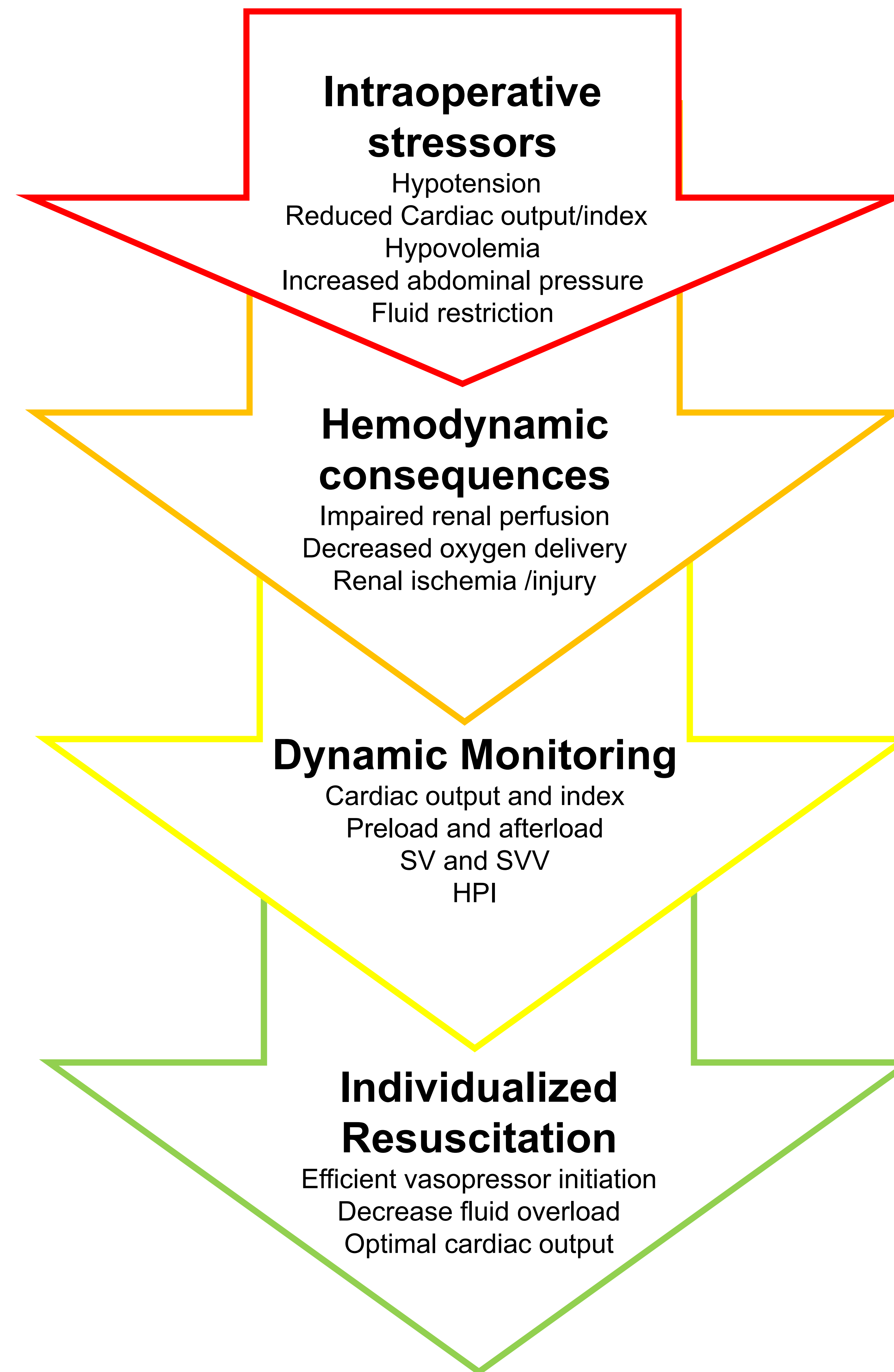


Photo with permission from 2026 Edwards Lifesciences Rep



Reduced Postoperative AKI

Discussion/Limitations

Significance of findings:

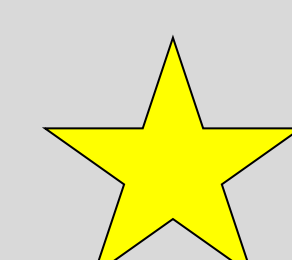
- Training sessions did not improve utilization significantly
- Implementation of hemodynamic monitoring had more urine output documented

Sustainability plan:

- Include Hemodynamic monitoring within surgical abdominal protocols

Limitations to this study

- Small rural hospital, small sample size
- No protocol in place post-educational sessions
- Anesthesia decided if hemodynamic monitoring was warranted



Pending Final AKI results and secondary results

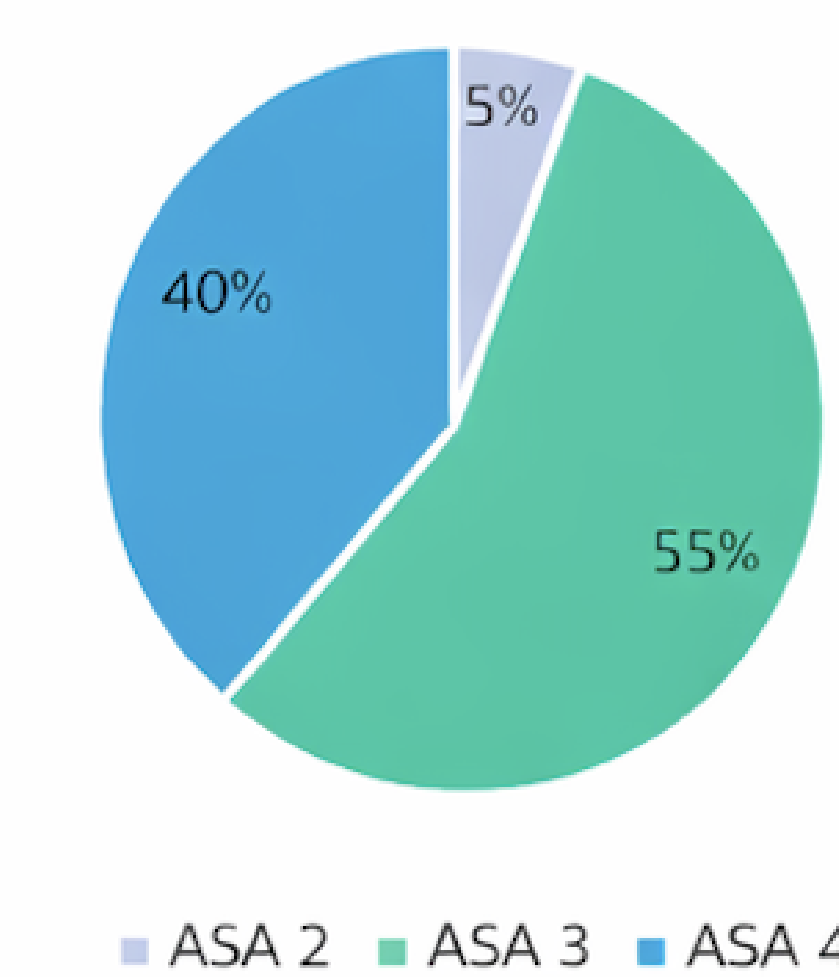
Preliminary Results

| Pre Educational Intervention | | |
|------------------------------|-------------------------|----------------------------|
| | With Dynamic Monitoring | Without Dynamic Monitoring |
| Fluid Given | 2,733 mL | 1,663 mL |
| NEE | 7.2 | 0.7 |
| Hypotension Length | 11.2 min | 10.5 min |
| Urine Output | 341 mL | 272 mL |
| AKI Events | 2 | 12 |
| Total Patient's | 40 | 486 |

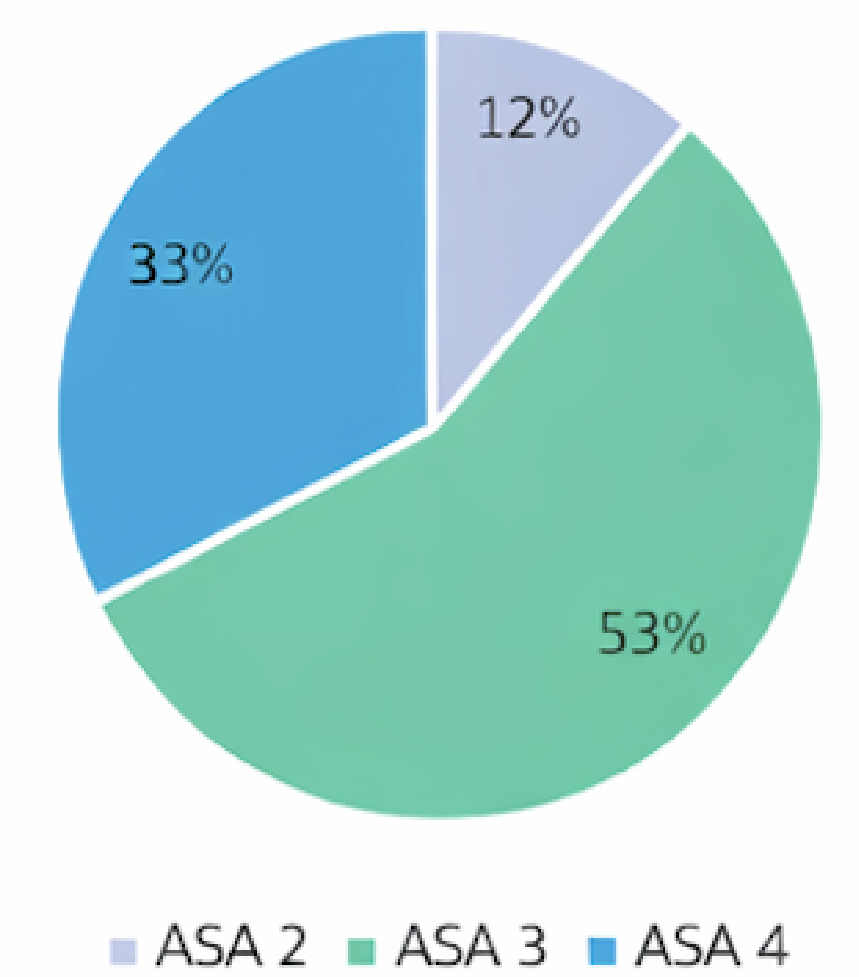
| Post Educational Initiative | | |
|-----------------------------|-------------------------|----------------------------|
| | With Dynamic Monitoring | Without Dynamic Monitoring |
| Fluid Given | 3,180 mL | 1,732 mL |
| NEE | 12.6 | 1 |
| Hypotension Length | 12 min | 11 min |
| Urine Output | 488 mL | 276 mL |
| AKI Events | 5 | 17 |
| Total Patient's | 56 | 514 |

ASA Distribution Before and After Post Educational Interventions

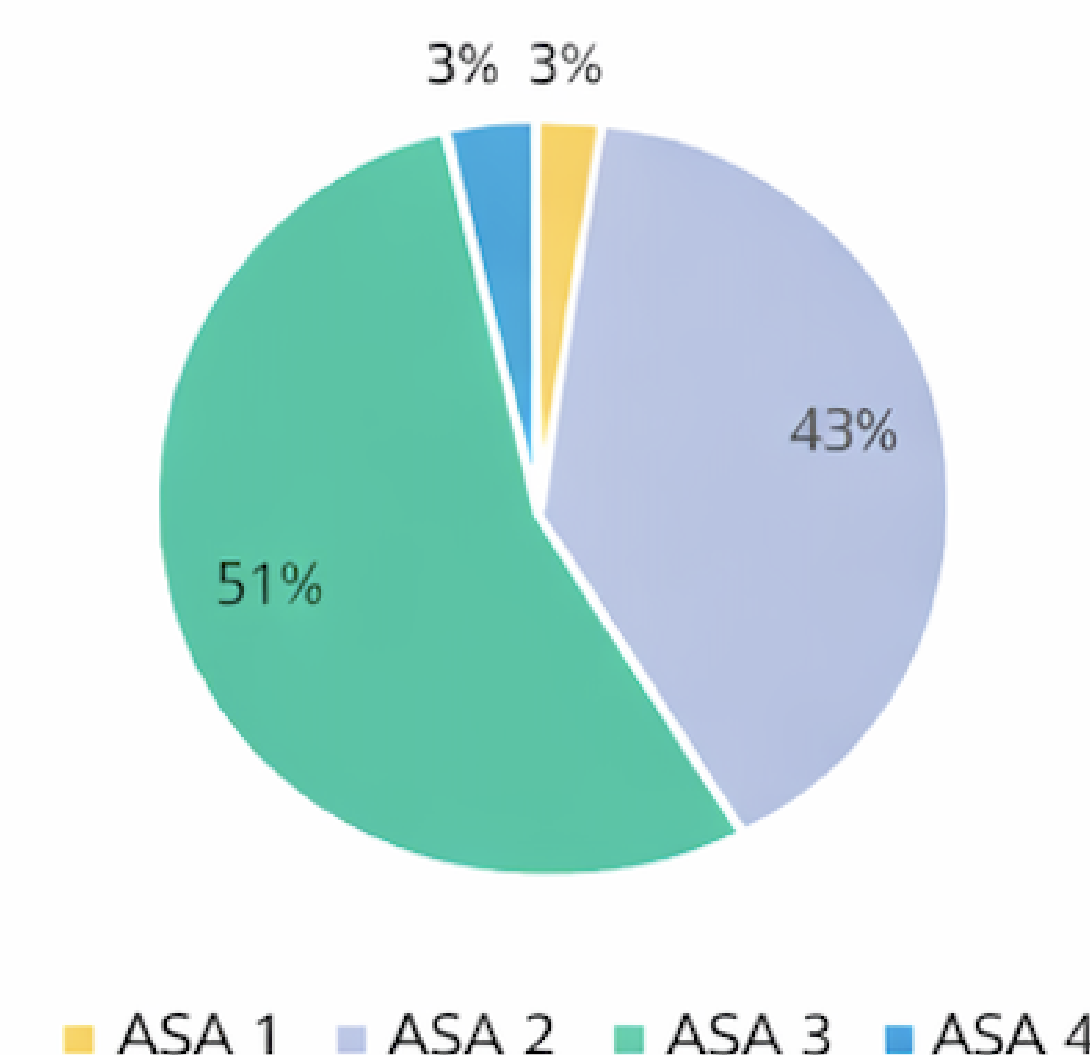
ASA Pre-Dynamic Distribution



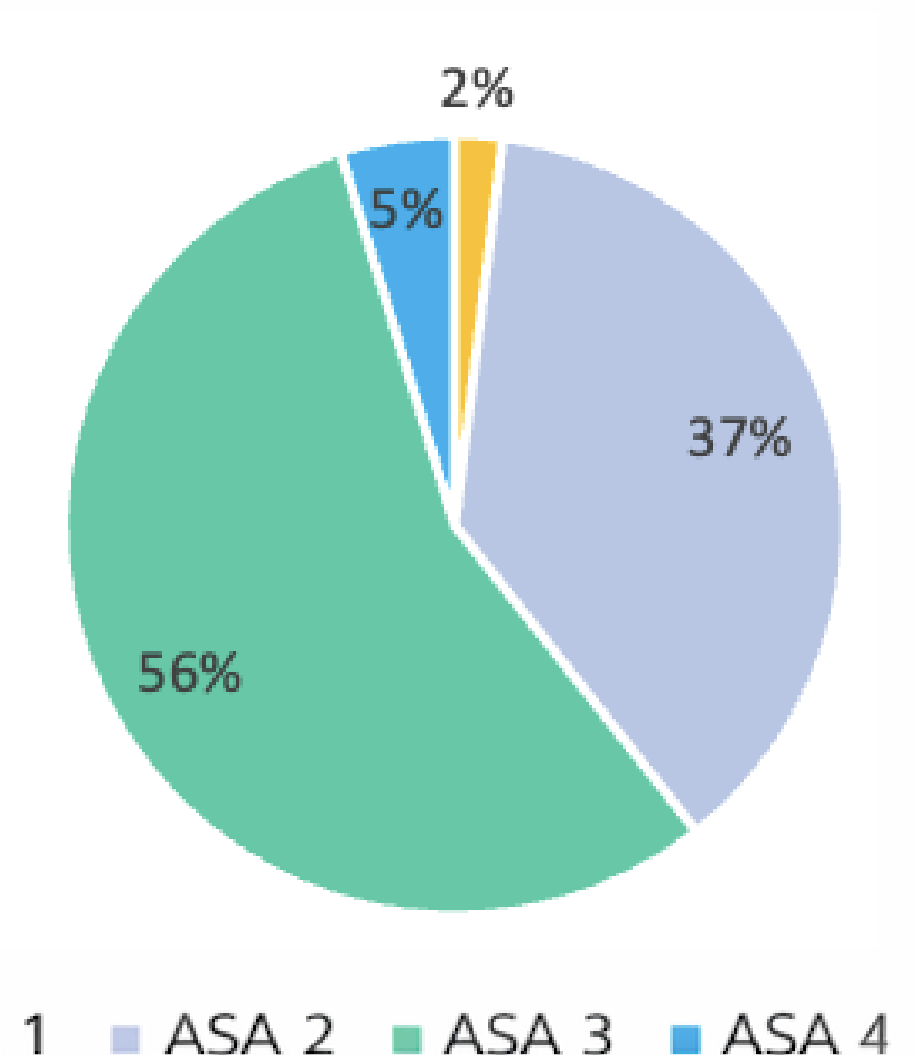
ASA Post-Dynamic Monitoring Distribution



ASA Pre-Non Dynamic Distribution



ASA Post Non-Dynamic Monitoring Distribution



References

