

Enhanced Recovery after Cesarean Delivery Clinical Practice Guideline: Intraoperative Interventions

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Background

Cesarean delivery (CD)

- ❖ Most common surgical procedure
- ❖ 3 million births annually, 32% performed by CD
- ❖ Increased risks and complications compared to vaginal delivery

Intraoperative Complications:

❖ Spinal Induced Hypotension (SIH)

- ❖ Maternal hypotension leads to fetal hypotension, bradycardia & acidosis
- ❖ Incidence: 60-80%
- ❖ Secondary complication: nausea & vomiting

❖ Post Spinal Shivering (PSS)

- ❖ Increased oxygen consumption
- ❖ Incidence: 30-60%
- ❖ Secondary complications: interference with monitoring, increased maternal irritability

Purpose & Goals

Purpose: Develop a Clinical Practice Guideline (CPG) to optimize and standardize the intraoperative management of women undergoing planned cesarean delivery.

Short term Goals

- ❖ CPG
- ❖ Stakeholder/staff evaluation of CPG
- ❖ Stakeholder/staff acceptance of CPG
- ❖ 100% staff compliance

Long term Goals

- ❖ Improve maternal and neonatal outcomes by
 - ❖ Decreasing incidence of SIH and PSS
 - ❖ Increasing Delayed Cord Clamping (DCC) times

Implementation Strategies

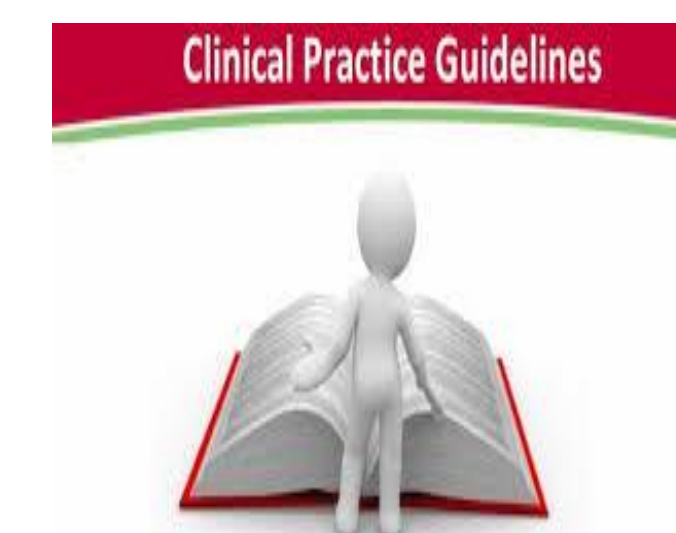
- ❖ Institutional Review Board approval
- ❖ Statistical analysis: AGREE II and PFQ results
- ❖ **Setting:** Community Hospital in Maryland
- ❖ **Population:** Women undergoing planned CD
- ❖ Literature review
- ❖ Stakeholder involvement and expertise
- ❖ Stakeholder evaluation via AGREE II
- ❖ Staff education
- ❖ Practitioner Feedback Questionnaire (PFQ)



CPG Practice Recommendations

Spinal Induced Hypotension Practice Recommendation:

- ❖ Initiate Phenylephrine infusion 0.5 mcg/kg/min IV and titrate to maternal blood pressures
- ❖ Co-Load with crystalloid solution
- ❖ **Anticipated outcomes**
 - ❖ Decreased incidences of hypotension
 - ❖ Decreased intraoperative fluid requirements
 - ❖ Decreased incidence of nausea and vomiting



Post Spinal Shivering Practice Recommendation

- ❖ Ondansetron 4 mg IV given when patient is sitting for spinal
- ❖ **Anticipated Outcomes**
 - ❖ Decreased incidence of shivering
 - ❖ Decreased incidence of nausea and vomiting

Delayed Cord Clamping Practice Recommendation

- ❖ Delay umbilical cord clamping for up to 60 seconds after delivery
- ❖ Decreased infant morbidity/mortality

Results

AGREE II TOOL RESULTS



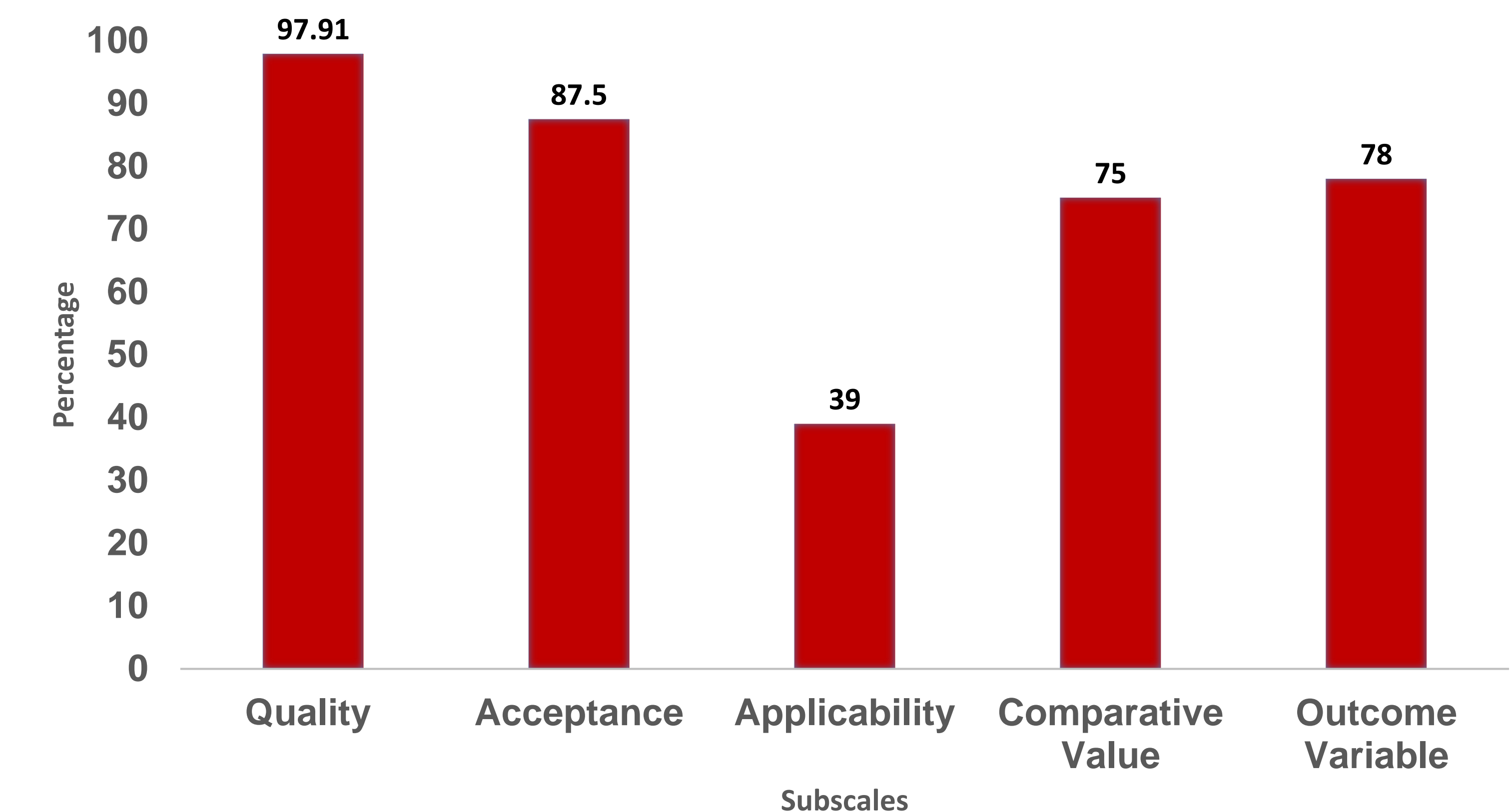
Domain	Percentage Score
Scope & Purpose	91.7%
Stakeholder Involvement	94.4%
Rigor of Development	86.4%
Clarity of Presentation	91.7%
Applicability	83.3%
Editorial Independence	100%
Overall Guideline Assessment Score	91.7%

Practitioner Feedback Questionnaire (PFQ) (n=39)

- ❖ 17 surveys collected: 6 (35%) anesthesiologists, 4 (23%) Certified Registered Nurse Anesthetists, and 7 (41%) Student Registered Nurse Anesthetists.
- ❖ Anesthesia provider years of experience: 0-3 years n=4 (23%), 4-6 years n=2 (11%), and >10 years n=4 (23%).
- ❖ Total Percent of Agreement: 87.4%, standard deviation: 6.6

PFQ Results

PFQ PERCENTAGE AGREEMENT SUBSCALES



Discussion

Strengths

- ❖ High quality evidence focused on improving patient outcomes
- ❖ Strong stakeholder involvement
- ❖ Favorable results on AGREE II and PFQ



Limitations

- ❖ Small sample size of providers
- ❖ Limited response rate (35%)
- ❖ Low applicability scores

Conclusion

CPGs promote standardization of care and evidence based treatment modalities

Plans for Sustainability

- ❖ Continued stakeholder support
- ❖ Continuous staff education
- ❖ Auditing/data collection/feedback
- ❖ Guideline review and modifications

References

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- ❖ Caughey, A. B., Wood, S. L., Macones, G. A., Wrench, I. J., Huang, J., Norman, M., Wilson, R. D. (2018). Special Report: Guidelines for intraoperative care in cesarean delivery: Enhanced Recovery After Surgery Society Recommendations (Part 2). *American Journal of Obstetrics and Gynecology*, 219, 533–544. <https://doi.org/10.1016/j.ajog.2018.08.006>
- ❖ Tie, H. T., Su, G. Z., He, K., Liang, S. R., Yuan, H. W., & Mou, J. H. (2014). Efficacy and safety of ondansetron in preventing post anesthesia shivering: A meta-analysis of randomized controlled trials. *BMC Anesthesiology*, 14. <https://doi.org/10.1186/1471-2253-14-12>