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Rethinking routine: selective postoperative laboratory testing is safe in emergency surgery patients

Rachel Joy Nation, Gena V Topper, Tanya Egodage

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Routine postoperative laboratory testing has traditionally been standardized without critical evaluation of its necessity or efficacy. The "Choosing Wisely" campaign has challenged this practice by advocating for evidence-based test utilization, maintaining patient safety, and reducing costs.[1 2] Previous studies in elective surgical specialties have consistently demonstrated the limited utility of routine postoperative day 1 (POD1) laboratory tests.[3 4] Empey *et al*[5] provide a novel perspective by extending this analysis to non-critical emergency general surgery (EGS) patients.

This retrospective analysis of 502 non-critically ill EGS patients at a single center assessed the prevalence of abnormal POD1 laboratory values and determined the correlative frequency of subsequent clinical interventions. Despite a relatively high incidence of abnormal laboratory values, interventions for those were rare. Independent predictors of abnormal laboratory results requiring interventions included advanced age (≥65 years), longer operative duration (>400 minutes), blood loss (>200 mL), and specific comorbidities. This demonstrates that targeted postoperative testing may be both feasible and beneficial for certain EGS populations.

The study's findings have important clinical implications. With routine POD1 laboratories correlating to a few actionable abnormalities, surgeons should consider selective laboratory testing based on risk stratification to optimize resource utilization, reduce unnecessary interventions, and decrease healthcare costs with the preservation of patient safety.

The study also highlights distinct areas warranting additional investigation. For example, is chronological age truly the most reliable marker of postoperative vulnerability or might frailty index or functionality measures offer more accurate predictive value? Variables such as intraoperative vasopressor use, preoperative laboratory abnormalities, and immediate postoperative laboratory results (not included in this study) may represent critical indicators of patient vulnerability as well. Additionally, models for procedure-specific cohorts may lead to more accurate predictions. Future studies should have prospective designs that consider these variables. Validated results may even be considered for enhanced recovery pathways following EGS cases.

Overall, this study offers convincing evidence to support the targeted use of POD1 laboratory testing in non-critically ill emergent surgical care. By identifying high-risk patient populations, it establishes a necessary framework for more targeted and cost-effective approaches to postoperative management.

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ORCID iD
Tanya Egodage http://orcid.org/0000-0002-7386-2926

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Surgery, Cooper University Health Care, Camden, New Jersey, USA

Correspondence to
Dr Rachel Joy Nation; nation-rachel@cooperhealth.edu

REFERENCES

1 Levinson W, Kallewaard M, Bhatia RS, Wolfson D, Shortt S, Kerr EA, Choosing Wisely International Working Group. "Choosing Wisely": a growing international campaign. *BMJ Qual Saf* 2015;24:167–74.
2 McKenna NP, Glasgow AE, Behm KT, Habermann EB, Cima RR. Is there Clinical Value to Routine Postoperative Day 1 Labs after Proctectomy? *J Gastrointest Surg* 2021;25:2961–2.
3 McKenna NP, Habermann EB, Glasgow AE, Cima RR. Tradition Versus Value: Is There Utility in Protocolized Postoperative Laboratory Testing After Elective Colorectal Surgery? *Ann Surg* 2021;274:e548–53.
4 McKenna NP, Glasgow AE, Shariq OA, Larson DW, Ghanem OM, McKenzie TJ, Habermann EB. Challenging surgical dogma: are routine postoperative day 1 laboratory tests necessary after bariatric operations? *Surg Obes Relat Dis* 2022;18:1261–8.
5 Empey R, Ko H, Nirula R. Clinical utility of routine postoperative labs in emergency general surgery patients. *Trauma Surg Acute Care Open* 2024;9:e001568.