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INTRODUCTION

The Problem: The Critical View of Safety (CVS) is the gold standard for safe laparoscopic cholecystectomy, but trainee conceptualization and assessment variability remain unstudied.

Objectives:

1. Improve the accuracy and consistency of CVS knowledge across all postgraduate levels.
2. Standardize the evaluation of intraoperative CVS images.

The "Shared Mental Model": Aligning operative expectations across the program to promote safer surgery.

METHODS

Design: Prospective educational quality-improvement (QI) initiative at a single academic military medical center.

Implementation: Weekly academic sessions utilizing QR code–based surveys for data collection (began July 2025).

Conceptual Component: Respondents provide free-text descriptions of the definition of the CVS, scored by independent raters on a 3-point scale.

Applied Component: Participants (Medical Students, Residents, and Staff) review intraoperative video and answer binary (Yes/No) questions regarding the achievement of the three CVS elements.

FIGURES

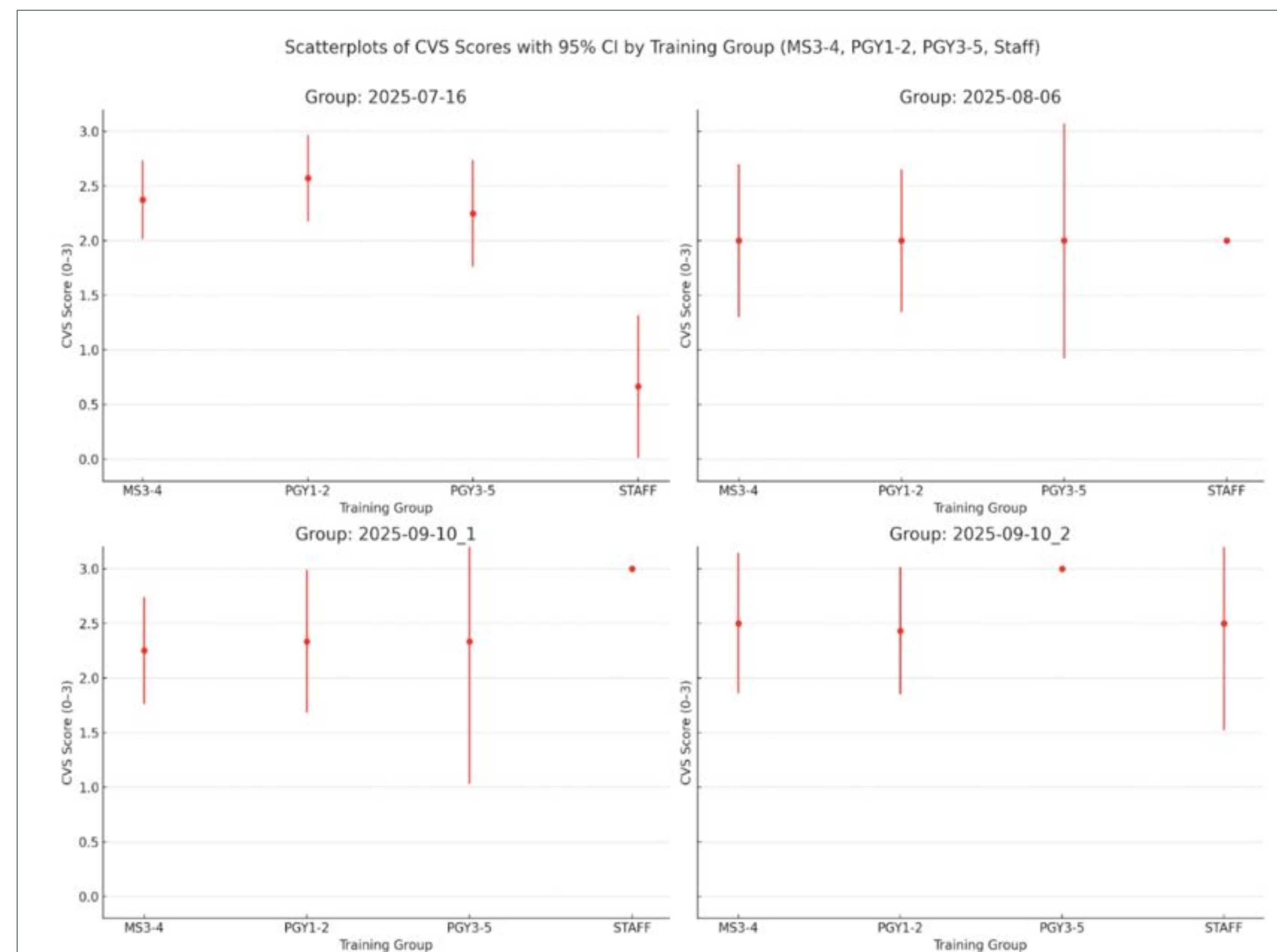


Figure 1: This figure illustrates CVS scores (0–3) across training groups. **Key Observation:** Note the top-left panel (Group: 2025-07-16), where Staff provided a significantly lower mean score (under 1.0) compared to all resident levels, who rated the same view much higher. This highlights a "safety gap" where trainees may accept an inadequate view as sufficient.



QR Code
Survey

Rate: The hepatocystic triangle is cleared of fat and fibrous tissue. The hepatocystic triangle is defined as the triangle formed by the cystic duct, the common hepatic duct, and inferior edge of the liver. The common bile duct and common hepatic duct do *not* have to be exposed.

- ☐ Yes
☐ No

Rate: The lower one third of the gallbladder is separated from the liver to expose the cystic plate. The cystic plate is also known as liver bed of the gallbladder and lies in the gallbladder fossa.

- ☐ Yes
☐ No

Rate: Two and only two structures should be seen entering the gallbladder.

- ☐ Yes
☐ No

A)



B)



Figure 2: This figure shows two photos taken during distinct laparoscopic cholecystectomies at Walter Reed.

Key Observation: Image A is an example of a CVS that was more unanimously positive, as opposed to Image B, which had more variability in responses, where the lower 1/3 of gallbladder isn't fully cleared, and there are still fibrofatty structures around the duct and artery.

RESULTS

Knowledge Gaps: Out of 63 conceptual responses, the greatest variability concerned the **clearance of fibrofatty tissue** from the hepatocystic triangle.

Training Disconnect: Resident accuracy for triangle clearance (0%–80%) did not correlate with higher training levels ($p=0.15$).

Staff Findings: Only **22.2%** of staff correctly identified that the hepatocystic triangle must be cleared of both fatty and fibrous tissue.

Applied Variability: When staff noted a complete CVS, scores were more homogeneous among all groups. When staff scored the CVS lower, there was greater variability among scores of trainees (93 responses).

CONCLUSION

Uniformity: CVS criteria are well-defined, but knowledge gaps exist at every level of training. There is also great variability in the interpretation of the CVS intraoperatively.

Impact: Ongoing longitudinal data collection aims to determine if this initiative narrows the gap between resident and staff scoring, signifying the development of a shared mental model for surgical safety.