Poster 59: Identifying and addressing inefficiencies during intraoperative frozen section in Gynecologic Oncology surgeries: a human factors approach

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Topic
Quality & Healthcare Systems

Objectives
Intraoperative pathology consultation with frozen section (IFS) is widely utilized by many surgical services, particularly gynecologic oncologists, in the rapid histologic evaluation of tissue specimens. In these cases, IFS efficiency is imperative in minimizing total surgical time, which impacts patient time under anesthesia and total operating room cost. In this study, we aim to incorporate a human factors approach to identify inefficiencies in the IFS process and assess the effectiveness of interventions.

Methods
This prospective observational study was conducted at a single institution. Thirty gynecologic oncology surgeries with IFS were observed; data collected included total time (TT, first surgeon request to results), lab time (LT, specimen arrival to lab to results), turnaround time (TAT, start of IFS by a pathologist to results), and workflow disruptions/delays. A multidisciplinary team implemented a data-driven intervention, and an additional 25 cases were analyzed.

Results
Pre-intervention, median TT was 38.0 min (IQR 29.9-41.5), median LT was 26.5 min (IQR 20.8-32.1), and median TAT was 24.6 min (IQR 18.4-28.3). Major delays were identified during specimen transport (median 8.7 min), 59% of which involved waiting for pathology transport staff in the OR. Other delays were observed in the lab, including waiting for concurrent IFS from other cases (n=7, median 5.4 min), reviewing patient history from the medical record (n=7, median 2.3 min), and specialty pathology consultation (n=7, median 4.3 min). To address the identified inefficiencies, a member of the surgical team was assigned to transport specimens and provide sign-out to pathology staff. After this intervention, there was a significant reduction in transport time (2.9 vs 8.7 min, $p< 0.001$) and TT (30.0 vs 38.0 min, $p=0.02$). There were no differences in LT (24.8 vs 26.5 min, $p=0.4$) and TAT (22.5 vs 24.6 min, $p=0.2$).

Conclusions
A human factors approach was successfully employed to identify systemic contributors to inefficiencies in gynecologic oncology procedures. Utilization of a dedicated specimen transporter eliminated OR wait time and significantly decreased total IFS time by 8.0 minutes (21% reduction). Other contributors include concurrent IFS cases and specialty pathology consultation, though these are institution dependent and largely non-modifiable.