

Laboratory Education for Operating Room Staff as a Means of Pre-Analytical Error Reduction in Anatomic Pathology

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Abstract

Outside of other laboratory personnel, the most frequent collaborators of Pathologists' Assistants (PAs) consist of various members of the Operating Room (O.R.) staff. They are responsible for much of the pre-analytical phase of specimen handling, including the labeling, transport, and storage of specimens. The importance of their work to our work in the anatomic pathology laboratory cannot be overstated. However, laboratory education is rarely if ever included in the curricula of nursing and other health professional programs. This, combined with the general underrecognition of anatomic pathology laboratory operations among healthcare professionals, can lead to a wide variety of errors that negatively impact patient care.

The aim of this study is to identify a feasible way for PAs and other gross room staff to effectively educate O.R. staff on the inner workings of anatomic pathology laboratories, thus reducing pre-analytical errors and ultimately improving patient care. This study is not intended to assign blame to O.R. staff for a problem that is systemic in nature.

Background

Laboratory errors can arise during three phases of testing: The pre-analytical phase, the analytical phase, and the post-analytical phase. It is a widely accepted fact that the majority of errors occur in the pre-analytical phase; 60-70% is the most commonly reported statistic¹, but the pre-analytical error rate in pathology may be as high as 87%². Pre-analytical errors in surgical pathology include but are not limited to the labeling, transport, and storage of specimens.

The majority of these tasks are performed by O.R. staff, a broad group that includes perioperative nurses and surgical technologists, among others. However, formal education on specimen handling is inadequate if and when it is offered. Periop 101, a widely used training course for new O.R. nurses created by the Association of Perioperative Registered Nurses (AORN), includes a 1.5-hour module entitled "Surgical Specimens" with post-module questions that only cover basic topics³. Similarly, specimen handling is frequently mentioned in the Association of Surgical Technologists (AST) core curriculum but not covered in sufficient depth⁴. Specimen handling is often learned on the job, and laboratory staff are rarely if ever involved in this education. This can result in the formation of bad habits or poor practices.

Methodology

An anonymous survey was administered via Google Forms to gather information from practicing PAs and other anatomic pathology professionals regarding (1) the methods being used to communicate errors to O.R. staff, (2) the methods being used to educate O.R. staff on proper specimen handling, and (3) the perceived effectiveness of each of these methods in reducing errors. One additional question asked about the frequency of inservices at respondents' institutions. Respondents were also asked state how many errors originating from the O.R. they see per week. The survey was distributed on LinkedIn and the "Certified Pathologists' Assistants" Facebook page. A total of 61 responses were recorded.

Acknowledgements

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References

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Results

Figure 1. Survey results showing frequency and effectiveness of different error communication methods.

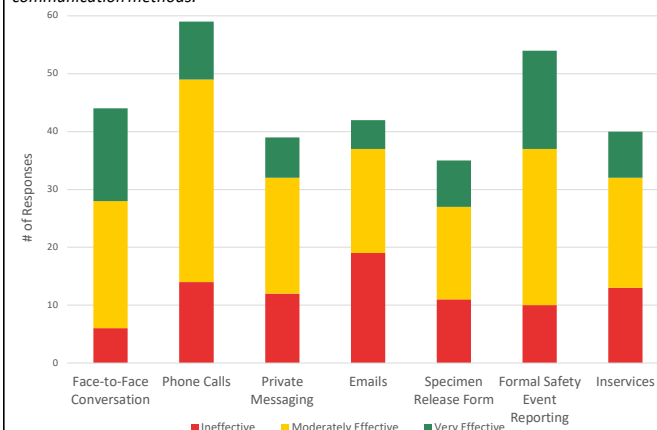
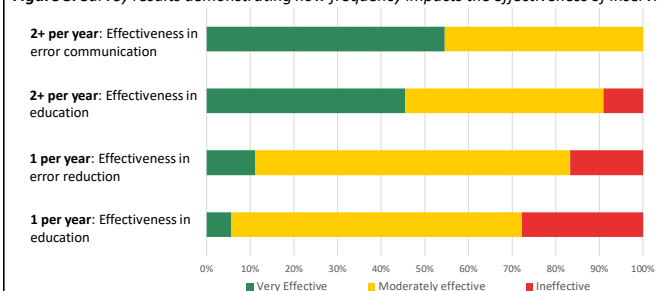


Figure 2. Percentage breakdown and quantitative analysis of responses.

	% "Very Effective"	% "Moderately Effective"	% "Ineffective"	% difference Very Effective – Ineffective	Ratio Very Effective / Ineffective
Face-to-Face Conversation	36.4%	50.0%	13.6%	+22.7%	2.67
Phone Calls	16.9%	59.3%	23.7%	-6.8%	0.71
Private Messaging	17.9%	51.3%	30.8%	-12.8%	0.58
Emails	11.9%	42.9%	45.2%	-33.3%	0.26
Specimen Release Form	22.9%	45.7%	31.4%	-8.6%	0.73
Formal Safety Event Reporting	31.5%	50.0%	18.5%	+13.0%	1.70
Inservices	20.0%	47.5%	32.5%	-12.5%	0.62

Figure 3. Survey results demonstrating how frequency impacts the effectiveness of inservices.



Discussion

Face-to-face conversation and formal safety event reporting had the highest percentage of "Very Effective" responses at 36.4% and 31.5%, respectively. Additionally, of the seven error communication methods presented in the survey, face-to-face conversation and formal safety event reporting were the only ones that were rated "Very Effective" more often than "Ineffective."

Email had the highest percentage of "Ineffective" responses at 45.2%. "Ineffective" responses were approximately four times as common as "Very Effective" responses (10.2%). Taken together with the previous results, it can be concluded that accountability is key in error communication; face-to-face communication ensures that a given message reaches its intended recipient, whereas emails can often be lost or simply remain unread. Additionally, formal safety event reporting serves the dual purposes of documenting errors and creating an avenue for consequences to be enacted, thus acting as a deterrent for future errors.

Inservices had a mixed response; they were rated as "Ineffective" more often than they were rated as "Very Effective," but the comments made about them in the survey's optional questions were overwhelmingly positive. To further examine this, individual responses were analyzed to see if there was a correlation between the reported frequency of inservices and their reported effectiveness (Figure 3). This analysis revealed a significant difference; respondents who stated that their institution did one inservice a year reported that they were "Very Effective" 5-11% of the time, while respondents who reported 2 or more inservices per year reported that they were "Very Effective" 45-55% of the time.

Conclusions: What Can Be Done Right Now?

1. Communicate face-to-face, emphasizing accountability

By the numbers, face-to-face communication and formal safety event reporting were shown to be two of the most effective methods of error reduction. The effectiveness of these methods seems to be tied to the fact that they hold staff accountable or errors.

2. Advocate for frequent inservices

The survey illustrated a significant difference in the effectiveness of inservices held once per year versus inservices held multiple times per year.

3. Cultivate a good relationship with O.R. staff and leadership

This is perhaps the most important action item, as a positive working relationship with O.R. staff will ultimately aid in productive communication, receptiveness to criticism, and the successful implementation of any programs involving collaboration between the lab and O.R.

Conclusions: Systemic Issues

The goal of this study was to find a way for PAs to address issues within the currently existing systems, but the quotes gathered by the survey revealed two pertinent larger-scale issues that bear mentioning:

1. High O.R. staff turnover

High turnover creates a situation where staff members that have been educated are more likely to leave and be replaced by new or traveling staffers. These new uneducated staffers are then more liable to produce errors. This is just one example of how high turnover and the conditions that create it are issues that negatively impact patient care.

2. Cultural/ideological disconnect between the lab and the O.R.

This speaks to a lack of visibility of lab professions as well as the lack of respect that some medical professionals have for the lab as a critical part of the patient care team. Remedying this issue will involve frequent interdepartmental communication, cultivation of good relationships between departments, and education of future healthcare professionals via early outreach.