



Image Documented Surgical Pathology (ID-SP) to Enhance Patient Safety - Lean Redesign of the Value Stream Steps from Gross Examination to Signout

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Abstract

Background: Mis-identification (Mis-ID) and Mis-communication (Mis-COM) defects are frequent causes of potentially significant medical errors that threaten patient safety. The hand-off nature of surgical pathology processes from specimen collection to signout affords opportunities for Mis-ID/Mis-COM failures. To further enhance safer surgical pathology, we have explored process and technologic innovations that leverage the maxim “a picture is worth a thousand words” by integrating ID-SP digital workstation employing images attached in the lab information system that visually document all required information at gross examination to be used by downstream workstations.

Design: Times to perform all steps of grossing and documentation were assessed comparing 25 biopsies grossed by a single pathology assistant with our traditional grossing protocol (TGP), dictationless & wordless, to ID-SP protocol developed for the LeanSTATION Bx digital macro-imaging system (Milestone Medical, Kalamazoo, MI). ID-SP documentation gross protocol consisted of sequential digital image recordings: 1-requisition, 2- specimen container label as received and barcoded cassette, 3-container contents as received, 4- tissue placed in cassette with superimposed 1 mm electronic measuring grid.

Results: Average time required for ID-SP gross was 76 seconds per specimen vs. 37 seconds for TGP. Histology personnel could refer to gross specimen descriptions at time of embedding whereas actual images of submitted tissues in cassettes were available attached to the case in Pathology PACS system (Apollo PACS, Inc, Falls Church, VA). These images were also available to downstream histology personnel at cutting stations. Pathologists at the time of signout had additional visual quality control checks to confirm patient identification of requisitions, container and cassette labels and submitted tissue.

Conclusion: Grossing time of ID-SP protocol was double TGP, but the image protocol provided additional assurance of catching Mis_ID and Mis-COM errors with prospective visual quality control tracking of requisitions and specimens at each workstation from gross to pathologist. In our experience the time difference expended is more than recouped in the average rework time of 8 man-hours wasted in resolving a MIS-ID case searching for empty specimen containers, interviewing clinical & pathology personnel, performing DNA profiling and amending reports. Further efficiencies in some practices may be obtained with ID-SP work design by eliminating time & bottlenecks in transcription and report correction

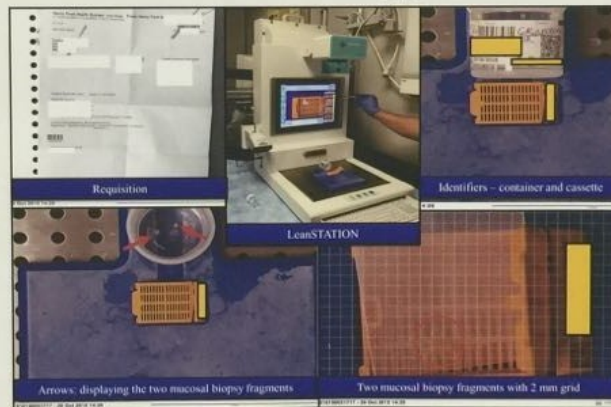
Results

Traditional Grossing Protocol steps:

- Step 1- Scan Requisition barcode
- Step 2- QC check patient name on clinic and CoPath labels, name on cassette and highlight with colored marker
- Step 3- Gross description – template
- Step 4- Close cassette

Image Documented Surgical Pathology steps:

- Step 1- Visual QC check
- Step 2- Scan Requisition barcode
- Step 3- Take photo of the requisition
- Step 4- Take photo of unopened container with cassette
- Step 5- Take photo of opened container with cassette
- Step 6- Put tissue in bag or paper
- Step 7- Take photo of tissue in bag or paper



Average time required for ID-SP gross was initially 76 seconds per specimen (reduced to 52-60 seconds with experience) vs. 37 seconds for TGP

Design

Image Documented Surgical Pathology (ID-SP)

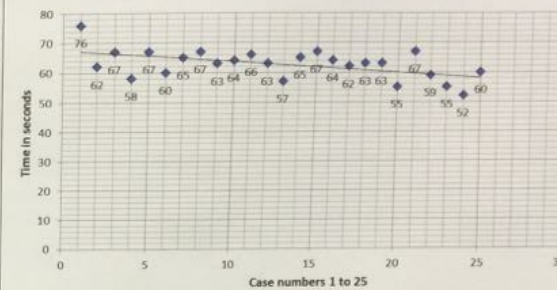


Figure 1. The grossing time for ID-SP improved as the pathology assistant gained experience in just 25 consecutive cases

Traditional Grossing Protocol

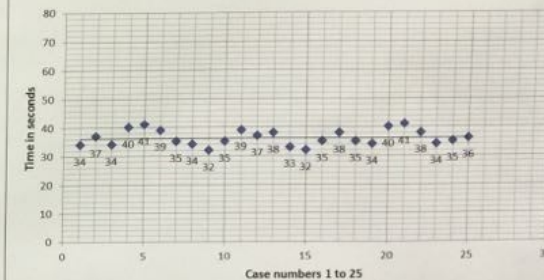


Figure 2. The grossing time for TGP remained unchanged for all 25 consecutive cases

Conclusions

- Grossing time of ID-SP protocol was double TGP, but improved as the pathology assistant gained experience in just 25 consecutive cases
- Additionally, the image protocol provided additional assurance of catching Mis_ID and Mis-COM errors, prospective visual quality control tracking of requisitions and specimens at each workstation from gross to pathologist.
- In our experience the time difference expended is more than recouped in the average rework time of 8 man-hours wasted in resolving a MIS-ID case searching for empty specimen containers, interviewing clinical & pathology personnel, performing DNA profiling (~\$1700 / case) and amending reports. Further efficiencies in some practices may be obtained with ID-SP work design by eliminating time & bottlenecks in transcription and report correction