

Improving Quality, Saving Time and Creating Smiles in the Immunostains Lab

Angela Eipers-Edwards; Matthew Bloxham M.A.; Melanie Hintz M.S. HTL (ASCP); Sara Hoheisel M.S.; Frank Walsh; Christina Halling HT(ASCP); Fazi Amirahmadi Ph.D.; Anja Roden M.D.; Karen Rech M.D.
 Division of Anatomic Pathology, Department of Laboratory Medicine & Pathology
 Mayo Clinic, Rochester, MN

Introduction

- Currently, Immunostains lab stains approximately 1200 slides and reads approximately 225 QC slides per day.
- Every year volume increases have increased QC technologists' responsibilities, reading on-slide QC, and troubleshooting.
- Communication among technologists on different shifts has become more difficult.
- Training has become increasingly challenging due to increased volumes.
- Memorizing test name variation and work flows are becoming nearly impossible.
- Interruptions while recording QC has caused missed entries on QC form.
- Analyzing QC slides and performing QC activities has become very stressful.
- All the above challenges have created a work environment in which QC reading and recording has become unstable, inaccurate, and time consuming.

Define

- Aim Statement:**
- Reduce quality control activities by 30% by Dec. 2018

Measure

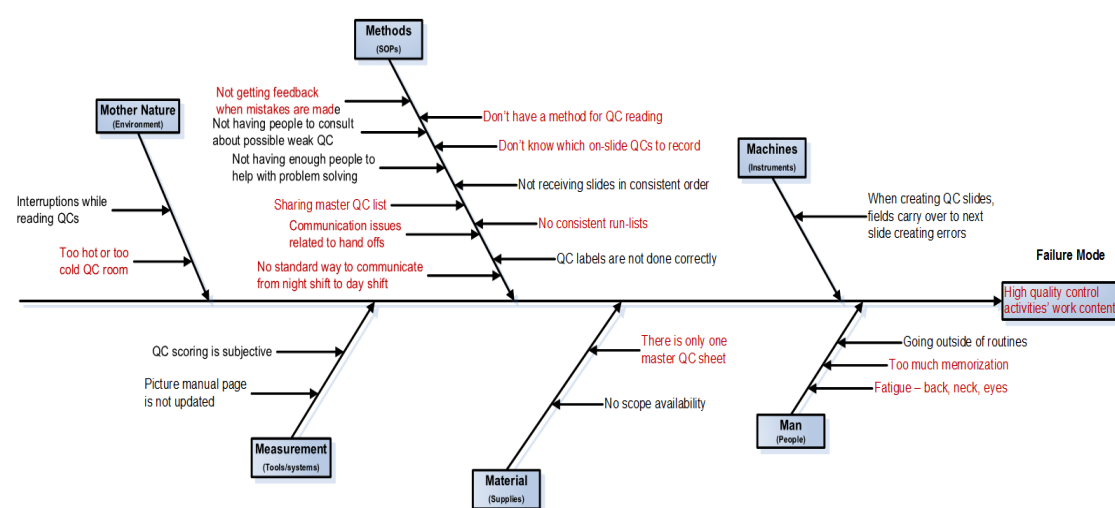
- Timings were collected for QC activities prior to change implementation.
- Morning troubleshooting
 - Communication signs
 - Run reconstruction
 - Daily QC replenishment
 - Reorganizing and standardizing box labels
 - Making QC labels
 - Standardizing stain name
 - Organizing protocols
 - Post staining sort
 - Leaving in run after coverslipper
 - Sorting for slide sorting delivery
- Current state/pre-interventions:
 Quality control activities' work content = 251 minutes

Measure

Counterbalance Measure:
 Techs were asked to rank happiness level in regards to QC activities.
 The higher the value the happier staff were for each QC activity.

Analyze

Fishbone analysis was used to identify the contributing factors to high quality control activities' work content.



The following major contributing factors were identified:

- Too much memorization
- Going outside of routines
- Which on-slide QCs do we record?
- Not receiving slides in consistent order
- QC labels are not done correctly
- Communication issues related to hand offs
- QC boxes are not labeled clearly
- Documents have many different names for certain tests

Improve

The following interventions for improvement were identified:

- Use visual signals/signs to communicate failed slides between shifts
- Standardize labeling QC boxes
- Standardize names of stains and alphabetization among documents
- Standardize protocol names in NEXES Ventana software
- Sort slides into runs instead of accession numbers

Improve

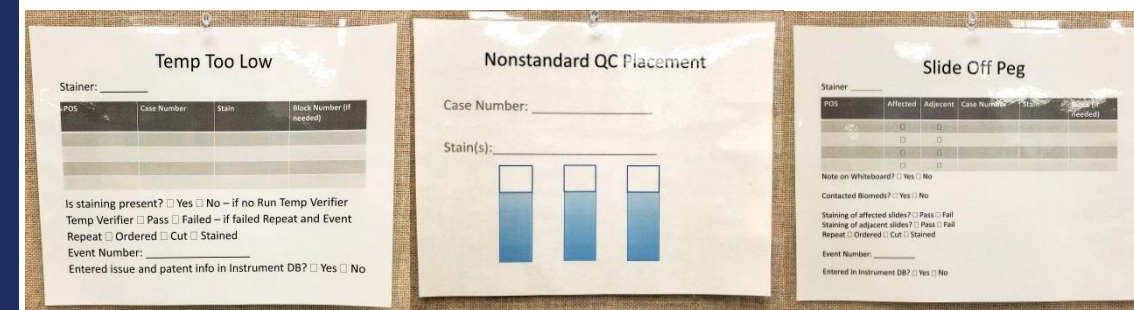
Standardized stain names and control box label layout



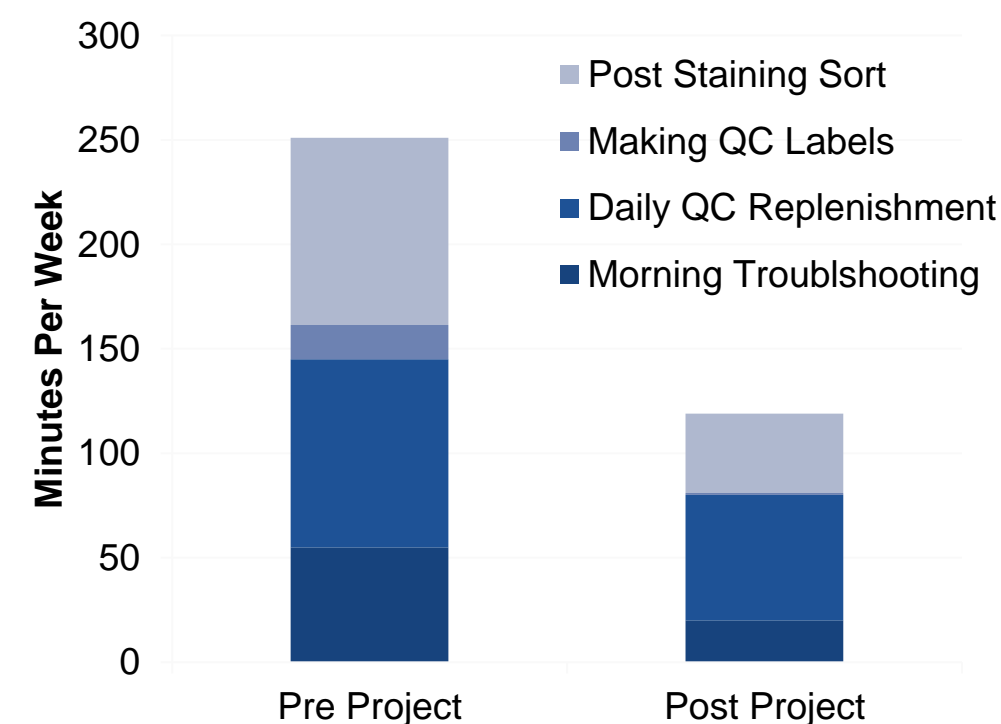
Communication Cards used for handoffs of QC slides between shifts requiring follow up
 Pre Project: Too generic, took time to determine issue and what had been done.



Post Project: Standardized layout saves time, easier to see what has been done.



After implementation of all the interventions:
 The quality control activities' work content was reduced from 251 to 119 minutes. 50% reduction in work content or 0.2 FTE saved.



Improve

Counterbalance Measure:
 Morale doing QC activities from survey
 Scale 1-5

Pre Project – 2.8



Post Project – 4.9



Control

The following steps were taken to control and maintain the improvements and changes:

- Communicated the changes with techs at daily huddles and lab meetings
- Solicited one on one feedback and reflections from team members during improvement and coaching Kata meetings
- Updated SOPs to reflect changes
- Team will monitor the process and work content every 6 months to make sure that the new system is stable and identify and close the gaps.

Suggested next steps:

Team will evaluate the current value stream map and the existing staffing level to improve and meet the demand for rest of 2019 and beyond.
 We will look at adding a second QC reader.

Lessons Learned

- Communication using visual signs is easier and saves time
- Standardization of labeling QC boxes, names of stains has been greatly improved with both speed and accuracy
- Standardization of protocol names in NEXES Ventana software has improved the speed and accuracy of QC labels selection
- Allowing QC reader to look at slides by run instead of reconstruct the run has reduced rework and created more organized work area