



A30 Accuracy Matters When Quantitative, Manually-Pipetted PCR Assays Transfer to Automation: A Story in Diagnosing and Troubleshooting

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After attending this presentation, attendees will learn how to successfully transfer a manually-pipetted assay to automation by paying attention to liquid handling variables and processes.

This presentation will impact the forensic science community by presenting a case in which the automation was not to blame. Many assays are transferred from the bench (handheld pipetting) to liquid handlers with success; when they are not successfully transferred, one has to look at all variables.

It is often the case that assays are initially performed on the benchtop using handheld pipettes before they are transferred to an automated liquid handler. Automating a manual method may take time and patience, but automation will help lower costs, increase throughput, and potentially avoid errors associated with a manual method. During the transfer process, however, the manual assay should be directly compared to the automated assay for consistencies in pipetting performance. An undetected variability in accuracy will impact the integrity of the assay as the automation process continues. Liquid handling accuracy and precision information, for both the manual and automated method, are critical to determine any deviation of dispensed volumes between the two processes. Therefore, as it is shown in this presentation, that validating the liquid delivery steps for each assay will help uncover discrepancies in pipetting performance. This presentation discusses the importance of knowing both accuracy and precision information when a manual method is transferred to a robotic liquid handler. It was determined that the rate-limiting reagent in the RT-PCR assay was not being accurately pipetted between the manual and automated methods per the protocol, and the automation was not to blame.

Method Transfer, Automating PCR assays, Pipetting and Liquid Handling