LGC CLINICAL DIAGNOSTICS

Consolidation of QC material improves patient safety and supports sustainability

Study / Testimonial

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INSTRUMENT: Abbott Alinity

QC EVALUATED: Multichem IA Plus (Level 1,2,3), Multichem S Plus (Level 1,2,3)

ANALYTES: Thyroid-stimulating hormone (TSH), free thyroxine, follicle-stimulating Hormone (FSH), vitamin D, ferritin, high-sensitive cardiac troponin I, C-reactive protein, glucose, creatinine, calcium, total protein, alanine aminotransferase, alkaline phosphatase, potassium and sodium.

Introduction

To date, no studies have been undertaken to improve and describe efficiency in daily routine work in regard to QC protocols. Our lab made the decision to evaluate the impact of using a highly consolidated QC material vs. the currently used material, which is a mixture of lyophilized and liquid controls. A total of 23 clinical chemistry tests and 15 immunoassays were performed twice each day under routine conditions over a 10-day time period using an Abbott Alinity system.

Reclaimed Storage Space

Cold storage space requirements for CC and IA QC materials were 7,997cm^3 and 4,886cm^3 for our current QC material, respectively, and 776 and 2,328cm^3 for Technopath, resulting in a space savings of between **52% (IA)** and **90.3% (CC)**.

Reduced Handling Requirements

Handling time was based on 20 test events, including reconstituting controls, labeling cups, pipetting into cups, and loading them into racks. Handling time was calculated to be 269.9 min for our current QC materials, and 2 min for Technopath. This demonstrated a saving in handling time of **99.8 (IA)** and **99% (CC)**.

Reduced Dead Volume Waste

Dead volumes for IA QC materials were 11.63 mL for our current QC materials and 2.49 mL for Technopath, saving 9.14 mL or **up to 79%**. For CC we found 3.29 mL for our current QC materials and 0.0 mL for Technopath which makes savings of **100%**.

Reduced Waste

As Technopath QC material was directly loaded from the barcoded vial by the Alinity system, no additional cups and pipette tips were used. Our current QC material had to be transferred from the vials into cups to be placed on the instruments, and therefore we needed 340 cups and 350 pipette tips. In regard to total vials used in the study, there was a **50% (IA)** and **40% (CC)** saving by using Technopath QC.

"..we believe by using less vials of barcoded QC which is sampled directly by the instrument could contribute to patient safety, as delays due to QC level mix up and pipetting errors could be eliminated. These manual errors can cause delays in releasing of patients results, which can effect patient diagnosis and treatment especially for urgent STAT samples..."

Miriam Menacho-Román

"We have been able to demonstrate that selecting highly consolidated control materials and ready-to-use vials from Technopath will yield important savings in terms of time and costs, while providing a comparable analytical performance. This is a step forward toward running QC procedures in a very smart and efficient way.
The savings of consumable and waste is also remarkable.."

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Supplementary details can be reviewed here:

Menacho-Román, Miriam, Ouriach, Salma and Arribas, Ignacio. "Consolidation of quality control material improves patient safety and supports sustainability" *Journal of Laboratory Medicine*, vol. 46, no. 6, 2022, pp. 377-381. https://doi.org/10.1515/labmed-2022-0085

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