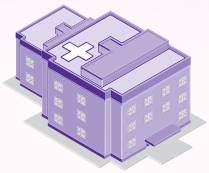
Conversion to **BD Microtainer® MAP** Microtube for Automated Process with K2EDTA May Reduce Hematology Specimen Processing Times and Improve Laboratory Efficiency

A Customer Analysis



St. Christopher's Hospital for Children, a 185-bed children's hospital located in Philadelphia, PA (USA), currently processes approximately 37,000 blood specimens for hematology testing a year, of which approximately 18,000 or almost 50% are collected in microcollection tubes. Ninety percent (90%) of those requisitions are for a complete blood count (CBC) with differential and thirty-five percent (35%) also include reticulocyte counts. Close to eighty percent (80%) of the specimens are collected via indwelling venous access devices or by venipuncture and are transferred into microcollection tubes via syringe or drip method. The remaining 20% are collected via heel stick or finger puncture.

In addition, the laboratory manually confirms eighty-five percent (85%) of their automated 5-part white blood cell differentials; equivalent to approximately ninety (90) manual differentials performed per day.

Issues facing this laboratory regarding microcollection are: labeling (0.3%), and specimen quality issues (i.e., clotting [4.7%]). These result in an overall microcollection specimen rejection rate of five percent (5%) with manual specimen processing accounting for nearly fifty percent (50%) of their daily workload.

The current process for microcollection hematology testing is:

1	2	3	4	5	6	7	8	9
Affix bar code label to specimen	Manually mix specimen	Manually check specimen for micro clots using wooden sticks (all specimens)	Prepare peripheral blood smear (all specimens)	Manually scan bar code into Sysmex® XE-2100 hematology analyzer	Manually re-mix specimen	Manually process on hematology analyzer	Verify results	Report results

Microcollection Process Challenges:

Issues with Labeling

The laboratory uses the same bar code label for both venous and microcollection tubes; however, the standard size label is too large for their current microcollection tube. When placed vertically on the microcollection tube, the label extends beyond the bottom of the tube. After processing, the label needs to be neatly tucked in and folded over to store in a rack. If the labels are not tucked in, they stick to the storage racks and can become torn or damaged. This may impede specimen identification, especially if the specimen needs to be retrieved for repeat or add-on testing.

Inefficient Process

The current microcollection process takes approximately 3 minutes per specimen and requires "hands-on" time by the laboratory technologist throughout the process. Venous hematology tubes can be processed via rack systems, rather than individually, and currently take approximately 2.5 minutes to process per specimen; however, only 0.5 minutes are "hands-on" work. The venous tubes are placed directly into a rack that is placed on the Sysmex® XE-2100 hematology analyzer. The analyzer scans the bar code directly from the primary tube, mixes the tube by inversion and analyzes the sample via closed tube sampling through the stopper.

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The **BD Microtainer® MAP Microtube for Automated Process**

with K2EDTA is used to collect, anticoagulate, transport and store skin puncture blood specimens for the measurement of hematology parameters using automated processes. BD MAP can be processed using a similar workflow as evacuated venous blood collection tubes, eliminating 3 of the 7 processing steps.

By switching from their current microcollection tube to the BD Microtainer® MAP Microtube for Automated Process, they can potentially:

- Ensure positive patient ID
- Save time with labeling (no need to tuck and fold labels to place in racks)
- Reduce laboratory technologist time by approximately 150 hours per year
- Eliminate 3 processing steps
- Reduce turnaround time (TAT) by approximately 17%
- Utilize time savings for other activities (i.e., manual differentials)
- Provide neat, organized storage in standard tube racks

The **BD Microtainer® MAP Microtube for Automated Process** has enhanced features including:

- **Full size label** with V-Notch™ for patient ID and label alignment
- **Pierceable cap**, compatible with instrument probes
- **Twist-assist** for easy cap removal and snap closure for **safer, leak-free** transportation
- One-piece 13x75 mm tube with **integrated collector**
- **Visible fill lines** to ensure proper collection volumes
- **Number of inversions** illustrated on the tube label

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BD Diagnostics
Preanalytical Systems
1 Becton Drive
Franklin Lakes, NJ 07417
www.bd.com/vacutainer