Dignity Health  
Central Coast Service Area Procedure

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| **Central Coast Service Area North:** | | |
| Santa Maria Campus,  Marian Regional Medical Center | Arroyo Grande Campus,  Marian Regional Medical Center | French Hospital Medical Center |
| **Central Coast Service Area South:** | | |
| St. John’s Pleasant Valley Hospital | St. John’s Regional Medical Center |  |

**SUBJECT**: Creating In-house 3.2% Sodium Citrate Tubes for Low Volume Collection

**LAB POLICY NUMBER: 7500.CG.40**

# Purpose:

To provide specific instructions for preparing 3.2% modified sodium citrate tubes for use in pediatric patients requiring low volume collection.

# CLIA Complexity:

Not Applicable

# Clinical Utility:

To create in-house sodium citrate tubes for low volume collection to be used primarily for NICU patients to reduce amount of blood required.

# Principle:

The proper ratio is 1 part citrate to 9 parts whole blood when the hematocrit is within 25-55%. For 1.0 ml volume: add 110 µl of 3.2% sodium citrate additive.

# Materials: N/A

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| --- | --- | --- | --- |
| **Reagents / Media**  3.2% Sodium Citrate BD Vacutainer Tubes | **Supplies / Materials**  BD Clear Top no additive tubes | **Equipment**  100-1000 µl Pipette | **Modified Tube Stability**  1 month |

# Procedure

## Modified 3.2% Sodium Citrate Tube preparation for 1 ml sample fill volume.

### Obtain clear top tube(s) with no additive, place in rack and remove top(s).

### Aliquot 110 µl of 3.2% sodium citrate obtained from standard BD Vacutainer 3.2% Sodium Citrate tube (blue top) into each collection tube containing NO ADDITIVE.

### Firmly cap each tube with the supplied cap

### NOTE: Failure to seal the tube may result in leaks or evaporation of citrate additive.

### In-house modified tubes must be labeled with citrate concentration (3.2%), preparation date, expiration date (1 month from date of preparation) and mark indicating the fill volume with permanent, water proof ink.

### Store tubes at room temperature

### Upon request place modified sodium citrate tube in clean biohazard bag with collection instructions and deliver to specified location.

## Collection Instructions

### For line draws, discard 0.5-0.7 ml of blood.

### Collect exactly **1 ml of blood** via syringe technique. Using as little pulling pressure to avoid injury or shear in sample.

### NOTE: Improper fill volume will lead to inaccurate results

### Blood must be collected and dispensed into modified tube within 1 minute of collection.

### Cap the tube and gently invert 3-6 times.

### Label the tube with at least two patient identifiers, date and time of collection.

### Transport at room temperature within 2 h of collection.

### NOTE: **DO NOT** send tube via pneumatic tube system.

### Hand-deliver to Clinical Laboratory Scientist in the Laboratory

1. Blood is centrifuged to obtain platelet poor plasma (plasma platelet concentration of <10,000/µl).

### Visually inspect tube for appropriate fill volume (1 ml), evidence of clotting, or fibrin

## Specimen Rejection Criteria

### Tubes improperly filled (>10% under/over filled)

### Clotted samples or samples with fibrin

### Samples exceeding stability

### NOTE: Nurse must be notified and a new sample requested if an unacceptable sample is received. Sample rejection information must be documented in LIS.

## Testing Sample

### Place plasma in labeled micro-container

### Open the sample drawer by selecting MAIN MENU🡪LOADING🡪SAMPLE

### Select F8 for Micro-sample

### Scan the barcode or manually enter the accession number using the keyboard

### Load the specimen

### All critical or inconsistent results will be confirmed by repeat analysis, checked for clots and fibrin, and investigated for IV contamination before reporting results.

# RESULTS

1. Review results. If necessary, add a Result Comment or Result Note to document collection or processing problems, critical notification and/or any communications with nurses or physicians.
2. Select VERIFY when compete.

# References:

1. Diagnostica Stago. STA Compact Reference Manual. July 2009.
2. Collage of American Pathologists, Hematology and Coagulation Checklist. Northfield, IL, Current Revision.
3. Gosselin R, Bowyer A, Favaloro E, et al. Guidance on the critical shortage of sodium citrate coagulation tubes for hemostasis testing. J Thromb Haemost. 2021 ; 00 :1-5