YALE-NEW HAVEN HOSPITAL	TITLE: **URINE REDUCING SUBSTANCES CLINITEST REAGENT TABLETS**		**DEPT OF LAB MEDICINE** **CLINICAL HEMATOLOGY** **Policy and Procedure Manual** **DOCUMENT #** H-07-003 Page 1 of 3
WRITTEN BY: Natalie Ortoli-Drew, MT (ASCP)	**EFFECTIVE DATE:** 09-1999	**REVISION:** H-4	**SUPERCEDES:** H-3

I. PRINCIPLE:

The Clinitest tablet reagent is based on the classic Benedict's copper sulfate reduction reaction combining reaction ingredients with an integral heat generating system. The copper sulfate is converted to copper oxide in the presence of reducing substances. The resultant color varies based upon the amount of reducing substances present. Sodium hydroxide, citric acid and sodium carbonate provide the heat for the reaction and tablet dissolution. The most common reducing substances are glucose and other reducing sugars (lactose, galactose, etc). Presence of a positive Clinitest results with a negative dipstick indicates a non-glucose sugar. The primary method for determining glucose in the urine is the glucose oxidase dipstick; however on specific request for non-glucose reducing substance a Clinitest will be performed. It is particularly important to screen all neonates for the presence of non-glucose sugars.

II. SPECIMEN:

Freshly voided urine (< 4 hours old) is the acceptable specimen. If the test cannot be performed, the specimen may be refrigerated to prevent bacterial growth and urine breakdown.

III. MATERIALS:

A. 16 x 100 glass tubes
B. Pipets
C. Distilled water
D. Test tube rack
E. Clinitest tablets
F. Clinitest tablet color charts
G. Normal and abnormal urine control (countl0-trol)

IV. PROCEDURE:

A. 5 drop method:

1. Pipet 10 drops of distilled water into a glass 16 x 100 test tube
2. Pipet 5 drops of fresh urine into same tube
3. Gently mix
4 Drop 1 Clinitest tablet into the tube
5. Allow reaction to complete and wait 15 seconds before shaking tube
6. Immediately compare color of liquid to color chart and record % reading

Note: Careful observation of the fluid in the test tube while the reaction is taking place and during the 15 seconds waiting period is necessary to detect rapid "pass through" color changes caused by amounts of sugar over 2%. Should the color rapidly "pass-through" green, tan, and orange to dark greenish-brown., report as 4+.

V. QUALITY CONTROL:

Each shift a Clinitest is performed on the negative (#11) and positive (#12) controls. If the control results are not acceptable, patient testing may not be performed and a supervisor notified of the problem.

VI. EXPECTED RESULTS:

Clinitest should be negative in healthy individuals. If a Clinitest is positive it indicates that a reducing substance is present in the urine. If the Clinitest is positive and the dipstick (or Atlas) is negative it indicates that a non-glucose reducing substance is present. The color chart is calibrated in %. Since the lab reports results in 1-4+ format use the chart below to determine proper result to report.

Color	% from chart	YNHH report
Blue	Negative	Negative
Dark green	¼%	Trace
Green	½%	1+
G1:eenlbro wn	¾%	2+
Brown	1%	3+
Orange	>2%	4+

VII. LIMITATIONS:

A. A number of substances found in the urine, such as salicylates and penicillin, react

positively with Clinitest but are not presently in sufficient quantities to interfere with test.

B. Ascorbic acid, nalidixic acid, cephalosporin and probenecid in large quantities may cause false positive results.

C. The presence of x-ray contrast media (hypaque meglumine) in urine affects the Clinitest tablet producing a reduced glucose and an atypical color reaction.

D. Clinitest tablets are not specific for glucose and will react with any reducing substances.

VIII. REFERENCES:

Package insert, Clinitest tablets, Bayer Diagnostics, Elkhart IN Modem Urine Chemistry, Bayer Corporation, Tarrytown, NY

Reviewed	Revised	Reviewer
	7/2005	N Drew
10/2006		N Drew

IX. HISTORY:

H-1 This procedure was written by N. Ortoli-Drew on 9-1999.

H-2 This procedure was revised by N. Ortoli-Drew on 7-2005.

H-3 This procedure was reviewed by N. Ortoli-Drew on 10-2006.

H-4 This procedure was revised by D.Fico on 11/26/10.