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48667.280 CHEMSTRIP Acute Nephrology - URINE TEST STRIP

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Approval	Lab Director	5/17/2021	2.0	Barbara Haller, MD, PhD Barbara Haller	
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Signatures from prior revisions are not listed.

Version History

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2.0	Approved and Current	Major revision	5/13/2021	5/17/2021	Indefinite

Linked Documents

- 48667.288 Chemistry Protein and Blood – Urine Dipstick Quality Control Form

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CHEMSTRIP for Acute Nephrology - URINE TEST STRIP

PURPOSE

Rapid, semi-quantitative measurement of multiple urine chemistry parameters at the point of care. The test is useful in the initial evaluation and monitoring of renal and urinary disorders.

PRINCIPLE

The CHEMSTRIP urine test system (Roche Corporation) is a multi-parameter test strip that simultaneously measures pH, nitrite, protein, glucose, ketones, leukocytes, and blood in urine. Different reagent pads attached to inert plastic strips change color as they react with the various constituents to be measured. The color change provides semiquantitative measurements which are read visually against a standard color chart on the test strip container. See the package insert for individual principles and composition of reagent pads.

SCOPE

This procedure applies to patients being monitored for renal disease activity.

TESTING PERSONNEL

- Approved Health Care Providers in Acute Nephrology

SPECIMEN

- Freshly voided urine collected in a clean container deep enough to allow complete immersion of the reagent pads on the test strip. Do not use preservatives.
- Stability: Perform testing within one hour of collection.
- Specimen containers must be labeled with the patient's full name and date of birth or medical record number.

REAGENTS AND SUPPLIES

1. Chemstrip 7, Roche Corporation. Available through Materials Management. Store test trips at 2-30ºC. Do not freeze. Chemstrip urine test strips are stable in the original capped vial until the listed expiration date. In order to avoid exposure to moisture, the vial must be closed immediately after removal of a strip, using the original stopper, which contains a drying agent. Date container and record the lot number when the container is opened.
2. Absorbent paper or gauze.
3. BIO-RAD qUAntify Plus Control normal and abnormal controls. Controls are stored

in POCT Services and may be obtained from them. Ranges for new lot(s) of controls are verified by POCT Services prior to expiration date of the old lot(s).

Store controls at 2 - 8º C until the expiration date located on the label(s). Do not freeze.

4. Timer.

QUALITY CONTROL

1. Abnormal and normal controls are run weekly by qualified testing personnel.

2. Remove the controls from the refrigerator and warm for 15 – 30 minutes to room temperature (18 - 25ºC).

3. The lot number on the bottle of BIO-RAD qUAntify Plus Control should be the same as the lot number on the record form. Check the expiration date. Control bottle should have date opened on it. This date should also be on the record form.

4. Gently invert the control bottle to assure homogeneity, open the bottle and apply BIO-RAD qUAntify Plus Control directly onto the reagent strips with a spraying technique. Hold the reagent strip horizontally, ensure good pad saturation and remove excess control by tilting the reagent strip on its edge on a paper towel. Each pad should be thoroughly moistened.

5. Read the urine dipsticks following the same procedure as patient specimen.

6. Promptly recap the bottle and return the controls to refrigerated storage.

7. Record the results on the QC log.

8. The results should fall within the expected ranges. If they fail to fall within the expected ranges, repeat testing. If repeat results continue to fail, discontinue testing and contact POCT Services. **Do not perform patient testing if QC results fail.**

PROCEDURE

A. Using two patient identifiers, verify patient’s identity and explain procedure to patient.

B. Observe universal precautions, wear gloves and other personal protective equipment as appropriate.

C. Urine should be in a container that permits complete immersion of the test strip reagent area. Mix the urine thoroughly before testing.

D. Remove a strip from the container. Close the container immediately. Prolonged exposure of strip to air can cause false positive results. Check strip against color blocks on Chem 7 container to ensure no pad has been prematurely activated.

E. Briefly (no longer than 1 second) dip the test strip into the urine. The entire test strip reagent area must be totally immersed.

F. Draw the edge of the strip along the rim of the specimen container to remove excess urine.

G. On a piece of absorbent paper or gauze, turn the strip on its side and tap once to remove excess urine and to prevent possible mixing of chemicals.

H. Holding the strip close to the color blocks on the Chemstrip 7 container and orienting the strip to the color chart on the container, match the color of each pad to the corresponding color block on the container.

NOTE: For Acute Dialysis patients, only the, pH, protein and blood analytes are analyzed. However, pH is not reported.

All values may be read at or between:

pH	60 seconds
protein	60 seconds
blood	60 seconds

Caution:

- False positive protein result may be obtained if the urine pH is >9 or higher
- Reagent pad colors are stable up to 120 seconds after immersion. Color changes that occur after 2 minutes from immersion are irrelevant and should be ignored. Color changes that occur only along the edge of the test pads should be ignored as well (careful removal of excess urine should eliminate this effect).

REPORTING RESULTS

Report the results in the medical record as read off the standardized color chart:

Parameter	Normal Result	Abnormal Result
Protein:	Negative (“neg”)	1-3+
Blood	Negative (“neg”)	1-3+

Report the results in the electronic medical record (EMR) or on a results form.

PROCEDURE NOTES

Staff approved to perform this Point of Care Test must first pass Color Discrimination Testing provided by Occupational Health or POCT Services.

LIMITATIONS OF METHOD:

A. Protein Test

The following may cause false positive readings:

1. strongly basic urine (pH 9 or higher);
2. therapy with phenazopyridine;
3. with infusion of polyvinylpyrrolidone (found in blood substitutes);
4. residues of disinfectants containing quaternary ammonium groups or chlorohexidine in the urine container.

REFERENCES

1. Package Insert provided by Roche for Chemstrip 7, 2007-01.

2. Package Insert provided by BIO-RAD qUAntify Plus Control. Rev. 4/20.

3. McPherson RA and Pincus MR (eds.). Henry's Clinical Diagnosis and Management by Laboratory Methods. 21st ed., pp. 397-407; 2007.

DISTRIBUTION

A. POCT Master Procedure Binder (POCT Services).

B. www.sfgh-poct.org