PROCEDURE: pH Testing Using pH Indicator Strips

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PRINCIPLE:
pH Indicator strips are single use, disposable strips designed to determine the pH of various fluids. The strips are impregnated with indicators that change color based on the pH of the sample. The strips are read visually by color comparison with the chart on the strip package provided by the manufacturer. The strips in use read from pH of 0 to pH of 14 in 1 unit increments.

pH strip color changes coincide with a numeric pH interpretation:
Red/Orange to Yellow/Green (pH 1-6) = Acid
Green (pH 7) = Neutral
Dark Green/Blue (pH 8-14) = Alkaline.

CLINICAL SIGNIFICANCE:
A body fluids pH measurement may be of use as an evaluation aid to assist with assessment, diagnosis and treatment of a patient. Using pH strips to check the Nasogastric (NG) tube position will provide guidelines for NG tube placement.

SPECIMENS:
Fluid retrieved from the NG tube is the only acceptable specimen. The specimen must be fresh and pH checked immediately.
For collection of the fluid from the NG tube refer to SLCH Nursing Guidelines, NUR.0312.

REAGENTS:
pH Indicator Strips ph 0-14 Cardinal Health P1119-1C
Buffer pH 2.00 Ricca Chemical Company 1493-16
Buffer pH 5.00 Ricca Chemical Company 1505-16
Buffer pH 9.00 Ricca Chemical Company 1590-16

Store all reagents at Room Temperature (15-30 C).

Expiration: Good until the Manufacturer’s date on the package, unless discolored.

pH strips must be kept clean and dry in a sealed container.
QUALITY CONTROL
Each Lot of ph Indicator strips will be check by the Point of Care Personnel.
Lots will be checked and recorded using the Ricca Buffers 2.0, 5.0 and 9.0.

Procedure for checking the Quality Control Buffers:

1. Remove a strip from the box.
2. Using a dropper drop the 2.0 buffer over the reaction zone of the strip, ensuring that the entire reaction zone has been saturated.
3. Remove excess buffer solution by touching the edge of the strip to a paper towel.
4. Compare the strip’s reaction zones to the color chart on the box, holding the bottom of the strip to the pH numbers. The top of the strip is the white part that does not have colored pads.
5. Record the pH buffer results on the pH strip log along with the lot of strips. This log is maintained in the Point of Care area of the main lab.
6. Repeat using the 5 and 9 buffers. See log sheet for acceptable ranges.
7. Lots are checked monthly by Point of Care personnel.

If the pH strips read outside established limits the following troubleshooting guidelines will be followed:

- Check the expiration dates on the buffer solutions and check the strips for discoloration.
- Repeat the buffer solution. If pH reads within ranges, lot may be used.
- If pH ranges still fail open a fresh box of pH strips and repeat testing, if pH reads within ranges, lot may be used.
- If the strips do NOT read within ranges after new strips and buffers have been tried, the lot will be pulled until the problem has been resolved.

PROCEDURE:
1. Remove a pH strip from the open box in the AccuChek tote located on each nursing division.

2. Using the syringe to aspirate the NG fluid, ensure that all pads have been covered with the fluid. Refer to SLCH Nursing guidelines for Nasogastric Tubes (NG) for collection procedure.

3. Wipe the pH strip along the edge of a paper towel to remove excess liquid from the pH strip.

4. Immediately compare the strips’s reactions zone to the color chart on the box while holding the bottom of the strip to the pH numbers. The top of the strip is the white part that does not have colored pads.

5. Record the pH results of the NG fluid in the electronic medical record.
REFERENCE RANGE:
pH cutoff for making certain the NG tube placement is correct if LESS than a pH of 5.

LIMITATIONS:
- The specimen must be tested as soon as possible to avoid contamination with air, which may cause a change in pH.
- Any colored specimen should be read with caution as the color may interfere with the reading of the reaction zone.