pH STRIPS: DETERMINATION OF GASTRIC pH

I. PURPOSE AND PRINCIPLE

To determine normal (acidic) pH in gastric fluid. pH determination is used to help verify correct placement of nasogastric tubes in adult, pediatric and neonatal patients.

The pH strip is used for the determination of pH. The four colors on each strip correlate to a pH range of 0 to 14. In the presence of fluid with normal pH (7.0), the strip will show the four colors of yellow-orange, orange, olive green, and yellow. In the presence of acidic fluids (pH 5), the strip will display the four colors of yellow-orange, orange, tan and yellow. The pH of gastric fluid is normally acidic.

II. SCOPE

This test is performed in hospital setting only. It is used in adult, pediatric and neonatal patients.

III. PERSONNEL

Intended for use by clinical personnel who have received training and demonstrated competency in this procedure. In the hospital setting, this includes Clinical Laboratory Scientists, Registered Nurses, Licensed Advanced Health Practitioners, and Physicians. This testing is not performed in the outpatient setting.

IV. REAGENTS, EQUIPMENT AND MATERIALS

A. pH strips (pH 0-14 colorpHast pH-indictor strips or equivalent)
B. pH Color Card
C. Sterile Gloves

V. STORAGE

pH strips must be stored in their original container, at room temperature. Avoid excessive heat.

VI. QUALITY CONTROL
A. The Clinical Laboratory will complete all Quality Control. New orders will be QC’ed prior to distribution to POCT sites. Once QC’d, pH strip containers will be marked with a two year expiration date.
B. QC results for each new order will be available on line in the POCT Manual, under the “QC Results” section.

VII. SPECIMEN

The strip may be applied directly to pooled gastric fluid.

VIII. TEST PROCEDURE

Gastric Testing
A. Using two patient identifiers, verify patient identification. If appropriate, explain procedure to patient and/or family.
B. Remove one pH strip from the holder.
C. Dip strip in gastric fluid:
   1. Ensure all four color squares are equally exposed to the specimen.
   2. Wait until there is no further color change.
   3. Avoid contact with fluids other than that being tested.
D. Observe for color change- read while still moist.
E. Compare all four color squares to the color chart to determine the correct pH. In the patient’s chart or electronic medical record, record the pH value corresponding to the color changes on the strip.

IX. INTERPRETATION OF RESULTS

A. The colors of the four squares of the pH strip should be compared to the sample color chart on the pH strips container.
B. pH results should be reported as numeric values as measured against the pH color chart.
C. A pH of 5 or less suggests the presence of acidic gastric fluids and correct tube placement.

X. PROCEDURE NOTES

A. Do not use pH strips that do not have “QC’d” and the expiration date printed on the product label.
B. Following contact with gastric fluid, the pH strips should be considered potentially infectious and standard precautions appropriate for microbiological hazards must be observed.
C. Do not reuse strips.

XI. LIMITATIONS

pH paper can only indicate a pH value and should be used only as a monitoring tool.

XII. RESULTS AND REPORTING
A. Record the numeric pH value on the patient’s medical record chart or electronic medical record.
B. NOTE: Whenever a user identifies that an incorrect result has been reported, they are responsible for correcting/commenting the incorrect result (if possible), contacting the ordering provider, notifying them of the error, and documenting this notification, including the time and date, in the patient record.

XIII. RECORDS MAINTENANCE

A. Patient Records are indefinitely stored in their paper or electronic Medical Record format.
B. Quality Control logs are stored in the Clinical Laboratory for at least 3 years.

XIV. REFERENCES

D. Nasogastric Tubes Large Bore (Adult), UCSF Medical Center, Department of Nursing, Nursing Procedures Manual, 2/2007.
E. Insertion, Verification of Placement, and Removal of Indwelling Nasogastric Enteral Feeding Tubes (Neonatal/Pediatric), UCSF Medical Center, Department of Nursing, Nursing Procedures Manual, 2/2010.
F. ColorpHast pH-indicator strips pH 0-14 package panel
pH Strips for Gastric pH Procedure

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All dates and times are in Pacific Standard Time.