	<i>pH of Lacrimal Fluid of the Eye</i>		Page 1 of 3
	Point of Care	MC Document # LAB-SOP-POC	

Purpose

To determine the pH of the lacrimal fluid of the eye. pH determination is also used for ocular purposes when flushing the eye after a chemical splash. Using a pH indicator dye has been shown to assist in determining the presence of acidic or base conditions, which are harmful to the eye; helping to determine when the ocular fluid is at a normal pH. This test is considered a definitive waived test.

Scope

Licensed Medical Physicians
Licensed Nurse Practitioners

Principle

pH paper is a test strip used for the determination of pH by measuring the hydrogen activity in the sample. In the presence of fluid with normal pH (7.0), the paper will turn a yellow-green color. In the presence of acidic fluids, the paper will range from red to orange in color; and in the presence of alkaline fluids, the paper will range from green to blue in color. The colors correlate to a pH range of 1 to 12 and indicate the pH of the lacrimal fluid of the eye. Normal lacrimal fluid should be near a pH of 7.0 (neutral). The determination of eye fluid pH is a useful screening test to determine the need and success of irrigation after caustic exposure.

Reagents and Materials

Nitrazine pH paper:

- Stable at room temperature in the original container with the foil sealing the roll and is stable until 2 years from the open date if expiration date is not found in the packaging.
- Store out of direct light

pH color chart from package

Buffer solution (provided by Laboratory) stable until expiration date on container


- pH concentration 4.00
- pH concentration 7.00

Specimen

Lacrimal fluid of the eye. The pH paper may be applied directly to pooled ocular fluid.

Quality Control

1. When a new box of nitrazine paper is opened, note the expiration date and assure that the roll is not expired. The exp. date is on one of the liner cards within the plastic container. If the expiration date is not available on the package or liner card, the expiration date will be 2 years from the date of opening the package. Document the opening date on that same card.

	<i>pH of Lacrimal Fluid of the Eye</i>		Page 2 of 3
	Point of Care	MC Document # LAB-SOP-POC	


2. On the QC log (NITRAZINE PAPER QUALITY CONTROL LOG), confirm that the appropriate location is indicated at the top. Fill in the testing date along with the lot number and expiration date of the pH paper to be tested.
3. Tear off 2 strips of the nitrazine paper to use for control testing. Wet one of the pH paper strips with a drop of buffer solution control with a pH of 7.00. DO NOT dip the nitrazine paper directly into the container of control solution.
4. Examine the paper for color change and determine the pH by comparing the color change of the pH paper to the color scale on the package.
5. Wet the second strip of the pH paper with a drop of buffer solution control with a pH of 4.00. DO NOT dip the nitrazine paper directly into the container of control solution.
6. Examine the paper for color change and determine the pH by comparing the color change of the pH paper to the color scale on the package.
7. Record the results on the QC logs and evaluate performance.
8. If expected results are not obtained, repeat the test once. ***If result is still unacceptable, do not use the nitrazine paper for patient testing.*** Open a new box of paper and repeat the control testing on the new box. If results are still unacceptable, the problem could be related to the control(s). Contact Lab Coordinator at 8846 for new control solutions. Also, turn in the remaining part of all unacceptable paper rolls to the Lab Coordinator for documentation / follow-up.
9. Document employee ID on the log.

Procedure

1. Using two patient identifiers, verify patient identification and explain procedure to patient and/or family.
2. Remove one to two inches of pH paper from the holder for each test.
3. With care, apply the tip of the paper to the lacrimal fluid of the eye. Avoid direct contact with eye tissue.
4. Observe for immediate color change and compare to color scale from package.
5. Record the pH as a numeric value, corresponding to the color change, in the patient's chart.
6. Repeat test as needed.
7. If patient is exposed to an acidic agent, once the pH of the eye reaches the target range, further irrigation is not needed.
8. If the patient is exposed to an alkaline agent, repeat pH testing every 15-30 minutes and continue irrigation until the pH of the eye is maintained in the target range during the post-flush period.

Interpretation of Results

The color of the pH paper after use should be compared to the sample colors on the pH paper container. pH results should be reported as numeric values as measured against the pH color chart.

	<i>pH of Lacrimal Fluid of the Eye</i>		Page 3 of 3
	Point of Care	MC Document # LAB-SOP-POC	

Reference Range

Eye pH: 6.5-7.5

Interferences

There are no interferences with lacrimal fluid of the eye.

Limitations

- Nitrazine strips are sensitive to light and moisture and must be stored properly.
- pH paper, used in the detection of lacrimal pH of the eye, is intended for use by qualified medical staff and is intended as an aid to professional treatment.
- pH paper can only indicate a pH value and should be used only as a monitoring tool.

References

Henry, JB (ed.), Clinical Diagnosis and Management by Laboratory Methods, 19th edition, WB Saunders Company, Philadelphia, PA, 1996.

Dickerson, RE (ed), Chemical Principles 4th edition, The Benjamin/Cummings Publishing Company, Inc., California, 1984

Shugar, GJ (ed), Chemical Technician's Ready Reference Handbook, 2nd edition, McGraw-Hill Book Company, New York, 1981..

Abe, T. 1940. Am.J. Obst. & Gynec. 39:400.

Sklovsky, E., MacLennan, A.H. 1976. Brit. M.J. 2:1014

Mills, A., Garrioc, D.B. 1977. Brit. J. Obst. & Gynec. 84:138-140.

Prepared by: Henry Sell, MT(ASCP)

Medical Director: Jeffrey Pearson, M.D.

Approvals:

*All approvals are maintained and controlled in the MasterControl™ system.
Please refer to the MasterControl™ system for the current controlled revision and approval records*

Revision History:

Date	Revision	Description of changes
10/20/2011	1	New procedure
10/20/2011	2	Minor spelling changes

*Draft and Archived/Obsolete revisions are not to be used.
Access MasterControl system to verify revision*