Iron metabolism disorders, iron deficiency and lead poisoning determinations in whole blood... fast, simple, accurate and cost effective.
Iron Metabolism Disorders

Only two common reasons are known to cause elevated zinc protoporphyrin levels: iron deficiency or elevated lead burden. Rare genetic disorders may cause elevated ZPP. Children with iron deficiency are more prone to absorb lead from the environment.

With the AVIV ZPP Hematofluorometer, Model 206M, rapid screening for iron metabolism disorders, iron deficiency and lead poisoning can be performed simply, without pretreatment, in less than 5 seconds, for only pennies per test.

Screening in the following areas:

1. Iron deficiency by ZPP:
   - In children
   - In the elderly
   - During pregnancy
   - In blood donors
2. Rule out iron deficiency.
3. Lead poisoning by ZPP.
4. Measure of iron availability in hemodialysis patients for better management of EPO therapy.
5. Diagnosis of Thalassemia in patients with low MCV.
7. Sickle cell disease.

FEATURES

AVIV ZPP Hematofluorometer, Model 206M

- Automatic sample insertion
- Uses whole blood with no sample preparation
- ZPP red blood cell cryopreserved controls stable for 2 months if kept at -20°C.
- Digital readout in approximately 5 seconds
- Internal reference standard
- Internal low level control
- No volume measurement required
- No false negatives
- Minimum effects of deoxyhemoglobin
- Filter front surface fluorometer
- Narrow band interference filters
- One year warranty on parts and labor

IRON DEFICIENCY

Iron deficiency is a common cause of anemia. Its diagnosis is important both for the management of individual patients and for the study of populations with nutritional anemia.

The relative simplicity of the test has made it attractive for the diagnosis of iron deficiency in various age groups.

Blood donation can cause a substantial loss of donor storage iron. While limits have been set to decrease the risk of iron deficiency and even though potential donors are screened with hemoglobin or hematocrit determinations, there remains a relatively high prevalence of iron depletion among regular blood donors. Suggested solutions which include iron supplements and a further reduction in donation frequency fail to take into consideration the variation in serum ferritin levels in donors with evolving iron deficiency.

When iron stores are depleted, zinc replaces iron in the protoporphyrin ring causing the concentration of ZPP to rise in the red blood cells.

The AVIV ZPP Hematofluorometer, Model 206M, provides a rapid and inexpensive test for iron depletion as an alternative to serum ferritin.

ZPP reflects the ability of the body to use iron. An iron utilization disorder is disclosed by elevated ZPP. The specific cause of this problem must be explained.

HCFA and PHS recommend that the erythrocyte protoporphyrin (EP) test be utilized when possible for children ages 1-5 in the assessment of nutritional status. It is also recommended as a blood lead screening test for low risk children.

DIALYSIS

Zinc protoporphyrin is the alternative to ferritin, transferrin and TIBC for the management of anemia in dialysis patients.

The treatment of the anemia associated with end-stage renal disease with erythropoietin has been a major advance in the care of these patients. Despite this, the response of individual patients to erythropoietin is variable, and may be impaired if iron deficiency is present.

A careful assessment of iron stores needs to be done both at the initiation of and for the duration of therapy.

The ferritin level in a normal population shows a large range. A relative iron deficit can coexist with normal ferritin levels. Elevated ZPP provides an early indication of an iron utilization disorder. Thus a ferritin level is not as good in determining iron availability as is the ZPP method.

LEAD POISONING

The detection of ZPP levels in blood has been shown to be an effective method of screening for chronic lead poisoning. In a subject with an appreciable lead burden, the lead ions interfere with the normal synthesis of hemoglobin by preventing the usual insertion of iron into protoporphyrin to make heme.

As a result, zinc is incorporated into the protoporphyrin and the resulting ZPP remains in the hemoglobin and the erythrocyte for the life of the cell.

Chronically lead exposed children and adults with elevated blood lead levels always have high ZPP readings.

With the Model 206M, tests can be carried out by paramedical personnel in the field. The system is particularly well-suited to monitor or screen large population groups considered at risk for chronic lead poisoning. No hematocrit correction is ever required.

C.L.I.A. – New C.L.I.A rules, effective September 1992, require the use of controls every day an instrument is in use. They also require that an instrument be recalibrated every six months using manufacturers supplied standards, or standards from another source.

AVIV controls and calibrators (standards) are recommended to be used with our instruments to be in compliance with the required proficiency testing program. We can assure the accuracy of AVIV products.
3-STEP TEST PROCEDURE AS SIMPLY AS A-B-C!

1. The model 206M provides quick and accurate measurement of the ratio of zinc protoporphyrin to heme in whole blood. No volume measurement is needed. The sample is optically dense and front surface illumination is used. As little as 5 x 10^-12 grams of zinc protoporphyrin can be detected in a single drop of whole blood. Simply puncture a finger, toe or ear lobe which has been cleaned with alcohol.

2. Place a glass cover slide (AVIV No. 1, 25mm sq.) into the sample holder. A drop of whole blood is then placed in the center of the cover slide, sufficient to cover the aperture. No additional preparation is needed and no volume measurement is required.

3. With the sample in place, operate the Model 206M by simply depressing the “MEASURE” button located on the front of the instrument. The instrument will pause for a second to calibrate itself, automatically draw the sample holder with the whole blood sample into the measuring compartment, analyze the sample, display the results and return the sample for easy disposal. Although the instrument always measures the molar ratio of ZPP to Heme, the instrument can be ordered calibrated to display this result in any one of several units. Many instruments in the USA are calibrated to display weight/volume concentration units using assumed hematocrits as specified by OSHA (ZPP, Hct 42) or CDC (equivalent EP, Hct 35). These calibrations are fully acceptable to the respective agencies. We strongly recommend the use of molar SI units for all other purposes.

OPTIONS

Cover Glass
AVIV 25mm x 25mm, pre-cleaned (disposable) cover glass are packed 10 inner boxes of 100 cover glass per box. (Total ~ 1,000 cover glass per case). Quantity discounts available. Part #9999-91466

Calibrator Sets (Standards)
Easy to use 2 level set (low, high) ZPP red blood cell calibrators make calibration of your instrument simple. Cryopreserved calibrators remain stable up to one month when stored at -20°C. Part #9999-112562

Control Sets
Easy to use 3 level set (low, medium, high) ZPP red blood cell controls make quality control of your instrument simple. Cryopreserved controls remain stable up to two months when stored at -20°C. Part #9999-40839
REFERENCES

IRON DEFICIENCY


ZPP Hematometer

POISON LEADING


