

ICS 11.020
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WS

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

WS/T 600-2018

**Method for folate deficiency screening
(English Translation)**

Issued on: April 27, 2018

Implemented on: November 1, 2018

Issued by: National Health Commission

Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4.1 Determination of folate deficiency in pregnant women

4.2 Determination of folate deficiency in other populations

5 Determination method

5.1 Serum (or plasma) folic acid content

5.2 Erythrocyte folate content

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed by the National Health Standards Committee Nutrition Standards Committee.

This standard was drafted. China National Center for Disease Control and Prevention, Institute of Nutrition and Health, Capital Institute of Pediatrics, Zhejiang Province Prevention and Control Center.

1 Scope

This standard specifies the judgment indicators, judgment values and measurement methods for folic acid deficiency and insufficient screening in the population.

This standard applies to the determination of folic acid status in the population.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only the dated version is appropriate.

Used in this document. For undated references, the latest edition (including all amendments) applies to this document.

WS/T 225 Clinical Chemistry Test Blood Collection and Processing

3 Terms and definitions

The following terms and definitions apply to this document.

Folate deficiency

When the serum (or plasma) folate content or the red blood cell folate content is lower than the reference value of the normal population, it can be determined as Lack of folic acid.

Folate insufficiency for women of reproductive age when the mean value of erythrocyte folate content in pregnant women is lower than the reference value for preventing birth defects in neural tube defects, it can be judged that the folic acid is insufficient.

4 Judging indicators and judgment values of folic acid deficiency and insufficient screening in the population

4.1 Determination of folate deficiency in pregnant women

See Table 1.

Table 1 Determination of folate deficiency in pregnant women

index

Folic acid deficiency determination value Ng/mL nmol/L Erythrocyte folate content $< 400 < 906$ Note. This indicator does not apply to the determination of the risk of birth defects in individual neural tube defects.

4.2 Determination of folate deficiency in other populations

See Table 2.

Table 2 Determination of folate deficiency in other populations

index

Folic acid deficiency determination value Ng/mL nmol/L Serum (or plasma) folate content $< 4 < 10$ Erythrocyte folate content $< 151 < 340$

5.1 Serum (or plasma) folic acid content

Perform in accordance with the method specified in Appendix A.

5.2 Erythrocyte folate content

Follow the method specified in Appendix B.

Appendix A

(normative appendix) Method for determination of serum (or plasma) folic acid A.1 taking

blood A.1.1 Collection of blood specimens. fasting venous blood, blood collection method according to WS/T 225 and the collection method required by the test method law.

A.1.2 Use different blood collection tubes depending on the serum, plasma or whole blood required.

A.1.3 The amount of serum (or plasma) per tube is $\geq 150\mu\text{L}$.

A.2 Serum and plasma preservation A.2.1 Serum specimens. stable for 2 h at $15\text{ }^{\circ}\text{C} \sim 25\text{ }^{\circ}\text{C}$, stable for 48 h at $2\text{ }^{\circ}\text{C} \sim 8\text{ }^{\circ}\text{C}$, stable for 28 days at $-25\text{ }^{\circ}\text{C} \sim -15\text{ }^{\circ}\text{C}$, it can only be frozen and thawed once. Keep away from light. If the specimen cannot be detected in time, it is recommended to store the specimen at $-70\text{ }^{\circ}\text{C}$.

melt.

A.2.2 Plasma samples. stable at $15\text{ }^{\circ}\text{C} \sim 25\text{ }^{\circ}\text{C}$ for 2 h, stable at $2\text{ }^{\circ}\text{C} \sim 8\text{ }^{\circ}\text{C}$ for 48 h. Keep away from light. If not Immediately measure and store the sample at $2\text{ }^{\circ}\text{C} \sim 8\text{ }^{\circ}\text{C}$.

Note: Serum folate is significantly elevated in hemolyzed samples due to folate dissolution in red blood cells, so hemolyzed samples cannot be used for serum (plasma) folic acid Determination.

A.3 operation

A.3.1 Serum (plasma) folic acid test by electrochemiluminescence, chemiluminescence, radioimmunoassay, microbiological method, etc.

The method, as well as the test instrument operating instructions and/or kit instructions, prepare instruments, standards, controls, reagents, etc.

A.3.2 Serum (plasma) specimens should reach room temperature and be mixed and measured to ensure that there are no air bubbles in the sample cup.

A.3.3 Measure the standards, controls and samples in strict accordance with the requirements of the instrument and/or kit operating instructions, and read, Save or print the test results.

Appendix B

(normative appendix) Method for determining erythrocyte folic acid B.1 Blood collection and pretreatment B.1.1 Collection of blood specimens. fasting venous blood, blood collection method according to WS/T 225 and collection of test methods method.

B.1.2 Preparation of Hemolyzed Samples. Hemolyzed samples for red blood cells were prepared according to the method described in the Red Blood Cell Folic Acid Kit.

B.2 preservation of whole blood and hemolysis samples B.2.1 Whole blood. 2 h at $20\text{ }^{\circ}\text{C} \sim 25\text{ }^{\circ}\text{C}$, 24 h at $2\text{ }^{\circ}\text{C} \sim 8\text{ }^{\circ}\text{C}$, stable for 1 month at $-20\text{ }^{\circ}\text{C}$ (only for K3EDTA) Blood sample of anticoagulant). Whole blood needs to be hemolyzed to make a hemolyzed sample for the determination of red blood cell folic acid.

B.2.2 Hemolysis sample for measuring red blood cells. stable at -20 °C for 1 month, limited to one freeze-thaw.

B.3 Determination of erythrocyte folate content B.3.1 Before measuring the erythrocyte folate content, it is also necessary to measure the hematocrit.

B.3.2 Determination of erythrocyte folate content using a hemolyzed sample (B.1.2).

B.3.3 According to the methods of detection of red blood cell folate by electrochemiluminescence, chemiluminescence, radioimmunoassay, microbial method, etc.

And test instrument operating instructions and/or kit instructions, preparation of instruments, standards, quality control, reagents, etc.

B.3.4 The hemolyzed sample to be tested should reach room temperature and be mixed and measured to ensure that there are no bubbles in the sample cup.

B.3.5 Measure the standards, controls and samples in strict accordance with the operating instructions of the instrument and/or kit, and read, Save or print the test results.