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

WS/T 288-2017

Replacing WS 288-2008

**Diagnosis for pulmonary tuberculosis
(English Translation)**

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Foreword

This standard "Chapter 3 ~ Chapter 5" is a mandatory clause, the rest are recommended terms.

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

This standard replaces WS 288-2008 "diagnostic criteria for tuberculosis." this standard compared with WS 288-2008, the main changes are as follows.

- Added fluorescent staining microscopy, liquid culture medium examination, molecular biology examination (see 3.4.1 and 3.4.2);
- Revised conditions for diagnosis of tuberculosis (increase in molecular biology test results) (see 5.3);
- Increase of interferon-gamma release test (see 3.4.4.2);
- increased bronchoscopy and tracheal, bronchial tuberculosis microscopic findings (see 3.5);
- An increase of tuberculosis pathology (see Appendix C) - Added diagnosis of

non-tuberculous mycobacterium tuberculosis (see E.2 in Appendix E);

- Added diagnostic features for tuberculosis in children (see 3.2.1 and 3.3.1).

This standard was drafted. China Center for Disease Control and Prevention, Capital Medical University, Beijing Chest Hospital, Capital Medical University North Beijing Children's Hospital, the People's Liberation Army No. 309 Hospital.

1 Scope

This standard specifies the basis for the diagnosis of tuberculosis, diagnostic principles, diagnosis and differential diagnosis.

This standard applies to all types of medical and health institutions at all levels and their medical staff on the diagnosis of tuberculosis.

2 Terms and definitions

The following terms and definitions apply to this document.

Pulmonary tuberculosis Tuberculosis occurs in lung tissue, trachea, bronchi and pleura. Tuberculosis etiology see Appendix A.

Mycobacterium tuberculosis Mycobacterium tuberculosis for short, is the pathogen of human tuberculosis. Mycobacterium tuberculosis is elongated or slightly curved shape, blunt bacilli at both ends, Length $1\mu\text{m} \sim 4\mu\text{m}$, width $0.3\mu\text{m} \sim 0.6\mu\text{m}$.

3.1 Epidemiology history

History of exposure to tuberculosis patients.

3.2.1 Symptoms

Cough, sputum ≥ 2 weeks, or bloody sputum or hemoptysis suspicious symptoms of tuberculosis.

Most of the slow onset of tuberculosis, some patients without obvious symptoms, only found in the chest imaging examination. As the disease progresses, can be out Now cough, expectoration, sputum bloody or hemoptysis, some patients may have recurrent upper respiratory tract infection symptoms. Tuberculosis can also occur in the body Symptoms such as night sweats, tiredness, intermittent or prolonged afternoon fever, loss of appetite, weight loss, etc., female patients may be accompanied by menstrual disorders or amenorrhea.

A small number of patients with sudden onset, there are high fever, some with varying degrees of dyspnea.

Lesions in the pleura may have irritating cough, chest pain and breathing difficulties and other symptoms.

Lesions occur in the trachea, bronchial irritation and more cough, longer duration, bronchial lymphatic fistula formation and break into the bronchial or Bronchial stenosis, there may be wheezing or breathing difficulties.

A small number of patients may be associated with tuberculous hypersensitivity syndrome, including. erythema nodosum, herpetic conjunctivitis/keratitis and so on.

Children with tuberculosis can also show stunting, children with primary tuberculosis may be due to tracheal or bronchial lymph nodes swollen oppression trachea or bronchus Tubal, or lymph node - bronchial fistula, wheezing symptoms often appear.

When combined with extrapulmonary tuberculosis, there may be the corresponding symptoms of organs involved.

3.2.2 Signs

Early lung signs are not obvious, when the lesion is involved in a large range, the local percussion was dull, auscultation and tubular breath sounds can be heard, the combined flu Dye or combined bronchiectasis, can be heard and wet rales.

Lesions involving the trachea, bronchi, causing local stenosis, auscultation can be heard and fixed, limited wheezing, when caused by atelectasis, can be manifested tracheal displacement to the affected side, ipsilateral thoracic collapse, intercostal space narrowing, percussion for the voiced or real sound, auscultatory breath sounds weakened or disappeared.

Lesions involving the pleura, early in the affected side can be heard and pleural friction sound, with the increase of pleural effusion, ipsilateral thoracic full, intercostal space increased Wide tracheal shift to the contralateral side, percussion was voiced to real sound, auscultatory breath sounds weakened to disappear. Pleural effusion may occur when effusion decreases or disappears Thickening, adhesions, tracheal displacement to the affected side, ipsilateral thoracic collapse, intercostal space narrowing, respiratory movement is limited, percussion dullness, auscultation of breathing Weak tone.

Primary pulmonary tuberculosis may be accompanied by superficial lymph nodes, disseminated hematogenous disseminated tuberculosis may be associated with hepatosplenomegaly, fundus choroid nodules, children with may be accompanied by skin miliary rash.

3.3.1 Primary pulmonary tuberculosis

Primary pulmonary tuberculosis is mainly manifested as primary lesion and intrathoracic lymphadenopathy, or simple thoracic lymphadenopathy. Primary lung in children

Tuberculosis can also be manifested as empty, caseous pneumonia and bronchial tuberculosis caused by bronchial lymphatic fistula.

3.3.2 Hematogenous disseminated tuberculosis

Acute hematogenous disseminated tuberculosis showed uniform distribution of both lung size and density of the shadow of the miliary; subacute or chronic hematogenous spread Pulmonary tuberculosis diffuse lesions, mostly located in the upper middle of the two lungs, different sizes, the density range, there may be integration. Children acute blood smear Pulmonary tuberculosis is sometimes only manifested as ground glass-like shadow, infiltration of infants and young children around the miliary lesions obvious, fuzzy edge, easy to fusion.

3.3.3 Secondary tuberculosis

Secondary pulmonary tuberculosis chest image performance varied. The main manifestations of light patches, nodules and cable shadow, or showed tuberculoma or isolated empty Hole; severe cases can be manifested as lobar infiltration, cheese pneumonia, multiple cavity formation and bronchial disseminated; repeated extension of the progress of those who may have lung Damage, destruction of lung tissue volume reduction, multiple thick fibers inside its walls, secondary bronchiectasis, or associated with multiple calcifications, adjacent lung Pull the door and mediastinum shift shift, thoracic collapse, pleural thickening adhesions, compensatory emphysema appears in other lung tissue and old and new bronchus Disseminated lesions and so on.

3.3.4 Trachea, bronchial tuberculosis

Trachea and bronchial tuberculosis mainly manifested as irregular tracheal or bronchial wall thickening, stenosis or obstruction, narrow bronchial distal lung group Weave may appear secondary atelectasis or consolidation, bronchiectasis and other parts of the bronchial disseminated lesions.

3.3.5 Tuberculous pleurisy

Tuberculous pleurisy is divided into dry pleurisy and exudative pleurisy. Dry pleurisy is an early inflammatory response to the pleura, usually without noticeable Imaging performance; exudative pleurisy mainly for pleural effusion, and pleural effusion can be manifested as a small amount or a large amount of free fluid, or there Limited to any part of the chest fluid, slow absorption often associated with thickened pleural adhesions can also evolve into pleural tuberculosis and empyema.