

מחלות תעסוקתיות של

הריאות:

המבט של המוסד לביטוח

לאומי

ד"ר מריו סקולסקי

סגן ומ"מ היועצת הרפואית

המוסד לביטוח לאומי

יעדי ההרצאה

- להציג היבטים על נכות במחלות ריאה תעסוקתיות מבחינה:
- רפואית
- שיעורי נכות (Compensation)
- היבטים מדיקו-לגליים
- בישראל ובארצות אחרות

דלקת כרונית של הסמפונות עם או בלי התרחבות הסמפונות

BRONCHIECTASIS

5. (1) (א). קיים שיעול וכיח מועט בהפסקות ארוכות,
לפעמים חרחורים או צפופים בודדים

0%

(ב). קיים שיעול וכיח במשך תקופות שונות וחוזרות
בשנה עם קוצר נשימה קל אחרי מאמץ או
התרחבות הסמפונות בצורה קלה עם גניחות דם
לפעמים

20%

(ג). קיים שיעול מטריד עם כיח מרובה עם זיהומים
חוזרים, קוצר נשימה בצורה בינונית לאחר מאמץ או
התרחבות הסמפונות בצורה בינונית על פי הוכחה
רנטגנית

40%

(ד). קיימים הממצאים שצויינו בפיסקה ג,
כשקוצר הנשימה בולט במאמץ קל, קיימים
סימנים קליניים ופונקציונליים של אמפיזמה,
או התרחבות הסמפונות בצורה קשה, שטפי
דם תכופים
60%

(ה). קיים שיעול מטריד, כיח מרובה ללא
הפסקות עם קוצר נשימה במנוחה, כחלון עם
סימנים קליניים ופונקציונליים בולטים של
אמפיזמה עם או בלי לב ריאתי COR
100% PULMONALE

(2) .נצור בין הסמפונות וקיר בית-החזה -

**BRONCHOCUTANEOUS FISTULA OR BRONCHO-
PLEURAL FISTULA** אחוזי הנכות ייקבעו לפי סעיף 8.

(3) .ציסטות של אכינוקוקוס בריאה

0% (א) ציסטה קטנה מסויידת

20% (ב) ציסטה או ציסטות בריאה אחת

40% (ג) ציסטות בשתי הריאות

(ד) קיימים סיבוכים - אחוזי הנכות ייקבעו
בהתאם לפגימות.

Asthma Bronchiale – קצרת הסימפונות

(א) ישנם התקפים נדירים, אין סיבוכים
0%

(ב) ישנם התקפים קלים בהפסקות ארוכות
וסיבוכים קלים
20%

(ג) ישנם התקפים תכופים וקוצר נשימה בינוני
לאחר מאמץ בין ההתקפים
40%

(ד) מצבים יותר קשים יש להעריך בהתאם
לסיבוכים לפי סעיף 5(1).

Disability Evaluation Under Social Security

Also known as the "Blue Book"

Chronic Pulmonary Insufficiency 3.02

A. Chronic obstructive pulmonary disease due to any cause, with the FEV1 equal to or less than the values specified in table I corresponding to the person's height without shoes.

Chronic Pulmonary Insufficiency

Table I

Height without Shoes (centimeters)	Height without Shoes (inches)	FEV ₁ Equal to or less than (L,BTPS)
154 or less	60 or less	1.05
155-160	61-63	1.15
161-165	64-65	1.25
166-170	66-67	1.35
171-175	68-69	1.45
176-180	70-71	1.55
181 or more	72 or more	1.65

Chronic Pulmonary Insufficiency

B. Chronic restrictive ventilatory disease, due to any cause, with the FVC equal to or less than the values specified in Table II corresponding to the person's height without shoes

Table II

Height without Shoes (centimeters)	Height without Shoes (inches)	FVC Equal to or less than (L,BTPS)
154 or less	60 or less	1.25
155-160	61-63	1.35
161-165	64-65	1.45
166-170	66-67	1.55
171-175	68-69	1.65
176-180	70-71	1.75
181 or more	72 or more	1.85

Chronic Pulmonary Insufficiency

C. Chronic impairment of gas exchange due to clinically documented pulmonary disease.

Table III-A

(Applicable at test sites less than 3,000 feet above sea level)

Arterial PCO ₂ (mm Hg) and	Arterial PO ₂ Equal to or Less than (mm Hg)
30 or below	65
31	64
32	63
33	62
34	61
35	60
36	59
37	58
38	57
39	56
40 or above	55

Chronic Pulmonary Insufficiency

Table III-B

(Applicable at test sites 3,000 through 6,000 feet above sea level)

Arterial PCO ₂ (mm Hg) and	Arterial PO ₂ Equal to or Less than (mm Hg)
30 or below	60
31	59
32	58
33	57
34	56
35	55
36	54
37	53
38	52
39	51
40 or above	50

Asthma

3.03. With:

A. Chronic asthmatic bronchitis.

Evaluate under the criteria for chronic obstructive pulmonary disease in 3.02A;

Asthma

Or •

B. Attacks , in spite of prescribed treatment and requiring physician intervention, occurring at least once every 2 months or at least six times a year.

Each in-patient hospitalization for longer than 24 hours for control of asthma counts as two attacks, and an evaluation period of at least 12 consecutive months must be used to determine the frequency of attacks.

3.06 *Pneumoconiosis* (demonstrated by appropriate imaging techniques). Evaluate under the appropriate criteria in 3.02.

3.07 *Bronchiectasis* (demonstrated by appropriate imaging techniques). With:

A. Impairment of pulmonary function due to extensive disease. Evaluate under the appropriate criteria in 3.02;

B. Episodes of bronchitis or pneumonia or hemoptysis (more than bloodstreaked sputum) or respiratory failure, requiring physician intervention, occurring at least once every 2 months or at least six times a year.

Each inpatient hospitalization for longer than 24 hours for treatment counts as two episodes, and an evaluation of at least 12 consecutive months must be used to determine the frequency of episodes.

3.10 *Sleep-related breathing disorders.* Evaluate under 3.09 (chronic cor pulmonale), or 12.02 (organic mental disorders)

3.11 *Lung Transplant.* Consider under a disability for 12 months following the date of surgery; thereafter, evaluate the residual impairment.

AMA Guides for the Evaluation of Permanent Impairment

Table 5-12 Impairment Classification for Respiratory Disorders, Using Pulmonary Function and Exercise Test Results*

Pulmonary Function Test	Class 1 0% Impairment of the Whole Person	Class 2 10%-25% Impairment of the Whole Person	Class 3 26%-50% Impairment of the Whole Person	Class 4 51%-100% Impairment of the Whole Person
FVC	Measured FVC \geq lower limit of normal (see Tables 5-2b and 5-3b) and	$\geq 60\%$ of predicted and $<$ lower limit of normal or	$\geq 51\%$ and $\leq 59\%$ of predicted or	$\leq 50\%$ of predicted or
FEV ₁	Measured FEV ₁ \geq lower limit of normal (see Tables 5-4b and 5-5b) and	$\geq 60\%$ of predicted and $<$ lower limit of normal or	$\geq 41\%$ and $\leq 59\%$ of predicted or	$\leq 40\%$ of predicted or
FEV ₁ /FVC	FEV ₁ /FVC \geq lower limit of normal and			
Dco	Dco \geq lower limit of normal (see Tables 5-6b and 5-7b) or	$\geq 60\%$ of predicted and $<$ lower limit of normal or	$\geq 41\%$ and $\leq 59\%$ of predicted or	$\leq 40\%$ of predicted or
\dot{V}_{O_2} max	\dot{V}_{O_2} max ≥ 25 mL/(kg·min) or > 7.1 METS	≥ 20 and < 25 mL/(kg·min) or 5.7-7.1 METS	≥ 15 and < 20 mL/(kg·min) or 4.3 to < 5.7 METS	< 15 mL/(kg·min) or < 1.05 L/min or < 4.3 METS

*FVC indicates forced vital capacity; FEV₁, forced expiratory volume in 1 second; Dco, diffusing capacity of the lung for carbon monoxide; \dot{V}_{O_2} max, maximum oxygen consumption; METS, metabolic equivalents.

Table 5-9 Impairment Classification for Asthma Severity*

Score	Postbronchodilator FEV ₁	% of FEV ₁ Change (Reversibility) or	PC ₂₀ mg/mL or Equivalent (Degree of Airway Hyperresponsiveness)†	Minimum Medication‡
0	≥ lower limit of normal	<10%	> 8 mg/mL	No medication
1	≥ 70% of predicted	10%-19%	8 mg/mL to > 0.6 mg/mL	Occasional but not daily bronchodilator and/or occasional but not daily cromolyn
2	60%-69% of predicted	20%-29%	0.6 mg/mL to > 0.125mg/mL	Daily bronchodilator and/or daily cromolyn and/or daily low-dose inhaled corticosteroid (≤ 800 µg of beclomethasone or equivalent)
3	50%-59% of predicted	≥ 30%	≤ 0.125 mg/mL	Bronchodilator on demand and daily high-dose inhaled corticosteroid (>800 µg of beclomethasone or equivalent) or occasional course (one to three courses a year) of systemic corticosteroid
4	<50% of predicted		...	Bronchodilator on demand and daily high-dose inhaled corticosteroid (>1000 µg of beclomethasone or equivalent) and daily or every other day systemic corticosteroid

*FEV₁ indicates forced expiratory volume in the first second; PC₂₀ is the provocative concentration that causes a 20% fall in FEV₁. Add the scores for postbronchodilator FEV₁, reversibility of FEV₁ (or PC₂₀), and medication use to obtain a summary severity score for rating respiratory impairment.

†When FEV₁ is greater than the lower limit of normal, PC₂₀ should be determined and used for rating of impairment; when FEV₁ is less than 70% of the predicted, the degree of reversibility should be used; and when FEV₁ is between 70% of the predicted and the lower limit of normal, either reversibility or PC₂₀ can be used. The score for minimum medication use is added to the appropriate measurement criteria outlined above.

‡Need for minimum medication should be demonstrated by the treating physician, for example, through previous records of exacerbation when medications have been reduced. Adapted from ATS guidelines.¹

Table 5-10 Impairment Rating for Asthma*

Total Asthma Score	% Impairment Class	Impairment of the Whole Person
0	1	0%
1-5	2	10%-25%
6-9	3	26%-50%
10-11 or asthma not controlled despite maximal treatment, ie, FEV ₁ remaining <50% despite use of > 20 mg/day of prednisone	4	51%-100%

*The impairment rating is calculated as the sum of the individual's scores from Table 5-9. FEV₁ indicates forced expiratory volume in the first second.

Table 5-12 Impairment Classification for Respiratory Disorders, Using Pulmonary Function and Exercise Test Results*

Pulmonary Function Test	Class 1 0% Impairment of the Whole Person	Class 2 10%-25% Impairment of the Whole Person	Class 3 26%-50% Impairment of the Whole Person	Class 4 51%-100% Impairment of the Whole Person
FVC	Measured FVC \geq lower limit of normal (see Tables 5-2b and 5-3b) and	$\geq 60\%$ of predicted and $<$ lower limit of normal or	$\geq 51\%$ and $\leq 59\%$ of predicted or	$\leq 50\%$ of predicted or
FEV ₁	Measured FEV ₁ \geq lower limit of normal (see Tables 5-4b and 5-5b) and	$\geq 60\%$ of predicted and $<$ lower limit of normal or	$\geq 41\%$ and $\leq 59\%$ of predicted or	$\leq 40\%$ of predicted or
FEV ₁ /FVC	FEV ₁ /FVC \geq lower limit of normal and			
Dco	Dco \geq lower limit of normal (see Tables 5-6b and 5-7b) or	$\geq 60\%$ of predicted and $<$ lower limit of normal or	$\geq 41\%$ and $\leq 59\%$ of predicted or	$\leq 40\%$ of predicted or
\dot{V}_{O_2} max	\dot{V}_{O_2} max ≥ 25 mL/(kg·min) or > 7.1 METS	≥ 20 and < 25 mL/(kg·min) or 5.7-7.1 METS	≥ 15 and < 20 mL/(kg·min) or 4.3 to < 5.7 METS	< 15 mL/(kg·min) or < 1.05 L/min or < 4.3 METS

*FVC: Functional Residual Capacity; FEV₁: First Expiratory Volume; FEV₁/FVC: First Expiratory Volume/Functional Residual Capacity; Dco: Diffusing Capacity of the Lung for Carbon Monoxide; \dot{V}_{O_2} max: Maximum Oxygen Consumption.

Example 5-1

0% Impairment Due to Chronic Bronchitis

Subject: 40-year-old man.

History: Foundry worker for 21 years; nonsmoker.

Current Symptoms: Daily productive cough for several years; on most days for 3 consecutive months; no dyspnea on exertion.

Physical Exam: Height: 188 cm (6 ft 2 in); weight 95.3 kg (210 lb).

Clinical Studies: Scattered rhonchi in both lungs. Chest radiograph: normal. FVC (L): observed 5.67; predicted 5.77; observed/predicted 98%. FEV₁ (L): observed 4.51; predicted 4.62; observed/predicted 98%. FEV₁/FVC: observed 79.5%. Dco: observed/predicted 91%.

Diagnosis: Chronic bronchitis.

Impairment Rating: 0% impairment of the whole person.

Comment: Pulmonary function tests normal. If earlier pulmonary function tests available, comparison with current results recommended.

Example 5-6

10% to 25% Impairment Due to Respiratory Disease

Subject: 25-year-old man.

History: Self-employed auto body worker; no previous history of asthma. Had been spray painting for 5 years with paints containing hexamethylene diisocyanate (HDI), one of the asthma-causing diisocyanates. Admitted to the hospital with wheezing; a diagnosis of asthma was made; was started on asthma medications. After 2 years of avoidance of HDI, while compliantly following medication regimen of high-dose inhaled corticosteroids and, as needed, beta-agonist bronchodilator, minimum medication need score was 3.

Current Symptoms: Exercise-related and nocturnal coughing and wheezing.

Physical Exam: Normal.

Clinical Studies: Spirometry without bronchodilators and diffusing capacity: normal, but a methacholine challenge test showed airway hyperreactivity with PC₂₀ methacholine of 5 mg/mL (score 1).

Diagnosis: Occupational asthma due to HDI.

Impairment Rating: Asthma score (Table 5-9): 4; 10% to 25% impairment of the whole person (Table 5-10).

Comment: No further exposure to diisocyanates is recommended.

Example 5-7

26% to 50% Impairment Due to Respiratory Disease

Subject: 60-year-old man.

History: Insulator for 40 years; mixed powdered asbestos with water and applied it to pipes and steel beams for first 20 years. Denies cough, wheezing, or chest pain. Nonsmoker. No asthma, pneumonia, or other medical disorders. No medications.

Current Symptoms: Increasing dyspnea for 5 years; difficulty keeping up with others the same age. Unable to walk upstairs past second flight.

Physical Exam: Height: 170 cm (5 ft 7 in); weight: 70.5 kg (155 lb). Questionable finger clubbing; bilateral end-inspiratory crackles at lung bases. Cardiac examination: normal.

Clinical Studies: Chest radiograph: moderately pronounced, small, linear, irregular opacities at lung bases; small, bilateral pleural plaques. FVC (L): observed 2.35; predicted 4.27; observed/predicted 55%. FEV₁ (L): observed 2.10; predicted 3.38; observed/predicted 62%. FEV₁/FVC: observed 89%. Dco: observed 16.0; predicted 30.8; observed/predicted 52%. $\dot{V}O_2$ max: 16 mL/kg/min.

Diagnosis: Asbestosis and asbestos-related pleural plaques.

Impairment Rating: 26% to 50% impairment of the whole person.

Comment: Interstitial lung disease with crackles, decreased vital capacity, and decreased gas exchange. Decreased oxygen uptake probably due to pulmonary dysfunction.

Example 5-8

26% to 50% Impairment Due to Asthma

Subject: 33-year-old woman.

History: Natural rubber latex glove inspector for 7 years; no prior history of asthma, but history of eczema. When away from work, symptoms persisted, exacerbated by weather changes, anxiety, or moderate exercise. Symptoms were less severe than when working with latex.

Current Symptoms: Episodic cough, shortness of breath, chest tightness, and occasional wheezing, with symptom onset within 10 minutes of onset of work and persistent throughout the day. Job involved testing surgical latex gloves for leaks by inflating with compressed air, which released cornstarch glove powder into the air. Symptoms improved, but did not resolve, while on a 12-day vacation.

Physical Exam: Diffuse wheezing.

Clinical Studies: Chest x-ray: normal. Spirometry: showed postbronchodilator FEV₁ 68% (score 2), with a 20% change in FEV₁ (score 2). During follow-up 3 months later, she was still on daily low-dose inhaled corticosteroids, with daily bronchodilator use (score 2).

Diagnosis: Latex-induced occupational asthma.

Impairment Rating: Asthma impairment score: 6 based on spirometry results and medication use; 26%-50% impairment of the whole person.

Comment: Individual was given a work restriction to avoid all future exposure to natural rubber latex because of latex allergy and asthma.

Example 5-9

• 51% to 100% Impairment Due to Asthma

Subject: 40-year-old man.

History: Golf course groundskeeper for 15 years; lifelong asthma. 2 years' increasing dyspnea with mild exertion; intermittent cough. Nonsmoker. No symptom improvement over weekends. Has been on at least 20 mg of prednisone per day for past year (score 4).

Physical Exam: Height: 180 cm (5 ft 11 in); weight: 70 kg (154 lb). Diffuse expiratory wheezing over entire chest. No clubbing, cyanosis, or lower extremity edema. Cardiac examination: no air trapping.

Clinical Studies: Chest radiograph: no cardiopulmonary disease. Post bronchodilator FVC (L): observed 2.94; predicted 5.2 observed/predicted 57%; post bronchodilator FEV₁ (L): observed 1.16; predicted 4.29 observed/predicted 27% (score 4); change post bronchodilator 22% (score 2). FEV₁/FVC: observed 39%. Methacholine challenge test: not performed; severe baseline obstruction.

Impairment Rating: Asthma score: 10 (Tables 5-9 and 5-10); 51% to 100% impairment of the whole person.

Comment: Pulmonary function studies demonstrate a significant response to bronchodilators but persistent severe airway obstruction. The persistent FEV₁ percentage $\leq 50\%$ of predicted with prolonged use of daily oral prednisone would in itself result in class 4 impairment rating for asthma. Severe symptoms require frequent oral steroids.

תודה!!!



Table 5-13 Respiratory Impairment Evaluation Summary

Disorder	History, Including Selected Relevant Symptoms	Examination Record	Assessment of Respiratory Function	End-Organ Damage	Diagnosis	Degree of Impairment
General	Respiratory symptoms (eg, cough); general symptoms Impact of symptoms on function and ability to do daily activities; prognosis if change anticipated Review medical history	Comprehensive physical examination; detailed respiratory system assessment	Data derived from relevant studies (eg, pulmonary function tests)	Include assessment of sequelae, including end-organ damage and impairment	Record all pertinent diagnosis(es); note if they are at maximal medical improvement; if not, discuss under what conditions and when stability is expected	Criteria outlined in this chapter See Table 5-12
Obstructive Disorders	Dyspnea; cough; sputum production; infections; medication use; exercise tolerance	Note breath sounds, wheeze, loud P ₂ , jugular vein distention, right heart prominence	Pulmonary function: spirometry, lung volumes, diffusing capacity, methacholine challenge, radiographs	Assess relevant organs (eg, cardiac function, cor pulmonale)	Asthma; chronic bronchitis and emphysema; other obstructive diseases	See Table 5-12 for asthma See Tables 5-9 and 5-10
Restrictive Disorders	Dyspnea; cough; fatigue; sputum; exercise tolerance	Chest wall excursion; crackles; clubbing	Pulmonary function: spirometry, lung volumes, diffusing capacity, imaging studies	Assess cardiac function	Idiopathic pulmonary fibrosis; asbestosis; pneumoconiosis; chest wall disorders; others	See Table 5-12
Cancer	Exercise tolerance; dyspnea; chest pain; fatigue; weight loss; tobacco use; environmental exposures	Chest wall excursion; crackles; clubbing; adenopathy	Bronchoscopy; pulmonary function tests; biopsy	Assess other organ function; signs of metastases	Squamous, adeno, small cell, etc	See Table 5-11