

OMB # 0925-XXXX

Expiration Date: XX/XXXX

### PULMONARY DISEASE KNOWLEDGE CHECK

Public reporting burden for this collection of information is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: NIH, Project Clearance Branch, 6705 Rockledge Drive, MSC 7974, Bethesda, MD 20892-7974, ATTN: PRA (0925-xxxx\*). Do not return the completed form to this address.

1. Which of the following is correct regarding the gender-based differences in the epidemiology of IPF (Idiopathic Pulmonary Fibrosis)?
  - a. **Men are more commonly affected than women.**
  - b. Women are twice as likely to develop IPF as men.
  - c. IPF-related mortality is decreasing in both men and women.
  - d. There is no difference in IPF epidemiology between men and women.

Explanation: The correct answer is A. Men are more commonly affected with a male: female ratio of 1.4: 1-2.1:1.

2. Mortality rates from IPF (Idiopathic Pulmonary Fibrosis) are increasing more rapidly in women than in men.
  - a. **T**
  - b. F

Explanation: correct answer is a (True). Mortality rates are increasing in both men and women but more quickly in women (men 28.4% vs women 41.3%,  $p < 0.0001$ ).

3. Men fare worse than women in which clinical manifestation of IPF?
  - a. Worse mental health composite scores (on the SF-12 questionnaire)
  - b. Worse dyspnea

- c. **Faster progression of exertional hypoxemia**
- d. More frequent acute exacerbations of IPF

Explanation: The correct answer is C. Men have faster progression of exertional hypoxemia as measured by desaturation area during 6 minute walk test.

4. Which statement is *false*?
- a. COPD is the 3<sup>rd</sup> leading cause of death in the US.
  - b. COPD related mortality is higher in women than men.**
  - c. COPD prevalence increased in women but decreased in men between the 1970s-1990s.
  - d. Nearly 80% of nonsmokers with COPD are female.

Explanation: The correct (false) answer is B. The death rate from COPD in men is higher than in women: 141.9 per 100,000 vs 100.9 per 100,000 in 2014. However, this rate represents a decrease for men while it has remained stable in women.

5. Select the correct words from below to complete this statement: There is evidence for an increased susceptibility to COPD in \_\_\_\_\_, such as \_\_\_\_\_ with the same degree of airflow obstruction.
- a. Women; fewer pack years smoked**
  - b. Women; lower expression of *CELSR1*
  - c. Men; fewer pack years smoked
  - d. Men; lower expression of *CELSR1*

Explanation: The correct answer is A. Women have fewer pack years smoked than men with the same degree of airflow obstruction and higher risk of airflow obstruction given the same smoking exposure.

6. Which of the following is true regarding gender-based differences in clinical manifestations of COPD?
- a. Men are more troubled by anxiety
  - b. Women report less severe dyspnea for a given degree of airflow obstruction
  - c. Women report worse health-related quality of life.**

- d. Men are less likely to be diagnosed with COPD than women despite similar symptoms

Explanation: The correct answer is C. On average, women report worse health-related quality of life than men.

- 7. PAH (Pulmonary Arterial Hypertension) is a female-predominant disease, but which subtype is more commonly seen in men?
  - a. Hereditary PAH
  - b. Connective tissue disease associated PAH
  - c. Anorexic-drug associated PAH
  - d. HIV associated PAH**

Explanation: The correct answer is D. HIV-associated PAH patients are more commonly male (87%) while anorexic-drug associated PAH patients are almost exclusively women.

- 8. Select the correct connection between sex hormone and effect on pulmonary arterial endothelial (PAEC) or smooth muscle cells (PASMC).
  - a. Estrogen –decrease nitric oxide mediated vasodilation (PAECs)
  - b. Estrogen – decrease inflammation to endothelial cells**
  - c. Testosterone – increase inflammation to endothelial cells
  - d. Estrogen – no impact on smooth muscle cell proliferation

Explanation: The correct answer is B. Along with other effects on endothelial cells, estrogen decreases inflammation, which protects against PAH.

- 9. Men and women have different rates of PAH (Pulmonary Arterial Hypertension)comorbidities. Which of the following is not more common in women?
  - a. Cirrhosis**
  - b. Thyroid disease
  - c. Clinical depression
  - d. Obesity

Explanation: The correct answer is a. The rate of cirrhosis is 12% in men and only 4% in women

10. Which of the following treatments for PAH (Pulmonary Arterial Hypertension) appears to be more beneficial in women? (Select all that apply.)

- a. Epoprostenol**
- b. Phosphodiesterase-5 inhibitors
- c. Endothelin receptor antagonists**
- d. Supplemental oxygen therapy

Explanation: The correct answers are A and C. Epoprostenol and endothelin receptor antagonists appear to benefit women more than men. Phosphodiesterase-5 inhibitors appear to benefit men more than women.