

# SLEEP AND ASTHMA QUESTIONNAIRE

## 1 Background and Rationale

Sleep disturbances may be divided into two types: 1) difficulty initiating and maintaining sleep (DIMS), including insomnia and daytime sleepiness, and 2) sleep-related breathing disorders (SRBD), including sleep apnea. Sleep disturbances are frequent in the elderly (Sleep 1993;16:40). Sleep apnea was associated with hypertension and cardiovascular mortality in studies from other investigators (Chest 1992;102:1371 and Chest 1989;96:1054). Questions about sleep from the CHS baseline examination were cross-sectionally associated with HBP and CVD (manuscript #51, Anne Newman et al). DIMS responses were more strongly related to CVD than were self-reported snoring and sleep apneas.

Principal Investigators from the Specialized Centers for sleep epidemiology (SCORs) at Case Western University and the University of Wisconsin, Madison (Drs. Susan Redline and Terry Young) have developed, validated, and standardized SRBD questions (currently unpublished) that we use here (Questions 1 - 8 and 11). Two sets of questions to quantify daytime sleepiness have been validated: 1) the Pittsburgh Sleep Quality Index (PSQI) and 2) the Epworth Sleepiness Scale (ESS, ref Sleep 1991;14:540 and Sleep 1992;15:376). The 20 point ESS correlates better with "gold standard" polysomnography in a sleep lab than does the PSQI, so we will use the ESS questions (Question 9).

Symptoms suggesting asthma and physician diagnoses of asthma are common in the elderly (CHS manuscript #35, Enright et al). Questions about respiratory symptoms have been validated and standardized by the American Thoracic Society (Am Rev Respir Dis 1991;143:1215) and were used at the CHS baseline examination. A subset of these will be repeated to assess the incidence of new symptoms (Questions 13 -17). Additional questions which better define current asthma symptoms and characterize triggers of wheezing have been validated and standardized by European investigators (Eur Respir J 1989;2:165 and Chest 1987;91:79S) (Questions 18 - 24 and 31 - 32). A set of questions to better quantify dyspnea on exertion (an end-point measure of cardiovascular impairment) were recently validated (Thorax 1987;42:773) (Questions 25 - 30).

## 2 Definitions

Oxygen therapy: Usually administered by nasal prongs from a green tank or an oxygen concentrator that plugs into the wall for power.

Several times: More than once.

Sleeping pills: Either over-the-counter or prescribed medications taken for insomnia.

## 3 Methods

This form is completed during the Year 6 Clinic Visit by an interviewer. Unless otherwise noted, answer choices for each question are "yes," "no" and "don't know." In some cases, the

interviewer may need to ask clarifying questions to identify the correct response.

- Question 1 - Do you usually have trouble falling asleep?
- Question 2 - During the past month, have you used sleeping pills to help you fall asleep?

Sleeping pills are either over-the-counter or prescription medications taken to combat insomnia.

- Question 3 - Do you often drink wine or beer before going to sleep?

Record response based on the participant's definition of "often."

- Question 4 - During the past year, have you ever snored while asleep or when falling asleep? (Or have others told you that you snored?)

If "no" or "don't know," go to Question 5.

If "yes," ask Parts A and B.

Part A: About how often did you snore?

Allow participant to respond, then check the response choice that most closely matches the participant's response. Ask questions if necessary to clarify answer. For instance, if participant responds, "Once in a while," you may ask, "Would you say that's only one or two times ever, or a few nights a month?" If participant responds with a special condition, such as "Only when I have a cold" or "Only when I'm very tired," check "Sometimes - a few nights a month; under special circumstances".

Response choices are:

- Rarely - only one or two times ever
- Sometimes - a few nights a month; under special circumstances
- At least once a week, but pattern may be irregular
- Several nights (3-5) a week
- Every night or almost every night
- Don't know

Part B: How loud have others said your snoring is?

Read the responses and ask the participant which response most accurately describes his/her snoring.

Response choices are:

- Only slightly louder than heavy breathing
- About as loud as mumbling or talking
- Louder than talking
- Extremely loud - can be heard through a closed door
- Don't know

■ Question 5 - During the past year, have you ever snorted or gasped while asleep or when falling asleep? (Or have others told you that you snorted or gasped?)

■ Question 6 - During the past year, have you ever stopped breathing for a moment while asleep or when falling asleep? (Or have others told you that you stopped breathing?)

If "no" or "don't know," go to Question 7.

If "yes," ask: About how often did this occur?

Check response as for Question 4A.

■ Question 7 - Do you often wake up several times a night?

Record response based on the participant's definition of "often." "Several times" means more than twice, not counting the final waking up in the morning.

If "no" or "don't know," go to Question 8.

If "yes," ask: What are the most frequent reasons for waking?

Allow the participant to respond. Mark the choice(s) "yes" that most closely match the participant's response(s) and mark the other choices "no." Any number of choices may be marked "yes." If the participant answers "I don't know," mark all the choices "no."

Response choices are:

- To go to the bathroom (to urinate)
- Trouble breathing
- Chest tightness or pain
- Arthritis pain
- Coughing
- Snoring
- Noise
- Leg cramps
- Other (If other, specify in the space provided)

- Question 8 - How often, if ever, have you awakened suddenly with the feeling of gasping, choking, or shortness of breath?

Response choices are the same as for Question 4A.

- Question 9 - How likely are you to doze off or fall asleep in the following situations (rather than just feeling tired)?

Hand the participant card 20, which lists the response choices. Then read the situations in the order given and allow the participant to select his/her response for each from the card.

The response choices are:

- Never doze
- Slight chance
- Moderate chance
- High chance
- Don't know

The situations are:

- A. Sitting and reading
- B. Watching TV
- C. Sitting inactive in a public place (for instance, a theater or meeting)
- D. Riding as a passenger in a car for at least an hour
- E. Lying down to rest in the afternoon
- F. Sitting and talking to someone
- G. Sitting quietly after a lunch without alcohol
- H. In a car, while stopped for a few minutes in traffic

- Question 11 - Are you usually sleepy in the daytime? (Do not include taking a regular daily nap as "feeling sleepy.")
- Question 12 - Have you had to sleep on two or more pillows to help you breathe at any time during the past 12 months?
- Question 13 - Do you usually have a cough? Include coughing when you first smoke or first go out of doors. Exclude clearing your throat.

If "no" or "don't know," go to Question 14. If "yes," ask each of parts A through E.

Part A: Do you usually cough as much as four to six times a day, four or more days of the week?

Part B: Do you usually cough at all when you get up or first thing in the morning?

Part C: Do you usually cough at all during the rest of the day or at night?

Part D: Do you usually cough on most days for three consecutive months or more during the year?

Part E: For how many years have you had this cough? (Enter the answer in the spaces provided.)

- Question 14 - Do you usually bring up phlegm, which is thick mucus, from your chest? Count phlegm brought up when you first smoke or go out of doors. Exclude phlegm from your nose. Count swallowed phlegm.

If "no" or "don't know," go to Question 15. If "yes," ask each of parts A through E. These subquestions are identical to parts A through E of Question 13, substituting "bring up phlegm" for "cough".

- Question 15 - Do you ever have trouble with your breathing?

If "no" or "don't know," go to Question 16.

If "yes," ask: Do you have this trouble..." Read each response choice. Mark the choice that the participant agrees with.

Response choices are:

- Continuously, so that your breathing is never quite right?
- Repeatedly, but it always gets completely better?
- Only rarely?
- Don't know.

- Question 16 - Have you had wheezing or whistling in your chest at any time during the last 12 months?

If "no" or "don't know," go to Question 17.

If "yes," ask parts A through F.

Part A: Have you felt chest tightness or been breathless when the wheezing noise was present?

Part B: How frequently have you had these symptoms?

Read the responses; then check the response choice that the participant selects.

Choices are:

- At least every day or night
- Only a few times a week
- Only a few times a month
- Only a few times a year
- Only a few times ever
- Only once
- Don't know

Part C: Were these breathing symptoms brought on or made worse by exposure to any of the following:

Read each situation listed and check the appropriate response choice ("yes," "no" or "don't know") for each:

1. Colds, sore throats, or flu
2. Exercise or exertion
3. Dust, smoke, or fumes
4. Contact with animals, plants or pollens
5. Lying down flat or sleeping

Part D: Are these symptoms worse during a particular season of the year?

If "no" or "don't know," go to Part E. If "yes," ask which season(s) and mark all that apply.

Part E: Did a doctor ever tell you that these symptoms were due to heart trouble?

Part F: Did a doctor ever tell you that these symptoms were due to asthma?

■ Question 17 - Have you ever had asthma?

If "no" or "don't know," go to Question 18. If "yes," ask Parts A through D.

Part A: Do you still have it?

Part B: Was it confirmed by a doctor?

Part C: How old were you when you had the first episode? (Enter age at onset in spaces provided.)

Part D: If you no longer have it, at what age did it stop? (Enter age in spaces provided.)

- Question 18 - When you are near animals (such as cats, dogs, or horses), or near feather pillows, quilts, or comforters, do you ever:

Read each of the symptoms and check "yes," "no" or "don't know" for each. Symptoms are:

- Start to cough
- Start to wheeze
- Feel chest tightness
- Start to feel short of breath
- Get a runny or stuffy nose
- Start to sneeze
- Get itchy or watery eyes

- Question 19 - Have you ever worked in a job that exposed you to vapors, gas, dust, or fumes?

- Question 20 - Have you ever had to change or leave a job because it affected your breathing?

- Question 21 - Other than colds, have you ever had hay fever or any other allergy that made your nose runny or stuffy?

If "no" or "don't know," go to Question 22. If "yes," ask whether the participant still has these symptoms and check the appropriate box. Then ask Parts A and B.

Part A: During the past 12 months, how much were you bothered by it?

Mark the response that most closely matches the participant's answer. Response choices are:

- None
- Very little
- Somewhat
- Very much
- Don't know

Part B: Did you take medication for it?

- Question 22 - Have you had allergy shots at any time in your life?

- Question 23 - Are any of your relatives (including children and grandchildren) known to have asthma?

If "no" or "don't know," go to Question 24. If "yes," ask Parts A and B.

Part A: Did your natural father ever have asthma?

Part B: Did your natural mother ever have asthma?

- Question 24 - Did you have any respiratory trouble before age 16?
- Question 25 - Do you get short of breath with strenuous physical activity, such as doing outdoor work (shoveling snow, spading soil), playing tennis or racquetball, jogging, carrying very heavy objects, or running up several flights of stairs?

Response options are "yes," "no," "never do this activity" or "don't know." If "no," "never do" or "don't know," go to Question 26.

If "yes," ask: How short of breath do you feel during this activity?

Hand the participant card 22. Ask him/her to select the most accurate response and check it on the form. The response options are:

- Extremely
- Very
- Quite a bit
- Moderately
- Somewhat
- A little
- Don't know

- Question 26 - Do you get short of breath with moderate physical activity, such as carrying anything up a flight of stairs without stopping, dancing, gardening, raking, weeding, having sexual intercourse, or walking very quickly over level ground?

Response options and instructions are the same as for Question 25.

- Question 27 - Do you get short of breath with light physical activity, such as walking down a flight of stairs, dressing or showering, cleaning windows, stripping and making beds, mopping floors, hanging washed clothes, pushing a power lawn mower, bowling, or playing golf (walking and carrying clubs)?

Response options and instructions are the same as for Question 25.

- Question 28 - Do you get short of breath walking quickly or up a slight hill?

Response options and instructions are the same as for Question 25.

- Question 29 - Do you get short of breath walking on level ground at your own pace?



Response options and instructions are the same as for Question 25.

- Question 30 - Do you get short of breath while resting in a chair?
- Question 31 - Do you own a dog or cat that stayed inside your house during the last year?
- Question 32 - Does your bedroom have wall-to-wall carpeting?
- Question 33 - Do you ever use oxygen therapy at home?

Check "yes" if the participant has used oxygen, even intermittently, at home during the last year.