

**ATTACHMENT B**

**NIOSH-Approved Spirometry Testing Course Application**

## TRAINING REQUIREMENTS OF THE COTTON DUST STANDARD

Authority for approval of training courses in pulmonary function testing as required in the Cotton Dust Standard, 29 CFR 1910.1043, has been delegated to the National Institute for Occupational Safety and Health.

Application for approval and supporting documents should be submitted to:

Lu-Ann Beeckman-Wagner, Ph.D.  
CDC/NIOSH  
Division of Respiratory Disease Studies  
Mail Stop H-G900.2  
1095 Willowdale Road  
Morgantown, West Virginia 26505-2888

The Pulmonary Function Testing Course Approval application which provides guidelines for faculty, content, and equipment is attached along with model course objectives and Appendix D of the Standard.

In order to expedite processing of applications for approval, it would be appreciated if you electronically submit your copy of all material requested to:

Lu-Ann F. Beeckman-Wagner, Ph.D.  
Research Physiologist  
Division of Respiratory Disease Studies  
CDC/NIOSH  
[LBeeckman@cdc.gov](mailto:LBeeckman@cdc.gov)

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Public reporting burden for this collection of information is estimated to average 4 hours, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this information, including suggestions for reducing this burden to CDC, Project Clearance Officer, 1600 Clifton Road, MS D-24, Atlanta, GA 30333, Attn: PRA (0920-0138). Do not send the completed form to this address.

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NIOSH-Approved Spirometry Testing Course Application

Please carefully complete all the questions below (print or type). The course content requirements are derived from the Cotton Dust Standard. You will be requested at the end of this form to certify that in your professional judgment, you meet these minimum requirements.

(1.) Name, Mailing Address, Telephone Number and Sponsoring Organization (s)

a. Educational Institution:

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b. Proprietary Agency:

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(2.) Course Director Qualification

The Course Technical Director is the person professionally responsible for the content of the course and shall be an active, participating supervisor/coordinator of course faculty and activities.

The course technical director should be either:

- a) A physician who has at least 3 years training and experience in the technical procedures and equipment for spirometry testing and in the diagnosis of occupational lung diseases or 1 yr experience supervising a Pulmonary Function Laboratory,
- b) A health professional with an advanced degree in pulmonary physiology or related field who has at least 3 years training and experience in the technical procedures and equipment for spirometry testing (e.g., Ph.D. in pulmonary physiology, bioengineering, etc.), or
- c) A health professional with licensure/professional certification in the pulmonary function testing field with at least 3 years documented experience under supervision of individuals in Subsection (a) or (b).

Course Director's Name \_\_\_\_\_

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Professional Degree (Specify Schools and Dates):

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Licensure and Certifications (specify licensing/certifying bodies and dates):

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Submit curriculum vitae with this application.

E-mail address for correspondence: \_\_\_\_\_

(3.) Staff Qualifications

Each course lecturer must meet one the following criteria:

1. A faculty-level member of the institution (MD or PhD) with at least 1 year of teaching experience at the collegiate level or equivalent (basic anatomy and physiology or some course related to spirometry),
2. An instructor-level member of the institution (RN, RRT, MS) with greater than 50% of workload dedicated to teaching or with at least 3 years teaching experience, or
3. A health professional with licensure or professional certification in the pulmonary function testing field with at least three years documented teaching experience under the supervision of individuals described in 1. or 2. above.

The practicum instructor shall have:

1. At least three years experience in background, training, and the practical aspects of collecting spirometry data (e.g., occupational health nurses or pulmonary function technicians) and
2. Successfully completed a NIOSH-approved spirometry course.

The course director shall assure that the lecturers and practicum instructors have adequate educational backgrounds and experience to cover the required material. Small groups are to be used for the practice sessions and a minimum of one instructor shall be provided for each group of six students.

Submit a CV for each instructor and using the format in (2.) above, list the qualifications of all lecturers and instructors and attach to this application. Submit a copy of the NIOSH course certificate awarded to each practicum instructor.

Numbers of expected students (1 instructor/6 students must be maintained). \_\_\_\_\_  
MAXIMUM PERMITTED NUMBER OF STUDENTS EXPECTED

(4.) Course Design, Content, and Frequency

Communication with course attendees prior to the course should include an assessment of prior spirometry testing experience and information on specific types of spirometers that the students currently use or intend to use. Instructors may review with each student a sample tracing obtained by the student on his/her spirometer prior to attending the course or as provided by the instructor.

a. Course Design:

The course should consist of approximately 16 hours of instruction:

1. At least four hours of formal lectures and/or audio visual material,
2. At least eight hours of small group practical instruction with no more than five students per instructor,
3. At least two hours per student devoted to evaluation and testing of the student=s spirometric testing skills.

a. Course Content (for the requirements in (4.a.) should Include:

1. Basic physiology of the forced vital capacity maneuver and the determinants of airflow limitation with emphasis on the relation to reproducibility of results.
2. Instrumentation requirements including calibration procedures, sources of error, and their correction.
3. Performance of testing including subject coaching, recognition of improperly performed maneuvers, and corrective actions.
4. Data quality with emphasis on repeatability.
5. Actual use of the equipment under supervised conditions.
6. Measurement of tracings and calculations of results.

If a substantial amount of material exclusive of the above, i.e., beyond minimum requirements as set forth in The Cotton Dust Standard is taught, it must be taught in addition to the minimum 16 hours of course time.

Our course offering will have:

\_\_\_\_\_ Hours of Lecture  
\_\_\_\_\_ Hours of Practicum  
\_\_\_\_\_ Hours of Evaluation

An agenda showing lecture topics, time allocations, and lecturers/instructors must be attached to this application.

c. Course Frequency

Each course director must teach at least one course and a total of five students each calendar year. Failure to meet these minimum requirements will result in suspension of course approval.

(5.) List of Equipment Utilized

a. Spirometers:

At least one Spirometry System shall be provided for every six students. All of the spirometers used must meet the minimum equipment requirements (CFR Section 1910.1043, Appendix D. I, a to j). See attached. List specific equipment below:

| Manufacturer | Model No. | Approximate Date Acquired |
|--------------|-----------|---------------------------|
| 1.           |           |                           |
| 2.           |           |                           |
| 3.           |           |                           |
| 4.           |           |                           |
| 5.           |           |                           |
| 6.           |           |                           |

b. Calibrating Syringes:

There shall be a minimum ratio of one calibrating syringe 2 liters or larger (3 liters recommended) for every two spirometry systems. List the manufacturer, model number, and syringe volume to be used:

| Manufacturer | Model No. | Approximate Date Acquired |
|--------------|-----------|---------------------------|
| 1.           |           |                           |
| 2.           |           |                           |
| 3.           |           |                           |
| 4.           |           |                           |
| 5.           |           |                           |

(6.) Instructor Manual/Student Manual

The instructor's guide and student material should adequately cover the required course content (Item 4b above). NIOSH has developed a Spirometry Training Guide (<http://www.cdc.gov/niosh/docs/2004-154c/>) that you may use in place of developing your own manual. Submit three copies each of all materials to be distributed to the students with this application. You will be required to use standardized evaluation materials, specifically, the written examination and the criteria used to evaluate student performance (practical examination) provided by NIOSH.

(7.) Certificate of Course Completion

A certificate showing satisfactory completion of the course must be provided to each trainee. The certificate should be signed by the course director, dated, and list the NIOSH Course Approval Number. It may include any CEUs awarded. A sample of this certificate must be attached to this application.

NOTE: NIOSH's approval of the course means that it meets the minimum technical requirements for teaching spirometry testing as set forth in the Cotton Dust Standard (29 CFR 1910.1043 and 1910.1046). **It does not constitute certification of individuals completing the course.**

(8.) Notification Procedures

Any changes in course faculty, content, or equipment must be reported to NIOSH for approval.

All dates of prospective courses must be submitted to NIOSH at least 30 days prior to such courses. (Telephone or electronic notification, as soon as course date is known, is required in cases when a course is scheduled without time for the 30 day notice).

Course Director Certification

I hereby certify that I have reviewed and understand the Medical Surveillance Requirements as stated in the Cotton Dust Standard. I certify that course content, materials, equipment and faculty are adequate and meet minimum requirements. I have completed this form as accurately and fully as possible. I understand that if during a NIOSH site visit the course does not comply with the application criteria and statement I have made, approval will be withdrawn.

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Course Director Signature

Date