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UNITED BROTHERHOOD OF CARPENTERS
AND JOINERS OF AMERICA
ATLANTIC CITY, NEW JERSEY
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NIOSH INVESTIGATOR:
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I. Summary

On July 22, 1991, the National Institute for Occupational Safety and Health (NIOSH) received a request to participate in medical evaluations of carpenters attending the United Brotherhood of Carpenters and Joiners of America (UBC) General Convention in Atlantic City, New Jersey. The UBC recruited and scheduled participants. Three parties were involved in the medical screening: NIOSH, Mount Sinai Medical Center, and Harvard Medical School. Each conducted separate screening exams and each will issue final reports that will be sent to the UBC. During the week of October 6-11, 1991, NIOSH conducted pulmonary function (spirometry) screening and administered a 2-page questionnaire. This is a final report of the NIOSH screening activity.

Prior to the convention the UBC mailed each delegate a questionnaire, developed by the UBC and Mount Sinai, and invited the delegate to participate in the general medical screening. The screening was also made available to those attending the convention on a walk-in basis. Copies of pages 1, 2, and 5 of the UBC-Mount Sinai questionnaire were used to supplement the NIOSH questionnaire to avoid duplicate questions. The 2-page NIOSH questionnaire was used to screen participants for suitability of performing spirometry and to determine the reported prevalence of certain physician-diagnosed respiratory illnesses. Demographic information, current employment status, a general work history (used for onset and duration of employment in carpentry work), and smoking status were obtained from the UBC-Mount Sinai questionnaire.

Seven hundred sixty-two (35%) of the approximately 2200 people attending the convention participated in the spirometry screening. Seven hundred fifty-eight were UBC members. Three hundred twenty-five (43%) UBC members reported currently working as a carpenter, "with their tools". Three hundred ninety-nine (53%) were union officials, nine (1%) were retired, 17 (2%) were working at another trade, and seven (1%) reported being unemployed. The average duration of employment in carpentry work was 21 years (SD 9; Range:2 to 54). The average number of years since onset of employment was 26 years (SD 9; Range:2 to 55). The prevalence of current cigarette use was 26%.

All but two of the 758 UBC members completed spirometry. Two participants did not complete spirometry because of current respiratory illness. While all participants received an individual report of their results, due to technical problems, spirometry data on nine participants was not available for statistical analysis. Therefore the reported spirometry results represent data from 747 participants.

Of the 747 participants, 612 (82%) had normal spirometry results and 135 were identified as having abnormal spirometry patterns. One hundred thirty-two (18%) had obstructive spirometric patterns. Of these, 104 (79%) were mild, 24 (18%) were moderate, and four (3%) were severely obstructed. Restrictive patterns were seen in six (1%); three were mild and three were moderate. Three persons had a combined obstructive and restrictive pattern. All three were moderately restricted and were apportioned between the three obstruction categories (mild, moderate, and severe). The percent of pulmonary function abnormalities varied little among the different trades.

Twenty-three percent (174/743) of the spirometry participants reported ever being told by a doctor that they had one of the following respiratory illnesses: chronic bronchitis, emphysema, asthma, or pneumonia.

Spirometry screening was undertaken for the purpose of identifying abnormal pulmonary function patterns among the trades represented by participating members of the United Brotherhood of Carpenters and Joiners of America (UBC) and was not intended as a study of their occupational exposures or work-related diseases. Each UBC participant received an individual report of his or her test results. This report provides summary descriptive statistics. Conclusions about the work-relatedness of group spirometry results or respiratory history could not be drawn, nor can inferences be made concerning non-participants. The evaluation of existing pulmonary function status at a single point in time for the early detection of an abnormal condition constitutes a secondary prevention measure. This screening effort should not be substituted for primary prevention measures such as engineering controls and environmental monitoring.

KEY WORDS: SIC 1751 (carpentry) Carpentry, Spirometry Screening

II. Introduction

On July 22, 1991, the National Institute for Occupational Safety and Health (NIOSH) received a request to participate in medical evaluations of carpenters attending the United Brotherhood of Carpenters and Joiners of America (UBC) General Convention in Atlantic City, NJ. The request expressed concern with members' chronic exposure to asbestos, lead, wood dust, formaldehyde and other potentially toxic agents found in construction and industrial settings, and the possible latent effects and chronic diseases which may be associated with exposure to these agents. Specifically, the UBC requested NIOSH participation in the medical screening to be conducted at the convention and arranged by the union. Three parties were involved in the medical screening: NIOSH, Mount Sinai Medical Center, and Harvard Medical School. Each conducted separate screening exams.

During the week of October 6-11, 1991, NIOSH conducted pulmonary function (spirometry) screening and administered a 2-page questionnaire. The questionnaire was used to screen participants for suitability of performing spirometry and to determine the reported prevalence of certain physician-diagnosed respiratory illnesses. The intent of the spirometry was to detect pulmonary function abnormalities among the trades represented by participating UBC members. In conjunction with this UBC request, NIOSH also received a request from Mount Sinai Medical Center to provide chest x-rays as part of the Mount Sinai screening effort. This service was performed concurrently and, with prior knowledge and written consent of the participants, all x-rays became the property of Mount Sinai. Researchers from Harvard Medical School conducted lead screening. Mount Sinai was responsible for notifying participants of all test results except spirometry. NIOSH had sole responsibility for the notification of spirometry results. Notification of individual spirometry results was completed in November, 1991.

III. Background

Carpenters are the largest group of building trade workers.[1] The United Brotherhood of Carpenters and Joiners is the largest trade union and represents nearly 600,000 members in both the U.S. and Canada.[2] As stated in the UBC request, 75% (450,000) are employed as carpenters and millwrights. The remainder (150,000) are employed in diverse occupational settings ranging from plywood production, sawmills, and cabinet shops to nuclear shipyards. Multiple and mixed exposures are common among the carpentry trades. Available literature indicates an excess risk of occupational lung disease among carpenters and those employed in the related skilled trades.[3,4,5]

IV. Methods

Prior to the convention the UBC mailed each delegate a questionnaire, developed by the UBC and Mount Sinai, and invited the delegate to participate in the general medical screening. The screening was also made available to those attending the convention on a walk-in basis. On October 6-11, 1991, NIOSH conducted pulmonary function screening (spirometry) and administered a 2-page questionnaire (Appendix I). Copies of pages 1, 2, and 5 of the UBC-Mount Sinai questionnaire (Appendix II) were used to supplement the NIOSH questionnaire to avoid duplicate questions. While a comprehensive occupational history could have been used to develop a past exposure index, timing and resources made this infeasible. Spirometry and questionnaire data were examined for pulmonary function abnormalities by trade in construction and industrial work (pg.2, Appendix II).

A. Questionnaire

The NIOSH questionnaire was used to screen participants for suitability of performing spirometry and to determine the reported prevalence of certain physician-diagnosed respiratory illnesses. Demographic information, current employment status, a general work history (used for onset and duration of employment in carpentry work), and smoking status were obtained from the UBC-Mount Sinai questionnaire. Although onset and duration of carpentry work were calculated and are reported, they were not considered proxies for exposure since a single exposure setting could not be assumed. Both would be inaccurate surrogates in this instance.[6] The employment onset and tenure of participants who reported work in another trade, but were members of the UBC, were also included in the calculations. The NIOSH questionnaire attempted to ascertain specific trade (i.e. millwright, pile driver, cabinet maker), job title, and duration in that trade with the intention of classifying participants into mutually exclusive categories and then examining the data for clusters of abnormal spirometry patterns. However, the typical responses were generic, such as "carpenter" which did not allow the classification of participants into specific trade categories.

B. Pulmonary Function Testing

Pulmonary function testing was performed using a dry rolling-seal spirometer interfaced with a dedicated computer. Testing procedures conformed to the American Thoracic Society's criteria for screening spirometry.[7] Predicted values were calculated using the Knudson reference equation.[8] Predicted values for blacks were determined by multiplying the value predicted by the Knudson equation by 0.85.[9] Test results were compared to the 95th percentile lower limit of normal (LLN) values obtained from Knudson's reference equations to identify the abnormal lung disease patterns of obstruction and restriction.[8] Spirometry values above the 5th percentile are considered normal while values falling below the 5th percentile are considered below the lower limit of normal (LLN).

Using this comparison, obstructive and restrictive patterns, for screening purposes, are defined as:

Obstruction: Observed ratio of FEV_1/FVC% below the LLN.
Restriction: Observed FVC below the LLN.

The criteria for interpretation of the level of severity for obstruction and restriction, as assessed by spirometry, is based on the NIOSH classification scheme (available upon request from the Division of Respiratory Disease Studies). For those persons with values below the LLN, the criteria are:

	Obstruction (FEV_1/FVC%)	Restriction (% Predicted FVC)
Mild	> 60	> 65
Moderate	≥ 45 to ≤ 60	≥ 51 to ≤ 65
Severe	< 45	< 51

V. Results and Discussion

Seven-hundred sixty-two (35%) of the approximately 2200 people attending the convention participated in the spirometry screening. Seven hundred fifty-eight were UBC members. Out of the 758 UBC members, spirometry was completed on 756. Two participants completed the questionnaire but did not complete spirometry because of respiratory illness (pneumonia) within 3 weeks of the screening. While all participants received an individual report of their results, due to technical problems, spirometry data on nine participants was not available for statistical analysis. Therefore the reported spirometry results represent data from 747 participants.

A. Screening Questionnaire

1. Demographic data

Seven hundred thirty-eight men (97%) and 20 women (3%) completed the questionnaire. The mean age of participants was 48 years (SD 9; Range:23 to 69). The majority of the participants, 708 (93%), were white males. Seven hundred sixteen (94%) resided in the U.S., while 42 (6%) were from Canada.

2. Current Employment Status

Three hundred twenty-five (43%) reported currently working as a carpenter, "with their tools". Three hundred ninety-nine (53%) were union officials, nine (1%) were retired, 17 (2%) worked at another trade, and seven (1%) reported being unemployed.

The distribution of duration of employment and age is shown in Table I. The largest proportion of participants were between the ages of 40 to 49 years and were employed in carpentry work from 11 to 20 years. Only 3% (25) participants had over 40 years of carpentry tenure. The average duration of employment in carpentry work was 21 years (SD 9; Range:2 to 54).

Table II contains the distribution of years since onset of carpentry work and age. The majority (69%) were over 20 years from onset of carpentry work and one-third (32%) were over 30 years from onset. The average number of years since onset of employment was 26 (SD 9; Range: 2 to 55).

3. Smoking status

The prevalence of current cigarette use among participants was 26% (196/752). Former smokers accounted for 45% (341), and 29% (215) reported never smoking. For spirometry participants, proportions were nearly identical. The adverse effect of cigarette smoking is clearly seen when abnormal spirometry is considered (Table III). Current smokers had the highest proportion of identified abnormal spirometry patterns, 29%.

4. Respiratory Illness

The overall prevalence of reported physician-diagnosed respiratory illnesses among participants was 23% (177/754). Pneumonia was the most frequently reported illness (18%), followed by asthma (6%), chronic bronchitis (5%), and emphysema (3%). An analysis of respiratory illness prevalence by smoking status was completed and is described in the next section.

B. Spirometry Results

Of the 747 participants, 612 (82%) had normal spirometry results and 135 had abnormal patterns. One hundred thirty-two (18%) had obstructive spirometric patterns. Of these, 104 (79%) were mild, 24 (18%) were moderate, and four (3%) were severely obstructed. Restrictive patterns were seen in six (1%); three subjects were mildly restricted and three were moderately restricted. Only three persons had combined patterns of obstruction and restriction. All three were moderately restricted and were apportioned between the three obstructive categories (mild, moderate, and severe).

Spirometry and questionnaire data were examined for pulmonary function abnormalities by trade in construction and industrial work (Tables IV and V). Trade categories were not mutually exclusive. Concurrence between usual and current work in a

particular trade category varied. The percent of abnormal spirometry in construction trades (Table IV) varied little. In Table V, the percent of abnormal spirometry in usual industrial work categories ranged from 9 to 35%. The figures presented in Tables IV and V should be interpreted carefully, especially for trade categories with small numbers.

Table VI contains the mean age and height adjusted baseline pulmonary function values for spirometry participants by cigarette smoking status. As might be expected, current and former smokers generally had lower baseline values.

Table VII presents the prevalence of severity of obstruction by years since onset of carpentry work. The proportion of those obstructed gradually increases starting with those with over 10 years since onset of carpentry employment. Overall, 19% (101/519) of participants with 20 years or more since beginning carpentry work were identified as having an obstructive pattern. Mild obstruction was the largest severity category within each time period. The few restrictive patterns occurred in persons in the 11-20 and the 31-40 year time intervals.

The prevalence of severity of obstruction by duration of employment in carpentry work is presented in Table VIII. The trend in obstruction is less apparent than in Table VII. Forty-nine percent (65/132) of participants with an obstructive pattern worked 20 years or more in the carpentry trades. Those with over 40 years in the trade (25) had the highest prevalence (28%) of obstruction. Again, mild obstruction was the largest severity category for each time interval. Restrictive patterns occurred only in the 11-20 and 21-30 year intervals.

The distribution by age and onset of carpentry work for persons with abnormal spirometry patterns is shown in Table IX. Nearly 60% were 50 years of age or more (Mean 51; SD 9; Range: 32-68) and most were more than 20 years from beginning carpentry work. Larger proportions were observed in the oldest age category (60-69 years) and the longest time period (>40 years), than in the group as a whole. Eighty-six percent (116/135) of those identified as having abnormal patterns were either current or former smokers.

The distributions of employment tenure and years since onset of carpentry work by spirometry status were examined for 215 non-smoking participants. The frequency and percent of participants with abnormal patterns appeared to diminish over time. This pattern (the "Healthy Worker Effect") is typical of working populations where healthy people are employed and stay employed (survive) while individuals who become ill tend to leave employment over time. Therefore these results could indicate a survivor population and reflect the Heathy Worker Effect. Overall, nine percent (19) of non-smoking participants had abnormal spirometry patterns.

Table X presents the prevalence of reported physician-diagnosed respiratory illnesses. Twenty-three percent (174/743) of participants reported ever being told by a physician that they had at least one of the following: chronic bronchitis, emphysema, asthma, or pneumonia. Of these, pneumonia was the most common, followed by asthma, chronic bronchitis, and emphysema. Among those with reported respiratory illness, the proportions are relatively equal between those with normal and abnormal spirometry patterns. However, among participants who reported no respiratory illness, the prevalence of an abnormal pattern was 15%.

When smoking status is considered, (Table XI) former smokers and current smokers appeared to have a higher prevalence for chronic bronchitis and pneumonia. Current smokers appeared to have a higher prevalence of emphysema than those who never smoked and former smokers. The prevalence of asthma did not seem to be related to smoking category.

Spirometry screening was undertaken for the purpose of identifying abnormal pulmonary function patterns among the trades represented by participating members of the United Brotherhood of Carpenters and Joiners of America (UBC) and was not intended as a study of their occupational exposures or work-related diseases. Each UBC participant received an individual report of his or her test results. This report provides summary descriptive statistics. Participants were not randomly or systematically selected and may not be representative of non-participants, non-convention attendees, or non-union carpenters. Therefore conclusions about the work-relatedness of group spirometry results or respiratory history could not be drawn, nor can inferences be made concerning non-participants. Self-selection may have resulted in overall prevalence of abnormal spirometry patterns identified in this group (18%) being higher or lower than the true prevalence among carpenters.

To provide a framework within which to consider the group results of the spirometry screening, values of obstruction from a non-exposed blue collar study are presented. The study uses a different definition of obstruction and a different type of population was studied (i.e. the study differs demographically by age, race, current employment status, and proportions of current, former, and non-smokers). The definition of obstruction is presented in parentheses. These factors are emphasized because of their effect on reported prevalence. Of particular interest is the prevalence of obstruction among non-smokers, since it reflects factors other than the effects of cigarette smoking.

In a group of 944 non-exposed blue-collar workers [10], 8.1% were observed to have an obstructive ($FEV_1/FVC < 70\%$) spirometric pattern in contrast to an overall prevalence of 18% among screened participants of the UBC. When the prevalence of obstruction in non-smokers is considered, 4% of the blue collar group was obstructed versus 11% of non-smoking UBC participants currently working "with their tools." To obtain a closer approximation of the blue collar study population to that of the non-smoking UBC participants with strictly obstructive spirometry patterns, data from the blue collar study were then limited to non-smoking white males over 50 years of age. The blue collar data revealed only seven individuals who fit these characteristics, one of whom was

obstructed.

The evaluation of existing pulmonary function status at a single point in time for the early detection of an abnormal condition constitutes a secondary prevention measure.[14,15] This screening effort should not be substituted for primary prevention measures such as engineering controls and environmental monitoring.[11,12,13,15]

VI. References

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VII. Authorship and Acknowledgements

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VIII. Distribution and Availability of Report

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Copies of this report have been sent to:

1. The United Brotherhood of Carpenters and Joiners of America, Washington, D.C.
2. Irving J. Selikoff, MD, The Mount Sinai Medical Center, New York, New York

TABLE I
DISTRIBUTION OF EMPLOYMENT TENURE AND AGE
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	EMPLOYMENT TENURE (YEARS)					
Age (yrs)	0-10	11-20	21-30	31-40	>40	Total
20-29	6	1	-	-	-	7 (1%)
30-39[a]	24	111	9	-	-	144 (19%)
40-49[a]	43	124	107	7	1	282 (37%)
50-59	20	61	86	68	4	239 (32%)
60-69	5	12	19	28	20	84 (11%)
Total	98 (13%)	309 (41%)	221 (29%)	103 (14%)	25 (3%)	756

[a]Missing one observation.

TABLE II
DISTRIBUTION OF YEARS SINCE ONSET OF CARPENTRY WORK AND AGE
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	YEARS SINCE ONSET OF CARPENTRY WORK					
Age (yrs)	0-10	11-20	21-30	31-40	>40	Total
20-29	6	1	-	-	-	7 (1%)
30-39[a]	11	112	21	-	-	144 (19%)
40-49[a]	4	85	175	17	1	282 (37%)
50-59	-	10	76	141	12	239 (32%)
60-69	1	1	7	24	51	84 (11%)
Total	22 (3%)	209 (28%)	279 (37%)	182 (24%)	64 (8%)	756

[a]Missing one observation.

TABLE III
PREVALENCE OF CIGARETTE SMOKING BY SPIROMETRY STATUS
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	N	Normal n (%)	Abnormal n (%)
Current	192	137 (71)	55 (29)
Former	336	275 (82)	61 (18)
Never	213	194 (91)	19 (9)

TABLE IV
NUMBER AND PERCENTAGE INDICATING USUAL AND/OR CURRENT WORK
IN CONSTRUCTION TRADES BY SPIROMETRY STATUS
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	USUAL WORK			CURRENT WORK		
CONSTRUCTION TRADE	N	NORMAL n %	ABNORMAL n %	N	NORMAL n %	ABNORMAL n %
Carpenters	518	420 81%	98 19%	216	177 82%	39 18%
Heavy/Highway	213	178 84%	35 16%	24	18 75%	6 25%
Millwright	217	175 81%	42 19%	58	47 81%	11 19%
Pile Driver	106	90 85%	16 15%	15	12 80%	3 20%
Dock Builders	33	26 79%	7 21%	4	4 ---	0 ---
Interior systems	282	237 84%	45 16%	52	42 81%	10 19%
Resilient Floor Layer	92	79 86%	13 14%	9	9 ---	0 ---
Carpet Layer	49	43 88%	6 12%	8	8 ---	0 ---
Display/Exhibit	113	89 79%	24 21%	24	18 75%	6 25%
Divers	8	7 ---	1 ---	0	--- ---	-- ---
Lathers	56	48 86%	8 14%	10	9 ---	1 ---
Ceiling/Drywall	359	289 80%	70 20%	75	66 88%	9 12%
Tile/Marble/Terrazzo	29	25 86%	4 14%	6	5 ---	1 ---
Other	89	76 85%	13 15%	47	38 81%	9 19%

TABLE V
NUMBER AND PERCENTAGE INDICATING USUAL AND/OR CURRENT WORK
IN INDUSTRIAL TRADES BY SPIROMETRY STATUS
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	USUAL WORK			CURRENT WORK		
INDUSTRIAL TRADE	N	NORMAL n %	ABNORMAL n %	N	NORMAL n %	ABNORMAL n %
Cabinet/Fixtures/Millwork	210	165 79%	45 21%	54	44 81%	10 19%
Lumber/Sawmill	65	54 83%	11 17%	20	17 85%	3 15%
Log Scalers	7	7 ---	0 ---	3	3 ---	0 ---
Prefab Modular Components	44	40 91%	4 9%	5	5 ---	0 ---
Marine Furniture	4	3 ---	1 ---	0	-- ---	-- ---
Misc. Wood Products	88	73 83%	15 17%	35	30 86%	5 14%
Navy Yards	21	15 71%	6 29%	6	5 ---	1 ---
Aircraft	17	11 65%	6 35%	2	1 ---	1 ---
Rubber/Plastic	48	38 79%	10 21%	21	17 81%	4 19%

TABLE VI
MEAN AGE AND HEIGHT ADJUSTED PULMONARY FUNCTION VALUES
BY CIGARETTE SMOKING STATUS
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	NEVER N = 213		FORMER N = 336		CURRENT N = 192	
	MEAN	SE	MEAN	SE	MEAN	SE
FVC(ℓ)	4.89	0.04	4.90	0.03	4.71	0.04
FEV_1(ℓ)	3.81	0.04	3.78	0.03	3.48	0.04
FEV_1/FVC(%)	78.2	0.5	77.2	0.4	73.7	0.5

N = 741

TABLE VII
PREVALENCE OF LEVEL OF OBSTRUCTION BY YEARS SINCE ONSET OF CARPENTRY WORK
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

		SEVERITY OF OBSTRUCTIVE IMPAIRMENT[a]				
	N	NORMAL n (%)	MILD n (%)	MODERATE n (%)	SEVERE n (%)	TOTAL OBSTRUCTED n (%)
0-10 yrs	22	18 (82)	3 (14)	--	1 (5)	4 (18)
11-20 yrs	204	177 (87)	25 (12)	2 (1)	--	27 (13)
21-30 yrs	274	230 (84)	33 (12)	10 (4)	1 (<1)	44 (16)
31-40 yrs	181	142 (78)	33 (18)	6 (3)	--	39 (22)
>40 yrs	64	46 (72)	10 (16)	6 (9)	2 (3)	18 (28)
TOTAL	745[b]	613 (82)	104 (14)	24 (3)	4 (1)	132 (18)

a. See text for definitions.
b. Unable to classify 2 participants (both normal)

TABLE VIII
PREVALENCE OF LEVEL OF OBSTRUCTION BY DURATION (YEARS) OF EMPLOYMENT
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

		SEVERITY OF OBSTRUCTIVE IMPAIRMENT[a]				
	N	NORMAL n (%)	MILD n (%)	MODERATE n (%)	SEVERE n (%)	TOTAL OBSTRUCTED n (%)
0-10 yrs	97	79 (81)	16 (16)	1 (1)	1 (1)	18 (19)
11-20 yrs	301	252 (84)	42 (14)	7 (2)	--	49 (16)
21-30 yrs	220	185 (84)	25 (11)	7 (3)	3 (1)	35 (16)
31-40 yrs	102	79 (77)	16 (16)	7 (7)	--	23 (23)
>40 yrs	25	18 (72)	5 (20)	2 (8)	--	7 (28)
TOTAL	745[b]	613 (82)	104 (14)	24 (3)	4 (1)	132 (18)

a. See text for definitions.
b. Unable to classify 2 participants (both normal)

TABLE IX
DISTRIBUTION OF AGE AND ONSET OF CARPENTRY WORK FOR PARTICIPANTS WITH ABNORMAL SPIROMETRY PATTERNS
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	YEARS SINCE ONSET OF CARPENTRY WORK					
Age (yrs)	0-10	11-20	21-30	31-40	>40	TOTAL
20-29	--	--	--	--	--	--
30-39	2	15	2	--	--	19 (14%)
40-49	1	13	20	2	--	36 (27%)
50-59	--	--	20	31	5	56 (41%)
60-69	1	1	2	7	13	24 (18%)
TOTAL	4 (3%)	29 (21%)	44 (33%)	40 (30%)	18 (13%)	135

TABLE X
PREVALENCE OF REPORTED RESPIRATORY ILLNESSES BY SPIROMETRY STATUS
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

	N	NORMAL [a] n (%)	ABNORMAL n (%)
Chronic Bronchitis	39	22 (56)	17 (44)
Emphysema	20	9 (45)	11 (55)
Asthma	45	24 (53)	21 (47)
Pneumonia	130	95 (73)	35 (27)
No Respiratory Illness	569	486 (85)	83 (15)

[a]Missing one observation

TABLE XI
PREVALENCE OF REPORTED RESPIRATORY ILLNESS BY SMOKING STATUS
United Brotherhood of Carpenters and Joiners
Atlantic City, New Jersey
RDHETA 91-318

RESPIRATORY ILLNESS	NEVER SMOKER N = 213 n (%)	FORMER SMOKER[b] N = 336 n (%)	CURRENT SMOKER N = 192 n (%)	TOTAL N = 741 n (%)
Chronic Bronchitis	7 (3)	22 (7)	10 (5)	39 (5)
Emphysema	3 (1)	5 (1)	12 (6)	20 (3)
Asthma	17 (8)	19 (6)	9 (5)	45 (6)
Pneumonia[a]	28 (13)	61 (18)	40 (21)	129 (17)

[a]Missing one observation
[b]One observation missing for Chronic Bronchitis, Emphysema, and Asthma

APPENDIX I

RDHETA
(Do not write in this box.)

IDENTIFICATION

1. NAME _____
(Last First Middle Initial)

2. CURRENT ADDRESS _____
(Number, Street, or Rural Route)

_____
(City or Town, State, Zip Code)

3. HOME PHONE: (_____) _____

4. SSN ___-__-_____

5. BIRTHDATE _____/_____/_____
Month, Day, Year

6. AGE AT LAST BIRTHDAY _____

7. SEX 1 Male
2 Female

8. RACE 0.□ White 1.□ Black 2.□ Asian/Pacific Islander 3.□ American Indian/Eskimo
4.□ Other

9. Are you of Hispanic origin? 1.□ YES 2.□ NO

DO NOT WRITE BELOW THIS LINE

STANDING HEIGHT _____(inches) WEIGHT _____(lbs.)

	INITIALS
SIGN-IN/CONSENT	
HT/WT	
CXR	
QUESTIONNAIRE	
PFT	

APPENDIX I

PRELIMINARY QUESTIONS FOR PULMONARY FUNCTION

1. Have you had pneumonia, bronchitis, the flu or a severe cold in the past 3 weeks? 1.0 YES 2.0 NO

2. Have you had an injury or operation affecting your chest or abdomen in the past 6 weeks? 1.0 YES 2.0 NO

3. Do you have heart trouble? 1.0 YES 2.0 NO

   3a. Have you had a heart attack within the past 3 months? 1.0 YES 2.0 NO

4. Do you have any kind of acute illness? 1.0 YES 2.0 NO

5. In the past hour have you:

   a. Smoked a cigarette? 1.0 YES 2.0 NO
   b. Used an inhaled medication for your breathing? 1.0 YES 2.0 NO
   c. Eaten a heavy meal? 1.0 YES 2.0 NO

6. Have you ever been told by <u>A DOCTOR</u> that you had:

   A. Chronic bronchitis 1.0 YES 2.0 NO

   B. Emphysema 1.0 YES 2.0 NO

   C. Asthma 1.0 YES 2.0 NO

   D. Pneumonia 1.0 YES 2.0 NO

<u>THESE NEXT QUESTIONS ARE ABOUT YOUR CURRENT OR LAST JOB YOU HELD IN A TRADE.</u>

1. What is/was your usual or current (or most recent) trade? _____

2. What is/was your usual or current (or most recent) position or job title? _____

3. When did you first begin working at this trade? 19____

4. What was the last year you worked at this trade? 19____

Personal Information

Local No. _____ Union Registration No. _____

Name _____

Address _____

City _____ State _____ Zip Code _____

Home telephone _____ Social Security No. _____

Date of Birth _____ Country of Birth _____

Ethnicity: White ____ Black ____ Hispanic ____

Asian ____ American Indian ____ Other ____

Employment History

Year began carpenter work _____

Year joined carpenter union _____

Last year worked with the tools, as a carpenter _____

A. What work are you doing now?

1. Carpenter work, with the tools _____
2. Union official (as business agent) _____
   Year began _____
3. Retired due to age ____ Year began ____
4. Retired due to illness ____ Year began ____
5. Retired due to other reasons ____ Year began ____
6. Working at another trade ____ Year began ____
7. Unemployed at present ____ Year began ____

B. What other work have you done? (check as many as required)

1. Insulation ____
2. Other construction ____ (specify_____)
3. Powerhouse ____
4. Shipyard ____
5. Maintenance (buildings) ____
6. Maintenance (industry) ____
7. Brake work (professional) ____
8. Other ____ (specify_____)

C. Where applicable, please list occupation(s)/trade(s) worked at before first year of work at UBC trade.

Trade	Year(s) Worked
_____	_____
_____	_____
_____	_____

D. Please check off the usual type of carpentry you have done over the years, spent at this usual work, both in construction and industrial work, and work you are now doing. If you are not now working at a trade (retired, union official, other work, etc.) do not complete the "current work" column and answer "usual work" by describing work done before.

1. Construction	Usual Work	Current Work
1. Carpenters	—	—
2. Heavy and Highway	—	—
3. Millwright	—	—
4. Pile Drivers	—	—
5. Dock Builders	—	—
6. Interior systems	—	—
7. Resilient floor layer	—	—
8. Carpet layer	—	—
9. Display and exhibit	—	—
10. Divers	—	—
11. Lathers	—	—
12. Ceiling and drywall	—	—
13. Tile, marble and terrazzo	—	—
14. Other (specify_____)	—	—

2. Industrial		
1. Cabinet, fixtures, millwork	—	—
2. Lumber and sawmill	—	—
3. Log scalers	—	—
4. Prefab modular components	—	—
5. Marine furniture	—	—
6. Misc. wood products	—	—
7. Navy yards	—	—
8. Aircraft	—	—
9. Rubber and plastic	—	—

Yes ____ No ____

Have you ever been hospitalized for a Lead problem?
Yes ____ No ____

If yes, please specify_____

_____

Military service

Have you ever been in the military?
Yes ____ No ____

Which years in service? From____ to____

Which branch of service? (Please circle)

1. Army 3. Marines 5. Coast Guard 7. Air Force
2. Navy 4. National Guard 6. Reserves

If aboard ship, contact with asbestos?
Yes ____ No ____

Briefly describe:_____

_____

_____

Smoking History

A. Do you now or have you ever smoked cigarettes?
Yes ____ No ____

When did you begin smoking? ____ years ago (____ years old)

Are you now smoking cigarettes?
Yes ____ No ____

If no, when did you stop? ____ years ago (____ years old)

How much did you smoke, on average, over the years?
_____ cigarettes/day

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