

TABLE 4
AGE OF POPULATIONS

	<u>Mean $\pm$ Standard Deviation</u>
Exposed (204)	56.67 $\pm$ 10.58 years
Questionable Exposure (51)	53.30 $\pm$ 10.63 years
Not Exposed (163)	46.23 $\pm$ 12.86 years

TABLE 5

EXPOSURE
vs.
ALCOHOL STATUS*

	<u>Never</u>	<u>Former</u>	<u>Present</u>	<u>Total</u>
Not Exposed				
Number	27	47	84	158
Percent	17.09	29.75	53.16	
Questionable Exposure				
Number	8	17	26	51
Percent	15.69	33.33	50.98	
Exposed				
Number	18	74	100	192
Percent	9.38	38.54	52.08	
Total	53	138	210	401

p N.S.

* For definition, see Appendix X.

TABLE 6

EXPOSURE
vs.
SMOKING STATUS*

	<u>Never</u>	<u>Former</u>	<u>Present</u>	<u>Total</u>
Not Exposed				
Number	47	72	44	163
Percent	28.83	44.17	26.99	
Questionable Exposure				
Number	18	21	12	51
Percent	35.29	41.18	23.53	
Exposed				
Number	46	84	73	203
Percent	22.66	41.38	35.96	
Total	111	177	129	417

p N.S.

* For definition, see Appendix V.

EXPOSURE vs. PACK YEARS SMOKED*

	<u>Mean ± Standard Deviation</u>
Exposed (198)	27.04 ± 28.82
Not Exposed (162)	15.73 ± 24.01
Questionable Exposure (50)	19.67 ± 23.97

* p < 0.0001 for comparing Exposed to Not Exposed

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TABLE 7

FAMILY HISTORY OF ILLNESS *

Family History of	Exposed (n=204)		Not Exposed (n=163)		Probability	Questionable Exposure (n=51)	
	#	%	#	%		#	%
Asthma	29	14.22	19	11.66	N.S.	7	13.73
Hayfever	11	5.39	20	12.27	0.03	3	5.88
Acne	21	10.29	20	12.27	N.S.	7	13.53
Eczema	16	7.84	9	5.52	N.S.	3	5.88
Hives	18	8.82	22	13.50	N.S.	3	5.88
Upper G.I. Ulcer	34	16.67	31	19.02	N.S.	12	23.53
Colitis	22	10.78	13	7.98	N.S.	4	7.84
Heart Attack or Angina before Age 60	53	25.98	36	22.09	N.S.	14	27.45
Heart Attack or Angina after Age 60	64	31.37	31	19.02	0.0097	13	25.49
High Blood Pressure	73	35.78	62	38.04	N.S.	19	37.25
Cerebrovascular Accident (CVA)	59	28.92	39	23.93	N.S.	14	27.45
High Cholesterol	26	12.75	21	12.88	N.S.	9	17.65
Diabetes	48	23.53	35	21.47	N.S.	10	19.61
Liver Disease	13	6.37	9	5.52	N.S.	5	9.80
Nervous Disorder	30	14.71	28	17.18	N.S.	9	17.65
Inherited Disorder	10	4.90	7	4.29	N.S.	2	3.92
Cancer†	71	34.81	45	27.78	N.S.	19	37.25

* Includes Parents and Siblings of Subjects

† Not exposed group has n=162 replying to this question.

TABLE 8
HISTORY OF MEDICAL PROBLEMS:

History of	Exposed (n=204)		Not Exposed (n=163)		Questionable Exposure (n=51)	
	#	%	#	%	#	%
Chloracne ¹	176	86.27	0	0.00	0	0.00
Acne Vulgaris ²	20	9.80	48	29.45	10	19.61
Folliculitis	1	0.49	2	1.23	0	0.00
Skin Cancer	8	3.92	4	2.45	1	1.96
Chronic Obstructive Pulmonary Disease (COPD)	3	1.47	2	1.23	1	1.96
Hypertension	60	29.41	36	22.09	10 ⁴	19.61
Arteriosclerosis	0	0.00	1	0.61	0	0.00
Angina	3	1.47	2	1.23	2	3.92
Coronary Artery Disease	20	9.80	10	6.13	6	11.76
Cerebrovascular Accident (CVA)	6	2.94	2	1.23	1	1.96
Upper GI Ulcer ³	42	20.59	9	5.52	6	11.76
Bladder Cancer	2	0.98	1	0.61	2	3.92
Prostatic Disease	8	3.92	6	3.68	2	3.92
Kidney Stones	24	11.76	16	9.82	5	9.80

¹ p < 0.0001

² p < 0.001

³ p < 0.005

p values for comparing age-adjusted (on basis of age < 50 vs. age ≥ 50) reported occurrence in exposed vs. not exposed

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TABLE 9
HISTORY OF MEDICAL PROBLEMS
vs.
EXPOSURE STATUS BY AGE

History of	Age < 50				Age ≥ 50			
	Exposed (n=51)		Not Exposed (n=100)		Exposed (n=153)		Not Exposed (n=63)	
	#	%	#	%	#	%	#	%
Chloracne ¹	39	76.47	0	0.00	137	89.54	0	0.00
Acne Vulgaris ^{2,3}	9	17.65	42	42.00	11	7.19	6	9.52
Folliculitis	0	0.00	2	2.00	1	0.65	0	0.00
Skin Cancer	0	0.00	1	1.00	8	5.23	3	4.76
Chronic Obstructive Pulmonary Disease (COPD)	0	0.00	0	0.00	3	1.96	2	3.17
Hypertension ^{1,4}	9	17.65	14	14.00	51	33.33	22	34.92
Arteriosclerosis	0	0.00	0	0.00	0	0.00	1	1.59
Angina	2	3.92	1	1.00	1	0.65	1	1.59
Coronary Artery Disease ^{1,3}	1	1.96	0	0.00	19	12.42	10	15.87
Cerebrovascular Accident (CVA)	0	0.00	0	0.00	6	3.92	2	3.17
Upper GI Ulcer	7	13.73	5	5.00	35	22.88	4	6.35
Bladder Cancer	0	0.00	0	0.00	2	1.31	1	1.59
Prostatic Disease	3	5.88	3	3.00	5	3.27	3	4.76
Kidney Stones	7	13.73	7	7.00	17	11.11	9	14.29

¹ 0.01 < p < 0.05

In exposed young vs. old

³ p < 0.0001

In not exposed young vs. old

² 0.05 < p < 0.10

In exposed young vs. old

⁴ 0.001 < p < 0.01

In not exposed young vs. old

TABLE 10
HISTORY OF MEDICAL PROBLEMS
vs.
HISTORY AND/OR PRESENCE OF CHLORACNE

<u>History of</u>	<u>History and/or Presence</u> (n=176)		<u>No History or Presence</u> (n=242)	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Acne Vulgaris ¹	13	7.39	65	26.86
Folliculitis	1	0.57	2	0.83
Skin Cancer	7	3.98	6	2.48
Chronic Obstructive Pulmonary Disease (COPD)	3	1.70	3	1.24
Hypertension ²	55	31.25	51	21.07
Arteriosclerosis	0	0.00	1	0.41
Angina	3	1.70	4	1.65
Coronary Artery Disease	19	10.80	17	7.02
Cerebrovascular Accident (CVA)	6	3.41	3	1.24
Upper GI Ulcer ²	38	21.59	19	7.85
Bladder Cancer	2	1.14	3	1.24
Prostatic Disease	7	3.98	9	3.72
Kidney Stones	19	10.80	26	10.74

¹ p < 0.0001

² 0.001 < p < 0.01

TABLE 1.
HISTORY OF MEDICAL PROBLEMS
vs.
HISTORY AND/OR PRESENCE OF CHLORACNE BY AGE.

History of	Age < 50				Age ≥ 50			
	Chloracne Ever (n=39)		Chloracne Never (n=130)		Chloracne Ever (n=137)		Chloracne Never (n=112)	
	#	%	#	%	#	%	#	%
Acne Vulgaris ¹	5	12.82	48	36.92	8	5.84	17	15.18
Folliculitis	0	0.00	2	1.54	1	0.73	0	0.00
Skin Cancer	0	0.00	1	0.77	7	5.11	5	4.46
Chronic Obstructive Pulmonary Disease (COPD)	0	0.00	0	0.00	3	2.19	3	2.68
Hypertension ^{1,2}	7	17.95	16	12.31	48	35.04	35	31.25
Arteriosclerosis	0	0.00	0	0.00	0	0.00	1	0.89
Angina	2	5.13	1	0.77	1	0.73	3	2.68
Coronary Artery Disease ^{2,3}	1	2.56	0	0.00	18	13.14	17	15.18
Cerebrovascular Accident (CVA)	0	0.00	0	0.00	6	4.38	3	2.68
Upper GI Ulcer	6	15.38	10	7.69	32	23.36	9	8.08
Bladder Cancer	0	0.00	0	0.00	2	1.46	3	2.68
Prostatic Disease	2	5.13	4	3.08	5	3.65	5	4.46
Kidney Stones	5	12.82	12	9.23	14	10.22	14	12.50

¹ 0.0001 < p < 0.001

² 0.05 < p < 0.10

³ p < 0.0001

In chloracne never, young vs. old

In chloracne ever, young vs. old

In chloracne never, young vs. old

TABLE 12
HISTORY OF MEDICAL PROBLEMS
vs.
CHLORACNE STATUS IN EXPOSED ONLY

<u>History of</u>	<u>History Only</u> (n=69)		<u>Current</u> (n=107)		<u>No History</u> (n=28)	
	#	%	#	%	#	%
Acne Vulgaris	6	8.70	7	6.54	7	25.00
Folliculitis	0	0.00	1	0.93	0	0.00
Skin Cancer	4	5.80	3	2.80	1	3.57
Chronic Obstructive Pulmonary Disease (COPD)	2	2.90	1	0.93	0	0.00
Hypertension	21	30.43	34	31.78	5	17.86
Arteriosclerosis	0	0.00	0	0.00	0	0.00
Angina	1	1.45	2	1.87	0	0.00
Coronary Artery Disease	5	7.25	14	13.08	1	3.57
Cerebrovascular Accident (CVA)	2	2.90	4	3.74	0	0.00
Upper GI Ulcer	11	15.94	27	25.23	4	14.29
Bladder Cancer	0	0.00	2	1.87	0	0.00
Prostatic Disease	2	2.90	5	4.67	1	3.57
Kidney Stones	10	14.49	9	8.41	5	17.86

TABLE 13
HISTORY OF MEDICAL PROBLEMS
vs.
CHLORACNE STATUS IN EXPOSED ONLY
BY AGE

History of	Age < 50						Age > 50					
	History Only (n=16)		Current (n=23)		No History (n=12)		History Only (n=53)		Current (n=84)		No History (n=16)	
	#	%	#	%	#	%	#	%	#	%	#	%
Acne Vulgaris	3	18.75	2	8.70	4	33.33	3	5.66	5	5.95	3	18.75
Folliculitis	0	0.00	0	0.00	0	0.00	0	0.00	1	1.19	0	0.00
Skin Cancer	0	0.00	0	0.00	0	0.00	4	7.55	3	3.57	1	6.25
Chronic Obstructive Pul- monary Disease (COPD)	0	0.00	0	0.00	0	0.00	2	3.77	1	1.19	0	0.00
Hypertension ¹	1	6.25	6	26.09	2	16.67	20	37.74	28	33.33	3	18.75
Arteriosclerosis	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Angina ²	0	0.00	2	8.70	0	0.00	1	1.89	0	0.00	0	0.00
Coronary Artery Disease ²	1	6.25	0	0.00	0	0.00	4	7.55	14	16.67	1	6.25
Cerebrovascular Accident (CVA)	0	0.00	0	0.00	0	0.00	2	3.77	4	4.76	0	0.00
Upper GI Ulcer	1	6.25	5	21.74	1	8.33	10	18.87	22	26.19	3	18.75
Bladder Cancer	0	0.00	0	0.00	0	0.00	0	0.00	2	2.38	0	0.00
Prostatic Disease	0	0.00	2	8.70	1	8.33	2	3.77	3	3.57	0	0.00
Kidney Stones	2	12.50	3	13.04	2	16.67	8	15.09	6	7.14	3	18.75

¹ 0.01 < p < 0.05

For history only, young vs. old

² 0.05 < p < 0.10

For current, young vs. old

TABLE 14

Significant Clinical Findings
In Relation to Exposure

Finding	Exposed (n=204)		Not Exposed (n=163)		Questionable Exposure (n=51)	
	#	%	#	%	#	%
Chloracne ¹	107	52.45	0	0.00	0	0.00
Acne Vulgaris ²	4	1.96	19	11.66	2	3.92
Actinic Elastosis ³	120	58.82	49	30.06	20	39.22
Actinic Keratoses ¹	21	10.29	9	5.52	5	9.80
Basal Cell Epithelioma	14	6.86	7	4.29	0	0.00
Stasis Dermatitis	2	0.98	5	3.07	0	0.00
Peyronie's Disease ⁴	3	1.47	0	0.00	1	1.96
Folliculitis	9	4.41	14	8.59	3	5.88
Hirsutism	11	5.39	3	1.84	1	1.96
"Nervousness"/Anxiety Depression	33	16.18	19	11.66	6	11.76
Decreased Libido (H/O) ²	39	19.12	11	6.75	9	17.65
Impotence, NOS (H/O)	17	8.33	4	2.45	2	3.92

TABLE 14 CONTINUED

Key to p Values

- | | | |
|---|----------------------|---|
| 1 | $p < 0.0001$ | Age-adjusted comparison of exposed to not exposed |
| 2 | $0.01 < p < 0.05$ | Age-adjusted comparison of exposed to not exposed |
| 3 | $0.0001 < p < 0.001$ | Age-adjusted comparison of exposed to not exposed |
| 4 | $0.05 < p < 0.10$ | Age-adjusted comparison of exposed to not exposed |

TABLE 15
Significant Clinical Findings
In Relation to Exposure Status by Age

Finding	Age < 50				Age ≥ 50			
	Exposed (n=51)		Not Exposed (N=100)		Exposed (n=153)		Not Exposed (n=63)	
	#	%	#	%	#	%	#	%
Chloracne	23	45.10	0	0.00	84	54.90	0	0.00
Acne Vulgaris ^{1,2}	4	7.84	18	18.00	0	0.00	1	1.59
Actinic Elastosis ^{3,4}	19	37.25	18	18.00	101	66.01	31	49.21
Actinic Keratoses ⁵	2	3.92	1	1.00	19	12.42	8	12.70
Basal Cell Epithelioma ⁵	1	1.96	0	0.00	13	8.50	7	11.11
Stasis Dermatitis ⁶	1	1.96	0	0.00	1	0.65	5	7.94
Peyronie's Disease	0	0.00	0	0.00	3	1.96	0	0.00
Folliculitis ^{1,6}	7	13.73	13	13.00	2	1.31	1	1.59
Hirsutism	2	3.92	1	1.00	9	5.88	2	3.17
"Nervousness"/Anxiety ⁸	4	7.84	15	15.00	29	18.95	4	6.35
Depression	1	1.96	0	0.00	35	22.88	10	15.87
Decreased Libido (H/O) ^{7,9}	4	7.84	1	1.00	16	10.46	4	6.35
Impotence, NOS (H/O) ^{6,8}	1	1.96	0	0.00				

TABLE 15 CONTINUED

Key to p Values

1	$0.001 < p < 0.01$	In exposed, young vs. old
2	$0.001 < p < 0.01$	In not exposed, young vs. old
3	$0.0001 < p < 0.001$	In exposed, young vs. old
4	$p < 0.0001$	In not exposed, young vs. old
5	$0.001 < p < 0.01$	In not exposed, young vs. old
6	$0.01 < p < 0.05$	In not exposed, young vs. old
7	$0.0001 < p < 0.001$	In not exposed, young vs. old
8	$0.05 < p < 0.10$	In exposed, young vs. old
9	$0.01 < p < 0.05$	In exposed, young vs. old

TABLE 16
Significant Clinical Findings
In Relation to Chloracne Status in Exposed Only

Finding	History Only (n=69)		Current (n=107)		No History (n=28)	
	#	%	#	%	#	%
Acne Vulgaris ¹	1	1.45	0	0.00	3	10.71
Actinic Elastosis ^{1,2}	32	46.38	80	74.77	8	28.57
Actinic Keratoses	8	11.59	10	9.35	3	10.71
Basal Cell Epithelioma	4	5.80	9	8.41	1	3.57
Stasis Dermatitis	1	1.45	1	0.93	0	0.00
Peyronie's Disease	2	2.90	1	0.93	0	0.00
Folliculitis	6	8.70	1	0.93	2	7.14
Hirsutism ²	0	0.00	11	10.28	0	0.00
"Nervousness"/Anxiety Depression	9	13.04	20	18.69	4	14.29
Decreased Libido (H/O)	13	18.84	20	18.69	6	21.43
Impotence, NOS (H/O)	6	8.70	10	9.35	1	3.57

¹ 0.01 < p < 0.05

In age < 50

² 0.001 < p < 0.01

In age ≥ 50

TABLE 17

**Significant Clinical Findings
In Relation to Chloracne Status in Exposed Only by Age**

Finding	Age < 50						Age ≥ 50					
	History only n=16		Current n=23		No History n=12		History only n=53		Current n=84		No History n=16	
	#	%	#	%	#	%	#	%	#	%	#	%
Acne Vulgaris	1	6.25	0	0.00	3	25.00	0	0.00	0	0.00	0	0.00
Actinic Elastosis ^{1,2}	5	31.25	13	56.25	1	8.33	27	50.94	67	79.76	7	43.75
Actinic Keratoses	0	0.00	1	4.35	1	8.33	8	15.09	9	10.71	2	12.50
Basal Cell Epithelioma	1	6.25	0	0.00	0	0.00	3	5.66	9	10.71	1	6.25
Stasis Dermatitis	1	6.25	0	0.00	0	0.00	0	0.00	1	1.19	0	0.00
Peyronie's Disease	0	0.00	0	0.00	0	0.00	2	3.77	1	1.19	0	0.00
Folliculitis ³	4	25.00	1	4.35	2	16.67	2	3.77	0	0.00	0	0.00
Hirsutism	0	0.00	2	8.70	0	0.00	0	0.00	9	10.71	0	0.00
"Nervousness"/Anxiety Depression	1	6.25	3	13.04	0	0.00	8	15.09	17	20.24	4	25.00
Decreased Libido (H/O) ⁴	2	12.50	2	8.70	0	0.00	11	20.75	18	21.43	6	37.50
Impotence, NOS (H/O)	0	0.00	1	4.35	0	0.00	6	11.32	9	10.71	1	6.25

¹ 0.01 < p < 0.05

² 0.05 < p < 0.10

In current chloracne, young vs. old

In no history chloracne, young vs. old

³ 0.01 < p < 0.05

⁴ 0.01 < p < 0.05

In history only chloracne
young vs. old

In no history chloracne,
young vs. old

TABLE 18
DISTRIBUTION AND SEVERITY OF CHLORACNE

Distribution of Chloracne and Chloracne Scars
in Exposed Group by Site

(n=204)

<u>Site</u>	<u>Residual Chloracne</u>		<u>Chloracne Scars</u>	
	#	%	#	%
Face	98	48.04	13	6.37
Neck	17	8.33	9	4.41
Extremities	4	1.96	0	0.00
Trunk	18	8.82	6	2.94
Genitals	15	7.35	0	0.00
Face (only)	67	32.84	10	4.90
Neck (only)	3	1.47	5	2.45
Face and Neck (only)	8	3.92	1	0.49
Face and Trunk (only)	5	2.45	2	0.98
Face, Trunk and Genitals (only)	2	0.98	0	0.00
Extremities (only)	0	0.00	0	0.00
Trunk (only)	4	1.96	1	0.49
Genitals (only)	1	0.49	0	0.00
Scars (only)	8	3.92	0	0.00

Severity of Chloracne

(n=107)

<u>Mild</u>		<u>Moderate</u>		<u>Severe</u>	
#	%	#	%	#	%
67	62.62	36	33.96	4	3.77

TABLE 19
DISTRIBUTION AND SEVERITY OF ACTINIC ELASTOSIS

Distribution of Actinic Elastosis by Site

<u>SITE</u>	<u>EXPOSED</u> <u>(n=204)</u>		<u>NOT</u> <u>EXPOSED</u> <u>(n=163)</u>		<u>QUESTIONABLE</u> <u>EXPOSURE</u> <u>(n=51)</u>	
	#	%	#	%	#	%
Face	113	55.39	46	28.22	18	35.29
Neck	57	27.94	21	12.88	8	15.69
Arms and Hands	9	4.41	4	2.45	3	5.88
Trunk	1	0.49	0	0.00	0	0.00
Face (only)	62	30.39	27	16.56	11	21.57
Neck (only)	7	3.43	3	1.84	2	3.92
Face and Neck (only)	42	20.59	15	9.20	4	7.84
Face and Trunk (only)	1	0.49	0	0.00	0	0.00
Arms and Hands (only)	0	0.00	0	0.00	0	0.00
Trunk (only)	0	0.00	0	0.00	0	0.00

Severity of Actinic Elastosis
(n=189)

<u>MILD</u>		<u>MODERATE</u>		<u>SEVERE</u>	
#	%	#	%	#	%
67	35.44	81	43.09	41	21.81

TABLE 20
SEVERITY OF CHLORACNE IN PRESENCE
OF ACTINIC ELASTOSIS

	<u>MILD</u>		<u>MODERATE</u>		<u>SEVERE</u>		<u>TOTAL</u>
	#	%	#	%	#	%	
Actinic Elastosis and Chloracne	44	55.00	33	41.25	3	3.75	80
Chloracne Only	<u>23</u>	85.18	<u>3</u>	11.11	<u>1</u>	3.70	<u>27</u>
TOTAL	<u>67</u>		<u>36</u>		<u>4</u>		<u>107</u>

$0.01 < p < 0.05$

TABLE 21.

SEVERITY OF ACTINIC ELASTOSIS IN PRESENCE
OF CHLORACNE

	<u>MILD</u>		<u>MODERATE</u>		<u>SEVERE</u>		<u>TOTAL</u>
	#	%	#	%	#	%	
Actinic Elastosis and Chloracne	18	22.50	35	43.75	27	33.75	80
Actinic Elastosis Only	<u>49</u>	44.95	<u>46</u>	42.20	<u>14</u>	12.84	<u>109</u>
TOTAL	67		81		41		189

 $p < 0.005$

TABLE 22
BLOOD PRESSURE
(Normal <140/90 for Subjects ≤59,
<160/95 for Subjects ≥60)

<u>Exposure Category</u>		<u>Systolic</u>		<u>Diastolic</u>	
		<u>Normal</u>	<u>Abnormal</u>	<u>Normal</u>	<u>Abnormal</u>
EXPOSED (n=202)	#	145	57	153	49
	%	71.78	28.22	75.74	24.26
QUESTIONABLY EXPOSED (n=49)	#	41	8	39	10
	%	83.67	16.33	79.59	20.41
NOT EXPOSED (n=161)	#	122	39	132	29
	%	75.78	24.22	81.99	18.01

Systolic Pressure: $p = ns$ for comparison of exposed to not exposed.

Diastolic Pressure: $p = ns$ for comparison of exposed to not exposed.

TABLE 23
EXPOSURE
vs.
SERUM LIPIDS

<u>Serum Lipid</u>	<u>Exposed</u>		<u>Not Exposed</u>	
	<u>n</u>	<u>#(%Abnormal)</u>	<u>n</u>	<u>#(%Abnormal)</u>
Cholesterol	200	15(7.50)	163	17(10.43)
Triglycerides	200	29(14.50)	163	31(19.02)
LDL, estimated	196	15(7.65)	159	10(6.29)
HDL	200	19(9.50)	163	17(10.43)

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Probability

Questionable
Exposure

n # (%Abnormal)

N.S.

49

13(26.53)

N.S.

49

11(22.45)

N.S.

47

9(19.15)

N.S.

49

4(8.16)

TABLE 24

EXPOSURE

vs.

SERUM LIPIDS BY SMOKING STATUS*

Serum Lipid	Smoking Status	Exposed		Not Exposed		Probability	Questionable Exposure	
		n	#(%) Abnormal	n	#(%) Abnormal		n	#(%) Abnormal
Cholesterol	Never	45	3(6.67)	47	5(10.64)	N.S.	17	3(17.65)
	Former	83	7(8.43)	72	6(8.33)	N.S.	21	7(33.33)
	Present	71	5(7.04)	44	6(13.64)	N.S.	11	3(27.27)
Triglycerides	Never	45	8(17.78)	47	8(17.02)	N.S.	17	3(17.65)
	Former	83	11(13.25)	72	14(19.44)	N.S.	21	7(33.33)
	Present	71	10(14.08)	44	9(20.45)	N.S.	11	1(9.09)
LDL, estimated	Never	43	3(6.98)	46	3(6.52)	N.S.	17	3(17.65)
	Former	83	6(7.23)	70	1(1.43)	N.S.	19	4(21.05)
	Present	69	6(8.70)	43	6(13.95)	N.S.	11	2(18.18)
HDL	Never	45	4(8.89)	47	5(10.64)	N.S.	17	3(17.65)
	Former	83	8(9.64)	72	5(6.94)	N.S.	21	1(4.76)
	Present	71	7(9.86)	44	7(15.91)	N.S.	11	0(0.00)

* When pack years were considered there were no significant differences in all of the lipid parameters.

TABLE 25

CHLORACNE STATUS IN EXPOSED ONLY

vs.

SERUM LIPIDS

Serum Lipid	History Only		Current		No History	
	n	#(%)Abnormal	n	#(%)Abnormal	n	#(%)Abnormal
Cholesterol	67	8(11.94)	105	5(4.76)	28	2(7.14)
Triglycerides	67	5(7.46)	105	20(19.05)	28	4(14.29)
LDL, estimated ¹	66	10(15.15)	103	3(2.91)	27	2(7.41)
HDL ²	67	2(2.99)	105	15(14.29)	28	2(7.14)

1 = $p < 0.015$ 2 = $p < 0.05$

TABLE 26
CHLORACNE STATUS IN EXPOSED ONLY
vs.
SERUM LIPIDS BY SMOKING STATUS

Serum Lipid	Smoking Status	History Only		n	Current		n	No History	
		n	#(%)Abnormal		n	#(%)Abnormal		n	#(%)Abnormal
Cholesterol	Never	18	2(11.11)	16	0(0.00)	11	1(9.09)		
	Former	31	3(9.68)	42	3(7.14)	10	1(10.00)		
	Present	18	3(16.67)	47	2(4.26)	6	0(0.00)		
Triglyceride	Never	18	3(16.67)	16	2(12.50)	11	3(27.27)		
	Former ¹	31	1(3.23)	42	9(21.43)	10	1(10.00)		
	Present	18	1(5.56)	47	9(19.15)	6	0(0.00)		
LDL, estimated	Never	18	2(11.11)	15	0(0.00)	10	1(10.00)		
	Former	31	3(9.68)	42	2(4.76)	10	1(10.00)		
	Present ²	17	5(29.41)	46	1(2.17)	6	0(0.00)		
HDL	Never	18	0(0.00)	16	2(12.50)	11	2(18.18)		
	Former ¹	31	1(3.23)	42	7(16.67)	10	0(0.00)		
	Present	18	1(5.56)	47	6(12.77)	6	0(0.00)		

¹ 0.05 < p < 0.10

² 0.001 < p < 0.01

TABLE 27

EXPOSURE

vs.

PULMONARY TEST FINDINGS

Pulmonary Function Parameter		Exposed (n=203)		Not Exposed (n=162)		Probability	Questionable Exposure (n=51)	
		#	(%) Abnormal	#	(%) Abnormal		#	(%) Abnormal
FEV ₁		32	15.76	4	4.94	0.0001	5	9.80
FVC		35	17.24	11	6.79	0.0038	11	21.57
FEV ₁ /FVC		32	15.76	8	4.94	0.0013	3	5.88
MMEFR		47	23.15	18	11.11	0.0038	13	25.49

TABLE 28

EXPOSURE

vs.

PULMONARY TEST FINDINGS BY SMOKING STATUS

Pulmonary Function Parameter	Smoking Status	Exposed		Not Exposed		Probability	Questionable Exposure	
		n	#(%)Abnormal	n	#(%)Abnormal		n	#(%)Abnormal
FEV ₁	Never	45	3(6.67)	47	3(6.38)	N.S.	18	0(0.00)
	Former	84	10(11.90)	71	3(4.23)	N.S.	21	3(14.29)
	Present	73	19(26.03)	44	2(4.55)	0.0044	12	2(16.67)
FVC	Never	45	3(6.67)	47	6(12.77)	N.S.	18	2(11.11)
	Former	84	14(16.67)	71	4(5.63)	0.0551	21	6(28.57)
	Present	73	18(24.66)	44	1(2.27)	0.0015	12	3(25.00)
FEV ₁ /FVC	Never	45	3(6.67)	47	1(2.13)	N.S.	18	0(0.00)
	Former	84	11(13.10)	71	4(5.63)	N.S.	21	2(9.52)
	Present	73	18(24.66)	44	3(6.82)	0.0229	12	1(8.33)
MMFR	Never	45	4(8.89)	47	3(6.38)	N.S.	18	1(5.56)
	Former	84	17(20.24)	71	10(14.08)	N.S.	21	6(28.57)
	Present	73	26(35.62)	44	5(11.36)	0.0059	12	6(50.00)

TABLE 29
EXPOSURE
vs.
ECG FINDINGS

<u>Finding</u>	<u>Exposed</u> <u>(n=204)</u>	
	<u>#</u>	<u>%</u>
Normal ECG	69	33.82
Negative ECG*	80	39.22
Sinus Bradycardia	11	5.39
Sinus Tachycardia	2	0.98
PVC's	17	8.33
PAC's	5	2.45
Atrial Fibrillation	1	0.49
Intraventricular Conduction Defect	5	2.45
Left Anterior Hemiblock	11	5.39
1st Degree AV Block	4	1.96
Right Bundle Branch Block, complete	6	2.94
Left Bundle Branch Block, complete	2	0.98
Old Anterior Myocardial Infarct	3	1.47
Old Inferior Myocardial Infarct	7	3.43
True Posterior Myocardial Infarct	2	0.98
Digitalis Effect	2	0.98

* Normal or not significant findings

Not Exposed
(n=163)

<u>#</u>	<u>%</u>
71	43.56
43	26.38
5	3.07
1	0.61
4	2.45
4	2.45
1	0.61
1	0.61
4	2.45
2	1.23
2	1.23
1	0.61
2	1.23
2	1.23
1	0.61
1	0.61

Questionable Exposure
(n=51)

<u>#</u>	<u>%</u>
14	27.45
15	29.41
2	3.92
1	1.96
0	0.00
1	1.96
0	0.00
1	1.96
2	3.92
1	1.96
0	0.00
0	0.00
2	3.92
3	5.88
0	0.00
0	0.00

TABLE 29 CONTINUED

EXPOSURE
vs.
ECG FINDINGS

Finding	Exposed (n=204)		Not Exposed (n=163)		Questionable Exposure (n=51)	
	#	%	#	%	#	%
Left Ventricular Hypertrophy	6	2.94	5	3.07	1	1.96
Right Ventricular Hypertrophy	1	0.49	0	0.00	0	0.00
Left Atrial Hypertrophy	2	0.98	0	0.00	0	0.00
Non-specific ST-T Wave Changes	9	4.41	5	3.07	2	3.92
Low Voltage QRS	1	0.49	0	0.00	0	0.00
Abnormal P Wave	9	4.41	4	2.45	1	1.96
Left Axis Deviation	1	0.49	2	1.23	0	0.00

TABLE 30
EXPOSURE
vs.
ECG FINDINGS BY AGE

Finding	Age < 50				Age ≥ 50			
	Exposed (n=51)		Not Exposed (n=100)		Exposed (n=153)		Not Exposed (n=63)	
	#	%	#	%	#	%	#	%
Normal ECG ¹	22	43.14	57	57.00	47	30.72	14	22.22
Negative ECG* ^{2,1}	38	74.51	88	88.00	86	56.21	32	50.79
Sinus Bradycardia	1	1.96	2	2.00	10	6.54	3	4.76
Sinus Tachycardia	1	1.96	0	0.00	1	0.65	1	1.59
PVC's ³	1	1.96	1	1.00	16	10.46	3	4.76
PAC's ⁴	0	0.00	0	0.00	5	3.27	4	6.35
Atrial Fibrillation	0	0.00	0	0.00	1	0.65	1	1.59
Intraventricular Conduction Defect	1	1.96	0	0.00	4	2.61	1	1.59
Left Anterior Hemiblock	3	5.88	2	2.00	8	5.23	2	3.17
1 st Degree AV Block	2	3.92	0	0.00	2	1.31	2	3.17
Right Bundle Branch Block, complete	1	1.96	0	0.00	5	3.27	2	3.17
Left Bundle Branch Block, complete	0	0.00	1	1.00	2	1.31	0	0.00
Old Anterior Myocardial Infarct	0	0.00	0	0.00	3	1.96	2	3.17
Old Inferior Myocardial Infarct	0	0.00	0	0.00	7	4.58	2	3.17
True Posterior Myocardial Infarct	1	1.96	0	0.00	1	0.65	1	1.59
Digitalis Effect	0	0.00	0	0.00	2	1.31	1	1.59

* Normal or not significant findings

TABLE 30 CONTINUED

EXPOSURE
vs.
ECG FINDINGS BY AGE

Finding	Age < 50				Age ≥ 50			
	Exposed (n=51)		Not Exposed (n=100)		Exposed (n=153)		Not Exposed (n=63)	
	#	%	#	%	#	%	#	%
Left Ventricular Hypertrophy	0	0.00	1	1.00	6	3.92	4	6.35
Right Ventricular Hypertrophy	0	0.00	0	0.00	1	0.65	0	0.00
Left Atrial Hypertrophy	1	1.96	0	0.00	1	0.65	0	0.00
Non-Specific ST-T Wave Changes	1	1.96	2	2.00	8	5.23	3	4.76
Low Voltage QRS	0	0.00	0	0.00	1	0.65	0	0.00
Abnormal P Wave ⁴	2	3.92	0	0.00	7	4.58	4	6.35
Left Axis Deviation	0	0.00	1	1.00	1	0.65	1	1.59

¹ $p < 0.0001$

² $0.01 < p < 0.05$

³ $0.05 < p < 0.10$

⁴ $0.01 < p < 0.05$

For not exposed, young vs. old

For exposed, young vs. old

For exposed, young vs. old

For not exposed, young vs. old

Finding

Normal Chest X-Ray

Evidence, Old Granulomatous Disease

Evidence, Arteriosclerosis

Evidence, Degenerative Bone Disease

Cardiomegaly

Mass

Chronic Obstructive Pulmonary Disease (COPD)

Aortic Aneurysm

Pulmonary Hypertension

Blunted Costophrenic Angle

Acute Parenchymal Disease

Elevated Hemi-diaphragms

Pleural Thickening

Parenchymal Scarring

Possible Mass

Aortic Valve Disease

Trauma

TABLE 31

EXPOSURE

vs.

CHEST X-RAY FINDINGS

Exposed (n=204)		Not Exposed (n=163)		Questionable Exposure (n=51)	
#	%	#	%	#	%
94	46.08	110	67.48	36	70.59
60	29.41	23	14.11	9	17.65
23	11.27	12	7.36	1	1.96
15	7.35	4	2.45	2	3.92
8	3.92	2	1.23	0	0.00
5	2.45	3	1.84	1	1.96
9	4.41	3	1.84	1	1.96
1	0.49	0	0.00	1	1.96
0	0.00	1	0.61	0	0.00
20	9.80	9	5.52	2	3.92
0	0.00	1	0.61	0	0.00
5	2.45	1	0.61	2	3.92
15	7.35	5	3.07	1	1.96
13	6.37	9	5.52	0	0.00
6	2.94	7	4.29	2	3.92
0	0.00	1	0.61	0	0.00
2	0.98	3	1.84	0	0.00

TABLE 32

EXPOSURE

vs.

CHEST X-RAY FINDINGS BY AGE

Age < 50

Age ≥ 50

Finding	Exposed (n=51)		Not Exposed (n=100)		Exposed (n=153)		Not Exposed (n=63)	
	#	%	#	%	#	%	#	%
Normal Chest X-Ray ^{1,2}	42	82.35	82	82.00	52	33.99	28	44.44
Evidence, Old Granulomatous Disease ^{3,4}	6	11.76	9	9.00	54	35.29	14	22.22
Evidence, Arteriosclerosis ^{2,3}	0	0.00	0	0.00	23	15.03	12	19.05
Evidence, Degenerative Bone Disease ^{4,5}	0	0.00	0	0.00	15	9.80	4	6.35
Cardiomegaly	0	0.00	0	0.00	8	5.23	2	3.17
Mass	1	1.96	2	2.00	4	2.61	1	1.59
Chronic Obstructive Pulmonary Disease (COPD)	2	3.92	0	0.00	7	4.58	3	4.76
Aortic Aneurysm	0	0.00	0	0.00	1	0.65	0	0.00
Pulmonary Hypertension	0	0.00	0	0.00	0	0.00	1	1.59
Blunted Costophrenic Angle	3	5.88	3	3.00	17	11.11	6	9.52
Acute Parenchymal Disease	0	0.00	0	0.00	0	0.00	1	1.59
Elevated Hemi-diaphragms	0	0.00	0	0.00	5	3.27	1	1.59
Pleural Thickening ⁵	0	0.00	2	2.00	15	9.80	3	4.76
Parenchymal Scarring ⁴	1	1.96	2	2.00	12	7.84	7	11.11
Possible Mass	0	0.00	3	3.00	6	3.92	4	6.35
Aortic Valve Disease	0	0.00	1	1.00	0	0.00	0	0.00
Trauma	0	0.00	1	1.00	2	1.31	2	3.17

TABLE 32 CONTINUED

Key to p Values.

< 50 vs. ≥ 50 Years

- | | | |
|---|--------------------|--------------------------------|
| 1 | $p < 0.0001$ | For exposed, young vs. old |
| 2 | $p < 0.0001$ | For not exposed, young vs. old |
| 3 | $0.001 < p < 0.01$ | For exposed, young vs. old |
| 4 | $0.01 < p < 0.05$ | For not exposed, young vs. old |
| 5 | $0.01 < p < 0.05$ | For exposed, young vs. old |

TABLE 33

CLINICAL LABORATORY FINDINGS

vs.

EXPOSURE STATUS

	Exposed		Not Exposed		Questionable Exposure	
	<u>n</u>	<u>#(%Abnormal)</u>	<u>n</u>	<u>#(%Abnormal)</u>	<u>n</u>	<u>#(%Abnormal)</u>
<u>BLOOD</u>						
Calcium	197	0(0.00)	161	0(0.00)	49	2(4.08)
Phosphorus	190	3(1.58)	154	4(2.60)	46	2(4.35)
BUN	197	8(4.06)	161	5(3.11)	49	1(2.04)
Creatinine	196	2(1.02)	160	1(0.63)	49	3(6.12)
Uric Acid	197	12(6.09)	160	7(4.38)	49	2(4.08)
Glucose (CS)	190	14(7.37)	154	5(3.25)	47	3(6.38)
Total Protein	197	1(0.51)	160	1(0.63)	49	0(0.00)
Albumin	197	0(0.00)	160	0(0.00)	49	0(0.00)
Globulin	197	0(0.00)	160	0(0.00)	49	0(0.00)
Albumin/Globulin ratio	197	2(1.02)	161	0(0.00)	49	0(0.00)
Total Bilirubin ¹	197	2(1.02)	161	7(4.35)	48	1(2.08)
Direct Bilirubin ²	197	9(4.57)	161	18(11.18)	49	6(12.24)
Transaminase, SGO	190	8(4.21)	154	3(1.95)	47	1(2.13)
Transaminase, SGP	190	8(4.21)	154	5(3.25)	46	1(2.17)
Alkaline Phosphatase	197	4(2.03)	161	3(1.86)	49	1(2.04)
LDH	190	12(6.32)	154	4(2.60)	47	0(0.00)
Iron	197	2(1.02)	161	2(1.24)	48	0(0.00)

TABLE 33 CONTINUED
CLINICAL LABORATORY FINDINGS

vs.
EXPOSURE STATUS

	<u>n</u>	<u>Exposed</u> <u>#(%Abnormal)</u>	<u>n</u>	<u>Not Exposed</u> <u>#(%Abnormal)</u>	<u>Questionable</u> <u>Exposure</u> <u>n</u>	<u>#(%Abnormal)</u>
Sodium	197	2(1.02)	161	2(1.24)	49	0(0.00)
Potassium	190	2(1.05)	154	0(0.00)	47	1(2.13)
Chloride	197	1(0.51)	160	3(1.88)	49	0(0.00)
G-glutamyl transpeptidase	197	8(4.06)	161	6(3.73)	49	6(12.24)
Thyroxine binding globulins	198	51(25.76)	161	53(32.92)	49	16(32.65)
<u>CBC</u>						
WBC	197	7(3.55)	160	7(4.38)	49	1(2.04)
RBC	197	0(0.00)	160	1(0.63)	49	0(0.00)
HGB	197	15(7.61)	160	10(6.25)	49	3(6.12)
HCT	197	25(12.69)	160	17(10.63)	49	11(22.45)
MCHC ³	197	67(34.01)	160	30(18.75)	49	14(28.57)
MCH	197	23(11.68)	160	13(8.13)	49	7(14.29)
MCV ¹	197	79(40.10)	160	49(30.63)	49	20(40.82)
<u>Differential</u>						
Poly	197	4(2.03)	160	3(1.88)	49	1(2.04)
Lymph	197	5(2.54)	160	2(1.25)	49	0(0.00)
Mono	197	1(0.51)	159	2(1.26)	49	0(0.00)
Eos	197	3(1.52)	160	3(1.88)	49	0(0.00)
Baso	197	0(0.00)	160	1(0.63)	49	0(0.00)

TABLE 33 CONTINUED
CLINICAL LABORATORY FINDINGS
vs.
EXPOSURE STATUS

	<u>n</u>	<u>Exposed</u> <u>#(%Positive)</u>	<u>n</u>	<u>Not Exposed</u> <u>#(%Positive)</u>	<u>Questionable</u> <u>Exposure</u> <u>#(%Positive)</u>	
<u>Urinalysis</u>						
Acetone	196	0(0.00)	159	1(0.63)	49	0(0.00)
Albumin	196	2(1.02)	159	0(0.00)	49	0(0.00)
Bacteria	196	11(5.61)	159	13(8.18)	49	0(0.00)
Blood	196	2(1.02)	159	2(1.26)	49	0(0.00)
Epithelial Cells	196	68(34.69)	159	44(27.67)	49	12(24.39)
Glucose	196	2(1.02)	159	2(1.26)	49	0(0.00)
White Blood Cells	196	3(1.53)	159	4(2.52)	49	2(4.08)

1 0.05 < p < 0.10 for exposed vs. not exposed

2 0.01 < p < 0.05 for exposed vs. not exposed

3 0.001 < p < 0.01 for exposed vs. not exposed

TABLE 34

CLINICAL LABORATORY FINDINGS

vs.

CHLORACNE STATUS IN EXPOSED ONLY

	<u>n</u>	<u>History Only</u> <u>#(%Abnormal)</u>	<u>n</u>	<u>Current</u> <u>#(%Abnormal)</u>	<u>n</u>	<u>No History</u> <u>#(%Abnormal)</u>
<u>BLOOD</u>						
Calcium	69	0(0.00)	102	0(0.00)	26	0(0.00)
Phosphorus	69	0(0.00)	98	1(1.02)	26	2(7.69)
BUN	69	4(5.80)	102	4(3.92)	26	0(0.00)
Creatinine	69	1(1.45)	101	1(0.99)	26	0(0.00)
Uric Acid ¹	69	1(1.45)	102	7(6.86)	26	4(15.38)
Glucose (CS)	66	6(9.09)	98	7(7.14)	26	1(3.85)
Total Protein	69	1(1.45)	102	0(0.00)	26	0(0.00)
Albumin	69	0(0.00)	102	0(0.00)	26	0(0.00)
Globulin	69	0(0.00)	102	0(0.00)	26	0(0.00)
Albumin/Globulin ratio	69	0(0.00)	102	2(1.96)	26	0(0.00)
Total Bilirubin	69	2(2.90)	102	0(0.00)	26	0(0.00)
Direct Bilirubin	69	4(5.80)	102	5(4.90)	26	0(0.00)
Transaminase, SGO	66	5(7.58)	93	2(2.04)	26	1(3.85)
Transaminase, SGP	66	5(7.58)	98	2(2.04)	26	1(3.85)
Alkaline Phosphatase	69	1(1.45)	102	3(2.94)	26	0(0.00)
LDH	66	3(4.55)	98	8(8.16)	26	1(3.85)
Iron	69	0(0.00)	102	2(1.96)	26	0(0.00)
Sodium	69	0(0.00)	102	2(1.96)	26	0(0.00)

TABLE 34 CONTINUED
CLINICAL LABORATORY FINDINGS
vs.
CHLORACNE STATUS IN EXPOSED ONLY

	n	History Only #(%Abnormal)	n	Current #(%Abnormal)	n	No History #(%Abnormal)
Potassium	66	1(1.52)	98	0(0.00)	26	1(3.85)
Chloride	69	0(0.00)	102	1(0.98)	26	0(0.00)
G-glutamyl transpeptidase	69	2(2.90)	102	5(4.90)	26	1(3.85)
Thyroxine binding globulins	69	16(23.19)	102	27(26.47)	27	8(29.63)
<u>CBC</u>						
WBC	69	1(1.45)	101	6(5.94)	27	0(0.00)
RBC	69	0(0.00)	101	0(0.00)	27	0(0.00)
HGB	69	5(7.25)	101	7(6.93)	27	3(11.11)
HCT	69	10(14.49)	101	12(11.88)	27	3(11.11)
MCHC	69	30(43.48)	101	32(31.68)	27	5(18.52)
MCH	69	6(8.70)	101	14(13.86)	27	3(11.11)
MCV	69	27(39.13)	101	45(44.55)	27	7(25.93)
<u>Differential</u>						
Poly	69	2(2.90)	101	2(1.98)	27	0(0.00)
Lymph	69	4(5.80)	101	1(0.99)	27	0(0.00)
Mono	69	0(0.00)	101	1(0.99)	27	0(0.00)
Eos	69	1(1.45)	101	1(0.99)	27	1(3.70)
Baso	69	0(0.00)	101	0(0.00)	27	0(0.00)

TABLE 34 CONTINUED
CLINICAL LABORATORY FINDINGS
vs.
CHLORACNE STATUS IN EXPOSED ONLY

	<u>History Only</u>		<u>Current</u>		<u>No History</u>	
	<u>n</u>	<u>#(%Positive)</u>	<u>n</u>	<u>#(%Positive)</u>	<u>n</u>	<u>#(%Positive)</u>
<u>Urinalysis</u>						
Acetone	68	0(0.00)	101	0(0.00)	27	0(0.00)
Albumin	68	0(0.00)	101	1(0.99)	27	1(3.70)
Bacteria	68	5(7.35)	101	2(1.98)	27	4(14.81)
Blood	68	1(1.47)	101	1(0.99)	27	0(0.00)
Epithelial Cells	68	26(38.24)	101	36(35.64)	27	6(22.22)
Glucose	68	2(2.94)	101	0(0.00)	27	0(0.00)
White Blood Cells	68	1(1.47)	101	2(1.98)	27	0(0.00)

¹ 0.01 < p < 0.05 for history only vs. current vs. no history

TABLE 35

URINE COPROPORPHYRIN*

	<u>Low</u> (<u><30 mcg/l</u>)		<u>Normal</u> (<u>30-240 mcg/l</u>)		<u>High</u> (<u>>240 mcg/l</u>)	
	#	%	#	%	#	%
EXPOSED (n=197)	6	3.05	185	93.91	6	3.05
QUESTIONABLY EXPOSED (n=49)	0	0.00	48	97.96	1	2.04
NOT EXPOSED (n=161)	1	0.62	154	95.65	6	3.73

p = ns for comparison of exposed to not exposed.

URINE UROPORPHYRINS

	<u>Low</u> (<u><15 mcg/l</u>)		<u>Normal</u> (<u>15-60 mcg/l</u>)		<u>High</u> (<u>>60 mcg/l</u>)	
	#	%	#	%	#	%
EXPOSED (n=196)	8	4.08	140	71.43	48	24.49
QUESTIONABLY EXPOSED (n=49)	2	4.08	42	85.71	5	10.20
NOT EXPOSED (n=161)	6	3.73	122	75.78	33	20.50

p = ns for comparison of exposed to not exposed.

* The values for coproporphyrin and uroporphyrin were from a single void sample.

TABLE 36

MEAN NERVE CONDUCTION PARAMETER VALUES
FOR THE THREE EXPOSURE CATEGORIES
(Not Adjusted for Age)

NERVE	PARAMETER	EXPOSED	NOT EXPOSED	QUESTIONABLE EXPOSURE
		$\bar{x} \pm s$ (n)	$\bar{x} \pm s$ (n)	$\bar{x} \pm s$ (n)
Ulnar	Nerve Conduction Velocity	56.90 $\pm$ 7.43 (9)	60.07 $\pm$ 8.44 (10)	52.12 $\pm$ 1.53 (2)
	Latency	3.30 $\pm$ 1.08 (9)	3.07 $\pm$ 0.68 (9)	2.55 $\pm$ 0.11 (2)
	Amplitude Ratio	1.04 $\pm$ 0.18 (9)	0.91 $\pm$ 0.19 (10)	1.01 $\pm$ 0.12 (2)
Peroneal	Nerve Conduction Velocity	41.08 $\pm$ 5.63 (160)	43.45 $\pm$ 5.96 (134)	42.55 $\pm$ 5.16 (42)
	Latency	4.07 $\pm$ 1.21 (160)	4.12 $\pm$ 1.04 (134)	4.31 $\pm$ 1.18 (42)
	Amplitude Ratio	0.86 $\pm$ 0.23 (160)	0.92 $\pm$ 0.16 (134)	0.93 $\pm$ 0.16 (42)
Sural	Nerve Conduction Velocity	41.27 $\pm$ 6.50 (150)	42.42 $\pm$ 4.97 (128)	40.90 $\pm$ 4.41 (41)
	Latency	4.84 $\pm$ 0.59 (150)	4.62 $\pm$ 0.68 (128)	4.63 $\pm$ 0.59 (41)
	Amplitude	1.91 $\pm$ 1.07 (150)	2.51 $\pm$ 1.31 (128)	2.07 $\pm$ 1.06 (41)

TABLE 37

MEAN NERVE CONDUCTION PARAMETER VALUES
FOR THE TWO EXPOSURE CATEGORIES
(Adjusted for Age)

<u>NERVE</u>	<u>PARAMETER</u>	<u>EXPOSED</u>		<u>NOT EXPOSED</u>		<u>P</u>
		$\bar{x} \pm s$	(n)	$\bar{x} \pm s$	(n)	
Ulnar	Nerve Conduction Velocity	-0.14 $\pm$ 0.92	(9)	0.26 $\pm$ 1.13	(10)	ns
	Latency	0.20 $\pm$ 1.18	(9)	-0.13 $\pm$ 0.94	(9)	ns
	Amplitude Ratio	0.35 $\pm$ 0.95	(9)	-0.35 $\pm$ 1.05	(10)	ns
Peroneal	Nerve Conduction Velocity	-0.06 $\pm$ 0.99	(160)	0.04 $\pm$ 1.07	(134)	ns
	Latency	-0.09 $\pm$ 1.05	(160)	0.06 $\pm$ 0.92	(134)	ns
	Amplitude Ratio	-0.10 $\pm$ 1.15	(160)	0.05 $\pm$ 0.83	(134)	ns
Sural	Nerve Conduction Velocity	0.06 $\pm$ 1.17	(150)	-0.04 $\pm$ 0.85	(128)	ns
	Latency	0.11 $\pm$ 0.95	(150)	-0.06 $\pm$ 1.07	(128)	ns
	Amplitude	-0.07 $\pm$ 0.93	(150)	0.09 $\pm$ 1.09	(128)	ns

TABLE 38
EXPOSURE VS. OUT-OF-RANGE NERVE
CONDUCTION PARAMETER VALUES
 (Not Adjusted for Age)

-08-

NERVE	PARAMETER	EXPOSED			NOT EXPOSED			P	O.E.	
		(n)	Low (%)	Normal (%)	High (%)	(n)	Low (%)			Normal (%)
Ulnar	NCV	(9)	1 (11.11)	7 (77.78)	1 (11.11)	(10)	1 (10.00)	7 (70.00)	2 (20.00)	ns
	Latency	(9)	0	6 (66.67)	3 (33.33)	(9)	0	7 (77.78)	2 (22.22)	ns
Peroneal	NCV	(160)	119 (74.38)	41 (25.63)	0	(134)	65 (48.51)	68 (50.75)	1 (0.75)	0.0001
	Latency	(160)	98 (61.25)	51 (31.88)	11 (6.88)	(134)	78 (58.21)	49 (36.57)	7 (5.22)	ns
Sural	NCV	(150)	105 (70.00)	35 (23.33)	10 (6.67)	(128)	76 (59.38)	44 (34.38)	8 (6.25)	ns

Exposed group has a higher percentage with low Peroneal Nerve Conduction Velocity than the Not Exposed group. This may, however, be an artifact of age, since NCV slows with age and the Exposed group is older than the Not Exposed group.

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EXPOSURE
vs.
REPRODUCTIVE FINDINGS

	<u>Exposed</u> (n=189)	<u>Not Exposed</u> (n=155)	<u>Probability</u>	<u>Questionable</u> <u>Exposure</u> (n=49)
# Pregnancies	663	429		139
# Live Births	573	373		128
# Dead in 4 Weeks Rate (/1000 live births)	16 27.92	7 18.767	N.S.	3 23.4375
# Miscarriages Rate (/1000 pregnancies)	72 108.597	51 118.881	N.S.	7 50.360
# Children with Birth Defects* Rate (/1000 live births)	23 40.140	20 53.619	N.S.	6 46.875
# Stillbirths Rate (/1000 Fetuses to term)	14 23.850	5 13.228	N.S.	4 30.303

* These are further detailed in the Summary of Birth Defects which follow

SUMMARY OF BIRTH DEFECTS
AS REPORTED BY SUBJECTS

EXPOSURE CATEGORY: PREGNANCY BEFORE OR AFTER SUBJECTS' EXPOSURE:	<u>EXPOSED</u>			<u>QUESTIONABLY EXPOSED</u>			<u>NOT EXPOSED</u>	<u>TOTAL</u>
	<u>Before</u>	<u>After</u>	<u>Unable to Determine</u>	<u>Before</u>	<u>After</u>	<u>Unable to Determine</u>	<u>--</u>	<u>--</u>
LIKELY BIRTH DEFECTS:	8 ^a	6 ^b	2 ^c	2 ^d	3 ^e	--	11 ^f	32
POSSIBLE BIRTH DEFECTS: ^g (Insufficient data to determine severity or cause)	1	5	1	1	--	--	9	17
UNLIKELY BIRTH DEFECTS: ^h	1	1	--	1	--	--	6	9

Subjects' descriptions of Birth Defects were reviewed with faculty at the Cincinnati Center for Developmental Disorders and categorized as Likely Birth Defects, Possible Birth Defects and Unlikely Birth Defects.

^aIncludes: Congenital cyanotic cardiac anomaly, hydrocoele, hernia, undescended testicle, angioma, congenital short leg, club foot, anomaly of sternum.

^bIncludes: Pectus carinatum, obstructive defects of urinary tract, Down's Syndrome, congenital hydrocoele, spina bifida.

^cIncludes: Unspecified cardiac anomaly, pyloric stenosis.

^dIncludes: Hydrocephalus, congenital anomaly of eye.

^eIncludes: Ventricular-septal defect, atrial-septal defect, club foot.

^fIncludes: Spina bifida, club foot, Down's Syndrome, obstructive defects of urinary tract, hernia, antral web, congenital anomalies of eye, absence of fingers, cystic hygroma, polycystic kidney disease (autosomal dominant with positive family history), congenital dislocation of hips (two of two children in one family; one male, one female).

^gIncludes: Epilepsy, retardation, slow learner, deafness, incomplete ossification of vertebra.

^hIncludes: Muscle problems, one eye larger than other, tongue-tied, speech defect, punctured lungs, inherited arthritis, blood problem, floating kidney.



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THE MONSANTO COMPANY

THE NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH
SCIENCES, U.S. PUBLIC HEALTH SERVICE

THE INSTITUTE OF ENVIRONMENTAL HEALTH, UNIVERSITY
OF CINCINNATI

UNIVERSITY OF CINCINNATI
DEPARTMENT OF ENVIRONMENTAL HEALTH
2,4,5-T WORKERS' STUDY

INFORMED CONSENT STATEMENT

Before agreeing to participate in this study, it is important that you understand the purpose of the examination, its benefits and possible discomforts. The objective of this thorough examination is to determine the health status of the employees and former employees of the Monsanto Industrial Chemical Company in Nitro, West Virginia and to identify health problems which may be related to the occupational environment. The examination will focus on possible health effects over a long period of time of chemicals associated with the making of 2,4,5-T such as dioxin.

I, _____, agree to participate in the medical research study conducted by the University of Cincinnati under the direction of Dr. Raymond R. Suskind. I understand that I will be interviewed and asked a series of questions about myself and the health of my family. In addition to a physical examination I shall permit chest X-rays and an EKG to be done; shall permit pulmonary function and nerve conduction tests to be performed; shall have blood drawn and furnish urine for laboratory examination. If indicated by the physician's examination, skin biopsies and skin scrapings for laboratory diagnosis will be done. The discomfort of the biopsy will be the same as with a skin injection.

The University of Cincinnati Medical Center follows a policy of making all decisions concerning compensation and medical treatment for injuries occurring during or caused by participation in biomedical or behavioral research on an individual basis. If I believe I have been injured as a result of research, I will contact Dr. Suskind.

Any questions that I may have concerning this study will be answered by Dr. Raymond R. Suskind, phone (513) 872-5701, or his associates. I am free to withdraw from this study at any time.

Subject _____

Investigator _____

Witness _____

Date _____

HEALTH STATUS RESEARCH PROGRAM

UNIVERSITY OF CINCINNATI

EMPLOYEES OF THE MONSANTO INDUSTRIAL CHEMICAL COMPANY

QUESTIONNAIREName: _____
Last First MiddleAddress: _____
Street Apt. #

City State Zip Code

Telephone Number: _____
area code

Social Security Number: _____

- (5) Present Status: ☐ Active (1)
(check one) ☐ Retired (2)
☐ Terminated (3)

(6-10) Current Department: _____ # / / / / /

(11-14) Job Title: _____ # / / / /

(15-17) Clock Number: ☐ / / / /

A. PERSONAL DATA

2. Sex: 1 male (1) 1 female (2)

5. Number of Marriages: 1

6-37) 6. Education: Highest grade completed / / /

Elementary = 01 - 08

Secondary = 09 - 12

College = 13 (1 year)
14 (2 years)
15 (3 years)
16 (4 years)
17 (5 years)
18 (6 years)
19 (7 or more years)

B. OCCUPATIONAL HISTORY

1. Are you now employed at Monsanto, Nitro? ☐ yes (1) ☐ no (2)

If no, date of retirement / / / / /
mo. day yr.

or, date of termination / / / / /
mo. day yr.

2. If presently employed at Monsanto

1-54) What is your job title: _____ code/ / / / /

5-59) Name of department: _____ code/ / / / / /

What is your main job or work:(describe) _____

60-65) When did you start this job: / / / / /
mo. day yr.

9-80) / 0 / 1 /

3. Beginning with your first job at Monsanto, give the following information:

Department	Job Title	Dates (from/to) mo/yr/mo/yr	What you did (work description)
1. _____	_____	/ / - / /	_____
2. _____	_____	/ / - / /	_____
3. _____	_____	/ / - / /	_____
4. _____	_____	/ / - / /	_____
5. _____	_____	/ / - / /	_____
6. _____	_____	/ / - / /	_____
7. _____	_____	/ / - / /	_____

8-80) / 3 / If terminated or retired, list same information above.

	Department	Job title	Dates (from/to) mo/yr/mo/yr	What you did(work description)
8.				
2-38) 9.				
0-55) 10.				
-72) 11.				
9-80) 12.				
21) 13.				
2-38) 14.				
9-5-72) 15.				
-80)				

APPENDIX I

4. If retired or terminated, what work have you done since leaving Monsanto?

Employee	Job Title	Dates (from/to) mo/yr/mo/yr	Work description	S.I.C.
16)	/	/ -	/	/ / / / /
1-28)	/	/ -	/	/ / / / /
1-40)	/	/ -	/	/ / / / /
1-52)	/	/ -	/	/ / / / /
3-64)	/	/ -	/	/ / / / /
5-76)	/	/ -	/	/ / / / /
9-80) / 0/4/	/	/ -	/	/ / / / /
5-16)	/	/ -	/	/ / / / /
7-28)	/	/ -	/	/ / / / /
29-40)	/	/ -	/	/ / / / /
11-52)	/	/ -	/	/ / / / /
1-4)	/	/ -	/	/ / / / /
65-76)	/	/ -	/	/ / / / /
79-80) / / /	/	/ -	/	/ / / / /

5. Previous work history, before Monsanto

S.I.C.

Employer	Job Title	Dates (from/to) mo/yr/mo/yr	Work description	S.I.C.
5-16)	/	/ -	/	/ / / / /
17-28)	/	/ -	/	/ / / / /
29-40)	/	/ -	/	/ / / / /
11-52)	/	/ -	/	/ / / / /
53-64)	/	/ -	/	/ / / / /
65-76)	/	/ -	/	/ / / / /
79-80) / 0/5/	/	/ -	/	/ / / / /
5-16)	/	/ -	/	/ / / / /
1-8)	/	/ -	/	/ / / / /

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	<u>Employer</u>	<u>Job Title</u>	<u>Dates</u> (from/to) mo/yr/mo/yr	<u>Work description</u>	<u>S.I.C.</u>
			/		/ / / / /
52)			/		/ / / / /
-64)			/		/ / / / /
76)			/		/ / / / /
-80) / / /			/		/ / / / /
6)			/		/ / / / /
-28)			/		/ / / / /

6. While working at Monsanto were you engaged in other employment?

-) a. mechanical work ☐ yes (1) ☐ no (2)
-) b. farming ☐ yes (1) ☐ no (2)
-) c. other ☐ yes(1) ☐ no(2) (describe) _____

) 7. In previous employment, were you exposed to dust, solvents, pesticides, welding or soldering fumes, fertilizer, weed killers, etc. ☐ yes(1) ☐ no(2)

- If yes, specify _____

C. WORK HYGIENE AT MONSANTO

1. Do you or did you smoke at worksite? ☐ yes(1) ☐ no(2)

2. Do you or did you eat at worksite? ☐ yes(1) ☐ no(2)

or drink beverages such as coffee or soft drinks at worksite? ☐ yes(1) ☐ no(2)

3. Do you or did you wear any of the following most of the time at work?

☐ yes(1) ☐ no(2) Short sleeves

☐ yes(1) ☐ no(2) Long sleeves

☐ yes(1) ☐ no(2) Gloves If yes, on what job? _____
What kind (cotton, rubber, leather, plastic, lined, etc)? _____

☐ yes(1) ☐ no(2) Protective sleeves If yes on what job? _____
What kind (cotton, rubber, etc.)? _____

☐ yes(1) ☐ no(2) Apron If yes, on what job? _____
What kind? _____

☐ yes(1) ☐ no(2) Special Shoes or Boots If yes, do you or did you change out of them before going home? ☐ yes ☐ no

☐ yes(1) ☐ no(2) Respirator If yes, on what job? _____

☐ yes(1) ☐ no(2) Eye Protection If yes, on what job? _____

☐ yes(1) ☐ no(2) Mask If yes, on what job? _____

☐ yes(1) ☐ no(2) Protective clothing If yes, on what job? _____
What kind? _____

☐ yes(1) ☐ no(2) Other (specify) _____
If yes, on what job? _____

4. Do you or did you use a barrier or protective creams at work? ☐ yes(1) ☐ no(2)

If yes, ☐ often(1) ☐ occasionally(2) ☐ seldom(3)

If yes, what brand? _____

5. Do you or did you change out of your work clothes regularly before going home?

☐ yes(1) ☐ no(2)

6. Do you or did you change out of your work shoes regularly before going home?

☐ yes(1) ☐ no(2)

- 56) / yes(1) / no(2) If yes, describe briefly _____

Department _____ Code / / / / / /

66-69) Date of onset / /
 0) no. yr.

10)
3/

D. NUTRITION

1. How many days a week do you eat: (fill in)

- a. a morning meal? _____
b. a lunch or mid-day meal? _____
c. an evening meal? _____
d. during the evening or night? _____

2. How many times per week do you eat the following?

Meat and Meat Substitutes (fill-in)

- a. Bacon _____
b. Tongue _____
c. Sausage _____
d. Luncheon meat _____
e. Hot dogs _____
f. Liver-chicken _____
g. Liver-other _____
h. Poultry _____
i. Salt pork _____
j. Pork or ham _____
k. Bones (neck or other) _____
l. Meat in mixtures (such as stews, casseroles, pies, etc.) _____
m. Beef or veal _____
n. Other meat _____
o. Fish _____
p. Eggs _____
q. Dried beans or pea dishes _____
r. Peanut butter or nuts _____

3. Do you use any of the following? (circle)

- a. vitamin supplement (1)
b. mineral supplement (2)
c. both vitamins and mineral supplements (3)
d. none of the above (4)

4. How many times per week do you eat the following?

Fruit and Vegetables (fill-in)

- a. Fruit juice (orange, prune, etc.) _____
b. Fruit (apples, oranges, etc.) _____
c. Raw vegetables (carrots, spinach, etc.) _____
d. Potatoes _____
e. Other cooked vegetables _____

5. How many times per week do you eat the following?

- a. Candy _____
b. Soft drinks, popsicles, sherberts _____
c. Instant breakfast _____
d. Artificially sweetened beverage _____
e. Coffee or tea _____
f. Beer _____
g. Wine _____
h. Whiskey, vodka, rum, scotch, gin _____

E. TOBACCO CONSUMPTION

- (41) 1. Do you presently smoke cigarettes? ☐ yes(1) ☐ no(2)
- (42-43) If yes: at what age did you start? ☐ ☐ ☐
- (44-45) total years smoking? ☐ ☐ ☐
- (46) packs smoked per day? ☐ <1(1) ☐ 1-2(2) ☐ 2-3(3) ☐ >3(4)
2. If you do not now smoke cigarettes, have you smoked them in the past?
- (47) ☐ yes(1) ☐ no(2)
- (48-49) If yes: at what age did you start? ☐ ☐ ☐
- (50-51) total years smoked? ☐ ☐ ☐
- (52) packs smoked a day? ☐ <1(1) ☐ 1-2(2) ☐ 2-3(3) ☐ >3(4)
3. Have you smoked as many as 5 packs of cigarettes during your life?
- (53) ☐ yes(1) ☐ no(2)

F. ALCOHOL CONSUMPTION

1. Do you now drink alcoholic beverages? ☐ yes(1) ☐ no(2)

If no, did you ever drink alcoholic beverages? ☐ yes(1) ☐ no(2)

How old were you when you gave up drinking?

2. How old were you when you first started drinking?

3. About how often do you drink some kind of alcoholic beverage? (check one)

☐ almost every day (1)

☐ three or four time a week (2)

☐ once or twice a week (3)

☐ once or twice a month (4)

☐ less than once a month (5)

4. When you drink beer, about how many cans or bottles of beer do you usually drink?

☐ 0(1) ☐ 1-2(2) ☐ 3-4(3) ☐ 5-6(4) ☐ >6(5)

5. When you drink wine, about how many glasses of wine do you usually drink?

☐ 0(1) ☐ 1-2(2) ☐ 3-4(3) ☐ 5-6(4) ☐ >6(5)

6. When you drink highballs, mixed drinks, or other kinds of liquor, about how many drinks do you usually have?

☐ 0(1) ☐ 1-2(2) ☐ 3-4(3) ☐ 5-6(4) ☐ >6(5)

7. Have your drinking habits changed over time? ☐ yes(1) ☐ no(2)

If YES:

8. If you reduced your alcohol intake, indicate year? 19 / /

9. When you drank beer, about how many cans or bottles did you usually drink?

☐ 1-2(1) ☐ 3-4(2) ☐ 5-6(3) ☐ >6(4)

10. When you drank wine, about how many glasses did you usually drink?

☐ 1-2(1) ☐ 3-4(2) ☐ 5-6(3) ☐ >6(4)

11. When you drank highballs, mixed drinks, or other kinds of liquor, how many did you usually have?

☐ 1-2(1) ☐ 3-4(2) ☐ 5-6(3) ☐ >6(4)

APPENDIX I

G. FAMILY HISTORY

Have either your father, your mother, or any of your brothers or sisters (including half-brothers and half-sisters) had any of the following problems?

READ EACH PROBLEM. CHECK A "YES" OR "NO" RESPONSE. IF "YES", CHECK THE APPROPRIATE RELATIONSHIP(S). IF "YES" FOR A BROTHER OR SISTER, ASK:

How many of your brother(s) or sister(s) have (had) this problem?

AND ENTER APPROPRIATE RESPONSE.

	PROBLEM	RESPONSE	RELATIONSHIP	HOW MANY SIBLINGS HAVE (HAD) THIS PROBLEM
(5)	1. Asthma	☐ yes	☐ Father	
(6-9)		☐ no	☐ Mother	
(10-11)			☐ Brother	☐
			☐ Sister	☐
(12)	2. Hayfever	☐ yes	☐ Father	
(13-16)		☐ no	☐ Mother	
(17-18)			☐ Brother	☐
			☐ Sister	☐
(19)	3. Acne	☐ yes	☐ Father	
(20-23)	(pimples)	☐ no	☐ Mother	
(24-25)			☐ Brother	☐
			☐ Sister	☐
(26)	4. Eczema	☐ yes	☐ Father	
(27-30)		☐ no	☐ Mother	
(31-32)			☐ Brother	☐
			☐ Sister	☐
(33)	5. Hives	☐ yes	☐ Father	
(34-37)		☐ no	☐ Mother	
(38-39)			☐ Brother	☐
			☐ Sister	☐

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APPENDIX 1

	PROBLEM	RESPONSE	RELATIONSHIP	HOW MANY SIBLINGS HAVE (HAD) THIS PROBLEM
4 1) (15-46)	6. Stomach or peptic ulcers	☒ yes ☐ no	☐ Father ☐ Mother ☐ Brother ☐ Sister	☐ ☐ ☐ ☐
(47) (48-51) (52-53)	7. Colitis	☐ yes ☐ no	☐ Father ☐ Mother ☐ Brother ☐ Sister	☐ ☐ ☐ ☐
(54) (55-58) (59-60)	8. Heart attack or angina before age 60	☐ yes ☐ no	☐ Father ☐ Mother ☐ Brother ☐ Sister	☐ ☐ ☐ ☐
(61) (62-65) (67)	9. Heart attack or angina after age 60	☐ yes ☐ no	☐ Father ☐ Mother ☐ Brother ☐ Sister	☐ ☐ ☐ ☐
(68) (69-72) (73-74) (79-80) (0/8/	10. High blood pressure	☐ yes ☐ no	☐ Father ☐ Mother ☐ Brother ☐ Sister	☐ ☐ ☐ ☐
(5) (6-9) (10-11)	11. Stroke	☐ yes ☐ no	☐ Father ☐ Mother ☐ Brother ☐ Sister	☐ ☐ ☐ ☐
(12) (13-16) (17-18)	12. High cholesterol, high triglycerides, or high blood fat	☐ yes ☐ no	☐ Father ☐ Mother ☐ Brother ☐ Sister	☐ ☐ ☐ ☐

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	PROBLEM	RESPONSE	RELATIONSHIP	HOW MANY SIBLINGS HAVE (HAD) THIS PROBLEM
(19)	13. Diabetes	☐ yes	☐ Father	
0-23)		☐ no	☐ Mother	
1-25)			☐ Brother	☐
			☐ Sister	☐
(26)	14. Liver disease	☐ yes	☐ Father	
(27-30)	(such as	☐ no	☐ Mother	
(31-32)	cirrhosis, hepatitis, etc.)		☐ Brother	☐
			☐ Sister	☐
(33)	15. Nervous	☐ yes	☐ Father	
(34-37)	disorder or	☐ no	☐ Mother	
(38-39)	mental disorder		☐ Brother	☐
			☐ Sister	☐
(40)	16. Inherited	☐ yes	☐ Father	
(41-44)	disorder or	☐ no	☐ Mother	
(45-46)	disorders they were born with		☐ Brother	☐
			☐ Sister	☐
(47)	17. Cancer	☐ yes	☐ Father	TYPE: ☐ ☐ ☐
(48-51)		☐ no	☐ Mother	☐ ☐ ☐
(52-53)			☐ Brother	☐ ☐ ☐
(54-65)			☐ Sister	☐ ☐ ☐

IF YES TO "CANCER", SPECIFY TYPE AND SITE:

01= lymphoma	06= stomach	11= breast	16= prostate
02= hodgekin's disease	07= rectum	12= cervix	17= bone
03= leukemia	08= bowel	13= uterus	18= other cancer
04= throat	09= kidney	14= lung	(specify)
05= esophagus	10= brain	15= skin	

(66-67) 18. How many brothers or half brothers do you or did you have? ☐ ☐ ☐

(67-68) 19. How many sisters or half sisters do you or did you have? ☐ ☐ ☐

(79-80)

10/9/

237839.

H. PERSONAL MEDICAL HISTORY

Have you ever had any of the following? If yes, in what year? was it confirmed by a doctor?

		YES(1)	NO(2)	YEAR	CONFIRMED BY DOCTOR		AREA OF BODY (TYPE)* IF APPROPRIATE
					YES(1)	NO(2)	
(5-8)	Acne (blackheads & cysts).....1.			19/ / /			
(9-12)	Skin abscesses.....2.			19/ / /			
(13-16)	Dermatitis.....3.			19/ / /			
(17-20)	Liver disorder.....4.			19/ / /			
(21-24)	a. hepatitis.....a.			19/ / /			
(25-28)	b. cirrhosis.....b.			19/ / /			
(29-32)	c. enlarged liver.....c.			19/ / /			
(33-36)	d. other.....d.			19/ / /			
(37-40)	Muscle pains (area).....5.			19/ / /			
(41-44)	Nerve injury.....6.			19/ / /			
(45-48)	Nervousness.....7.			19/ / /			
(49-52)	Stomach ulcer.....8.			19/ / /			
(53-56)	Bowel trouble or colitis.....9.			19/ / /			
(57-60)	Kidney trouble (type).....10.			19/ / /			
(61-64)	Bladder trouble.....11.			19/ / /			
(65-68)	Thyroid disease.....12.			19/ / /			
(69-72)	Other hormone problems.....13.			19/ / /			
(73-76)	Bone problems (type, where).....14.			19/ / /			
(5-8)	Arthritis (type)(79-80)/10/15.			19/ / /			
(9-12)	Hypertension.....16.			19/ / /			
(13-16)	Heart attack.....17.			19/ / /			
(17-20)	Angina.....18.			19/ / /			
(21-24)	Bronchitis.....19.			19/ / /			
(25-28)	Recurrent infections (type).....20.			19/ / /			
(29-32)	Emphysema.....21.			19/ / /			
(33-36)	Bronchial Asthma.....22.			19/ / /			
(37-40)	Pulmonary edema.....23.			19/ / /			
(41-44)	Pneumonia.....24.			19/ / /			
(45-48)	Pleurisy.....25.			19/ / /			
(49-52)	Stroke.....26.			19/ / /			

27. Have you ever been told by a doctor that you had (or have) any type of cancer?

(53) ☐ yes (1) ☐ no (2)

(54-55) If yes, what kind of cancer? Specify type: ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

(56-57)

01= lymphoma	06= stomach	11= breast	16= prostate
02= hodgkin's disease	07= rectum	12= cervix	17= bone
03= leukemia	08= bowel	13= uterus	18= other cancer
04= throat	09= kidney	14= lung	(specify)
05= esophagus	10= brain	15= skin	

(58-59) In what year were you first told about this (these) condition(s)? 19/ / / 19/ /
(60-61)

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2) 28. Have you ever been hospitalized? ☐ yes(1) ☐ no(2)

IF YES, ASK:

Why were you hospitalized?

In what year were you hospitalized?

What was the name of the hospital?

Where is the hospital (in what city and state)?

	CONDITION	YEAR	HOSPITAL - NAME	CITY	STATE
63-64)		19/ /			
65-66)		19/ /			
67-68)		19/ /			
69-70)		19/ /			
71-72)		19/ /			
73-74)		19/ /			

79-80)/1/1/

COMMENTS:

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GASTROINTESTINAL (STOMACH & INTESTINES)

29. Have you ever lost more than 10 pounds without dieting? ☐ yes(1) ☐ no(2)

9) If yes, amount lost? lbs. over what time period? weeks

-17) If yes, give year(s): 19/ / 19/ / 19/ / 19/ /

) 30. Have you ever lost your appetite? ☐ yes(1) ☐ no(2)

-22) If yes, when did this happen? / /
mo. yr.

-24) How long did this condition last: / / weeks

i) 31. Have you ever had a peculiar taste in your mouth: ☐ yes(1) ☐ no(2)

If yes, what kind of taste(specify)? _____

i-33) If yes, give year(s): 19/ / 19/ / 19/ / 19/ /

i) 32. Have you experienced nausea frequently? ☐ yes(1) ☐ no(2)

i-42) If yes, give year(s): 19/ / 19/ / 19/ / 19/ /

3) 33. Have you ever had abdominal pains: ☐ yes(1) ☐ no(2)

If yes, indicate location (check only one of the following):

4) ☐ diffuse(1) ☐ epigastric(2) ☐ periumbilical(3) ☐ other(4)

5) If yes, is/was the pain related to meals? ☐ yes(1) ☐ no(2)

6-53) If yes, give year(s): 19/ / 19/ / 19/ / 19/ /

34) 34. Have you ever experienced episodes of crampy, abdominal pain associated with constipation, lasting several days? ☐ yes(1) ☐ no(2)

j5) If yes, have there been more than: ☐ 2 such incidents(1) ☐ 5 incidents(2)

i6-63) If yes, give year(s): 19/ / 19/ / 19/ / 19/ /

NEUROLOGICAL

i4) 35. Do you often have headaches: ☐ yes(1) ☐ no(2)

65) If yes, how often? ☐ daily(1) ☐ weekly(2) ☐ less frequently than weekly(

19-80)/1/2/

36. Have you ever had any of the following conditions?

WHEN?

5-8) Sleeplessness current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ /

) Nightmares current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ /

16) Muscle pain current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ /

17-20) Joint pain current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ /

(24) Muscle weakness in limbs current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /
 (28) Paresthesia current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /
 (29-32) Dizziness current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /
 (33-36) Depression current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /
 (37-40) Memory poor, or change in memory current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /
 (41-44) Always tired, general fatigue current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /
 (45-48) Nervousness current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /
 (49-52) Sleepiness current ☐ yes(1) ☐ no(2) past ☐ yes(1) ☐ no(2) 19/ / /

SEXUAL HISTORY

(53) 37. Have you noticed any change in your sexual life? ☐ yes(1) ☐ no(2)

(54-59) If yes, give year(s): 19/ / / 19/ / / 19/ / /

If yes, what was the change?

(60-62) Decreased sexual desire? ☐ yes(1) ☐ no(2) If yes, when? 19/ / /

(63-65) Increased sexual desire? ☐ yes(1) ☐ no(2) If yes, when? 19/ / /

(66-68) Decreased ability to achieve & maintain erection? ☐ yes(1) ☐ no(2)
If yes, when? 19/ / /

(69-71) Increased ability to achieve & maintain erection? ☐ yes(1) ☐ no(2)
If yes, when? 19/ / /

(79-80)

/1/3/

I. REPRODUCTIVE HISTORY

How many times have you been married? / / Time(s)-14) Date(s) of marriage(s): 19/ / 19/ / 19/ / 19/ /

ASK FOR ALL WIVES (HUSBANDS): (Record answers in table below)

1. Do you have (have you had) trouble having a family with your wife (husband) despite a desire to have one?
2. How many children, born alive, do you have or have you had with your (present, previous, last previous, etc.) wife (husband)?
3. How many children, born alive, died within 4 weeks of birth?
4. How many miscarriages or spontaneous abortions did your wife (did you) have?
5. How many stillbirths did your wife (did you) have?
6. How many children, born alive, were born with a birth defect?

QUESTION	PRESENT SPOUSE	PREVIOUS SPOUSE	LAST PREVIOUS SPOUSE
(17) 1. Problems having a family	<u> </u> / <u> </u> / <u> </u> yes (1) <u> </u> / <u> </u> / <u> </u> no (2)	<u> </u> / <u> </u> / <u> </u> yes (1) <u> </u> / <u> </u> / <u> </u> no (2)	<u> </u> / <u> </u> / <u> </u> yes (1) <u> </u> / <u> </u> / <u> </u> no (2)
(18-23) 2. Children born alive Birthdates (mo./day/yr.)	<u> </u> / <u> </u> / <u> </u> #children	<u> </u> / <u> </u> / <u> </u> #children	<u> </u> / <u> </u> / <u> </u> #children
(24-29) 3. Children dead within 4 weeks	<u> </u> / <u> </u> / <u> </u> #children	<u> </u> / <u> </u> / <u> </u> #children	<u> </u> / <u> </u> / <u> </u> #children
(30-35) 4. Number of miscarriages	<u> </u> / <u> </u> / <u> </u>	<u> </u> / <u> </u> / <u> </u>	<u> </u> / <u> </u> / <u> </u>
(36-41) 5. Number of stillbirths	<u> </u> / <u> </u> / <u> </u>	<u> </u> / <u> </u> / <u> </u>	<u> </u> / <u> </u> / <u> </u>
(42-47) 6. Children with birth defects State type of birth defects	<u> </u> / <u> </u> / <u> </u> #children	<u> </u> / <u> </u> / <u> </u> #children	<u> </u> / <u> </u> / <u> </u> #children

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J. MEDICATION HISTORY

1. Do you regularly use health aids such as those for constipation, indigestion, arthritis, or headache (for example aspirin, laxatives, diet pills, etc.)

(48) ☒ yes(1) ☐ no(2)

If yes, what kind or brand: _____

2. Do you regularly use salves or liniments such as those for itchy skin, burns, abrasions, etc.?

(49) ☐ yes(1) ☐ no(2)

If yes, what kind or brand: _____

3. Do you have or have you ever had acne? ☐ yes(1) ☐ no(2)
If yes, how was it treated? _____

4. Are you now taking medication(s) prescribed by a doctor?

(51) ☐ yes(1) ☐ no(2)

If yes specify the name(s) of the medications and the illness(es) being treated: _____

- (52) 5. Do you have any known allergic reactions to drugs? ☐ yes(1) ☐ no(2)
If yes, to what drugs. (be specific)? _____

Vital Signs

If yes, describe.

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Additional History
Review of Systems

Physical Examination

Eyes

-16) ☐ yes(1) ☐ no(2)

☐ yes(1) ☐ no(2)

Lymph nodes

-18) ☐ yes(1) ☐ no(2)

☐ yes (1) ☐ no(2)

Thorax, Pulmonary, Cardiac

-20) ☐ yes(1) ☐ no(2)

☐ yes(1) ☐ no(2)

Gastrointestinal

-22) ☐ yes(1) ☐ no(2)

☐ yes(1) ☐ no(2)

Liver

-24) ☐ yes(1) ☐ no(2)

☐ yes(1) ☐ no(2)

Additional History
Review of Systems

Physical Examination

Sexual - Libido

(25-26) ☐ / yes(1) ☐ / no(2)

☐ / yes(1) ☐ / no(2)

* Skeletal

(27-28) ☐ / yes(1) ☐ / no(2)

☐ / yes(1) ☐ / no(2)

Kidney

(29-30) ☐ / yes(1) ☐ / no(2)

☐ / yes(1) ☐ / no(2)

Bladder

(31-32) ☐ / yes(1) ☐ / no(2)

☐ / yes(1) ☐ / no(2)

Genitalia, including additional
reproductive review

(33-34) ☐ / yes(1) ☐ / no(2)

☐ / yes(1) ☐ / no(2)

Additional History
Review of Systems

Physical Examination

Vascular

(35-36) / yes(1) / no(2)

 / yes(1) / no(2)

Neuropsychiatric

(37-38) / yes(1) / no(2)

 / yes(1) / no(2)

Infections

(39-40) / yes(1) / no(2)

 / yes(1) / no(2)

Abnormal Findings

From History ☐ yes(1) ☐ no(2)
Detail:

2)

From Physical Examination ☐ yes(1) ☐ no(2)
Detail:

Diagnosis - Impression

1.

2.

3.

4.

Comments

PULMONARY FUNCTION RECORD

1. Since your last examination or visit to the doctor, have you experienced any of the following:

	Yes	No
(43) a. Cough	_____	_____
(44) b. Fever	_____	_____
(45) c. Chills	_____	_____
(46) d. Muscle aches	_____	_____
(47) e. Shortness of breath	_____	_____
(48) f. Chest pains, aching, tightness or burning	_____	_____
(49) g. Wheezing	_____	_____
(50) h. Expectoration (phlegm)	_____	_____
(51) i. Stuffy nose	_____	_____
(52) j. Eyes burning or watering	_____	_____
(53) k. Throat sore or burning	_____	_____
(54) l. Loss of appetite	_____	_____
(55) m. Weight loss	_____	_____

2. Do you smoke cigarettes, cigars or pipe? ☐ yes(1) ☐ no(2)

3. Have you had any of the following recently?

- (57) Respiratory infection within two(2) weeks? ☐ yes(1) ☐ no(2)
- (58) Bronchodilator drug within six (6) hours? ☐ yes(1) ☐ no(2)
- (59) Cigarette within one (1) hour? ☐ yes(1) ☐ no(2)
- (60) Meal within two (2) hours? ☐ yes(1) ☐ no(2)

4. Are you now wearing any tight garments? ☐ yes(1) ☐ no(2)

5. Have you had this test before? ☐ yes(1) ☐ no(2)

If yes, when? _____ where? _____

under same name? ☐ yes(1) ☐ no(2)

APPENDIX 1

PULMONARY FUNCTION TEST RECORD

5) Room Temperature _____ °C

(66) TEST MOTIVATION-EFFORT: Poor (1) Fair (2) Good (3) Excellent (4)

(67) RECORD: Acceptable (1) Not Acceptable (2)

REMARKS: _____

(68-69) TECHNICIAN _____ ID# / / /
(79-80) /1/5/

(5-7) Total FVC Time _____

VOLUME IN L. ATPS	VOLUME IN L. BTPS	% FEV/FVC	PREDICTED NORMAL	% PREDICTED
FEV ₁ (8-11)	(12-15)	(16-17)	(18-21)	(22-23)
FVC (24-27)	(28-31)	(32-33)	(34-37)	(38-39)
FMF (25-75%) L/Sec.	L/Sec. (40-43)	-----	(44-47)	-----

NERVE CONDUCTION

8-49) Technician ID#

1. Ulnar

(50-53) Latency ms

(54-56) Distance mm

(57-60) N.C.V. m/s

(61-63) Stm. Curr. mA

(79-80) 1/6/

(5-14)

(15-23)

(24-30)

2. Peroneal

(31-34) Latency ms

(35-37) Distance mm

(38-41) N.C.V. m/s

(42-44) Stm. Curr. mA

(45-54)

(55-63)

(64-70)

(79-80) 1/7/

3. Sural

(5-8) Latency ms

(9-11) Distance mm

(12-15) N.C.V. m/s

(16-18) Stm. Curr. mA

(19-28)

(29-37)

(38-44)

LABORATORY TESTS

Please check if done:

(45-47)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	Urine Sample	ID# ☐ / ☐ / ☐ /
(48-50)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	Blood Sample	ID# ☐ / ☐ / ☐ /
(51-53)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	Skin Biopsy	ID# ☐ / ☐ / ☐ /
(54-56)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	Skin Scrapings	ID# ☐ / ☐ / ☐ /
(57-59)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	Culture	ID# ☐ / ☐ / ☐ /
(60-62)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	Photograph	ID# ☐ / ☐ / ☐ /
(63-65)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	X-Ray	ID# ☐ / ☐ / ☐ /
(66-68)	☐ / ☐ / yes(1)	☐ / ☐ / no(2)	EKG	ID# ☐ / ☐ / ☐ /

(79-80)

1/8/

OTHER TESTS:

COMMENTS:

APPENDIX II

Statistical Procedure

For a discussion of the methods (χ^2 test for independence, age-adjustment) used for contingency table analysis please see Statistical Methods for Rates and Proportions (J.L. Fleiss, Wiley Interscience (1973) New York). Fisher's exact test is presented in Testing Statistical Hypotheses (E.L. Lehmann, John Wiley & Sons (1959) New York).

A fine discussion of multiple linear regression analysis and analysis of covariance is contained in Applied Regression Analysis and Other Multivariable Methods (D.G. Kleinbaum and L.L. Kupper, Duxbury Press (1978) North Scituate, Massachusetts).

APPENDIX III

Clinical FindingsOTHERS

	<u>Not Exposed: (n=13)</u>	<u>Exposed (n=5)</u>
Limited Motion	1	
H/O "Nervousness"	1	1
H/O Depression	1	1
Arcus Senilis	1	
Cataracts	1	1
Retinal Nicking	1	
H/O Thrombosed Deep Vessels	1	
H/O Angina		1
H/O Hypertension	2	1
Rhonchi	1	
Asthma	1	
Poor Dental Hygiene	1	
H/O Duodenal Ulcer	1	
H/O Stomach Ulcer		1
H/O Cholecystectomy	1	
H/O Prostatitis	1	
H/O Renal Surgery		1
H/O Thyroid Disease		1
H/O Tumors(Breast, Uterus, Bone)	1	
Arthritis(Heberden's Nodes)		1
H/O Chloracne		4
Chloracne		3
Actinic Elastosis	2	4
H/O Acne Vulgaris	4	
Acne Vulgaris	3	
Hirsutism		1
Seborrheic Dermatitis	1	

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Clinical Findings

OTHERS

	<u>Not Exposed (n=13)</u>	<u>Exposed (n=5)</u>
"Dyshydrotic Dermatitis"		1
Lichen Planus	1	
Hypopigmentation, post inflammatory		1
Seborrheic Keratoses	1	1
Actinic Keratoses	1	
Dermatophytosis	2	3
Onychomycosis	1	1
Baker's Cyst		1
Decreased Growth of Hair	1	
Nevi	2	
Dermatofibroma	1	

APPENDIX IV
CLINICAL FINDINGS

	<u>NOT EXPOSED (n=163)</u>		<u>EXPOSED (n=204)</u>		<u>QUESTIONABLE EXPOSURE (n=51)</u>	
	#	%	#	%	#	%
<u>NEUROLOGIC</u>						
Clonus	-		1	0.49	-	
Hyporeflexia and Hyperreflexia	5	3.07	5	2.45	-	
Positive Babinski/Romberg	-		2	0.98	-	
Loss of Vibratory Sensation, Light Touch, and Proprioception	9	5.52	14	6.86	-	
Paresthesia; Numbness	1	0.61	6	2.94	-	
Resting Tremor Head, Hand	3	1.84	4	1.96	1	1.96
Speech Dysfunction	1	0.61	-		-	
H/O Multiple Sclerosis	1	0.61	-		-	
H/O Cerebrovascular Accident	2	1.23	6	2.94	1	1.96
H/O Epilepsy	1	0.61	-		-	
<u>PSYCHOSOCIAL</u>						
H/O "Nervousness"	16	9.82	27	13.24	5	9.80
H/O Depression	3	1.84	6	2.94	1	1.96
H/O Anxiety	-		1	0.49	-	
H/O Decreased Libido	12	7.36	38	18.63	9	17.65
H/O Increased Libido	2	1.23	-		-	
H/O Impotence, NOS	4	2.45	17	8.33	2	3.92
<u>EYE</u>						
Pterygium	-		2	0.98	-	
Macular Degeneration	-		1	0.49	-	
Arcus Senilis	2	1.23	6	2.94	1	1.96
Cataract	4	2.45	3	1.47	1	1.96
Diabetic Retinopathy	-		-		1	1.96
Exotropia, NOS	2	1.23	1	0.49	-	
H/O Cataract Surgery	1	0.61	2	0.98	-	
H/O Glaucoma	1	0.61	3	1.47	2	3.92

	NOT EXPOSED (n=163)		EXPOSED (n=204)		QUESTIONABLE EXPOSURE (n=51)	
	#	%	#	%	#	%
<u>EARS, NOSE AND THROAT</u>						
Otitis	2	1.23	-	-	1	1.96
Hearing Loss	3	1.84	2	0.98	2	3.92
H/O Parotid Tumor	-	-	1	0.49	-	-
<u>CARDIOVASCULAR</u>						
Retinal Nicking	6	3.68	6	2.94	2	3.92
Varicosities	10	6.13	30	14.71	2	3.92
Localized Edema	1	0.61	2	0.98	-	-
Pitting Edema	1	0.61	5	2.45	1	1.96
Venous Stasis	-	-	-	-	1	1.96
Diminished Pulses in Lower Extremities	5	3.07	10	4.90	1	1.96
Cardiac Murmur, NOS	1	0.61	-	-	-	-
Diastolic Murmur	1	0.61	-	-	-	-
Systolic Murmur	5	3.07	9	4.41	1	1.96
Bruit	-	-	1	0.49	1	1.96
Hypertension (see B.P. findings)	-	-	-	-	-	-
H/O Aortic Aneurysm	-	-	1	0.49	1	1.96
H/O Arteriosclerosis	1	0.61	-	-	-	-
H/O Anemia	-	-	1	0.49	-	-
H/O Coronary Artery Disease	10	6.13	20	9.80	6	11.76
H/O Raynaud's Phenomenon	1	0.61	-	-	-	-
H/O Angina	2	1.23	3	1.47	2	3.92
H/O Hypertension	36	22.09	60	29.41	10	19.61
<u>PULMONARY</u>						
Increased AP Diameter, Chest	1	0.61	1	0.49	1	1.96
Nasal Polyp	1	0.61	-	-	-	-
Chronic Obstructive Pulmonary Disease (COPD)	1	0.61	3	1.47	-	-
Rales	3	1.84	10	4.90	1	1.96
Breath Sounds, Vesicular	-	-	-	-	1	1.96
Dullness to Percussion	-	-	1	0.49	-	-
Crepitation	1	0.61	-	-	-	-
Decreased Breath Sounds	3	1.84	9	4.41	-	-

	NOT EXPOSED (n=163)		EXPOSED (n=204)		QUESTIONABLE EXPOSURE (n=51)	
	#	%	#	%	#	%
Wheezing	4	2.45	10	4.90	1	1.96
Clubbed Fingers and Toes	-	-	1	0.49	-	-
H/O Lung Tumor	-	-	1	0.49	-	-
H/O Bronchial Asthma	-	-	1	0.49	-	-
H/O Black Lung Benefits	-	-	-	-	1	1.96
H/O Chronic Obstructive Pulmonary Disease (COPD)	2	1.23	3	1.47	1	1.96
<u>ORAL</u>						
Leukoplakia	1	0.61	-	-	-	-
Poor Dental Hygiene and Caries	14	8.59	22	10.78	4	7.84
Periodontal Disease	4	2.45	5	2.45	2	3.92
<u>GASTROINTESTINAL</u>						
H/O Colitis	2	1.23	1	0.49	3	5.88
H/O Diverticulitis	-	-	2	0.98	-	-
H/O Colon Tumor	-	-	1	0.49	-	-
H/O Cecal Tumor	-	-	1	0.49	-	-
H/O Esophageal Tumor	-	-	1	0.49	-	-
H/O Colon Cancer	-	-	2	0.98	-	-
H/O Colostomy	-	-	1	0.49	-	-
H/O GI Bleeding	-	-	5	2.45	-	-
H/O Upper GI Ulcer	9	5.52	42	20.59	6	11.76
<u>Site As Reported:</u>						
Peptic	3	1.84	9	4.41	1	1.96
Stomach	4	2.45	21	10.29	3	5.88
Duodenal	2	1.23	12	5.88	2	3.92
<u>Surgical Treatment as Reported:</u>						
H/O Gastrectomy	-	-	3	-	-	-
H/O Partial Gastrectomy	-	-	1	-	-	-
H/O Surgical Treatment of Ulcer, NOS	-	-	6	-	-	-
<u>LIVER AND GALLBLADDER</u>						
Enlarged Liver	4	2.45	8	3.92	1	1.96
Tender Liver	2	1.23	2	0.98	-	-
H/O Hepatitis	-	-	1	0.49	2	3.92
H/O Cholecystectomy	1	0.61	5	2.45	1	1.96
H/O Cirrhosis	1	0.61	-	-	-	-
H/O Factor IX Deficiency	2	1.23	-	-	-	-
<u>UROGENITAL</u>						
Enlarged Prostate	3	1.84	5	2.45	1	1.96
Enlarged Testis	-	-	1	0.49	1	1.96
Testicular Atrophy	-	-	2	0.98	1	1.96
Inguinal Hernia	-	-	2	0.98	-	-

	NOT EXPOSED (n=163)		EXPOSED (n=204)		QUESTIONABLE EXPOSURE (n=51)	
	#	%	#	%	#	%
Hypospadias	1	0.61	-		-	
Hydrocoele	-		4	1.96	1	1.96
Spermatocele, Bilateral	-		1	0.49	-	
Phimosis	-		1	0.49	-	
Balanitis	1	0.61	1	0.49	1	1.96
H/O Kidney Stones	16	9.82	24	11.76	5	9.80
H/O Hydronephrosis	-		1	0.49	-	
H/O Hematuria	2	1.23	5	2.45	1	1.96
H/O Nephritis	3	1.84	3	1.47	1	1.96
H/O Pyelonephritis	-		1	0.49	-	
H/O Prostatitis	4	2.45	6	2.94	-	
H/O Prostatectomy	2	1.23	2	0.98	2	3.92
H/O Renal Abscess	-		1	0.49	-	
H/O Bladder Tumor	1	0.61	7	3.43	-	
H/O Prostate Cancer	-		1	0.49	-	
H/O Venereal Disease (Gonorrhea, Syphilis)	-		2	0.98	-	
H/O Infertility	-		1	0.49	-	
H/O Bladder Carcinoma	1	0.61	2	0.98	2	3.92
H/O Renal Surgery	-		6	2.94	-	
<u>LYMPHATIC</u>						
Enlarged Lymph Nodes	2	1.23	2	0.98	2	3.92
Enlarged Tonsils	1	0.61	1	0.49	-	
<u>ENDOCRINE</u>						
Enlarged Thyroid Gland	1	0.61	-		-	
Exophthalmos	-		1	0.49	-	
H/O Gynecomastia	1	0.61	-		-	
H/O Diabetes	3	1.84	9	4.41	2	3.92
H/O Thyroid Disease	-		3	1.47	1	1.96
<u>SKIN</u>						
Cutis Marmorata	-		1	0.49	-	
Polymorphous Light Eruption	-		1	0.49	-	
Nodular Elastosis of Favre-Racowchot	1	0.61	-		-	
Radiation Dermatitis	-		1	0.49	1	1.96
Comedones, NOS	14	8.59	4	1.96	8	15.69
Miliaria	1	0.61	-		-	

	NOT EXPOSED (n=163)		EXPOSED (n=204)		QUESTIONABLE EXPOSURE (n=51)	
	#	%	#	%	#	%
Cysts (including Sebaceous and Keratin)	8	4.91	3	1.47	1	1.96
Acne Vulgaris	19	11.66	4	1.96	2	3.92
Chloracne	-	-	107	52.45	-	-
Rosacea	-	-	3	1.47	1	1.96
Folliculitis	14	8.59	9	4.41	3	5.88
Irritant Dermatitis	2	1.23	-	-	-	-
Stasis Dermatitis	5	3.07	2	0.98	-	-
Nummular Dermatitis	2	1.23	1	0.49	-	-
"Dyshidrotic Dermatitis"	1	0.61	-	-	-	-
ID Reaction	1	0.61	-	-	-	-
Xerosis	-	-	1	0.49	-	-
Lichen Simplex Chronicus	-	-	4	1.96	2	3.92
Prurigo Nodularis	-	-	1	0.49	-	-
Intertrigo	1	0.61	1	0.49	-	-
Drug Eruption	-	-	1	0.49	-	-
Seborrheic Dermatitis	15	9.20	11	5.39	2	3.92
Psoriasis	2	1.23	2	0.98	3	5.88
Actinic Elastosis	49	30.06	120	58.82	20	39.22
Xanthoma	-	-	1	0.49	-	-
Dystrophic Toenails	2	1.23	5	2.45	-	-
Hirsutism	3	1.84	11	5.39	1	1.96
Universal Hirsutism	1	0.61	-	-	-	-
Pigmentation, NOS	-	-	1	0.49	-	-
Hypopigmentation, Chemically Induced	1	0.61	1	0.49	-	-
Hypopigmentation, Post Inflammatory	1	0.61	3	1.47	-	-
Leukoderma and Vitiligo	2	1.23	3	1.47	-	-
Hyperpigmentation, NOS	-	-	4	1.96	-	-
Hyperpigmentation, Post Inflammatory	-	-	1	0.49	1	1.96
Lentigo, Cafe au Lait Spots, Poikiloderma of Civatte	4	2.45	3	1.47	-	-
Hemosiderosis	-	-	3	1.47	-	-
Idiopathic Guttate Hypomelanosis	-	-	1	0.49	-	-

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	NOT EXPOSED (n=163)		EXPOSED (n=204)		QUESTIONABLE EXPOSURE (n=51)	
	#	%	#	%	#	%
Lichen Sclerosus et Atrophicus	-		2	0.98	-	
Hyperplasia Sebaceous Gland	1	0.61	2	0.98	1	1.96
Alopecia, Circumscribed	-		-		1	1.96
Keratosis, NOS	2	1.23	1	0.49	1	1.96
Seborrheic Keratosis	10	6.13	18	8.82	6	11.76
Actinic Keratosis	9	5.52	21	10.29	5	9.80
Acanthoma	1	0.61	2	0.98	-	
Keratosis Pilaris	-		-		1	1.96
Junction, Dermal, and Compound Nevus	15	9.20	13	6.37	3	5.88
Blue Nevus	1	0.61	-		-	
Peyronie's Disease	-		3	1.47	1	1.96
Dupuytren's Contracture	-		1	0.49	1	1.96
Telangiectasis	6	3.63	7	3.43	-	
Spider Angioma	2	1.23	1	0.49	-	
Verruca, Verruca Vulgaris, Molluscum Contagiosum	5	3.07	4	1.96	1	1.96
Fibroepithelial Polyps	5	3.07	2	0.98	2	3.92
Squamous Cell Carcinoma	-		1	0.49	-	
Bowen's Disease	-		1	0.49	-	
Basal Cell Epithelioma	7	4.29	14	6.86	-	
Trichoepithelioma	1	0.61	-		-	
Melanoma/Impression	1	0.61	-		-	
Dermatofibroma	2	1.23	2	0.98	-	
Lipoma	2	1.23	5	2.45	1	1.96
Angiomas	4	2.45	3	1.47	1	1.96
Neurofibroma/Multiple Neurofibroma	1	0.61	1	0.49	-	
Herpes I	1	0.61	-		-	

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	NOT EXPOSED (n=163)		EXPOSED (n=204)		QUESTIONABLE EXPOSURE (n=51)	
	#	%	#	%	#	%
Dermatophytosis	45	27.61	62	30.39	14	27.45
Onychomycosis	16	9.82	22	10.78	6	11.76
Trichomycosis Axillaris	-	-	1	0.49	-	-
Tinea Versicolor	1	0.61	1	0.49	1	1.96
Derma-graphic Urticaria	1	0.61	-	-	-	-
Ichthyosis Vulgaris	-	-	3	1.47	-	-
H/O Dermatitis, NOS	16	9.82	11	5.39	10	19.61
H/O Pilonidal Cyst	1	0.61	1	0.49	-	-
H/O Acne Vulgaris	48	29.45	20	9.80	10	19.61
H/O Chloracne	-	-	176	86.27	-	-
H/O Folliculitis	2	1.23	1	0.49	-	-
H/O Dishidrotic Dermatitis	1	0.61	-	-	-	-
H/O Xerosis	1	0.61	-	-	-	-
H/O Skin Cancer, NOS	4	2.45	8	3.92	1	1.96
H/O Skin Tumor, NOS	1	0.61	-	-	-	-
H/O Melanoma, Surgical Excision	1	0.61	-	-	-	-
H/Q Basal Cell Epithelioma	-	-	2	0.98	-	-
<u>INFECTIONS</u>						
H/O Malaria	1	0.61	1	0.49	-	-
H/O Dengue Fever	-	-	1	0.49	-	-
H/Q Rheumatic Fever	1	0.61	-	-	-	-

Table 20. Plasma Total Cholesterol (mg/dl) *
 White Males - Visit 2, Random Sample.
 The Lipid Research Clinics Prevalence Study (North America).

AGE (Years)	N	OVERALL Mean $\pm$ S.E.	CLINIC RANGE Mean $\pm$ S.E.	PERCENTILES							
				5	10	25	50	75	90	95	
0-4	20	—	—	—	—	—	—	—	—	—	
5-9	146	155.2 $\pm$ 1.8	151.0 $\pm$ 3.4 157.1 $\pm$ 2.3	125	131	141	153	168	183	189	
10-14	294	160.6 $\pm$ 1.5	152.0 $\pm$ 3.3 168.1 $\pm$ 4.3	124	131	144	160	173	188	202	
15-19	298	153.0 $\pm$ 1.4	150.6 $\pm$ 2.6 155.5 $\pm$ 2.5	118	123	136	152	168	183	191	
20-24	118	162.2 $\pm$ 2.5	163.0 $\pm$ 5.6 163.5 $\pm$ 3.2	118	126	142	159	179	197	212	
25-29	253	178.7 $\pm$ 2.1	171.3 $\pm$ 4.1 187.8 $\pm$ 4.7	130	137	154	176	199	223	234	
30-34	403	193.1 $\pm$ 1.8	185.6 $\pm$ 4.6 204.1 $\pm$ 5.9	142	152	171	190	213	237	258	
35-39	371	200.6 $\pm$ 1.9	186.6 $\pm$ 4.5 214.8 $\pm$ 6.6	147	157	176	195	222	248	267	
40-44	383	205.2 $\pm$ 1.9	197.8 $\pm$ 4.7 210.3 $\pm$ 5.8	150	160	179	204	229	251	260	
45-49	326	213.4 $\pm$ 1.9	201.0 $\pm$ 3.9 237.4 $\pm$ 7.1	163	171	188	210	235	258	275	
50-54	340	213.2 $\pm$ 1.9	201.4 $\pm$ 7.4 225.4 $\pm$ 4.4	156	168	189	211	237	263	274	
55-59	261	215.0 $\pm$ 2.2	206.8 $\pm$ 4.7 227.1 $\pm$ 7.2	161	172	188	214	236	260	280	
60-64	131	216.6 $\pm$ 3.3	216.4 $\pm$ 7.4 234.9 $\pm$ 7.2	163	170	191	215	237	262	287	
65-69	105	221.0 $\pm$ 3.8	211.8 $\pm$ 6.6 225.7 $\pm$ 5.1	166	174	192	213	250	275	288	
70+	119	210.3 $\pm$ 3.4	210.4 $\pm$ 4.1 210.4 $\pm$ 4.1	144	160	185	214	236	253	265	

Note: Mean not given if N < 25.

5th and 95th percentiles not given if N < 100;

10th and 90th percentiles not given if N < 75;

25th and 75th percentiles not given if N < 50;

50th percentile not given if N < 40.

Clinic range indicates the range among Lipid Research Clinics (the lowest LRC mean value and the highest LRC mean value) and its respective SE.

* The Lipid Research Clinics Population Studies Book: Volume I: The Prevalence Study, USDHHS, Public Health Service, National Institutes of Health, (1980).

Table 24. Plasma Triglyceride (mg/dl) *

White Males - Visit 2, Random Sample.

The LRC Prevalence Study (North America).

Age (Years)	N	OVERALL Mean $\pm$ S.E.	CLINIC RANGE Mean $\pm$ S.E.	PERCENTILES						
				5	10	25	50	75	90	95
0-4	20	—	—	—	—	—	—	—	—	—
5-9	148	51.9 $\pm$ 1.7	50.2 $\pm$ 3.5 53.2 $\pm$ 2.1	28	34	39	48	58	70	85
10-14	299	63.4 $\pm$ 1.6	53.9 $\pm$ 5.2 67.2 $\pm$ 4.5	33	37	46	58	74	94	111
15-19	299	78.2 $\pm$ 2.4	74.1 $\pm$ 4.3 80.1 $\pm$ 4.1	38	43	53	68	88	125	143
20-24	118	89.3 $\pm$ 3.7	87.9 $\pm$ 5.2 98.5 $\pm$ 9.4	44	50	61	78	107	146	165
25-29	253	104.2 $\pm$ 4.2	80.2 $\pm$ 5.4 125.3 $\pm$ 14.1	45	51	67	88	120	171	204
30-34	403	122.1 $\pm$ 3.7	95.4 $\pm$ 4.6 148.0 $\pm$ 22.3	48	57	76	102	142	214	253
35-39	372	140.8 $\pm$ 5.5	115.8 $\pm$ 12.5 160.8 $\pm$ 19.4	52	58	80	109	167	250	316
40-44	385	152.4 $\pm$ 6.9	117.5 $\pm$ 9.6 197.3 $\pm$ 41.6	56	69	89	123	174	252	318
45-49	327	143.4 $\pm$ 5.9	124.4 $\pm$ 8.7 184.7 $\pm$ 34.1	56	65	88	119	165	218	279
50-54	340	153.4 $\pm$ 5.5	122.8 $\pm$ 9.0 161.4 $\pm$ 12.0	63	75	94	128	178	244	313
55-59	261	134.3 $\pm$ 4.2	129.8 $\pm$ 10.4 146.9 $\pm$ 12.1	60	70	85	117	167	210	261
60-64	131	130.6 $\pm$ 8.7	125.8 $\pm$ 10.1 148.4 $\pm$ 30.9	56	65	84	111	150	193	240
65-69	105	138.6 $\pm$ 11.1	135.9 $\pm$ 16.8 144.8 $\pm$ 20.5	54	61	78	108	164	227	256
70+	119	132.8 $\pm$ 7.2	130.9 $\pm$ 8.9 130.9 $\pm$ 8.9	63	71	87	115	152	202	239

Note: Mean not given if N < 25;

5th and 95th percentiles not given if N < 100;

10th and 90th percentiles not given if N < 75;

25th and 75th percentiles not given if N < 50;

50th percentile not given if N < 40.

Clinic range indicates the range among Lipid Research Clinics (the lowest LRC mean value and the highest LRC mean value) and its respective SE.

* The Lipid Research Clinics Population Studies Book: Volume I: The Prevalence Study, USDOHHS, Public Health Service, National Institutes of Health, (1980).

Table 32. Plasma LDL-Cholesterol (mg/dl) *

White Males - Visit 2, Random Sample.

The Lipid Research Clinics Study (North America).

AGE (Year)	N	OVERALL Mean $\pm$ S.E.	CLINIC RANGE Mean $\pm$ S.E.	PERCENTILES							
				5	10	25	50	75	90	95	
0-4	9	—	—	—	—	—	—	—	—	—	
5-9	131	92.5 $\pm$ 1.8	90.9 $\pm$ 3.9 92.8 $\pm$ 2.1	63	69	80	90	103	117	129	
10-14	284	96.5 $\pm$ 1.4	84.8 $\pm$ 3.0 101.5 $\pm$ 3.8	64	72	81	94	109	122	132	
15-19	298	94.4 $\pm$ 1.3	92.5 $\pm$ 3.4 95.5 $\pm$ 2.3	62	68	80	93	109	123	130	
20-24	118	103.3 $\pm$ 2.4	101.6 $\pm$ 3.0 108.4 $\pm$ 5.2	66	73	85	101	118	138	147	
25-29	253	116.7 $\pm$ 1.9	109.6 $\pm$ 3.5 120.6 $\pm$ 4.7	70	75	96	116	138	157	165	
30-34	403	126.4 $\pm$ 1.6	119.8 $\pm$ 4.4 128.7 $\pm$ 5.7	78	88	107	124	144	166	185	
35-39	371	133.2 $\pm$ 1.7	118.4 $\pm$ 3.9 146.3 $\pm$ 5.8	81	92	110	131	154	176	189	
40-44	385	135.6 $\pm$ 1.6	129.5 $\pm$ 4.3 146.1 $\pm$ 4.5	87	98	115	135	157	173	186	
45-49	325	143.9 $\pm$ 1.8	132.9 $\pm$ 3.6 155.8 $\pm$ 6.6	98	106	120	141	163	186	202	
50-54	340	142.3 $\pm$ 1.7	137.0 $\pm$ 4.2 154.1 $\pm$ 4.2	89	102	118	143	162	185	197	
55-59	261	145.8 $\pm$ 2.1	137.0 $\pm$ 5.6 160.5 $\pm$ 5.9	88	103	123	145	168	191	203	
60-64	131	146.3 $\pm$ 3.1	148.2 $\pm$ 5.1 157.3 $\pm$ 7.2	83	106	121	143	165	188	210	
65-69	105	150.4 $\pm$ 3.5	146.3 $\pm$ 5.5 153.4 $\pm$ 5.0	98	104	125	146	170	199	210	
70+	119	142.9 $\pm$ 2.9	141.5 $\pm$ 3.5 141.5 $\pm$ 3.5	88	100	119	142	164	182	186	

Note: Mean not given if N < 25;

5th and 95th percentiles not given if N < 100;

10th and 90th percentiles not given if N < 75;

25th and 75th percentiles not given if N < 50;

50th percentile not given if N < 40.

Clinic range indicates the range among Lipid Research Clinics (the lowest LRC mean value and the highest LRC mean value) and its respective SE.

* The Lipid Research Clinics Population Studies Book: Volume I: The Prevalence Study, USDHHS, Public Health Service, National Institutes of Health, (1980).

Table 36. Plasma HDL Cholesterol (mg/dl)*

White Males - Visit 2, Random Sample.

The LRC Prevalence Study (North America).

AGE (Years)	N	OVERALL Mean $\pm$ S.E.	CLINIC RANGE Mean $\pm$ S.E.	PERCENTILES						
				5	10	25	50	75	90	95
0-4	47	—	—	—	—	—	—	—	—	—
5-9	142	55.5 $\pm$ 1.0	54.8 $\pm$ 1.8 55.6 $\pm$ 1.1	38	42	49	54	63	70	74
10-14	296	54.9 $\pm$ 0.7	53.9 $\pm$ 1.0 58.5 $\pm$ 2.3	37	40	46	55	61	71	74
15-19	299	46.1 $\pm$ 0.6	42.2 $\pm$ 1.2 48.6 $\pm$ 1.6	30	34	39	46	52	59	63
20-24	118	45.4 $\pm$ 1.0	40.0 $\pm$ 1.6 48.2 $\pm$ 1.8	30	32	38	45	51	57	63
25-29	253	44.7 $\pm$ 0.7	39.6 $\pm$ 1.8 45.7 $\pm$ 1.2	31	32	37	44	50	58	63
30-34	403	45.5 $\pm$ 0.6	39.8 $\pm$ 1.6 50.2 $\pm$ 2.2	28	32	38	45	52	59	63
35-39	371	43.4 $\pm$ 0.6	34.6 $\pm$ 1.2 48.0 $\pm$ 1.8	29	31	36	43	49	58	62
40-44	383	44.3 $\pm$ 0.6	35.5 $\pm$ 1.7 49.9 $\pm$ 2.1	27	31	36	43	51	60	67
45-49	325	45.4 $\pm$ 0.6	40.2 $\pm$ 2.0 49.3 $\pm$ 2.2	30	33	38	45	52	60	64
50-54	340	44.1 $\pm$ 0.6	36.5 $\pm$ 1.3 50.1 $\pm$ 2.1	28	31	36	44	51	58	63
55-59	261	47.6 $\pm$ 0.9	41.2 $\pm$ 1.6 51.1 $\pm$ 3.0	28	31	38	46	55	64	71
60-64	131	51.5 $\pm$ 1.3	44.8 $\pm$ 2.2 54.6 $\pm$ 2.3	30	34	41	49	61	69	74
65-69	105	51.1 $\pm$ 1.5	41.2 $\pm$ 2.1 56.7 $\pm$ 2.1	30	33	39	49	62	74	78
70+	119	50.5 $\pm$ 1.7	53.2 $\pm$ 2.1 53.2 $\pm$ 2.1	31	33	40	48	56	70	75

Note: Mean not given if N < 25;

5th and 95th percentiles not given if N < 100;

10th and 90th percentiles not given if N < 75;

25th and 75th percentiles not given if N < 50;

50th percentile not given if N < 40.

Clinic range indicates the range among Lipid Research Clinics (the lowest LRC mean value and the highest LRC mean value) and its respective SE.

* The Lipid Research Clinics Population Studies Book: Volume I: The Prevalence Study, USDRHS, Public Health Service, National Institutes of Health, (1980).

APPENDIX VI

Logistic Regression

For a binary variable (e.g., FEV₁, normal or abnormal) each subject's probability of a positive response is modeled as a function of one or more predictor variables (in this example, exposure group and pack years smoked), as follows:

$$\text{Prob (FEV}_1 \text{ abnormal)} = \frac{1}{1 + \exp(-(B_0 + B_1 \times \text{Pack Years} + B_2 \times Z))}$$

where Z = 1 if exposed
0 if not exposed

The Newton-Raphson method is then applied to the entire sample to produce maximum likelihood estimates of the coefficients of pack years smoked and Z, the exposure variable. More details are given in The Analysis of Binary Data (D.R. Cox, Chapman and Hall (1970) London).

The maximum likelihood estimates for the exposed vs. not exposed comparison found are as follows:

Coefficient	Pulmonary Function Parameter			
	FEV ₁	FVC	FEV ₁ /FVC	MMEFR
Intercept	-3.54	-3.10	-3.43	-2.64
Pack Years	0.02	0.02	0.02	0.03
Exposure	1.00	0.74	1.06	0.60

APPENDIX VII

Clinical Laboratory Values Reference Range

Calcium.....	8.8 - 10.8	MG/DL
Phosphorus.....	2.0 - 4.7	MG/DL
BUN.....	6 - 25	MG/DL
Creatinine.....	0.5 - 1.7	MG/DL
Glucose.....	65 - 130	MG/DL
Uric Acid.....	2.5 - 8.5	MG/DL
Total Protein.....	6.2 - 8.3	GM/DL
Albumin.....	3.6 - 5.2	GM/DL
Alb:Glob Ratio.....	1.0 - 2.3	
Globulin.....	1.9 - 3.7	GM/DL
SGOT.....	1 - 70	IU/L
SGPT.....	1 - 70	IU/L
LDH.....	90 - 250	UNITS
Total Bilirubin.....	0.1 - 1.7	MG/DL
Direct Bilirubin.....	0 - 0.3	MG/DL
Alk. Phosphatase.....	10 - 50	UNITS/L
GGTP.....	1 - 40	UNITS/L
Sodium.....	134 - 145	MMOL/L
Potassium.....	3.5 - 5.5	MMOL/L
Chloride.....	98 - 110	MMOL/L
Total Lipids.....	0.3 - 1.0	GM/DL
Triglycerides.....	50 - 200	MG/DL
Cholesterol.....	125 - 300	MG/DL
Iron.....	45 - 200	MCG/DL

THYROXINE-BINDING GLOBULIN (TBG)

Reference Range: 12 - 30 MCG/ML
 Pregnant women or
 women taking the pill: G.T. 15 MCG/ML

URINALYSIS

Appearance	Clear
pH	4.8 - 7.5
Specific Gravity	1.001 - 1.035
Acetone	Negative
Albumin	Negative
Glucose	Negative
Blood	Negative
WBC	0-5/HPF
RBC	0-2/HPF
Cast	Negative
Bacteria	Negative
Epithelial Cells	Negative

CBC WITH DIFFERENTIAL

WBC	4.0 - 11.0 Thousand/ CU.MM
RBC	Male: 4.6 - 6.2 Million/ CU.MM
	Female: 4.2 - 5.4 Million/ CU.MM
HEMOGLOBIN	Male: 14.0 - 18.0 GM/DL
	Female: 12.0 - 16.0 GM/DL
HEMATOCRIT	Male: 42 - 54 PERCENT
	Female: 37 - 49 PERCENT
MCV	80 - 100 U3
MCH	26 - 33 UUG
MCHC	31 - 36 PERCENT
POLYS	42 - 81 PERCENT
BANDS	0 - 5 PERCENT
LYMPHOCYTES	10 - 47 PERCENT
MONOCYTES	0 - 10 PERCENT
EOSINOPHILS	0 - 8 PERCENT
BASOPHILS	0 - 2 PERCENT

Differential Absolute Values

NEUTROPHILS	1650 - 8330 Cells/CU.MM
LYMPHOCYTES	1049 - 3581 Cells/CU.MM
MONOCYTES	61 - 929 Cells/CU.MM
EOSINOPHILS	40 - 423 Cells/CU.MM
BASOPHILS	10 - 148 Cells/CU.MM

PORPHYRINS, URINE, QUANTITATIVE

Coproporphyrin	30 - 240 MCG/24 hrs.
Uroporphyrin	15 - 60 MCG 24 hrs.

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APPENDIX VIII

Adjustment of Nerve Conduction Velocity Data

For purposes of analysis of the nerve conduction findings, all cases reporting consuming more than 35 oz. of alcohol per week were eliminated. Also dropped from the analysis were all subjects giving a history of diabetes.

To correct for temperature effects a mode temperature was calculated for each limb across all participants in the study. The following data adjustments were then made:

Ulnar or Peroneal

- a) NCV's were corrected to the mode of the midpoint nerve temperatures using DeJesus et al.'s (1973) temperature correction equation,

$$V_s = V_e e^{0.0419\Delta T} \text{ where}$$

V_s = standardized NCV to standard (mode) temperature

V_e = measured velocity at the experimental temperature

ΔT = difference in $^{\circ}\text{C}$ between standard and experimental temperatures

- b) Distal latencies were corrected to the mode of the distal temperatures using DeJesus' temperature correction equation:

$$DL_s = DL_e e^{-0.0507\Delta T}$$

DL_s = corrected distal latencies to standard temperature

DL_e = measured distal latency at the experimental temperature

ΔT = as above

- c) Residual latencies were calculated by subtracting from the latency (derived in b above) the terminal distance divided by the standardized NCV (derived in a above).

- d) Distal latencies derived in b above were correct to the mode of the nerve terminal distances using the equation below:

$$L_s' = L_s + \frac{\Delta s}{V_s} \text{ where}$$

L_s' = latency standardized to standard (mode) distance

L_s = latency derived in b above

V_s = velocity derived in a above

Δs = difference between standard (mode) and experimental terminal distances

- e) Ratio of amplitudes (proximal divided by distal) was calculated

Sural

The only standardizations performed on the sural nerve consisted of correcting the velocities to the mode of the midpoint nerve temperatures as in a above.

APPENDIX IX.

Normal Nerve Conduction Velocity and Distal Latency

Segment	Conduction Velocity Average & Range Meters/sec	Distal Latency msec	Reference
Ulnar Motor Elbow-Wrist	56.4 S.D.4.8. 57.5(49.5-63.6)	2.6(2.0-3.4)	1 2
Peroneal Motor Fibula Head-Ankle	50 S.D.3.5	5.1.S.D.0.5	2
Sural Sensory Lateral Malleolus-Calf (Ortho)	46.2 $\pm$ 5		3

1. Trojaborg, W., Electroenceph. Clin. Neurophysiol., 17:314-321, 1964.
2. McQuillen, M.P. and Gorin, F.J., J. Neurol. Neurosurg. Psychiat., 32:144-148, 1969.
3. DiBenedetto

Temperature effects on nerve conduction velocity: (2 to 2.4) meter per second /^oC. Meaningful conduction velocity of peripheral nerves can be made only if segment, size, age, and temperature are known.

Typical peak-to-peak amplitudes using recording electrodes at sites referred to in this manual.

Ulnar Motor: 10 - 20mV
Peroneal Motor: 10 - 20mV
Sural Sensory: 20 - 28uV

APPENDIX X

DEFINITION OF ALCOHOL STATUS

IF "Do you ~~now~~ drink alcoholic beverages?" = NO

AND "If no, did you ever?" = NO

THEN ALCOHOL STATUS = NEVER

IF "Do you now drink?" = NO

AND "If no, did you ever?" = YES

THEN ALCOHOL STATUS = FORMER

IF "Do you now drink?" = YES

THEN ALCOHOL STATUS = PRESENT

APPENDIX X

DEFINITION OF SMOKING

IF "Do you presently smoke cigarettes?" = NO

AND "If not now, did you ever smoke?" = NO

THEN SMOKING STATUS = NEVER

IF "Do you smoke now?" = NO

AND "If you do not now smoke cigarettes,
have you smoked them in the past?" = YES

THEN SMOKING STATUS = FORMER

IF "Do you smoke now?" = YES

THEN SMOKING STATUS = PRESENT

DEMOGRAPHIC DATA*

Runaway Reaction Subjects vs. Not Exposed

AGE

Mean $\pm$ Standard Deviation

Exposed (55)	62.73 $\pm$ 7.92
Not Exposed (65)	59.40 $\pm$ 8.88

0.01 < p < 0.05

HIGHEST EDUCATION LEVEL

	TCP Runaway Exposed	Percent	Not Exposed	Percent
0 - 8th Grade	7	12.73	2	3.13
9 - 12th Grade	41	74.55	45	70.31
> 12th Grade	7	12.73	17	26.56
Total	55		64**	

0.01 < p < 0.05

EMPLOYMENT STATUS

	TCP Runaway Exposed	Percent	Not Exposed	Percent
Active	13	23.64	42	64.62
Retired	32	58.18	22	33.85
Terminated	10	18.18	1	1.54
Total	55		65	

p < 0.0001

* All subjects white males

** Information not available for one (1) subject

EXPOSURE vs. SMOKING STATUS*

	<u>TCP Runaway Exposed</u>	<u>Percent</u>	<u>Not Exposed</u>	<u>Percent</u>
Never	13	23.64	15	23.08
Former	24	43.64	35	53.85
Present	<u>18</u>	32.73	<u>15</u>	23.08
Total	55		65	

p N.S.

TCP EXPOSURE vs. PACK YEARS SMOKED*

Mean $\pm$ Standard Deviation

TCP Runaway Exposed (55) 36.66 $\pm$ 36.13

Not Exposed (65) 26.01 $\pm$ 32.42

* 0.05 < p < 0.10 for comparing TCP Exposed to Not Exposed

EXPOSURE vs. ALCOHOL STATUS*

	<u>TCP Runaway Exposed</u>	<u>Percent</u>	<u>Not Exposed</u>	<u>Percent</u>
Never	6	11.54	9	14.06
Former	21	40.38	24	37.50
Present	<u>25</u>	48.08	<u>31</u>	48.44
Total	52		64	

p N.S.

* For definition, see Appendix V

FAMILY HISTORY OF ILLNESS *

<u>Family History of</u>	TCP Runaway Exposed (n=55)		<u>Not Exposed</u> (n=65)		<u>Probability</u>
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>	
Asthma	6	10.91	8	12.31	N.S.
Hayfever	4	7.27	5	7.69	N.S.
Acne	4	7.27	2	3.08	N.S.
Eczema	4	7.27	3	4.62	N.S.
Hives	4	7.27	5	7.69	N.S.
Ulcers	8	14.55	9	13.85	N.S.
Colitis	4	7.27	4	6.15	N.S.
Heart Attack or Angina before Age 60	17	30.91	17	26.15	N.S.
Heart Attack or Angina after Age 60	21	38.18	17	26.15	N.S.
High Blood Pressure	20	36.36	23	35.38	N.S.
Cerebrovascular Accident (CVA)	18	32.73	28	43.08	N.S.
High Cholesterol	4	7.27	6	9.23	N.S.
Diabetes	10	18.18	15	23.08	N.S.
Liver Disease	2	3.64	5	7.69	N.S.
Nervous Disorder	8	14.55	9	13.85	N.S.
Inherited Disorder	2	3.64	2	3.08	N.S.
Cancer	24	43.64	21	32.31	N.S.

* Includes Parents and Siblings of Subjects

HISTORY OF MEDICAL PROBLEMS

vs.

EXPOSURE STATUS

<u>History of</u>	<u>TCP Runaway Exposed (n= 55)</u>		<u>Not Exposed (n=65)</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Chloracne ¹	55	100.00	0	0.00
Acne Vulgaris	3	5.45	6	9.23
Folliculitis	0	0.00	0	0.00
Skin Cancer	3	5.45	3	4.62
Chronic Obstructive Pulmonary Disease (COPD)	1	1.82	2	3.08
Hypertension	20	36.36	23	35.38
Arteriosclerosis	0	0.00	1	1.54
Angina	1	1.82	1	1.54
Coronary Artery Disease	8	14.55	10	15.38
Cerebrovascular Accident (CVA)	2	3.64	2	3.08
Bladder Cancer	1	1.82	1	1.54
Prostatic Disease	2	3.64	3	4.62
Kidney Stones	3	5.45	9	13.85

¹ p < 0.0001

CLINICAL FINDINGS*

vs.

EXPOSURE

FindingJCP
Runaway
Exposed
(n=55)

%

Chloracne¹ 32 58.18

Acne Vulgaris 0 0.00

Actinic Elastosis² 41 74.55

Actinic Keratosis 6 10.91

Alopecia, circumscribed 0 0.00

Acanthoma 1 1.82

Basal Cell Epithelioma 5 9.09

Depigmentation 1 1.82

Dermatitis

Irritant 0 0.00

Nummular 1 1.82

Seborrheic³ 1 1.82Stasis³ 0 0.00

Dermatophytosis 14 25.45

Onychomycosis 7 12.73

Dupuytren's Contracture 0 0.00

Peyronie's Disease 2 3.64

Folliculitis 0 0.00

Hirsutism 4 7.27

Ichthyosis Vulgaris 1 1.82

* Not Assive

Not Exposed
(n=65)

<u>#</u>	<u>%</u>
0	0.00
1	1.54
32	49.23
8	12.31
0	0.00
0	0.00
7	10.77
1	1.54
1	1.54
1	1.54
8	12.31
5	7.69
26	40.00
13	20.00
0	0.00
0	0.00
1	1.54
2	3.08
0	0.00

CLINICAL FINDINGS*

vs.
EXPOSURE

<u>Finding</u>	TCP Runaway Exposed (n=55)	
	#	%
Lichen Simplex Chronicus	1	1.82
Lipoma	2	3.64
Melanoma, impression	0	0.00
Millaria	0	0.00
Neurofibroma, multiple	1	1.82
Poikiloderma	0	0.00
Psoriasis	1	1.82
Rhinophyma/Rosacea	0	0.00
Squamous Cell Carcinoma, impression	0	0.00
Xerosis	0	0.00
Nervousness/Anxiety/ 3 Depression	12	21.82
Systolic murmur	7	12.73
Diastolic murmur	0	0.00
Decreased libido (H/O)	13	23.64
H/O. Impotence, NOS	9	16.36

* Not inclusive

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Not Exposed
(n=65)

<u>#</u>	<u>%</u>
0	0.00
1	1.54
1	1.54
1	1.54
0	0.00
0	0.00
1	1.54
0	0.00
0	0.00
0	0.00
5	7.69
4	6.15
1	1.54
10	15.38
4	6.15

Key to p Values

- 1 $p < 0.0001$ for comparing TCP vs. Not Exposed
- 2 $0.001 < p < 0.01$ for comparing TCP vs. Not Exposed
- 3 $0.05 < p < 0.10$ for comparing TCP vs. Not Exposed

EXPOSURE
vs.
SERUM LIPID FINDINGS

<u>Serum Lipid</u>	<u>n</u>	<u>TCP Runaway Exposed #(%Abnormal)</u>	<u>n</u>	<u>Not Exposed #(%Abnormal)</u>	<u>Probability</u>
Cholesterol	54	5(9.26)	65	8(12.31)	N.S.
Triglycerides	54	8(14.81)	65	16(24.62)	N.S.
LDL, estimated	54	5(9.26)	63	4(6.35)	N.S.
HDL	54	9(16.67)	65	6(9.23)	N.S.

EXPOSURE
vs.
PULMONARY TEST FINDINGS

<u>Pulmonary Function Parameter</u>	<u>TCP Runaway Exposed (n= 55)</u>		<u>Not Exposed (n= 64)</u>		<u>Probability</u>
	<u>#</u>	<u>(%)Abnormal</u>	<u>#</u>	<u>(%)Abnormal</u>	
FEV ₁	11	20.00	6	9.38	N.S.
FVC	12	21.82	7	10.94	N.S.
FEV ₁ /FVC	15	27.27	5	7.81	0.0092
MMEFR	17	30.91	11	17.19	N.S.

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EXPOSURE

vs.

SERUM LIPID FINDINGS BY SMOKING STATUS

<u>Serum Lipid</u>	<u>Smoking Status</u>	TCP Runaway Exposed		Not Exposed		<u>Probability</u>
		n	#(%)Abnormal	n	#(%)Abnormal	
Cholesterol						
	Never	12	1(8.33)	15	2(13.33)	N.S.
	Former	24	2(8.33)	35	3(8.57)	N.S.
	Present	18	2(11.11)	15	3(20.00)	N.S.
Triglycerides						
	Never	12	1(8.33)	15	5(33.33)	N.S.
	Former	24	4(16.67)	35	6(17.14)	N.S.
	Present	18	3(16.67)	15	5(33.33)	N.S.
LDL, estimated						
	Never	12	1(8.33)	15	1(6.67)	N.S.
	Former	24	2(8.33)	33	1(3.03)	N.S.
	Present	18	2(11.11)	15	2(13.33)	N.S.
HDL						
	Never	12	1(8.33)	15	2(13.33)	N.S.
	Former	24	4(16.67)	35	3(8.57)	N.S.
	Present	18	4(22.22)	15	1(6.67)	N.S.

EXPOSURE
vs.
PULMONARY TEST FINDINGS

<u>Pulmonary Function Parameter</u>	<u>TCP Runaway Exposed (n= 55)</u>		<u>Not Exposed (n= 64)</u>		<u>Probability</u>
	<u>#</u>	<u>(%)Abnormal</u>	<u>#</u>	<u>(%)Abnormal</u>	
FEV ₁	11	20.00	6	9.38	N.S.
FVC	12	21.82	7	10.94	N.S.
FEV ₁ /FVC	15	27.27	5	7.81	0.0092
MMEFR	17	30.91	11	17.19	N.S.

EXPOSURE
vs.
PULMONARY TEST FINDINGS BY SMOKING STATUS

Pulmonary Function Parameter	Smoking Status	TCP Runaway Exposed		Not Exposed		Probability
		n	#(%)Abnormal	n	#(%)Abnormal	
FEV ₁	Never	13	1(7.69)	15	2(13.33)	N.S.
	Former	24	4(16.67)	34	3(8.82)	N.S.
	Present	18	6(33.33)	15	1(6.67)	N.S.
FVC	Never	13	1(7.69)	15	3(20.00)	N.S.
	Former	24	6(25.00)	34	3(8.82)	N.S.
	Present	18	5(27.78)	15	1(6.67)	N.S.
FEV ₁ /FVC	Never	13	2(15.38)	15	1(6.67)	N.S.
	Former	24	5(20.83)	34	4(11.76)	N.S.
	Present	18	8(44.44)	15	0(0.00)	0.0063
MMEFR	Never	13	2(15.38)	15	1(6.67)	N.S.
	Former	24	6(25.00)	34	8(23.53)	N.S.
	Present	18	9(50.00)	15	2(13.33)	0.0599

EXPOSURE
vs.
ECG FINDINGS

<u>Finding</u>	TCP	
	Runaway Exposed (n= 55)	
	#	%
Normal ECG	9	16.36
Negative ECG*	25	45.45
Sinus Bradycardia	7	12.73
Sinus Tachycardia	0	0.00
PVC's ¹	10	18.18
PAC's	1	1.82
Atrial Fibrillation	1	1.82
Intraventricular Conduction Defect	2	3.64
Left Anterior Hemiblock	5	9.09
1st Degree AV Block	0	0.00
Right Bundle Branch Block, complete	1	1.82
Left Bundle Branch Block, complete	1	1.82
Old Anterior Myocardial Infarct	1	1.82
Old Inferior Myocardial Infarct	3	5.45
True Posterior Myocardial Infarct	0	0.00
Digitalis Effect	2	3.64

1. $0.01 < p < 0.05$ for comparing TCP vs. Not Exposed.
* Normal or not significant findings

Not Exposed
(n= 65)

<u>#</u>	<u>%</u>
15	23.08
33	50.77
3	4.62
1	1.54
3	4.62
4	6.15
1	1.54
1	1.54
2	3.08
2	3.08
2	3.08
0	0.00
2	3.08
2	3.08
1	1.54
1	1.54

EXPOSURE

vs.

ECG FINDINGS

TCP

Runaway
Exposed
(n= 55)

%

Finding

Left Ventricular Hypertrophy	3	5.45
Right Ventricular Hypertrophy	0	0.00
Left Atrial Hypertrophy	0	0.00
Non-specific ST-T Wave Changes	2	3.64
Low Voltage QRS	1	1.82
Abnormal P Wave	2	3.64
Left Axis Deviation	0	0.00



Not Exposed
(n= 65)

<u>#</u>	<u>%</u>
5	7.69
0	0.00
0	0.00
3	4.62
0	0.00
4	6.15
1	1.54

EXPOSURE

vs.

PULMONARY TEST FINDINGS BY SMOKING STATUS

Pulmonary Function Parameter	Smoking Status	TCP Runaway Exposed		Not Exposed		Probability
		n	#(%)Abnormal	n	#(%)Abnormal	
FEV ₁	Never	13	1(7.69)	15	2(13.33)	N.S.
	Former	24	4(16.67)	34	3(8.82)	N.S.
	Present	18	6(33.33)	15	1(6.67)	N.S.
FVC	Never	13	1(7.69)	15	3(20.00)	N.S.
	Former	24	6(25.00)	34	3(8.82)	N.S.
	Present	18	5(27.78)	15	1(6.67)	N.S.
FEV ₁ /FVC	Never	13	2(15.38)	15	1(6.67)	N.S.
	Former	24	5(20.83)	34	4(11.76)	N.S.
	Present	18	8(44.44)	15	0(0.00)	0.0063
MMEFR	Never	13	2(15.38)	15	1(6.67)	N.S.
	Former	24	6(25.00)	34	8(23.53)	N.S.
	Present	18	9(50.00)	15	2(13.33)	0.0599

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EXPOSURE
vs.
CHEST X-RAY FINDINGS

<u>Finding</u>	TCP Runaway Exposed (n=55)	
	#	%
Normal Chest X-Ray ¹	14	25.45
Evidence, Old Granulomatous Disease ¹	23	41.82
Evidence, Arteriosclerosis	11	20.00
Evidence, Degenerative Bone Disease	8	14.55
Cardiomegaly	5	9.09
Mass	2	3.64
Chronic Obstructive Pulmonary Disease (COPD)	2	3.64
Aortic Aneurysm	0	0.00
Pulmonary Hypertension	0	0.00
Blunted Costophrenic Angle	6	10.91
Acute Parenchymal Disease	0	0.00
Elevated Hemi-diaphragms	4	7.27
Pleural Thickening	6	10.91
Parenchymal Scarring	6	10.91
Possible Mass	1	1.82
Aortic Valve Disease	0	0.00
Trauma	2	3.64

¹ 0.01 < p < 0.05 for comparing TCP vs. Not Exposed

Not Exposed
(n= 65)

<u>#</u>	<u>%</u>
29	44.62
14	21.54
12	18.46
4	6.15
2	3.08
1	1.54
3	4.62
0	0.00
1	1.54
6	9.23
1	1.54
1	1.54
3	4.62
8	12.31
4	6.15
0	0.00
2	3.08

CLINICAL LABORATORY FINDINGS

vs.

EXPOSURE STATUS

	n	TCP Runaway Exposed #(%Abnormal)	n	Not Exposed #(%Abnormal)
<u>BLOOD</u>				
Calcium	53	0(0.00)	63	0(0.00)
Phosphorus	52	0(0.00)	62	3(4.84)
BUN	53	5(9.43)	63	4(6.35)
Creatinine	52	1(1.92)	63	0(0.00)
Uric Acid	53	3(5.66)	62	2(3.23)
Glucose (CS)	52	3(5.77)	62	5(8.06)
Total Protein	53	1(1.89)	62	1(1.61)
Albumin	53	0(0.00)	62	0(0.00)
Globulin	53	0(0.00)	62	0(0.00)
Albumin/Globulin ratio	53	1(1.89)	62	0(0.00)
Total Bilirubin	53	0(0.00)	63	0(0.00)
Direct Bilirubin	53	3(5.66)	63	4(6.35)
Transaminase, SGO	52	2(3.85)	62	1(1.61)
Transaminase, SGP	52	2(3.85)	62	1(1.61)
Alkaline Phosphatase	53	2(3.77)	63	2(3.17)
LDH	52	3(5.77)	62	2(3.23)
Iron	53	1(1.89)	63	0(0.00)

2687892

CLINICAL LABORATORY FINDINGS

vs.

EXPOSURE STATUS

	n	TCP Runaway Exposed #(%Abnormal)	n	Not Exposed #(%Abnormal)
Sodium	53	2(3.77)	63	0(0.00)
Potassium	52	0(0.00)	62	0(0.00)
Chloride	53	1(1.89)	62	2(3.23)
G-glutamyl transpeptidase	53	4(7.55)	63	1(1.59)
Thyroxine binding globulins	53	12(22.64)	63	16(25.40)
<u>CBC</u>				
WBC	53	3(5.66)	63	3(4.76)
RBC	53	0(0.00)	63	1(1.59)
HGB	53	6(11.32)	63	6(9.52)
HCT	53	7(13.21)	63	8(12.70)
MCIC ¹	53	20(37.74)	63	13(20.63)
MCH	53	6(11.32)	63	8(12.70)
MCV	53	28(52.83)	63	27(42.86)
<u>Differential</u>				
Poly	53	1(1.89)	63	1(1.59)
Lymph	53	2(3.77)	63	1(1.59)
Mono	53	1(1.89)	62	0(0.00)
Eos	53	0(0.00)	63	1(1.59)
Baso	53	0(0.00)	63	1(1.59)

837893

CLINICAL LABORATORY FINDINGS

vs.

EXPOSURE STATUS

	n	TCP Runaway Exposed <u>#(%Positive)</u>	n	Not Exposed <u>#(%Positive)</u>
<u>Urinalysis</u>				
Acetone	52	0(0.00)	63	0(0.00)
Albumin	52	1(1.92)	63	0(0.00)
Bacteria	52	2(3.85)	63	7(11.11)
Blood	52	0(0.00)	63	1(1.59)
Glucose	52	0(0.00)	63	1(1.59)
White Blood Cells	52	1(1.92)	63	3(4.76)

¹ 0.05 < p < 0.10 for comparing TCP Exposed to Not Exposed

237894

DEMOGRAPHIC DATA*

Reaction vs: Other Exposed

AGE

Mean $\pm$ Standard Deviation

Exposed (55)	62.73 $\pm$ 7.92
Other Exposed (77)	63.06 $\pm$ 5.59

p N.S.

HIGHEST EDUCATION LEVEL

	TCP Runaway. Exposed	Percent	Other Exposed	Percent
0 - 8th Grade	7	12.73	12	15.79
9 - 12th Grade	41	74.55	54	71.05
> 12th Grade	7	12.73	10	13.16
Total	55		76**	

p N.S.

EMPLOYMENT STATUS

	TCP Runaway Exposed	Percent	Other Exposed	Percent
Active	13	23.64	35	45.45
Retired	32	58.18	37	48.05
Terminated	10	18.18	5	6.49
Total	55		77	

0.01 < p < 0.05

* All subjects white males

** Information not available for one (1) subject

EXPOSURE vs. SMOKING STATUS*

	<u>TCP Runaway Exposed</u>	<u>Percent</u>	<u>Other Exposed</u>	<u>Percent</u>
Never	13	23.64	15	19.74
Former	24	43.64	36	47.37
Present	<u>18</u>	32.73	<u>25</u>	32.89
Total	55		76	

p N.S.

TCP EXPOSURE vs. PACK YEARS SMOKED*

Mean $\pm$ Standard Deviation

TCP Runaway Exposed (55)	36.66 $\pm$ 36.13
Other Exposed (73)	27.13 $\pm$ 26.01

* 0.05 < p < 0.10 for comparing TCP Exposed to Other Exposed

EXPOSURE vs. ALCOHOL STATUS*

	<u>TCP Runaway Exposed</u>	<u>Percent</u>	<u>Other Exposed</u>	<u>Percent</u>
Never	6	11.54	7	10.00
Former	21	40.38	33	47.14
Present	<u>25</u>	48.08	<u>30</u>	42.86
Total	52		70	

p N.S.

* For definition, see Appendix V

FAMILY HISTORY OF ILLNESS *

Family History of	TCP Runaway Exposed (n= 55)		Other Exposed (n= 77)		Probability
	#	%	#	%	
Asthma	6	10.91	12	15.58	NS
Hayfever	4	7.27	3	3.90	NS
Acne	4	7.27	9	11.69	
Eczema	4	7.27	6	7.79	NS
Hives	4	7.27	8	10.39	NS
Ulcers	8	14.55	12	15.58	NS
Colitis	4	7.27	7	9.09	NS
Heart Attack or Angina before Age 60	17	30.91	19	24.68	NS
Heart Attack or Angina after Age 60	21	38.18	26	33.77	NS
High Blood Pressure	20	36.36	23	29.87	NS
Cerebrovascular Accident (CVA)	18	32.73	25	32.47	NS
High Cholesterol	4	7.27	6	7.79	NS
Diabetes	10	18.18	18	23.38	NS
Liver Disease	2	3.64	7	9.09	NS
Nervous Disorder	8	14.55	12	15.58	NS
Inherited Disorder	2	3.64	5	6.49	NS
Cancer	24	43.64	31	40.26	NS

* Includes Parents and Siblings of Subjects

237897

HISTORY OF MEDICAL PROBLEMS

vs.

EXPOSURE STATUS

<u>History of</u>	<u>TCP Runaway Exposed (n= 55)</u>		<u>Other Exposed (n= 77)</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Chloracne*	55	100.00	64	83.12
Acne Vulgaris	3	5.45	5	6.49
Folliculitis	0	0.00	0	0.00
Skin Cancer	3	5.45	5	6.49
Chronic Obstructive Pulmonary Disease (COPD)	1	1.82	2	2.60
Hypertension	20	36.36	25	32.47
Arteriosclerosis	0	0.00	0	0.00
Angina	1	1.82	0	0.00
Coronary Artery Disease	8	14.55	10	12.99
Cerebrovascular Accident (CVA)	2	3.64	4	5.19
Bladder Cancer	1	1.82	1	1.30
Prostatic Disease	2	3.64	3	3.90
Kidney Stones	3	5.45	7	9.09

*0.001 < p < 0.01 for comparing TCP to Other Exposed

CLINICAL FINDINGS*

vs.

EXPOSURE

Finding

TCP
Runaway
Exposed
(n= 55)

#

%

Chloracne	32	58.18
Acne Vulgaris	0	0.00
Actinic Elastosis	41	74.55
Actinic Keratosis	6	10.91
Alopecia, circumscribed	0	0.00
Acanthoma	1	1.82
Basal Cell Epithelioma	5	9.09
Depigmentation	1	1.82
<u>Dermatitis</u>		
Irritant	0	0.00
Nummular	1	1.82
Seborrheic	1	1.82
Stasis	0	0.00
Dermatophytosis	14	25.45
Onychomycosis	7	12.73
Dupuytren's Contracture	0	0.00
Peyronie's Disease	2	3.64
Folliculitis	0	0.00
Hirsutism	4	7.27
Ichthyosis Vulgaris	1	1.82

* Not inclusive

Other Exposed
(n=77)

<u>#</u>	<u>%</u>	
43	55.84	
0	0.00	0.00
52	67.53	1
12	15.58	...
0	0.00	0.00
1	1.30	0.00
6	7.79	0.00
0	0.00	0.00
0	0.00	0.00
0	0.00	0.00
5	6.49	0.00
1	1.30	0.00
24	31.17	1
13	16.88	0.00
0	0.00	0.00
0	0.00	0.00
1	1.30	0.00
5	6.49	
1	1.30	

237900

CLINICAL FINDINGS*

vs.

EXPOSURE

Finding

	TCP	
	Runaway Exposed (n= 55)	
	#	%
Lichen Simplex Chronicus	1	1.82
Lipoma	2	3.64
Melanoma, impression	0	0.00
Millaria	0	0.00
Neurofibroma, multiple	1	1.82
Poikiloderma	0	0.00
Psoriasis	1	1.82
Rhinophyma/Rosacea	0	0.00
Squamous Cell Carcinoma, impression	0	0.00
Xerosis	0	0.00
Nervousness/Anxiety/ Depression	12	21.82
Systolic murmur **	7	12.73
Diastolic murmur	0	0.00
Decreased libido (H/O)	13	23.64
H/O Impotence, NOS	9	16.36

* Not inclusive

** $0.01 < p < 0.05$ for comparing TCP to Other Exposed

Other Exposed
(n= 77)

#	%
3	3.90
1	1.30
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00
4	5.19
1	1.30
1	1.30
13	16.88
1	1.30
0	0.00
19	24.68
7	9.09
	1.30
1	1.30

EXPOSURE
vs.
SERUM LIPID FINDINGS

<u>Serum Lipid</u>	<u>n</u>	TCP Runaway Exposed <u>#(%Abnormal)</u>	<u>n</u>	Other Exposed <u>#(%Abnormal)</u>
Cholesterol	54	5 (9.26)	75	3 (4.00)
Triglycerides	54	8 (14.81)	75	10 (13.33)
LDL, estimated	54	5 (9.26)	75	4 (5.33)
HDL	54	9 (16.67)	75	6 (8.00)

237901

Probability

NS

NS

NS

NS

EXPOSURE
vs.
SERUM LIPID FINDINGS BY SMOKING STATUS

<u>Serum Lipid</u>	<u>Smoking Status</u>	<u>TCP Runaway Exposed</u>		<u>Other Exposed</u>		<u>Probability</u>
		<u>n</u>	<u>#(%)Abnormal</u>	<u>n</u>	<u>#(%)Abnormal</u>	
Cholesterol	Never	12	1(8.33)	15	0(0.00)	N.S.
	Former	24	2(8.33)	35	3(8.57)	N.S.
	Present	18	2(11.11)	24	0(0.00)	N.S.
Triglycerides	Never	12	1(8.33)	15	2(13.33)	N.S.
	Former	24	4(16.67)	35	6(17.14)	N.S.
	Present	18	3(16.67)	24	2(8.33)	N.S.
LDL, estimated	Never	12	1(8.33)	15	0(0.00)	N.S.
	Former	24	2(8.33)	35	3(8.57)	N.S.
	Present	18	2(11.11)	24	1(4.17)	N.S.
HDL	Never	12	1(8.33)	15	2(13.33)	N.S.
	Former	24	4(16.67)	35	2(5.71)	N.S.
	Present	18	4(22.22)	24	2(8.33)	N.S.

237902

EXPOSURE
vs.
PULMONARY TEST FINDINGS

<u>Pulmonary Function Parameter</u>	<u>TCP Runaway Exposed (n=55)</u>		<u>Other Exposed (n=76)</u>		<u>Probability</u>
	<u>#</u>	<u>(%)Abnormal</u>	<u>#</u>	<u>(%)Abnormal</u>	
FEV ₁	11	20.00	18	23.68	N.S.
FVC	12	21.82	20	26.32	N.S.
FEV ₁ /FVC	15	27.27	14	18.42	N.S.
MMEFR	17	30.91	22	28.95	N.S.

237903

EXPOSURE

vs.

PULMONARY TEST FINDINGS BY SMOKING STATUS

Pulmonary Function Parameter	Smoking Status	TCP Runaway Exposed		Other Exposed		Probability
		n	#(%)Abnormal	n	#(%)Abnormal	
FEV ₁	Never	13	1(7.69)	14	2(14.29)	N.S.
	Former	24	4(16.67)	36	6(16.67)	N.S.
	Present	18	6(33.33)	25	10(40.00)	N.S.
FVC	Never	13	1(7.69)	14	2(14.29)	N.S.
	Former	24	6(25.00)	36	7(19.44)	N.S.
	Present	18	5(27.78)	25	11(44.00)	N.S.
FEV ₁ /FVC	Never	13	2(15.38)	14	1(7.14)	N.S.
	Former	24	5(20.83)	36	6(16.67)	N.S.
	Present	18	8(44.44)	25	7(28.00)	N.S.
MMEFR	Never	13	2(15.38)	14	2(14.29)	N.S.
	Former	24	6(25.00)	36	9(25.00)	N.S.
	Present	18	9(50.00)	25	11(44.00)	N.S.

237904

237905

EXPOSURE

vs.

ECG FINDINGS

Finding	TCP Runaway Exposed (n=55)		Other Exposed (n=77)	
	#	%	#	%
Normal ECG ¹	9	16.36	30	38.96
Negative ECG*	25	45.45	46	59.74
Sinus Bradycardia	7	12.73	3	3.90
Sinus Tachycardia	0	0.00	1	1.30
PVC's ²	10	18.18	5	6.49
PAC's	1	1.82	4	5.19
Atrial Fibrillation	1	1.82	0	0.00
Intraventricular Conduction Defect	2	3.64	1	1.30
Left Anterior Hemiblock	5	9.09	3	3.90
1st Degree AV Block	0	0.00	1	1.30
Right Bundle Branch Block, complete	1	1.82	4	5.19
Left Bundle Branch Block, complete	1	1.82	1	1.30
Old Anterior Myocardial Infarct	1	1.82	1	1.30
Old Inferior Myocardial Infarct	3	5.45	3	3.90
True Posterior Myocardial Infarct	0	0.00	1	1.30
Digitalis Effect	2	3.64	0	0.00

* Normal or not significant findings

¹ 0.001 < p < 0.01 for comparing TCP to Other Exposed² 0.05 > p > 0.10 for comparing TCP to Other Exposed

EXPOSURE
vs.
ECG FINDINGS

Finding

TCP
Runaway
Exposed
(n=55)

%

Left Ventricular Hypertrophy	3	5.45
Right Ventricular Hypertrophy	0	0.00
Left Atrial Hypertrophy	0	0.00
Non-specific ST-T Wave Changes	2	3.64
Low Voltage QRS	1	1.82
Abnormal P Wave	2	3.64
Left Axis Deviation	0	0.00

237906

Other Exposed
(n=77)

<u>#</u>	<u>%</u>
3	3.90
0	0.00
1	1.30
4	5.19
0	0.00
5	6.49
1	1.30



EXPOSURE
vs.
CHEST X-RAY FINDINGS

Finding	TCP Runaway Exposed (n= 55)		Other Exposed (n= 77)	
	#	%	#	%
Normal Chest X-Ray	14	25.45	28	36.36
Evidence, Old Granulomatous Disease	23	41.82	26	33.77
Evidence, Arteriosclerosis	11	20.00	12	15.58
Evidence, Degenerative Bone Disease	8	14.55	6	7.79
Cardiomegaly	5	9.09	3	3.90
Mass	2	3.64	1	1.30
Chronic Obstructive Pulmonary Disease (COPD)	2	3.64	5	6.49
Aortic Aneurysm	0	0.00	1	1.30
Pulmonary Hypertension	0	0.00	0	0.00
Blunted Costophrenic Angle	6	10.91	9	11.69
Acute Parenchymal Disease	0	0.00	0	0.00
Elevated Hemi-diaphragms	4	7.27	1	1.30
Pleural Thickening	6	10.91	7	9.09
Parenchymal Scarring	6	10.91	4	5.19
Possible Mass	1	1.82	4	5.19
Aortic Valve Disease	0	0.00	0	0.00
Trauma	2	3.64	0	0.00

237907

CLINICAL LABORATORY FINDINGS

vs.

EXPOSURE STATUS

	n	TCP Runaway Exposed #(%Abnormal)	n	Other Exposed #(%Abnormal)
<u>BLOOD</u>				
Calcium	53	0(0.00)	73	0(0.00)
Phosphorus	52	0(0.00)	70	1(1.43)
BUN*	53	5(9.43)	73	1(1.37)
Creatinine	52	1(1.92)	73	1(1.37)
Uric Acid	53	3(5.66)	73	3(4.11)
Glucose (CS)	52	3(5.77)	70	8(11.43)
Total Protein	53	1(1.89)	73	0(0.00)
Albumin	53	0(0.00)	73	0(0.00)
Globulin	53	0(0.00)	73	0(0.00)
Albumin/Globulin ratio	53	1(1.89)	73	1(1.37)
Total Bilirubin	53	0(0.00)	73	0(0.00)
Direct Bilirubin	53	3(5.66)	73	2(2.74)
Transaminase, SGO	52	2(3.85)	70	1(1.43)
Transaminase, SGP	52	2(3.85)	70	0(0.00)
Alkaline Phosphatase	53	2(3.77)	73	0(0.00)
2DH	52	3(5.77)	70	5(7.14)
Iron	53	1(1.89)	73	0(0.00)

237908* 0.05 < p < 0.10 for comparing TCP to Other Exposed

CLINICAL LABORATORY FINDINGS

vs.

EXPOSURE STATUS

	n	TCP Runaway Exposed #(%Abnormal)	n	Other Exposed #(%Abnormal)
Sodium	53	2(3.77)	73	0(0.00)
Potassium	52	0(0.00)	70	2(2.86)
Chloride	53	1(1.89)	73	0(0.00)
G-glutamyl transpeptidase	53	4(7.55)	73	1(1.37)
Thyroxine binding globulins	53	12(22.64)	74	16(21.62)
<u>CBC</u>				
WBC	53	3(5.66)	73	2(2.74)
RBC	53	0(0.00)	73	0(0.00)
HGB	53	6(11.32)	73	7(9.59)
HCT	53	7(13.21)	73	9(12.33)
MCHC	53	20(37.74)	73	28(38.36)
MCH	53	6(11.32)	73	13(17.81)
MCV	53	28(52.83)	73	30(41.10)
<u>Differential</u>				
Poly	53	1(1.89)	73	3(4.11)
Lymph	53	2(3.77)	73	3(4.11)
Mono	53	1(1.89)	73	0(0.00)
Eos	53	0(0.00)	73	2(2.74)
Baso	53	0(0.00)	73	0(0.00)

237909