

OCCUPATIONAL CHARACTERISTICS OF  
DISABLED WORKERS 1975-1976

Analysis of Social Security Disability  
Benefit Allowances to Workers During 1975-1976

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## DISCLAIMER

The data used in this report were extracted and summarized from the Disabled Workers' File, Division of Disability Studies, Office of Research and Statistics, Social Security Administration. Methods for collection and abstraction were selected by the Social Security Administration. Mention of company name or product does not constitute endorsement by the National Institute for Occupational Safety and Health or the Social Security Administration.

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## PREFACE

The prevention of disability of U.S. workers is important to both the Social Security Administration (SSA) and the National Institute for Occupational Safety and Health (NIOSH). Both agencies have significant complementary capabilities and resources to apply to that goal. The administration of the SSA disability insurance program requires collection of data on various characteristics of its beneficiaries, including disabling conditions and usual occupation and industry. NIOSH has developed research capabilities to identify and control hazards in the work environment that result in disabilities. This report is another product of collaboration of the two agencies to achieve a common goal.

Previous reports (1,2) published jointly by the Public Health Service and the SSA described associations between occupations and disabling conditions for the period from 1959 to 1962 and 1969-1972, respectively. This report presents information for the period from 1975 to 1976.

This report presents information about the relationship of 86 detailed and 10 major occupation groups to 67 disease conditions. In addition, each occupation which is determined to have high proportional incidence of one or more causes of disability for the 1969-73 period is examined to determine if those causes of disability have high proportional incidence for the 1975-76 period. Finally, this report examines each occupation for conditions causing high proportional incidence for 1975-76, but not in 1969-73, to detect emergent occupational health problems. The results of these analyses suggest issues for further and more intensive research and for follow-up studies with future disabled worker, as well as mortality and other morbidity data. The results do not establish casual relationships.

## ABSTRACT

This report analyzes Social Security Administration data about workers who received benefit awards or allowances for disabilities. Age adjusted proportional morbidity ratios are presented by race and sex for 96 occupation rubrics and 67 disease condition rubrics for disability allowances for the 1975-1976 period. Occupations which may have occupational health and safety problems are identified for each race and sex group. Those occupations originally identified with data for the 1969-73 period as having excessive disability for one or more diseases are analyzed for excessive disability for the 1975-76 period. Forty-five occupations are identified as having confirmed patterns of high disproportionate disability for one or more race and sex groups. Twenty-four occupations are identified as having emergent patterns of high disproportionate disability, e.g., patterns which fulfilled the criterion for the first time in 1975-76. A method for adjusting PMR analyses to correct for negative dependencies among PMR's is developed. Using this method thirty three additional occupational relationships to causes of disability are identified as surveillance leads. It is recommended that both confirmed and emergent patterns be studied further.

CONTENTS

Preface . . . . .	iii
Abstract . . . . .	iv
Acknowledgments . . . . .	xii
Locator for Microfiche Tables by Occupation * . . . . .	xiii
Introduction and Objectives . . . . .	1
Methods and Materials . . . . .	2
The Social Security Disability Program . . . . .	7
Mining: An Illustration of the Tables . . . . .	9
Guide for Use of Tables . . . . .	9
Disabilities of Miners . . . . .	14
Limitations of the Data . . . . .	15
Results . . . . .	17
Characteristics of Disabled Workers . . . . .	17
Most Frequent Disabling Conditions . . . . .	17
Occupations of Disabled Workers . . . . .	25
Occupational Loci of Disability . . . . .	37
Results: Previously Established and Confirmed Relationships . . . . .	38
Summary of Conditions Achieving the Criterion . . . . .	79
Summary: Conclusions, Discussion and Questions . . . . .	117
Emergent Patterns: Unadjusted Results for 1975-76 . . . . .	120
Summary and Questions . . . . .	140
Analysis of Adjusted Data for Emergent Trends 1975-76 . . . . .	141
Guide to Reference Tables . . . . .	148
References . . . . .	149
Appendix--Technical Notes . . . . .	151
1. Estimation of Proportional Morbidity Ratios and Standard Errors . . . . .	151
2. Continuous Disability History Sample (CDHS) . . . . .	156
3. Adjustment of PMR'S . . . . .	158
Appendix--Tables . . . . .	162

\* Copies of these tables can be obtained by request from NIOSH.

TABLES

A. Text

1.	Disabling Conditions Analyzed in this Report . . . . .	3
2.	Occupation Groups Used in the Report . . . . .	5
3.	Estimated Number of Workers Receiving SSA Disability Benefits by Disabling Condition, Sex, and Race: Social Security Disability Allowances 1975-76 . . . . .	18
4.	Estimated Percentages of Workers Receiving SSA Disability Benefits by Disabling Condition, Sex, and Race: Social Security Disability Allowances 1975-76 . . . . .	21
5.	Estimated Numbers of Workers in U.S. Receiving SSA Disability Benefits by Occupation, Sex, and Race: Social Security Disability Allowances, 1975-76 . . . . .	26
6.	Estimated Percentages of Workers in U.S. Receiving SSA Disability Benefits by Occupation, Sex, and Race: Social Security Disability Allowances, 1975-76 . . . . .	31
7.	Professional, Technical, and Managerial Occupations (DOT 001-199): Age Adjusted PMR's for 1975-76 for all Disabling Conditions Which Were High for 1969-73 . . . . .	41
8.	Education Occupations (DOT 090-099): Age Adjusted PMR's for 1975-76 for All Disabling Conditions Which Were High for 1969-73 . . . . .	42
9.	Law and Jurisprudence Occupations (DOT 090-099): Age Adjusted PMR's for 1975-76 for All Disabling Conditions Which Were High for 1969-73 . . . . .	44
10.	Art Work Occupations (DOT 141-149): Age Adjusted PMR's for 1975-76 for All Disabling Conditions Which Were High for 1969-73 . . . . .	44
11.	Administrative Specialties Occupations (DOT 160-169): Age Adjusted PMR's for 1975-76 for All Disabling Conditions Which Were High for 1969-73 . . . . .	45
12.	Managerial Work N.E.C. Occupations (DOT 180-189): Age Adjusted PMR's for 1975-76 for All Disabling Conditions Which Were High for 1969-73 . . . . .	46

13.	Clerical and Sales Work Occupations (DOT 200-299): Age Adjusted PMR's for 1975-76 for All Disabling Conditions Which Were High for 1969-73 . . . . .	48
14.	Stenography, Typing, Filing, and Related Work Occupations (DOT 201-209): Age Adusted PMR's for 1975-76 for All Disabling Conditions Which Were High for 1969-73 . . . . .	50
15.	Other Clerical and Sales Occupations with High PMR's for 1969-73 Which Are Confirmed for 1975-76 . . . . .	51
16.	Service Occupations (DOT 300-399) with High PMR's in 1969-73 Which Are Confirmed High for 1975-76 . . . . .	55
17.	Specific Service Occupations with High PMR's for 1969-73 Which Are Confirmed High for 1975-76 . . . . .	57
18.	Farming, Fishery, and Related Occupations with High PMR's for 1969-73 Which Are Confirmed High for 1975-76 . . . . .	61
19.	Processing Occupations with High PMR's for 1969-73 Which Are Confirmed High for 1975-76 . . . . .	63
20.	Machine Trades Occupations with High PMR's for 1969-73 Which Are Confirmed High for 1975-76 . . . . .	65
21.	Bench Work Occupations with High PMR's for 1969-73 Which Are Confirmed High for 1975-76 . . . . .	68
22.	Structural Work Occupations (DOT 800-899) with High PMR's for 1969-73 Which Are Confirmed High for 1975-76. . . . .	71
23.	Structural Work Occupations with High PMR's for 1969-73 Which Are High for 1975-76 . . . . .	72
24.	Miscellaneous Occupations with High PMR's for 1969-73 Which Are Confirmed High for 1975-76 . . . . .	76
25.	Occupations with High PMR's for Neoplasms (ICDA 140-239) for 1969-73 and 1975-76 . . . . .	80
26.	Occupations with High PMR's for Malignant Neoplasms (ICDA 140-199) for 1969-73 and 1975-76 . . . . .	81
27.	Occupations with High PMR's for 1969-73 and 1975-76 for Malignant Neoplasms of the Breast . . . . .	82
28.	Occupations with High PMR's for 1969-73 and 1975-76 for Malignant Neoplasms of the Other and Unspecified Sites . . . . .	83

29.	Occupations with High PMR's for 1969-73 and 1975-76 for Neoplasms of Lymphatic and Hematopoietic Tissue . . . . .	84
30.	Endocrine, Nutritional, and Metabolic Diseases: Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	85
31.	Occupations with High PMR's for 1969-73 and 1975-76 for Mental Disorders (ICDA 290-315) . . . . .	86
32.	Occupations with High PMR's for 1969-73 and 1975-76 for Schizophrenia and Neuroses . . . . .	88
33.	Occupations with High PMR's for 1969-73 and 1975-76 for Diseases of the Nervous System and Sense Organs . . . . .	90
34.	Diseases of the Circulatory System (ICDA 390-458): Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	92
35.	Heart and Hypertensive Disease (ICDA 393-429) Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	94
36.	Ischemic Heart Disease (ICDA 410-414): Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	96
37.	Occupations with High PMR's for 1969-73 and 1975-76 for Cerebrovascular Disease . . . . .	98
38.	Respiratory System Disease: Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	100
39.	Digestive System Disease: Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	103
40.	Pregnancy, Childbirth, and the Puerperium (ICDA 630-678): Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	104
41.	Diseases of the Musculoskeletal System and Connective Tissue (ICDA 710-738): Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	106
42.	Rheumatoid Arthritis (ICDA 712): Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	110
43.	Osteoarthritis (ICDA 713): Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	111
44.	Displacement of Intervertebral Disc (ICDA 725): Occupations with High PMR's for 1969-73 and 1975-76 . . . . .	113

45.	Accidents, Poisonings, and Violence (ICDA 800-999): Occupations with High PMR's for 1969-73 and 1975-76 . . . .	115
46.	Professional, Clerical, and Sales Occupations with High PMR's for 1975-76 Which Do Not Fulfill the Criterion for High PMR's for 1969-73 . . . . .	118
47.	Stenography, Typing, Filing, and Related Work (DOT 201-109) Occupations with High PMR's for 1975-76 Which Do Not Fulfill the Criterion for High PMR's for 1969-73 . . . . .	122
48.	Service Occupations with High PMR's for 1975-76 Which Do Not Fulfill the Criterion for High PMR's for 1969-73 . . . .	124
49.	Agricultural Occupations with High PMR's for 1975-76 Which Do Not Fulfill the Criterion for High PMR's for 1969-73 . . . . .	126
50.	Processing Occupations with High PMR's for 1975-76 . . . .	127
51.	Machine Trades Occupations with High PMR's for 1975-76. . . .	129
52.	Specific Machine Trades Occupations with High PMR's for 1975-76 . . . . .	130
53.	Bench Work Occupations with High PMR's for 1975-76 . . . .	131
54.	Structural Work Occupations with High PMR's for 1975-76 . . . .	132
55.	Painting, Plastering, Waterproofing, Cementing, and Related Work (DOT 840-849) Occupations with High PMR's for 1975-76 . . . . .	133
56.	Construction, N.E.C. (DOT 860-869) Occupations with High PMR's for 1975-76 . . . . .	134
57.	Miscellaneous Occupations (DOT 900-999) with High PMR's for 1975-76 . . . . .	135
58.	Specific Miscellaneous Occupations with High PMR's for 1975-76 . . . . .	136
59.	Production and Distribution of Utilities (DOT 950-959) Occupations with High PMR's for 1975-76 . . . . .	137

B. Appendix

A-1. Guide for Standard Errors for Numbers of Disabled Workers Estimated from the Continuous History Sample by Magnitude of the Estimate of Numbers of Disabled Workers . . . . .	162
A-2. Guide for Standard Errors of Percentages of Disabled Workers Estimated from the Continuous Disability History Sample by Magnitude of the Estimate and the Base of the Percentage . . . . .	163
A-3. Estimated Number of Workers Receiving SSA Disability Benefits by Disabling Condition and Sex for 1975-76 . . .	164
A-4. Estimated Percentage of Workers Receiving SSA Disability Benefits by Disabling Condition and Sex for 1975-76 . . . . .	166
A-5. Estimated Number of Workers Receiving SSA Disability Benefits by Disabling Condition and Race for 1975-76 . .	168
A-6. Estimated Percentage of Workers Receiving SSA Disability Benefits by Occupation and Sex for 1975-76 . .	171
A-7. Estimated Numbers of Workers in U.S. Receiving SSA Disability Benefits by Disabling Condition and Race: 1975-76 . . . . .	174
A-8. Estimated Percentages of Workers in U.S. Receiving SSA Disability Benefits by Disabling Condition and race 1975-76 . . . . .	177
A-9. Estimated Numbers of Workers in U.S. Receiving SSA Disability Benefits by Occupation and Race for 1975-76 .	180
A-10. Estimated Percentages of Workers in U.S. Receiving SSA Disability Benefits by Occupation and Race for 1975-76 . . . . .	184

C. Microfiche\*

1-1 Estimated Number and Percent Distribution of Disabled White Male Workers by Disabling Condition and Age: Social Security Disability Allowances for 1975-76 . . . .	1
1-2 Estimated Number and Percent Distribution of Disabled White Female Workers by Disabling Condition and Age: Social Security Disability Allowances for 1975-76 . . . .	260

\* Copies of these tables can be obtained by request from NIOSH.

2-1	Estimated Number and Percent Distribution of Disabled Black Male Workers by Disabling Condition and Age: Social Security Disability Allowances for 1975-76 . . . . .	483
2-2	Estimated Number and Percent Distribution of Disabled Black Female Workers by Disabling Condition and Age: Social Security Disability Allowances for 1975-76 . . . . .	772
3-1	Estimated Number and Percent Distribution of Disabled "Other Race" Male Workers by Disabling Condition and Age: Social Security Disability Allowances for 1975-76 . . . . .	823
3-2	Estimated Number and Percent Distribution of Disabled "Other Race" Female Workers by Disabling Condition and Age: Social Security Disability Allowances for 1975-76 . . . . .	952
4-1	Estimated Numbers of Disabled Workers and PMR's by Industry and Disabling Condition for White Males for 1975-76 (See the Locator for Microfiche Tables by Occupation on pages xiii to xvi) . . . . .	6
4-2	Estimated Numbers of Disabled Workers and PMR's by Industry and Disabling Condition for White Females for 1975-76 (See the Locator for Microfiche Tables by Occupation on pages xiii to xvi) . . . . .	265
5-1	Estimated Numbers of Disabled Workers and PMR's by Industry and Disabling Condition for Black Males for 1975-76 (See the Locator for Microfiche Tables by Occupation on pages xiii to xvi) . . . . .	488
5-2	Estimated Numbers of Disabled Workers and PMR's by Industry and Disabling Condition for Black Females for 1975-76 (See the Locator for Microfiche Tables by Occupation on pages xiii to xvi) . . . . .	777
6-1	Estimated Numbers of Disabled Workers and PMR's by Industry and Disabling Condition for "Other Race" Males for 1975-76 (See the Index for Microfiche Tables on pages xiii to xvi) . . . . .	828
6-2	Estimated Numbers of Disabled Workers and PMR's by Industry and Disabling Condition for "Other Race" Females for 1975-76 (See the Index for Microfiche Tables on pages xiii to xvi) . . . . .	957

ILLUSTRATIONS

1.	Extraction of Minerals (DOT 930-939) . . . . .	10
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Locator for Microfiche Tables by Industrial Group and by Sex and Race  
Social Security Disability Allowances 1975-1976\*

Occupation (DOT)	Page in Microfiche					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Professional, technical, & managerial occupations (DOT 001-199)	6	263	485	674	825	956
Architecture & engineering (DOT 001-019)	9	266	488	677	828	958
Mathematics & physical sciences (DOT 020-029)	12	269	491	680	830	960
Life sciences (DOT 040-049)	15	271	492	681	831	961
Social sciences (DOT 050-059)	17	273	493	682	832	---
Medicine & health (DOT 070-079)	19	274	494	683	833	962
Education (DOT 090-099)	22	277	496	686	834	964
Museum, library & archival sciences (DOT 100-102,109)	25	280	---	688	835	---
Law & jurisprudence (DOT 110,111,119)	26	282	498	689	---	965
Religion & theology (DOT 120-129)	28	283	499	---	836	---
Writing (DOT 130-139)	30	284	500	690	---	---
Art work (DOT 141-149)	32	286	501	691	837	966
Entertainment & recreation (DOT 150-159)	34	288	502	692	838	967
Administrative specialties (DOT 160-169)	36	290	503	693	839	968
Managerial work, n.e.c. (DOT 180-189)	39	293	505	694	840	969
Miscellaneous professional, technical, & managerial (DOT 191-199)	42	296	508	696	842	970
Clerical & sales occupations (DOT 200-299)	45	298	509	698	843	971
Stenography, typing, filing, & related work (DOT 201-209)	48	301	512	701	845	973
Computing & account recording (DOT 210-219)	51	304	514	704	846	975
Material & production recording (DOT 221-229)	54	307	516	706	847	977
Information & message distribution (DOT 230-239)	57	310	519	708	848	978
Miscellaneous clerical work (DOT 240-249)	60	313	521	710	849	979
Saleswork, services (DOT 250-259)	63	316	522	712	850	980
Saleswork, commodities (DOT 260-289)	66	319	523	713	851	981
Miscellaneous merchandising work (DOT 290-299)	69	322	525	715	853	982

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DOT Dictionary of Occupational Titles, Third Edition (4), code.

\* Copies of these tables can be obtained by request from NIOSH.

Locator for Microfiche Tables (Cont'd.)\*

Occupation (DOT)	Page in Microfiche					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Service occupations (DOT 300-399)	72	325	527	716	855	983
Domestic services (DOT 301-309)	75	328	530	719	858	985
Food & beverage preparation & services (DOT 310-319)	77	331	532	722	859	987
Lodging & related services (DOT 320-329)	80	334	535	725	862	989
Barbering, cosmetology, & related services (DOT 330-339)	82	337	537	728	863	991
Amusement & recreation services (DOT 340-349)	85	340	539	730	864	992
Miscellaneous personal services (DOT 350-359)	87	342	540	731	865	993
Apparel & furnishing services (DOT 361-369)	90	345	543	734	866	995
Protective services (DOT 371-379)	93	348	545	737	867	997
Building & related services (DOT 381-389)	96	350	548	738	869	998
Farming, fishery, forestry, & related occupations (DOT 400-499)	99	353	551	741	871	999
Plant farming (DOT 401-409)	102	356	554	743	873	1000
Animal farming (DOT 411-419)	105	358	557	745	875	1001
Miscellaneous farming & related work (DOT 421-429)	108	360	559	746	877	1002
Fishery & related work (DOT 431-439)	111	363	562	748	879	---
Forestry (DOT 441-449)	113	364	563	---	880	---
Hunting, trapping, & related services (DOT 451-452)	115	---	---	---	881	---
Agricultural services (DOT 461-469)	116	365	564	---	882	---
Processing occupations (DOT 500-599)	117	366	565	749	883	1003
Metal processing (DOT 500-509)	120	369	568	751	885	---
Ore refining & foundry work (DOT 510-519)	123	371	570	752	886	1004
Processing, food & related products (DOT 520-529)	126	373	572	753	887	1005
Processing, paper & related materials (DOT 530-539)	129	376	575	755	---	---
Processing, petroleum & related products (DOT 540-549)	131	377	576	756	889	---
Processing, chemicals & related products (DOT 550-559)	133	378	577	757	890	1006
Processing, wood & wood products (DOT 560-569)	136	380	579	758	---	---

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Locator for Microfiche Tables (Cont'd.)\*

Occupation (DOT)	Page in Microfiche					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Processing, nonmetallic minerals & related products (DOT 570-579)	138	381	580	759	891	---
Processing, leather & textiles (DOT 580-589)	141	383	582	760	892	1007
Processing, n.e.c. (DOT 590-599)	143	385	584	761	893	1008
Machines trades occupations (DOT 600-699)	145	386	585	762	894	1009
Metal machining (DOT 600-609)	148	389	588	765	897	1010
Metalworking, n.e.c. (DOT 610-619)	151	391	590	766	898	1011
Mechanical repairing (DOT 620-639)	154	394	593	768	900	---
Paperworking (DOT 640-649)	157	396	596	769	902	---
Printing (DOT 650-659)	159	398	597	770	903	---
Wood machining (DOT 660-669)	162	400	598	771	904	1012
Machining, nonmetallic minerals & related materials (DOT 670-679)	165	402	600	---	---	---
Textile machine work (DOT 680-687,689)	166	403	601	772	905	1013
Machine work, n.e.c. (DOT 690-699)	169	406	603	774	906	1014
Bench work occupations (DOT 700-799)	172	409	605	775	907	1015
Fabrication, assembly, & repair of metal products, n.e.c. (DOT 700-709)	175	412	608	778	909	1017
Fabrication & repair of scientific & medical apparatus, photographic & optical goods, watches & clocks, & related products (DOT 710-719)	178	415	610	780	910	---
Assembly and repair of electrical equipment (DOT 720-729)	181	417	611	781	911	1018
Fabrication & repair of products made from assorted materials (DOT 730-739)	184	420	612	783	912	1019
Painting, decorating, & related work (DOT 740-749)	186	422	613	784	---	---
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	188	424	615	785	913	---
Fabrication & repair of wood products (DOT 760-769)	190	426	616	786	914	1020
Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)	192	428	617	787	---	---
Fabrication & repair of textile, leather, & related products (DOT 780-789)	194	430	618	788	915	1021
Bench work, n.e.c. (DOT 790-799)	197	433	620	791	916	1023
Structural work occupations (DOT 800-899)	199	435	621	792	917	1024

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Locator for Microfiche Tables (Cont'd.)\*

Occupation (DOT)	Page in Microfiche					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Metal fabricating, n.e.c. (DOT 800-809)	202	438	624	794	920	1025
Welding, flame cutting, & related work (DOT 810-819)	205	440	626	796	922	1026
Electrical assembly, installing, & repairing (DOT 820-829)	208	442	628	797	923	---
Painting, plastering, waterproofing, cementing, & related work (DOT 840-849)	211	444	630	798	924	---
Excavating, grading, paving, & related work (DOT 850-859)	214	446	633	799	926	1027
Construction, n.e.c. (DOT 860-869)	217	448	635	800	928	1028
Structural work, n.e.c. (DOT 891-899)	220	451	638	802	930	1029
Miscellaneous occupations (DOT 900-999)	223	453	641	803	932	1030
Motor freight transportation (DOT 900-909)	226	456	644	805	935	1032
Transportation work, n.e.c. (DOT 910-919)	229	458	647	807	937	1033
Packaging & materials handling (DOT 920-929)	232	461	650	808	939	1034
Extraction of minerals (DOT 930-939)	235	464	653	810	941	---
Logging (DOT 940-949)	238	465	655	811	942	---
Production & distribution of utilities (DOT 950-959)	241	466	657	812	943	1036
Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)	244	468	659	---	944	---
Graphic art work (DOT 970-979)	246	469	660	813	945	---
Special modifications to DOT (by SSA)	248	471	661	814	946	1037
Special modifications to DOT (by SSA)	251	474	664	816	948	1039
Odd jobs (classified by SSA)	254	477	666	818	950	1040
Occupation unknown	257	480	669	820	---	1041

--- Indicates that there are no cases and, therefore, there is no table.

DOT Dictionary of Occupational Titles, Third Edition (4), code.

\* Copies of these tables can be obtained by request from NIOSH.

Locator for Tables by Cause of Disability and By Sex and Race  
Social Security Disability Allowances 1975-1976\*

Cause of Disability	Page in Microfiche Tables					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Infective and parasitic diseases (ICDA 000-136)	1192	1475	1714	1922	2096	2283
Tuberculosis (ICDA 010-019)	1197	1479	1717	1925	2099	2284
Silicotuberculosis (ICDA 010)	1202	-----	1720	-----	-----	-----
Pulmonary tuberculosis (ICDA 011)	1203	1482	1721	1927	2101	2285
Neoplasms (ICDA 140-239)	1208	1485	1724	1929	2103	2286
Malignant neoplasms (ICDA 140-199)	1213	1490	1729	1933	2106	2289
Buccal cavity and pharynx (ICDA 140-149)	1218	1495	1734	1937	2109	2292
Digestive organs and peritoneum (ICDA 150-159)	1223	1498	1737	1938	2111	2293
Respiratory system (ICDA 160-163)	1228	1502	1741	1941	2119	2294
Bone, connective tissue, and skin (ICDA 170-174)	1233	1506	1745	1944	2122	2295
Breast (ICDA 174)	1237	1510	1747	1952	2124	2296
Genital organs (ICDA 180-187)	1240	1514	1749	1955	2125	2298
Urinary organs (ICDA 188-189)	1244	1519	1752	1958	2126	-----
Other and unspecified sites (ICDA 190-199)	1249	1522	1755	1959	2127	2300
Neoplasms of lymphatic and hematopoietic tissue (ICDA 200-209)	1254	1526	1758	1962	2128	2308
Sarcoma (lympho-, reticulo-), other lymphomas (ICDA 200, 202)	1259	1530	1761	1964	2136	2310
Leukemia (ICDA 204-207)	1263	1534	1763	1965	2137	2311
Benign neoplasms (ICDA 210-228)	1267	1537	1765	1966	2138	2312
Neoplasms of unspecified nature (ICDA 230-239)	1271	1540	1767	1968	2139	2313
Endocrine, nutritional, and metabolic diseases (ICDA 240-279)	1274	1542	1769	1969	2140	2314
Diabetes mellitus (ICDA 250)	1279	1546	1774	1973	2143	2316
Diseases of blood and blood-forming organs (ICDA 280-289)	1284	1550	1778	1977	2146	2318

\* Copies of these tables can be obtained by request from NIOSH.

Cause of Disability	Page in Microfiche Tables					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Mental Disorders (ICDA 290-315)	1287	1553	1781	1979	2147	2319
Schizophrenia (ICDA 295)	1292	1557	1786	1983	2151	2322
Neuroses (ICDA 300)	1297	1562	1791	1986	2154	2324
Alcoholism (ICDA 303)	1302	1566	1794	1989	2157	-----
Diseases of nervous system and sense organs (ICDA 320-389)	1306	1569	1797	1990	2159	2326
Meningitis (ICDA 320)	1311	1574	1802	-----	-----	-----
Multiple sclerosis (ICDA 340)	1313	1575	1803	1993	2162	2328
Cataract (ICDA 374)	1317	1579	1805	1995	2163	2329
Glaucoma (ICDA 375)	1321	1582	1807	1996	2164	2330
Blindness (ICDA 379)	1325	1585	1810	1998	2165	2331
Diseases of circulatory system (ICDA 390-458)	1329	1588	1813	2000	2167	2332
Heart and hypertensive disease (ICDA 393-429)	1334	1593	1818	2004	2171	2335
Hypertensive disease (ICDA 400-404)	1339	1598	1823	2008	2175	2338
Ischemic heart disease (ICDA 410-414)	1344	1602	1828	2012	2183	2340
Cerebrovascular disease (ICDA 430-438)	1349	1607	1833	2016	2187	2343
Cerebral hemorrhage (ICDA 431)	1354	1611	1838	2020	2190	2345
Cerebral thrombosis and embolism (ICDA 433-434)	1357	1613	1840	2022	2191	2346
Arteriosclerosis (ICDA 440)	1362	1616	1843	2024	2199	2347
Diseases of respiratory system (ICDA 460-519)	1367	1620	1846	2026	2200	2348
Bronchitis and asthma (ICDA 490-491, 493)	1372	1625	1851	2030	2208	2351
Emphysema (ICDA 492)	1376	1629	1854	2033	2216	2352
Pneumoconiosis and related diseases (ICDA 515-516)	1381	1633	1857	2035	2224	-----
Pneumoconiosis due to silica and silicates (ICDA 515)	1384	1635	1859	2036	2225	-----
Other pneumoconioses and related diseases (ICDA 516)	1387	1637	1861	-----	-----	-----
Bronchiectasis (ICDA 518)	1388	1638	1862	2037	-----	2354
Diseases of digestive system (ICDA 520-577)	1391	1641	1863	2038	2226	2355
Peptic ulcer (ICDA 531-533)	1396	1645	1867	2041	2229	2363
Chronic enteritis and ulcerative colitis (ICDA 563)	1400	1649	1870	2043	2231	2364
Cirrhosis of liver (ICDA 571)	1404	1652	1872	2051	2232	2365

Cause of Disability	Page in Microfiche Tables*					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Diseases of genitourinary system (ICDA 580-629)	1409	1656	1875	2053	2234	2366
Nephritis and nephrosis (ICDA 580-584)	1414	1660	1878	2056	2236	2367
Chronic nephritis (ICDA 582)	1418	1664	1881	2058	2238	2368
Other diseases of urinary system (ICDA 590-599)	1422	1668	1884	2060	2240	2369
Diseases of male genital organs (ICDA 600-607)	1426	-----	1887	-----	2241	-----
Diseases of female genital organs (ICDA 620-629)	-----	1671	-----	2062	-----	-----
Pregnancy, childbirth, and the puerperium (ICDA 630-678)	-----	-----	-----	2063	-----	-----
Diseases of skin and subcutaneous tissue (ICDA 680-709)	1429	1674	1888	2064	2242	2370
Diseases of musculoskeletal system and connective tissue (ICDA 710-738)	1433	1678	1891	2072	2250	2371
Rheumatoid arthritis (ICDA 712)	1438	1683	1896	2076	2254	2375
Osteoarthritis (ICDA 713)	1443	1687	1899	2079	2262	2377
Other and unspecified arthritis (ICDA 710-711, 714-715)	1448	1691	1903	2083	2265	2379
Displacement of intervertebral disc (ICDA 725)	1453	1695	1906	2085	2273	2380
Congenital anomalies (ICDA 740-759)	1458	1700	1910	2088	2276	2382
Symptoms and ill-defined conditions (ICDA 780-796)	1463	1704	1913	2090	2278	2383
Accidents, poisonings, and violence (ICDA 800-999)	1467	1707	1915	2092	2279	2384
Unknown or not classifiable (ICDA 000-999)	1472	1712	1920	2095	2282	2386

--- Indicates that there are no cases, and therefore, there is no table.

ICDA International Classification of Diseases Adapted - Eighth Revision.

\*Copies of these tables can be obtained by request from NIOSH.



## INTRODUCTION AND OBJECTIVES

During the period from 1975 to 1976, the average daily rate at which workers were declared totally disabled by the Social Security Administration (SSA) was more than 1500 per day (see pages 17-18). Approximately 88 million workers were qualified for SSA benefits should they become totally disabled. Benefits to totally disabled workers have been paid by SSA since 1956.

How many of these disabilities resulted from work related factors is not known. What can be determined is the extent to which the frequency and type of disabling condition are associated with the occupation of employment of workers. This is possible because SSA and the National Institute for Occupational Safety and Health (NIOSH) have a collaborative agreement which calls for NIOSH to analyze SSA records compiled as part of the routine administration of the SSA disability program.

This report has two major objectives: 1) To present information about occupational relationships to causes of disability as a reference for occupational health research including surveillance; and 2) To identify occupations which may have occupational health problems. The first objective is accomplished by presenting the following information for the 1975-76 period: 1) Estimates of the frequency distributions of persons eligible for disability benefits (hereafter, allowances) by occupation of employment and by cause of disability by race, sex, and age; and 2) Estimates of race-sex-specific, age-adjusted proportional morbidity ratios, with standard error estimates, by occupation and disabling conditions. A PMR (see Technical Note 1 in the Appendix) measures the extent to which the proportion of disabilities for persons with a particular occupation for a specific cause differs from the corresponding proportion for persons of all occupations.

The second objective is fulfilled by presenting two sets of occupations for each sex for white and for black workers: 1) those with confirmed patterns of disproportionately high incidence of disability from one or more causes for both the period 1969-73 and the period 1975-76; and 2) those with emergent patterns of disproportionately high incidence of disability from one or more causes. The purpose of the second objective is to suggest research to identify and prevent occupational health problems.

## METHODS AND MATERIALS

The population studied in this report is all workers allowed SSA benefit allowances for disabilities in the years 1975 and 1976. The terms "disabled worker" and "worker allowed a disability benefit allowance" are used interchangeably for purposes of this report.

The source of data for this report is the SSA Continuous Disability History Sample (CDHS) file. Technical Note 2 in the Appendix provides a description of this sample, which includes approximately 20 percent of the total allowances made from 1975 to 1976. Data selected from this file include age, race, sex, occupation, and diagnosis of primary disabling condition.

Age refers to age at the date of the benefit allowances. Workers are grouped into 5-year intervals for those aged 40 to 64. The remaining workers fall into two age groups--those under 40 years and those over 64 years (the last interval includes workers age 65 and older at the time they were allowed benefits for disabilities that occurred before they became 65). Race is categorized as black, white, other or unknown. These are the race categories available from the CDHS file. A disabled worker's sex is male or female.

The "disabling condition" is the condition diagnosed as the primary cause of the worker's disability. Disabling conditions were coded by SSA coders according to the Eighth Revision of the International Classification of Diseases, Adapted for Use in the United States (ICDA) (3). The 67 categories for disabling conditions used in this report have been chosen both for relevance to occupational health and for comprehensive yet specific description of disabling conditions. These are shown in Table 1.

Occupation refers to the occupation of the longest employment of the disabled worker in the ten years preceding disability. Occupation was coded by SSA coders using the Dictionary of Occupational Titles (DOT) Third Edition (4). Rubrics formed from these are used in the analyses for this report. Several levels of occupation classification are used. The entire list of 96 rubrics is presented in Table 2.

Ten major occupational rubrics are used. These include: Professional, technical, and managerial; clerical and sales; service; farming, fishery, forestry, and related occupations; processing; machines trades; bench work; structural work; miscellaneous; and special modifications to DOT. Except for the last rubric, these correspond to the first digit groupings of the DOT. Detailed occupations within these major occupations correspond to the first two digits of the DOT. Eighty-three detailed DOT occupational rubrics are used in addition to 3 supplemental rubrics developed by SSA for ambiguous or incomplete entries for occupation.

TABLE 1: Disabling Conditions Analyzed in This Report

DISABLING CONDITIONS		ICDA-8
I.	Infective & parasitic diseases	000-136
	Tuberculosis	010-019
	Silicotuberculosis	010
	Pulmonary tuberculosis	011
II.	Neoplasms	140-239
	Malignant neoplasms	140-199
	Buccal cavity & pharynx	140-149
	Digestive organs & peritoneum	150-159
	Respiratory system	160-163
	Bone, connective tissue, & skin	170-174
	Genital organs	180-187
	Urinary organs	188-189
	Other & unspecified sites	190-199
	Neoplasms of lymphatic & hematopoietic tissue	200-209
	Sarcoma (lympho-,reticulo-), other lymphomas	200,202
	Leukemia	204-207
	Benign neoplasms	210-228
	Neoplasms of unspecified nature	230-239
III.	Endocrine, nutritional, & metabolic diseases	240-279
	Diabetes mellitus	250
IV.	Diseases of blood & blood-forming organs	280-289
V.	Mental disorders	290-315
	Schizophrenia	295
	Neuroses	300
	Alcoholism	303
VI.	Diseases of nervous system & sense organs	320-389
	Meningitis	320
	Multiple sclerosis	340
	Cataract	374
	Glaucoma	375
	Blindness	379
VII.	Diseases of circulatory system	390-458
	Heart & hypertensive disease	393-429
	Hypertensive disease	400-404
	Ischemic heart disease	410-414
	Cerebrovascular disease	430-438
	Cerebral hemorrhage	431
	Cerebral thrombosis & embolism	433-434
	Arteriosclerosis	440
VIII.	Diseases of respiratory system	460-519
	Bronchitis & asthma	490-491,
		493
	Emphysema	492

Race- and sex-specific, age-adjusted PMR's are estimated for all combinations of the 96 occupation rubrics by 67 disabling condition rubrics, and are used to describe empirical associations between occupations and disabling conditions. The PMR for a selected occupation with respect to a specified disabling condition for the 1975 to 1976 period is defined as the ratio of the observed number of newly disabled workers to the corresponding expected number. For each age group the expected number is equal to the proportion of disabled workers for all occupations with the specified condition multiplied by the total number of disabled workers for the selected occupation. Unless stated otherwise, PMR refers to a race- and sex-specific age-adjusted PMR for a specific occupation and disabling condition. A more detailed explanation of this measure and its estimation from the Continuous Disability History Sample appears in Technical Note 1 of the Appendix.

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 TABLE 1 (Cont'd.): Disabling Conditions Analyzed in This Report

DISABLING CONDITIONS	ICDA-8
Pneumoconiosis & related diseases	515-516
Pneumoconiosis due to silica & silicates	515
Other Pneumoconioses and related diseases	516
Bronchiectasis	518
IX. Diseases of digestive system	520-577
Peptic ulcer	531-533
Chronic enteritis & ulcerative colitis	563
Cirrhosis of liver	571
X. Diseases of genitourinary system	580-629
Nephritis & nephrosis	580-584
Chronic nephritis	582
Other diseases of urinary system	590-599
Diseases of male genital organs	600-607
Diseases of female genital organs	620-629
XI. Pregnancy, childbirth, & the puerperium	630-678
XII. Diseases of skin & subcutaneous tissue	680-709
XIII. Diseases of musculoskeletal system & connective tissue	710-738
Rheumatoid arthritis	712
Osteoarthritis	713
Other & unspecified arthritis	710-711, 714-715
Displacement of intervertebral disc	725
XIV. Congenital anomalies	740-759
XV. Symptoms & ill-defined conditions	780-796
XVI. Accidents, poisonings, & violence	800-999
XVII. Unknown or not classifiable	- - -

TABLE 2: Occupation groups used in this report.

Professional, technical, & managerial occupations (DOT 001-199)  
  Architecture & engineering (DOT 001-019)  
  Mathematics & physical sciences (DOT 020-029)  
  Life sciences (DOT 040-049)  
  Social sciences (DOT 050-059)  
  Medicine & health (DOT 070-079)  
  Education (DOT 090-099)  
  Museum, library & archival sciences (DOT 100-102,109)  
  Law & jurisprudence (DOT 110,111,119)  
  Religion & theology (DOT 120-129)  
  Writing (DOT 130-139)  
  Art work (DOT 141-149)  
  Entertainment & recreation (DOT 150-159)  
  Administrative specialties (DOT 160-169)  
  Managerial work, n.e.c. (DOT 180-189)  
  Miscellaneous professional, technical, & managerial (DOT 191-199)  
Clerical & sales occupations (DOT 200-299)  
  Stenography, typing, filing, & related work (DOT 201-209)  
  Computing & account recording (DOT 210-219)  
  Material & production recording (DOT 221-229)  
  Information & message distribution (DOT 230-239)  
  Miscellaneous clerical work (DOT 240-249)  
  Saleswork, services (DOT 250-259)  
  Saleswork, commodities (DOT 260-289)  
  Miscellaneous merchandising work (DOT 290-299)  
Service occupations (DOT 300-399)  
  Domestic services (DOT 300-309)  
  Food & beverage preparation & services (DOT 310-319)  
  Lodging & related services (DOT 320-329)  
  Barbering, cosmetology, & related services (DOT 330-339)  
  Amusement & recreation services (DOT 340-349)  
  Miscellaneous personal services (DOT 350-359)  
  Apparel & furnishing services (DOT 361-369)  
  Protective services (DOT 371-379)  
  Building & related services (DOT 381-389)  
Farming, fishery, forestry, & related occupations (DOT 400-499)  
  Plant farming (DOT 401-409)  
  Animal farming (DOT 411-419)  
  Miscellaneous farming & related work (DOT 421-429)  
  Fishery & related work (DOT 431-439)  
  Forestry (DOT 441-449)  
  Hunting, trapping, & related services (DOT 451-452)  
  Agricultural services (DOT 461-469)  
Processing occupations (DOT 500-599)  
  Metal processing (DOT 500-509)  
  Ore refining & foundry work (DOT 510-519)  
  Processing, food & related products (DOT 520-529)  
  Processing, paper & related materials (DOT 530-539)  
  Processing, petroleum & related products (DOT 540-549)

TABLE 2 (Cont'd.): Occupation groups used in this report.

Processing, chemicals & related products (DOT 550-559)  
Processing, wood & wood products (DOT 560-569)  
Processing, nonmetallic minerals & related products (DOT 570-579)  
Processing, leather & textiles (DOT 580-589)  
Processing, n.e.c. (DOT 590-599)  
Machines trades occupations (DOT 600-699)  
  Metal machining (DOT 600-609)  
  Metalworking, n.e.c. (DOT 610-619)  
  Mechanical repairing (DOT 620-639)  
  Paperworking (DOT 640-649)  
  Printing (DOT 650-659)  
  Wood machining (DOT 660-669)  
  Machining, nonmetallic minerals & related materials (DOT 670-679)  
  Textile machine work (DOT 680-687,689)  
  Machine work, n.e.c. (DOT 690-699)  
Bench work occupations (DOT 700-799)  
  Fabrication, assembly, & repair of metal products, n.e.c. (DOT 700-709)  
  Fabrication & repair of scientific & medical apparatus, photographic &  
    optical goods, watches & clocks, & related products (DOT 710-719)  
  Assembly and repair of electrical equipment (DOT 720-729)  
  Fabrication & repair of products made from assorted materials (DOT 730-739)  
  Painting, decorating, & related work (DOT 740-749)  
  Fabrication & repair of plastics, synthetics, rubber, & related products  
    (DOT 750-759)  
  Fabrication & repair of wood products (DOT 760-769)  
  Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)  
  Fabrication & repair of textile, leather, & related products (DOT 780-789)  
  Bench work, n.e.c. (DOT 790-799)  
Structural work occupations (DOT 800-899)  
  Metal fabricating, n.e.c. (DOT 800-809)  
  Welding, flame cutting, & related work (DOT 810-819)  
  Electrical assembly, installing, & repairing (DOT 820-829)  
  Painting, plastering, waterproofing, cementing, & related work (DOT 840-849)  
  Excavating, grading, paving, & related work (DOT 850-859)  
  Construction, n.e.c. (DOT 860-869)  
  Structural work, n.e.c. (DOT 891-899)  
Miscellaneous occupations (DOT 900-999)  
  Motor freight transportation (DOT 900-909)  
  Transportation work, n.e.c. (DOT 910-919)  
  Packaging & materials handling (DOT 920-929)  
  Extraction of minerals (DOT 930-939)  
  Logging (DOT 940-949)  
  Production & distribution of utilities (DOT 950-959)  
  Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)  
  Graphic art work (DOT 970-979)  
SSA Additional Groups  
  Special modifications to DOT (by SSA)  
  Odds jobs (classified by SSA)  
  Occupations unknown

The PMR's presented in this report are estimates of national values and are subject to sampling error. Estimates of the standard errors of these PMR's are also presented to facilitate statistical inference about the PMR's which would have resulted if data on all SSA disability allowances had been analyzed. Estimation of the standard errors of the PMR's is complicated by the fact that the PMR estimator is a ratio and there is no known expression for its standard error. This difficulty was overcome by the use of a sample replicate procedure which is described in Technical Note 1 of the Appendix.

#### The Social Security Disability Benefit Program

Social security disability benefits are available to qualified totally disabled workers regardless of the cause of their impairments; it is not necessary for the disability to be occupationally caused. To qualify for benefits, workers disabled after age 30 must have worked in covered employment for at least 5 of the 10 years immediately preceding the onset of disability; progressively fewer years of coverage are required for younger workers. To be eligible, a worker must be unable to engage in any substantial gainful activity because of a medically determinable physical or mental impairment that has lasted or can be expected to last for at least 12 months or to result in death (14).

The characteristics of the SSA disability benefit program, as it existed at the time applicable for the study population of this report, have been described in the literature (15, 16, 17, 18,).

A worker applies for disability benefits at an office of SSA. The worker's eligibility for benefits is determined by SSA while the medical determination of the existence of a totally disabling physical or mental impairment that has or will last at least 12 months or be terminal is accomplished by a state agency, such as a state vocational rehabilitation agency. SSA reviews the findings of the state agency regarding the medical basis for the worker's claim and the technical eligibility of the worker for SSA benefits in accordance with SSA rules and regulations. If the worker's remaining capacity to perform physical and mental activities ". . . falls short of the demands of jobs he could reasonably be expected to perform, he is considered disabled ". . . (17).

The worker's claim is regarded as "allowed" or his case is termed "in allowance", if the SSA review determines that the worker fulfills the requirements for a cash benefit for his disability. Workers may appeal a disallowance of their claim. A new entitlement for monthly cash disability benefits to a worker receiving an allowance is termed an award (14).

Allowances and awards are nearly equivalent but workers receiving allowances may not receive cash benefits, or be considered a new entitlement, under some conditions which occur relatively infrequently. Among these conditions are the following: (1) The name of the payee is not determined; (2) The address of the payee is unknown; (3) Previous overpayment of benefits; (4) The disability is a continuation of one previously associated with an award; and (5) Benefits from workmen's compensation, government pensions, and/or other public assistance programs exceed 80 percent of previous earnings while the worker was employed (14).

Various characteristics of the SSA disability benefit program and its utilization by workers both enhance and reduce the usefulness of the data on allowances for occupational health research.

Characteristics which argue for the validity of the data for occupational health research are: (1) Cash monthly benefits serve as an incentive for workers with impairments to apply for benefits; (2) Determinations of disabling conditions are accomplished by physicians using medical evidence; (3) The accuracy of the determination of the cause and severity of the disabling condition is important to the administration of the program; it is not an issue concerning secondary uses of the data; (4) The determination of occupation and industry of the longest held employment during the ten years prior to disability is based on work histories obtained from the worker in direct interviews by experience staff; and (5) Occupational information is obtained to satisfy administrative needs.

There are factors which may reduce the usefulness or validity of this data for epidemiologic study such as: (1) The precision and reliability of the data for occupation and industry and disabling condition may be more related to the administrative needs of the SSA disability system and less to occupational health research; (2) Data on potential confounding factors, e.g. lifestyle, use of tobacco, alcohol, and other drugs, is not available; and (3) Not all workers with impairments apply for benefits.

Workers may not apply for disability benefits or receive awards for a variety of reasons which may be related to either their occupation and industry or type of impairment. These may include the following: (1) Lack of knowledge of the benefits or confusion about requirements, e.g. a worker may erroneously believe that the impairment must be occupationally caused; (2) The impairment may not meet SSA requirements for severity; (3) Applications for benefits may be less likely in the case of workers who die shortly after the onset of a disease or injury causing disability for the period immediately preceding death; (4) Disease conditions with long latencies may not affect the worker until after his retirement; (5) Workers with conditions known to be caused by their occupations who receive workmen's compensation or other compensation may not apply for or receive SSA disability benefit awards.

There is some evidence that tendencies to apply for benefits and appeal initial denials are related to a worker's occupation, among other factors. It is arguable that tendencies to apply may also be related to disease conditions. If so the absolute incidence of illness effects by occupation and by disabling condition reflected by disability awards could be deceptive. However, relationships between occupations and illness effects might still be accurately represented by relationships between occupations and disabling conditions of awardees. This would hold if differences among occupational groups in tendencies to apply for benefits operate across all types of impairments and if the characteristics of impairments related to benefit application (if any), e.g. latency period, severity, life expectancy, etc., operate equally across occupations. It seems arguable that this is the case, and there is no evidence that it is not.

## Mining: An Illustration of the Tables

### Guide for Use of Tables

Estimated PMR's and estimated standard errors (SE's) of the PMR's are presented in more than 2,400 pages of reference tables on microfiche found in the packet on the back cover of this report\*. A table appears for each race, sex, and, respectively, occupational rubric and disabling condition for which there is at least one disability allowance for 1975-76. Illustration 1 presents the table for white male workers in the occupation rubric "Extraction of Minerals" (DOT 930-939), which is used here to illustrate usage of the tables. The heading of the table describes the race and sex group and the occupation rubric for the table. Results are presented for the entire rubric, identified by the label "All Disabling Conditions," and by disabling condition for each of the 67 disabling conditions used in this report.

Each row of the table describes a disabling condition. Consider pneumoconiosis due to silica and silicates on the 17th line of Illustration 1 on Page 11. The title of the disabling condition is followed by its ICDA code number or range, e.g. 515. The estimated race and sex specific age-adjusted PMR is next, which is 3240. The PMR is scaled so that 100 indicates no relative excess or deficit. Thus, the observed number of disabled miners with pneumoconiosis due to silica and silicates is more than 32 times the expected number.

PMR's are estimated for all occupation/disabling condition combinations for which the expected number of disabled workers for the U.S. for 1975-76, the denominator of the PMR, is 25 or more. This procedure tends to ensure that the S.E.'s are reliable guides to the reliabilities of the PMR's. If the expected number is less than 25 a PMR is presented only if the expected number is at least 5 and the PMR is significantly different from 100 at the .001 level using the two-tailed statistical test described in the Appendix. This modification has been motivated by the objective to present a maximum of reliable information. It is based on an asymptotic approximation to

\* Copies of these tables can be obtained by request from NIOSH.

ESTIMATED NUMBER AND AGE ADJUSTED PROPORTIONAL MORBIDITY RATIOS, PMR, AND STANDARD ERRORS, S.E. (PMR),  
 FOR DISABLED WHITE MALE WORKERS BY DISABLING CONDITION AND AGE: SOCIAL SECURITY DISABILITY AWARDS,  
 1975 - 1976

EXTRACTION OF MINERALS (DOT 930-939)

DISABLING CONDITION	ICDA	PMR	SE(PMR)	TOTAL	AGE IN YEARS														
					40	40-44	45-49	50-54	55-59	60-64	65+	811	520	688	1254	1958	1958	1958	114
All Disabling Conditions.....	000-999			7330	811	520	688	1254	1958	1958	1958	114							
Infective and parasitic diseases.....	000-136	56 *	19	40	0	5	10	7	14	4	0	0							
Tuberculosis.....	010-019	93	34	33	0	5	10	2	12	4	0	0							
Silicotuberculosis.....	010	---		2	0	0	0	2	0	0	0	0							
Pulmonary tuberculosis.....	011	110	38	31	0	5	10	0	12	4	0	0							
Neoplasms.....	140-239	49***	7	341	31	12	16	61	86	124	11	11							
Malignant neoplasms.....	140-199	47***	9	274	26	5	12	51	74	95	11	11							
Buccal cavity and pharynx.....	140-149	32 *	23	10	0	0	0	0	10	0	0	0							
Digestive organs and peritoneum.....	150-159	30***	8	40	5	0	0	5	8	22	0	0							
Respiratory system.....	160-163	53***	10	116	0	0	7	36	32	41	0	0							
Bone, connective tissue, and skin.....	170-173	38***	50	12	12	0	0	0	0	0	0	0							
Genital organs.....	180-187	92	44	40	4	5	0	6	5	20	0	0							
Urinary organs.....	188-189	40 *	22	14	0	0	0	0	9	5	0	0							
Other and unspecified sites.....	190-199	47 *	23	42	5	0	5	4	10	7	11	11							
Neoplasms of lymphatic & hematopoietic tis.....	200-209	72	20	61	5	5	4	10	12	25	0	0							
Sarcoma (lympho-, reticulo-) other lymphoma.....	200,202	57***	4	15	0	5	0	0	0	10	0	0							
Leukemia.....	204-207	100	40	25	5	0	0	10	10	0	0	0							
Benign neoplasms.....	210-228	15***	19	2	0	2	0	0	0	0	0	0							
Neoplasms of unspecified nature.....	230-239	---		4	0	0	0	0	0	4	0	0							
Endocrine, nutritional, & metabolic diseases.....	240-279	41***	7	92	17	0	10	14	20	31	0	0							
Diabetes mellitus.....	250	32***	8	56	17	0	5	0	10	24	0	0							
Diseases of blood and blood-forming organs.....	280-289	---		10	0	0	0	0	0	10	0	0							
Mental disorders.....	290-315	67 **	8	451	144	39	57	76	70	60	5	5							
Schizophrenia.....	295	57 *	17	136	66	23	21	0	14	12	0	0							
Neuroses.....	300	116	16	160	43	11	21	31	15	34	5	5							
Alcoholism.....	303	14***	13	6	0	0	0	6	0	0	0	0							

ESTIMATED NUMBER AND AGE ADJUSTED PROPORTIONAL MORBIDITY RATIOS, PMR, AND STANDARD ERRORS, S.E. (PMR),  
 FOR DISABLED WHITE MALE WORKERS BY DISABLING CONDITION AND AGE: SOCIAL SECURITY DISABILITY AWARDS,  
 1975 - 1976 (cont'd)

EXTRACTION OF MINERALS (DOT 930-939)

DISABLING CONDITION	ICDA	PMR	SE (PMR)	TOTAL	AGE IN YEARS						
					40	40-44	45-49	50-54	55-59	60-64	65+
Diseases of nervous system and sense organs...320-389		67***	6	281	91	30	10	30	68	51	1
Multiple sclerosis.....340		---		19	14	0	5	0	0	0	0
Cataract.....374		---		12	0	0	0	0	10	2	0
Glaucoma.....375		---		6	0	5	0	0	0	1	0
Blindness.....379		---		31	10	0	0	0	7	14	0
Diseases of circulatory system.....390-458		73***	3	1714	59	96	134	278	539	599	9
Heart and hypertensive disease.....393-429		75***	4	1408	52	63	124	245	463	452	9
Hypertensive disease.....400-404		97	17	90	0	6	0	21	30	33	0
Ischemic heart disease.....410-414		76***	4	1241	42	47	124	212	421	388	7
Cerebrovascular disease.....430-438		68	14	174	2	33	0	18	39	82	0
Cerebral thrombosis and embolism.....433-434		77	28	33	0	0	0	2	10	21	0
Arteriosclerosis.....440		100	23	71	0	0	5	5	25	36	0
Diseases of respiratory system.....460-519		397***	16	2183	77	103	185	426	638	683	71
Bronchitis and asthma.....490-491, 493		227	59	143	10	6	36	40	35	16	0
Emphysema.....492		289***	27	592	15	17	46	101	208	190	15
Pneumoconiosis and related diseases.....515-516		3147***	236	739	20	34	53	154	151	283	44
Pneumoconiosis due to silica and silicates...515		3240***	238	739	20	34	53	154	151	283	44
Bronchiectasis.....518		---		17	0	5	0	10	0	2	0
Diseases of digestive system.....520-577		86	13	176	15	27	28	26	34	46	0
Peptic ulcer.....531-533		209	55	58	5	5	11	0	12	25	0
Chronic enteritis and ulcerative colitis.....563		---		8	0	0	6	0	0	2	0
Cirrhosis of liver.....571		70***	21	71	10	15	11	9	17	9	0
Diseases of genitourinary system.....580-629		101	29	53	0	16	0	15	12	10	0
Nephritis and nephrosis.....580-584		148	45	38	0	6	0	10	12	10	0
Chronic nephritis.....582		---		38	0	6	0	10	12	10	0
Other diseases of urinary system.....590-599		---		15	0	10	0	5	0	0	0

ESTIMATED NUMBER AND AGE ADJUSTED PROPORTIONAL MORBIDITY RATIOS, PMR, AND STANDARD ERRORS, S.E. (PMR),  
 FOR DISABLED WHITE MALE WORKERS BY DISABLING CONDITION AND AGE: SOCIAL SECURITY DISABILITY AWARDS,  
 1975 - 1976 (cont'd)

EXTRACTION OF MINERALS (DOT 930-939)

ICDA	PMR	SE(PMR) TOTAL	AGE IN YEARS							
			40	40-44	45-49	50-54	55-59	60-64	65+	
DISABLING CONDITION										
Diseases of skin and subcutaneous tissue.....680-709	---	30	5	10	0	5	10	0	0	0
Dis of musculoskeletal sys & connective tis..710-738	123 *	7	1453	191	132	161	250	393	309	17
Rheumatoid arthritis.....712	46 **	14	48	5	8	10	10	9	6	0
Osteoarthritis.....713	128	16	498	5	5	14	133	175	157	9
Other & unspecified arthritis.....710-711, 714-715	79	34	39	0	5	3	0	24	7	0
Displacement of intervertebral disc.....725	162 **	17	464	112	40	78	39	110	82	3
Congenital anomalies.....740-759	49 *	17	34	10	6	6	6	4	2	0
Symptoms and ill-defined conditions.....780-796	---	10	0	0	0	0	10	0	0	0
Accidents, poisoning, and violence.....800-999	118	13	459	171	41	71	50	70	56	0
Unknown or not classifiable.....000-999	---	3	0	3	0	0	0	0	0	0

--- The expected total number of disabled workers is less than 25 and the PMR is not significant at the .001 level or the expected number is less than 5.

\* The difference between PMR and 100 is statistically significant at the .05 level.

\*\* The difference between PMR and 100 is statistically significant at the .01 level.

\*\*\* The difference between PMR and 100 is statistically significant at the .001 level.

Chebyshev's Inequality (see, for example, 11, page 75). In these cases, since the expected number of cases is small, the estimated value of the PMR probably provides a reliable guide to the direction of departure of the population PMR from 100, but is not as reliable for inferences concerning the actual magnitude of the departure.

The presence of "----" indicates that neither of the criteria just described are fulfilled and the PMR is not estimated. An example is found in Illustration 1 on the line for "Neoplasms of Unspecified Nature," the expected number of disabled workers is 8.5, which is less than 25, and the PMR of 47 is not statistically significant at the .001 level.

The appearance of one, two, or three asterisks (\*, \*\*, \*\*\*) after the values of the PMR's presented in this report represents the outcome of the F-test described in Technical Note 1 in the Appendix. No asterisk appears if the estimated PMR does not differ from 100 by a statistically significant amount. A single asterisk indicates that the difference is statistically significant at the five percent level, two asterisks indicate statistical significance at the .01 probability level and three asterisks indicate statistical significance at the .001 level. In this context, the hypothesis tested is that if all disability allowance records had been analyzed, rather than just a sample, then the value of the observed PMR would be 100. A "statistically significant" difference means that the hypothesis has been rejected. The .05 level or .01 level statistical test results are very useful for accumulating fresh evidence for or against specific hypotheses formulated without use of this report. They are less useful, and potentially misleading, if the occurrence of one or more "statistically significant" PMR's for an industrial group is used as an indication of an unusual disability pattern for that occupational group. Because 67 PMR statistical tests are reported for each occupational group, the probability that one or more of these achieves the .05 (0.01) significance level is greater than 0.05 (0.01) for any occupational group, even if it has no unusual disability pattern.

In Illustration 1 three asterisks appear after the PMR of 49 for Neoplasms, indicating it differs significantly from 100 at the .001 level. In this case the PMR is low and indicates low relative incidence. On the second page of Illustration 1 three asterisks appear after the PMR of 397 for Diseases of the Respiratory System. This indicates statistical significance also at the .001 level. In this case the relative incidence of Respiratory system disease for Mining is 3.97 times that expected.

The next column of the table presents the estimated standard error of the PMR. This can be used to compute confidence intervals using standard Student's t tables with 19 degrees of freedom (see page 155). For example, for Diseases of the Respiratory System, a 99 percent two-tailed confidence interval is 352 to 442. This is computed by multiplying the estimated SE, which is 16, by the .005 t percentile for 19 degrees of freedom, which is -2.84, and adding the product to the estimated PMR, 397 to obtain the rounded lower bound of 352. The 99.5 t percentile, which is 2.84, is multiplied by the estimated SE and added to the estimated PMR to obtain the rounded upper

bound of 442. On the average, over many samplings of disability allowances, 99 percent of such intervals would include the value of the PMR which would be computed from the entire number of disability allowances for the U.S. for 1975-1976.

The next column of the table presents the total estimated number of disability benefit allowances for the race and sex group and occupation/disabling condition combination. For white male disabled miners the estimated number of disabled workers with Diseases of the Respiratory System is 2183. Estimated numbers of disabled workers by the age at which they received the disability benefit allowances are presented in the rightmost 7 columns of the table.

#### Disabilities of Miners

The illustration demonstrates the well known (see references 12 and 13) illness effects of the hazards of mining. Diseases of the respiratory system disabled miners nearly 4 times relatively more often than workers in other industries, a result significant at the .001 probability level (two-tail). Pneumoconiosis due to silica and silicates is the single leading causal rubric in these disabilities and accounts for all of the pneumoconiosis disabilities for miners. The 739 estimated miners disabled from pneumoconiosis due to silica and silicates is more than 32 times the number expected. This result is significant beyond the .001 probability level. These are disease conditions which, as the Greek basis of the name suggests, are caused by dusts.

Also, the PMR for emphysema is significantly high at the .001 probability level as miners are disabled from that cause more than 2.8 times relatively more often than other workers. Tobacco smoking may be a significant factor in the emphysema disabilities. Still another possibility is that many of these workers with emphysema have some other disease, e.g. pneumoconiosis, and were misdiagnosed. However, another potential explanation is that dust conditions may have aggravated the effects of smoking (and vice versa), or that many miners with emphysema also have pneumoconiosis and the combined effects impaired respiratory function causing disability. Since only one diagnosis can be recorded on the SSA source document as the primary cause, such complexities are not manifest in the data.

However, the 739 cases of pneumoconiosis only account for one-third of the estimated 2183 total respiratory system disease disabilities for miners. Almost one-third of the respiratory system disease disabilities do not appear in any of the subcategories under diseases of the respiratory system which appear in the table. Again, as was suggested in the previous paragraph concerning emphysema, many of these may result from the difficulties in the precise diagnosis of respiratory disease, especially pneumoconiosis. An interested researcher might request detailed tabulations of 3-digit ICDA-8 categories.

The illustration also shows that respiratory system disabilities occur for young miners as well as older miners. However, examination of the entire table reveals interesting reversals. Seventy-seven miners aged under 40 were disabled from respiratory disease. This accounts for 9 percent of all disabilities for young miners. In contrast, disproportionately more young miners were disabled from mental disorders, diseases of the nervous system and sense organs, diseases of the musculoskeletal system and connective tissue, and accidents, poisoning and violence respectively, than from respiratory disease.

These results suggest several questions for which additional analyses of the disability data might provide partial answers. Would age-specific PMR's indicate excess disabilities for the other conditions mentioned above for young miners? How much do the huge excesses of respiratory disease disabilities mask excesses for other conditions? Does dust, including coal dust and other dust, produce other adverse health effects in addition to respiratory disease? What is the relation, if any, of dust to respiratory diseases other than pneumoconiosis? Do dust and other adverse exposures, particularly tobacco smoke, have synergistic effects?

Moreover, the illustration presents data for only white male miners. Unanswered is the question of whether results for that race and sex group hold or differ by race or by sex. Additional tables can be located in the reference set for all other race and sex groups by using the index at the front of this report. For example, the table for black male miners begins on page 653.

#### Limitations of the Data

The SSA disability program data, like data from other routine sources, are inadequate for thorough epidemiological study of disabling diseases. Many of these have been discussed previously in the section on the Social Security Disability Benefit Program on pages 7 to 9. Other limitations result from having only one occupation and industry recorded for each worker when, in reality, workers may change from one occupation or industry to another.

Limitations of using "usual" occupation or industry have been studied previously by Gamble and Spirtas (6); studies by Lansing and Mueller (7) and Steinberg (8) have dealt with occupational mobility. These studies indicated that changes are most likely to take place between occupations or industries in which work requirements are similar, that changes occur most frequently among individuals who have limited training, and that changes in occupation decrease after age 40. Because the disabled worker population in this study was relatively old (the estimated median age was greater than 50), it is arguable that their occupational stability was probably high. Moreover, it is reasonable to believe that the industry of the longest held occupation in the ten years preceding disability is a reliable measure of a disabled worker's major industrial experience.

Although the determination of the disabling condition which is the primary cause of a worker's disability is accomplished by physicians on the basis of medical evidence, such determinations are subject to error.

Proportional morbidity ratios are used in this report because the sizes of the various occupational populations at risk are difficult to estimate with sufficient accuracy for computation of actual disability incidence rates. Essentially, a PMR for a particular occupational group and a specific disabling condition compares the proportion of all disabled workers in that occupational group who have that disabling condition to the proportion of all disabled workers in all occupations who have the same disabling condition. If the PMR is greater than 100 then workers in that occupation were disabled by that particular condition relatively more often (but a causal relationship is not implied by that fact alone). The actual rate at which workers in that occupational group are disabled by that condition, however, may be more than, equal to, or less than the corresponding rate for all workers of all occupations. The use of PMR's might be compared to comparisons between relative sizes of pieces from two different pies. Suppose the first piece is one-third of the first pie whereas the second piece is only one-fourth of the second pie; however, if the second pie has a 20-inch diameter and the first pie has a 10-inch diameter, the second piece is absolutely larger than the first piece, even though the first is proportionately the larger. Thus, comparison of PMR's for different occupational groups must be done with great caution.

Finally, the relation between health impairments and disability probably varies among occupations. As an illustration, an impairment of the back may prevent a construction worker from engaging in work if he has little training for other types of work. This type of impairment might not markedly interfere with the work capability of a statistician. Such relationships tend to obscure the relation between occupation and the incidence of impairments when studied with disability award data.

On the other hand, these PMR analyses offer at least two distinct advantages. First, the comparisons avoid the bias commonly known as the "healthy worker effect" because workers in one industry are compared to workers in other industries. The "healthy worker effect" occurs because labor force participation generally decreases as illness become more severe. Thus, workers in any industry generally appear healthier than non-workers in general. And secondly, in PMR analyses groups of workers are treated, in part, as their own "controls." Thus, if a group of workers is generally healthier than other groups of workers, perhaps because of rigorous physical occupational selection criteria, their absolute rates of disability for most disabling conditions might be lower than other workers even if they are exposed to hazards which increase the risk of specific types of disabilities. Such cases might be detected with PMR analyses because proportions of workers with specific disabling conditions are compared to the corresponding proportions of all other workers.

## RESULTS

### Characteristics of Disabled Workers

During the 1975-1976 period 1,158,439 workers were allowed Social Security disability benefits for impairments. Sixty-nine (69) percent of the beneficiaries are men and 31 percent are women. Nearly 84 percent of the beneficiaries are white, 14 percent black, 1.5 percent are other race, and race is unknown for about 0.5 percent.

### Most Frequent Disabling Conditions

Benefits were most frequently allowed for disabilities caused by diseases of the circulatory system (ICDA 390-458). Tables 3 and 4, respectively, display the numbers and percentages of disabled workers by disabling condition by race (except for cases of unknown race) and sex. Tables 3 and 4, respectively, of the Appendix provide estimated numbers and percentages by disabling condition and sex while Tables 5 and 6, respectively, of the Appendix provide numbers and percentages by disabling condition and race.

More than one-fourth (28.5 percent) of all allowances are for circulatory system diseases. More men (30.6 percent) than women (23.8 percent) are disabled for this cause except in the case of black women (31.6 percent) who are more often disabled from those causes than any other race and sex group. Black workers (nearly 30.0 percent) are disabled for this cause more often than other race groups. Workers of other race (21.4 percent) of either sex are least often disabled for this reason, but circulatory system disease is the leading cause for all race and sex groups.

Within circulatory diseases, heart and hypertensive disease (ICDA 393-429) is most frequent (22.4 percent) for all race and sex groups. Ischemic heart disease (ICDA 410-414) accounts for most of those disabilities (18.5 percent). In fact, ischemic heart disease is the cause of more disability than any other cause rubric identified for this analysis. However, this is because ischemic heart disease is the leading cause of disability for white men who make up the majority of the disabled workers, but not for any other race and sex group. For white female workers and non-white workers of both sexes, musculoskeletal system and connective tissue disease (ICDA 710-738) caused more disability for each sex group than ischemic heart disease.

Hypertensive disease (ICDA 400-404) caused disproportionately more disabilities for black workers (5.1 percent) than for any other race group (1.4 percent for white workers and 2.1 percent for other race workers). This relatively high proportion occurs for black male workers (4.4 percent), but is even more pronounced for black female workers (6.2 percent). A relatively high proportion (3.6 percent) of other race female workers also experienced disability caused by hypertensive disease.

TABLE 3: Estimated numbers of workers receiving SSA disability benefits by disabling condition, sex, and race\*: Social Security Disability Allowances 1975-1976.

Disabling Condition	ICDA	Estimated Number Disabled Workers*					
		White		Black		Other	
		Male	Female	Male	Female	Male	Female
All disabling conditions	000-999	675538	294356	108735	57886	11567	4362
Infective and parasitic diseases	000-136	6712	2479	2559	884	256	48
Tuberculosis	010-019	3213	876	1964	415	178	26
Silicotuberculosis	010	38	0	40	0	0	0
Pulmonary tuberculosis	011	2579	552	1716	284	156	15
Neoplasms	140-239	62853	35445	8018	4597	897	463
Malignant neoplasms	140-199	52880	30278	6985	4108	694	372
Buccal cavity & pharynx	140-149	2785	660	359	84	44	18
Digestive organs & peritoneum	150-159	11853	4990	1809	773	244	80
Respiratory system	160-163	19389	4378	2583	597	198	24
Bone, connective tissue, & skin	170-173	2889	1406	225	166	74	7
Breast	174	545	9300	107	1122	6	125
Genital organs	180-187	4115	4563	760	713	62	59
Urinary organs	188-189	3135	804	341	68	19	0
Other & unspecified sites	190-199	8169	4142	791	585	47	59
Neoplasms of lymphatic & hemotopoietic tissue	200-209	7941	3960	714	315	169	62
Sarcoma (lympho-, reticulo-), other lymphomas	200,202	2401	1486	124	74	22	4
Leukemia	204-207	2343	997	193	107	51	35
Benign neoplasms	210-228	1209	807	203	137	24	8
Neoplasms of unspecified nature	230-239	823	400	116	37	10	21
Endocrine, nutritional, & metabolic diseases	240-279	20863	11861	3981	4494	630	298
Diabetes mellitus	250	15999	7138	3060	2853	503	225
Diseases of blood & blood-forming organs	280-289	1043	793	576	466	26	7
Mental disorders	290-315	66637	34999	13761	6171	1657	636
Schizophrenia	295	25212	12583	6398	2711	817	313
Neuroses	300	12789	10359	1191	1252	218	143
Alcoholism	303	3868	521	1032	99	87	0

\*Does not include workers of unknown race.

TABLE 3 (Cont'd.): Estimated numbers of workers receiving SSA disability benefits by disabling condition, sex, and race: Social Security Disability Allowances 1975-1976.

Disabling Condition	ICDA		Estimated Number Disabled Workers				
	White		Black		Other		
	Male	Female	Male	Female	Male	Female	
Diseases of nervous system & sense organs	320-389	39748	21083	6901	3391	747	286
Meningitis	320	76	19	4	0	0	0
Multiple sclerosis	340	2259	3154	142	326	10	42
Cataract	374	1348	751	184	116	21	7
Glaucoma	375	1131	552	690	291	17	11
Blindness	379	1943	945	381	260	60	12
Diseases of circulatory system	390-458	209736	65946	31617	18278	2522	891
Heart & hypertensive disease	393-429	167402	49455	24560	14480	2011	661
Hypertensive disease	400-404	8409	5039	4836	3572	180	157
Ischemic heart disease	410-414	146339	38065	17237	9925	1613	432
Cerebrovascular disease	430-438	23046	7649	4587	2105	305	107
Cerebral hemorrhage	431	694	285	238	118	16	4
Cerebral thrombosis & embolism	433-434	3889	1164	912	402	62	2
Arteriosclerosis	440	6416	1416	861	317	24	22
Diseases of respiratory system	460-519	49455	14319	4904	1869	446	170
Bronchitis & asthma	490-491	5664	3768	817	703	135	101
Emphysema	492	18396	3816	1644	321	107	31
Pneumoconiosis & related diseases	515-516	2136	96	129	3	8	0
Pneumoconiosis due to silica & silicates	515	2074	91	119	3	8	0
Other pneumoconioses & related diseases	516	62	5	10	0	0	0
Bronchiectasis	518	361	307	41	32	0	4
Diseases of digestive system	520-577	18574	8056	2922	1069	370	134
Peptic ulcer	531-533	2507	1099	476	137	70	11
Chronic enteritis & ulcerative colitis	563	1454	1471	115	96	14	10
Cirrhosis of liver	571	9071	2436	1410	428	204	56
Diseases of genitourinary system	580-629	4980	2962	1278	680	125	45

TABLE 3 (Cont'd.): Estimated numbers of workers receiving SSA disability benefits by disabling condition, sex, and race: Social Security Disability Allowances 1975-1976.

Disabling Condition	ICDA	Estimated Number Disabled Workers					
		White		Black		Other	
		Male	Female	Male	Female	Male	Female
Nephritis & nephrosis	580-584	2469	919	652	331	80	24
Chronic nephritis	582	2217	831	607	311	69	1
Other diseases of urinary system	590-599	1974	1212	540	212	25	21
Diseases of male genital organs	600-607	398	11	66	0	13	0
Diseases of female genital organs	620-629	55	367	0	93	5	0
Pregnancy, childbirth, & the puerperium	630-678	5	0	0	12	0	0
Diseases of skin & subcutaneous tissue	680-709	2197	1497	361	319	69	22
Diseases of musculoskeletal system & connective tissue	710-738	108449	64968	17414	10602	2156	905
Rheumatoid arthritis	712	9465	9700	1032	1168	133	181
Osteoarthritis	713	35308	22423	6342	4518	847	230
Other & unspecified arthritis	710-711, 714-715	4484	3044	809	679	88	24
Displacement of inter-vertebral disc	725	26587	11777	3806	1479	440	187
Congenital anomalies	740-759	6774	3351	795	486	177	27
Symptoms & ill-defined conditions	780-796	1382	809	253	110	2	15
Accidents, poisonings, & violence	800-999	38575	10919	6502	1472	745	184
Unknown or not classifiable		37555	14869	6893	2986	742	231

TABLE 4: Estimated percentages of workers receiving SSA disability benefits by disabling condition, sex and race: Social Security Disability Allowances 1975-1976.

Disabling Condition	ICDA	Estimated Percentage Disabled Workers					
		White		Black		Other	
		Male	Female	Male	Female	Male	Female
All disabling conditions	000-999	100.00	100.00	100.00	100.00	100.00	100.00
Infective and parasitic diseases	000-136	0.99	0.84	2.35	1.53	2.21	1.10
Tuberculosis	010-019	0.48	0.30	1.81	0.72	1.54	0.60
Silicotuberculosis	010	0.01	0.0	0.04	0.0	0.0	0.0
Pulmonary tuberculosis	011	0.38	0.19	1.58	0.49	1.35	0.34
Neoplasms	140-239	9.30	12.04	7.37	7.94	7.75	10.61
Malignant neoplasms	140-199	7.83	10.29	6.42	7.10	6.0	8.53
Buccal cavity & pharynx	140-149	0.41	0.22	0.33	0.15	0.38	0.41
Digestive organs & peritoneum	150-159	1.75	1.70	1.66	1.34	2.11	1.83
Respiratory system	160-163	2.87	1.49	2.38	1.03	1.71	0.55
Bone, connective tissue, & skin	170-173	0.43	0.48	0.21	0.29	0.64	0.16
Breast	174	0.08	3.16	0.10	1.94	0.05	2.87
Genital organs	180-187	0.61	1.55	0.70	1.23	0.54	1.35
Urinary organs	188-189	0.46	0.27	0.31	0.12	0.16	0.0
Other & unspecified sites	190-199	1.21	1.41	0.73	1.01	0.41	1.35
Neoplasms of lymphatic & hematopoietic tissue	200-209	1.18	1.35	0.66	0.54	1.46	1.42
Sarcoma (lympho-, reticulo-), other lymphomas	200,202	0.36	0.50	0.11	0.13	0.19	0.09
Leukemia	204-207	0.35	0.34	0.18	0.18	0.44	0.80
Benign neoplasms	210-228	0.18	0.27	0.19	0.24	0.21	0.18
Neoplasms of unspecified nature	230-239	0.12	0.14	0.11	0.06	0.09	0.48
Endocrine, nutritional, & metabolic diseases	240-279	3.09	4.03	3.66	7.76	5.45	6.83
Diabetes mellitus	250	2.37	2.42	2.81	4.93	4.35	5.16
Diseases of blood & blood-forming organs	280-289	0.15	0.27	0.53	0.81	0.22	0.16
Mental disorders	290-315	9.86	11.89	12.66	10.66	14.33	14.58
Schizophrenia	295	3.73	4.27	5.88	4.68	7.06	7.18
Neuroses	300	1.89	3.52	1.10	2.16	1.88	3.28
Alcoholism	303	0.57	0.18	0.95	0.17	0.75	0.0

TABLE 4 (Cont'd.): Estimated percentages of workers receiving SSA disability benefits by disabling condition, sex and race: Social Security Disability Allowances 1975-1976.

Disabling Condition	ICDA	Estimated Percentage Disabled Workers					
		White		Black		Other	
		Male	Female	Male	Female	Male	Female
Diseases of nervous system & sense organs	320-389	5.88	7.16	6.35	5.86	6.46	6.56
Meningitis	320	0.01	0.01	0.0	0.0	0.0	0.0
Multiple sclerosis	340	0.33	1.07	0.13	0.56	0.09	0.96
Cataract	374	0.20	0.26	0.17	0.20	0.18	0.16
Glaucoma	375	0.17	0.19	0.63	0.50	0.15	0.25
Blindness	379	0.29	0.32	0.35	0.45	0.52	0.28
Diseases of circulatory system	390-458	31.05	22.40	29.08	31.58	21.80	20.43
Heart & hypertensive disease	393-429	24.78	16.80	22.59	25.01	17.39	15.15
Hypertensive disease	400-404	1.24	1.71	4.45	6.17	1.56	3.60
Ischemic heart disease	410-414	21.66	12.93	15.85	17.15	13.94	9.90
Cerebrovascular disease	430-438	3.41	2.60	4.22	3.64	2.64	2.45
Cerebral hemorrhage	431	0.10	0.10	0.22	0.20	0.14	0.09
Cerebral thrombosis & embolism	433-434	0.58	0.40	0.84	0.69	0.54	0.05
Arteriosclerosis	440	0.95	0.48	0.79	0.55	0.21	0.50
Diseases of respiratory system	460-519	7.32	4.86	4.51	3.23	3.86	3.90
Bronchitis & asthma	490-491						
	493	0.84	1.28	0.75	1.21	1.17	2.32
Emphysema	492	2.72	1.30	1.51	0.55	0.93	0.71
Pneumoconiosis & related diseases	515-516	0.32	0.03	0.12	0.01	0.07	0.0
Pneumoconiosis due to silica & silicates	515	0.31	0.03	0.11	0.01	0.07	0.0
Other pneumoconioses & related diseases	516	0.01	0.0	0.01	0.0	0.0	0.0
Bronchiectasis	518	0.05	0.10	0.04	0.06	0.0	0.09
Diseases of digestive system	520-577	2.75	2.74	2.69	1.85	3.20	3.07
Peptic ulcer	531-533	0.37	0.37	0.44	0.24	0.61	0.25
Chronic enteritis & ulcerative colitis	563	0.22	0.50	0.11	0.17	0.12	0.23
Cirrhosis of liver	571	1.34	0.83	1.30	0.74	1.76	1.28

TABLE 4 (Cont'd.): Estimated percentages of workers receiving SSA disability benefits by disabling condition, sex and race: Social Security Disability Allowances 1975-1976.

Disabling Condition	ICDA	Estimated Percentage Disabled Workers					
		White		Black		Other	
		Male	Female	Male	Female	Male	Female
Diseases of							
genitourinary system	580-629	0.74	1.04	1.18	1.17	1.08	1.03
Nephritis & nephrosis	580-584	0.37	0.31	0.60	0.57	0.69	0.55
Chronic nephritis	582	0.33	0.28	0.56	0.54	0.60	0.02
Other diseases of							
urinary system	590-599	0.29	0.41	0.50	0.37	0.22	0.48
Diseases of male genital							
organs	600-607	0.06	0.0	0.06	0.0	0.11	0.0
Diseases of female							
genital organs	620-629	0.01	0.12	0.0	0.16	0.04	0.0
Pregnancy, childbirth,							
& the puerperium	630-678	0.0	0.0	0.0	0.02	0.0	0.0
Diseases of skin & sub-							
cutaneous tissue	680-709	0.33	0.51	0.33	0.55	0.60	0.50
Diseases of							
musculoskeletal system							
& connective tissue	710-738	16.05	22.07	16.02	18.32	18.64	20.75
Rheumatoid arthritis	712	1.40	3.30	0.95	2.02	1.15	4.15
Osteoarthritis	713	5.23	7.62	5.83	7.80	7.32	5.27
Other & unspecified							
arthritis	710-711, 714-715	0.66	1.03	0.74	1.17	0.76	0.55
Displacement of							
inter-vertebral disc	725	3.94	4.0	3.50	2.56	3.80	4.29
Congenital anomalies							
	740-759	1.0	1.14	0.73	0.84	1.53	0.62
Symptoms & ill-defined							
conditions	780-796	0.20	0.27	0.23	0.19	0.02	0.34
Accidents, poisonings, &							
violence	800-999	5.71	3.71	5.98	2.54	6.44	4.22
Unknown or not							
classifiable		5.56	5.05	6.34	5.16	6.41	5.30

Disabling conditions which have high incidence are not necessarily those with strong relationships to occupational exposure factors. Black workers, for example, have a higher relative occurrence of hypertensive disease than non-black workers. The evidence in the Occupational Loci of Disability Section, however, does not suggest that occupational factors have an important causal role in this. The high relative occurrence of disabilities for black workers caused by hypertensive disease seems to be spread over most occupation rubrics. The analysis of the Occupational Loci of Disability Section does suggest a potential occupational factor in circulatory disease, but almost exclusively for white workers.

After circulatory disease, the rubric for the second most frequent cause of disability is diseases of the musculoskeletal system and connective tissue (ICDA 710-738) which was diagnosed as the primary cause of nearly 18 percent of all disability benefit allowances. For female workers, these diseases cause almost as many disabilities (21.4 percent) as circulatory system diseases (23.8 percent). For other race female workers, musculoskeletal system and connective tissue system diseases cause more disability than circulatory system disease (20.8 percent as compared to 20.4 percent for circulatory system disease).

Within the musculoskeletal system and connective tissue group, osteoarthritis (ICDA 713) caused about one-third of the disabilities for every race and sex group. More than 6 percent of the disabilities were diagnosed as being caused primarily by osteoarthritis. This percentage is generally applicable to all race and sex groups.

Displacement of Intervertebral Disc (ICDA 725) is a second important cause of disabilities within the musculoskeletal system group and accounts for almost 4 percent of all disabilities. The analysis of the Occupational Loci of Disability Section suggests an occupational relationship to disabilities caused by diseases of the musculoskeletal system and connective tissue, particularly for white workers. This is also the case for osteoarthritis and displacement of intervertebral disc.

Mental disorders (ICDA 290-315) are the third most frequently diagnosed primary cause of disabilities. Nearly 11 percent of all disabilities are caused by mental disorders. Non-white workers tend to be disabled from these conditions more often than white workers, and female workers more often than male workers. However, for white female workers, mental disorders cause slightly fewer disabilities (11.9 percent) than neoplasms (ICDA 140-239) (12.0 percent). The analysis of the Occupational Loci of Disability Section suggests some, but not a large, occupational factor potential relationship to mental disorder disabilities.

Neoplasms (ICDA 140-239) were diagnosed as the primary cause for 9.7 percent of all disability benefit allowances for 1975-1976. A slightly higher (11.3 percent) percentage of female workers than male workers (9 percent) had disabilities from these causes. White workers (10.1 percent), especially white female workers (12.0 percent), have more disabilities caused by neoplasms than

black workers (7.6 percent) or "other race" workers (8.5 percent). The majority of these disabilities are caused by malignant neoplasms (ICDA 140-199) which cause 8.3 percent of all disabilities. For male workers, respiratory system malignant neoplasms (ICDA 160-163) are most frequent, causing 2.4 percent of all disabilities. For female workers, the most frequent cause was malignant neoplasms of the breast (ICDA 174), with nearly 3 percent of all disabilities. The analysis of the Occupational Loci of Disability Section does suggest a potential occupational relationship to disabilities caused by neoplastic disease.

The fifth and sixth leading diagnosed primary causes of disability are diseases of the nervous system and sense organs (ICDA 320-389) (6.3 percent) and diseases of the respiratory system (ICDA 460-519) (6.2 percent). Respiratory system disabilities are slightly more frequent for male workers (6.9 percent) than nervous system and sense organ disabilities (6.0 percent). The reverse is true for female workers (7.0 percent for nervous system and sense organ and 4.6 percent for respiratory system disease). White male workers are disabled substantially more often (7.3 percent) from respiratory disease than any other race and sex group (the next highest race and sex group is white female workers with 4.9 percent).

Respiratory disease disability is known (see 12 for example) to be related to occupational exposures such as mining. The analysis of the Occupational Loci of Disability Section indicates the potential relation of respiratory disease disability to occupational factors. That analysis also suggests a potential relationship of disability from nervous system and sense organ disease to occupational factors.

Accidents, poisonings, and violence (ICDA 800-999) were diagnosed as the primary cause of slightly more than 5 percent of all disabilities. The percentage for male workers (5.8) is higher than for female workers (3.5). This sex difference appears for all race groups. The analysis of the Occupational Loci of Disability Section indicates a potential occupational relationship to this type of disability, especially for white male workers.

#### Occupations of Disabled Workers

The distribution of workers receiving SSA disability benefit allowances by occupation rubric is shown in Tables 5 and 6 and Appendix Tables 7, 8, 9, and 10. Tables 5 and 6, respectively, present numbers and percentages of disabled workers by occupation and by race (not including workers of unknown race) and sex. Appendix Tables 7 and 8, respectively, present the numbers and percentages by occupation and by sex while Tables 9 and 10, respectively, present the numbers and percentages by occupation and race.

The distribution of disabled workers among the 86 occupation rubrics varied considerably by race and sex. More than sixteen percent of the workers are assigned to the category "Special modification to DOT," which includes odd jobs (2.9%) and unknown occupations (11.1%).

TABLE 5: Estimated numbers\* of workers in U.S. receiving SSA disability benefits by occupation, sex, and race\*: Social Security Disability Allowances, 1975-1976.

Occupation/DOT	Estimated Number Disabled Workers*					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
All	675538	294356	108735	57886	11567	4362
PROFESSIONAL, TECHNICAL, & MANAGERIAL OCCUPATIONS (DOT 001-199)	84427	37958	4775	4231	809	324
Architecture & engineering (DOT 001-019)	10038	776	312	91	108	2
Mathematics & physical sciences (DOT 020-029)	1783	769	96	85	2	6
Life sciences (DOT 040-049)	593	395	51	31	18	7
Social sciences (DOT 050-059)	126	48	10	10	5	0
Medicine & health (DOT 070-079)	4237	12617	437	1648	56	148
Education (DOT 090-099)	3876	5583	502	847	65	53
Museum, library & archival sciences (DOT 100-102,109)	162	561	0	30	6	0
Law & jurisprudence (DOT 110, 111,119)	841	90	15	10	0	1
Religion & theology (DOT 120-129)	1127	60	68	0	13	0
Writing (DOT 130-139)	605	303	2	20	0	0
Art work (DOT 141-149)	1325	837	43	45	4	20
Entertainment & recreation (DOT 150-159)	1346	563	155	17	9	7
Administrative specialties (DOT 160-169)	12540	5273	375	202	90	14
Managerial work, n.e.c. (DOT 180-189)	42833	9181	2587	936	382	48
Miscellaneous professional, technical, & managerial (DOT 191-199)	2995	929	122	289	51	18
CLERICAL & SALES OCCUPATIONS (DOT 200-299)	60286	77293	4707	4728	669	680
Stenography, typing, filing, & related work (DOT 201-209)	6218	30483	638	1921	70	277
Computing & account recording (DOT 210-219)	4424	17526	308	967	100	119
Material & production recording (DOT 221-22`)	11139	3204	1896	428	122	50
Information & message distribution (DOT 230-239)	3243	5866	442	401	40	63

\*Does not include workers of unknown race.

TABLE 5 (Cont'd.): Estimated numbers\* of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976.

Occupation/DOT	Estimated Number Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Miscellaneous clerical work (DOT 240-249)	1789	2062	100	142	43	33
Saleswork, services (DOT 250-259)	5380	1085	122	84	19	2
Saleswork, commodities (DOT 260-289)	18593	12479	619	567	120	109
Miscellaneous merchandising work (DOT 290-299)	9500	4588	582	218	155	27
SERVICE OCCUPATIONS (DOT 300-399)	56623	64142	15706	30981	1656	1261
Domestic services (DOT 300-309)	1069	5852	616	12303	31	179
Food & beverage preparation & services (DOT 310-319)	17964	28492	3987	6064	765	481
Lodging & related services (DOT 320-329)	1031	3596	375	2362	6	110
Barbering, cosmetology, & related services (DOT 330-339)	2806	4095	371	469	49	65
Amusement & recreation services (DOT 340-349)	480	157	56	20	33	2
Miscellaneous personal services (DOT 350-359)	3245	13279	1109	4527	70	215
Apparel & furnishing services (DOT 361-369)	2406	4090	1280	3252	83	120
Protective services (DOT 371-379)	16338	1022	1931	216	318	4
Building & related services (DOT 381-389)	11284	3559	5981	1768	301	85
FARMING, FISHERY, FORESTRY, & RELATED OCCUPATIONS (DOT 400-499)	33418	2997	5930	1004	1483	155
Plant farming (DOT 401-409)	5440	583	1800	287	325	66
Animal farming (DOT 411-419)	3779	379	197	77	69	12
Miscellaneous farming & related work (DOT 421-429)	23154	1974	3807	635	1037	77
Fishery & related work (DOT 431-439)	694	3	64	5	46	0
Forestry (DOT 441-449)	161	48	15	0	2	0
Hunting, trapping, & related services (DOT 451-452)	17	0	0	0	2	0
Agricultural services (DOT 461-469)	173	10	47	0	2	0

TABLE 5 (Cont'd.): Estimated numbers\* of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976.

Occupation/DOT	Estimated Number Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
PROCESSING OCCUPATIONS (DOT 500-599)	20360	6151	5030	1329	312	191
Metal processing (DOT 500-509)	3109	257	1040	17	30	0
Ore refining & foundry work (DOT 510-519)	3360	246	1199	35	67	10
Processing, food & related products (DOT 520-529)	5331	3265	1352	981	122	155
Processing, paper & related materials (DOT 530-539)	894	104	101	15	0	0
Processing, petroleum & related products (DOT 540-549)	858	52	85	10	6	0
Processing, chemicals & related products (DOT 550-559)	3140	709	582	70	15	13
Processing, wood & wood products (DOT 560-569)	244	26	73	16	0	0
Processing, nonmetallic minerals & related products (DOT 570-579)	1210	276	178	45	30	0
Processing, leather & textiles (DOT 580-589)	1419	1093	278	115	30	11
Processing, n.e.c. (DOT 590-599)	795	123	142	25	12	2
MACHINES TRADES OCCUPATIONS (DOT 600-699)	72096	15160	7417	1962	823	227
Metal machining (DOT 600-609)	15745	1118	597	105	113	20
Metalworking, n.e.c. (DOT 610-619)	14572	6874	2591	1142	199	179
Mechanical repairing (DOT 620-639)	29946	843	2682	189	362	0
Paperworking (DOT 640-649)	529	433	152	51	11	0
Printing (DOT 650-659)	2835	419	158	89	20	0
Wood machining (DOT 660-669)	3193	293	574	64	67	5
Machining, nonmetallic minerals & related materials (DOT 670-679)	186	21	26	0	0	0
Textile machine work (DOT 680-687, 689)	3133	4102	308	255	25	13
Machine work, n.e.c. (DOT 690-699)	1957	1057	329	67	26	10
BENCH WORK OCCUPATIONS (DOT 700-799)	24067	32473	3217	3920	431	650
Fabrication, assembly, & repair of metal products, n.e.c. (DOT 700-709)	7372	6381	1123	796	112	42
Assembly and repair of electrical equipment (DOT 720-729)	3871	3182	223	335	44	56
Fabrication & repair of products made from assorted materials (DOT 730-739)	714	533	90	87	6	17

TABLE 5 (Cont'd.): Estimated numbers\* of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976.

Occupation/DOT	Estimated Number Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Painting, decorating, & related work (DOT 740-749)	1055	205	198	52	0	0
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	939	269	271	39	30	0
Fabrication & repair of wood products (DOT 760-769)	1475	356	176	101	34	31
Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)	669	272	49	31	0	0
Fabrication & repair of textile, leather, & related products (DOT 780-789)	5141	19454	705	2249	138	479
Bench work, n.e.c. (DOT 790-799)	1451	1285	296	225	36	25
STRUCTURAL WORK OCCUPATIONS (DOT 800-899)						
Metal fabricating, n.e.c. (DOT 800-809)	120823	6137	20748	938	2074	76
Welding, flame cutting, & related work (DOT 810-819)	12292	1220	1501	172	183	39
Electrical assembly, installing, & repairing (DOT 820-829)	9675	891	1108	98	115	10
Painting, plastering, water-proofing, cementing, & related work (DOT 840-849)	12533	981	793	71	99	0
Excavating, grading, paving, & related work (DOT 850-859)	10902	431	1631	62	125	0
Construction, n.e.c. (DOT 860-869)	10290	397	1178	25	230	7
Structural work, n.e.c. (DOT 891-899)	51098	1555	12081	332	1071	18
MISCELLANEOUS OCCUPATIONS (DOT 900-999)						
Motor freight transportation (DOT 900-909)	14033	662	2456	178	251	2
Transportation work, n.e.c. (DOT 910-919)	90095	11873	18654	1738	1398	189
Packaging & materials handling (DOT 920-929)	37542	1355	7194	368	423	15
Extraction of minerals (DOT 930-939)	16056	1473	3508	191	377	14
	20501	7532	6015	1020	367	158
	7330	211	458	20	84	0

TABLE 5 (Cont'd.): Estimated numbers\* of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976.

Occupation/DOT	Estimated Number Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Logging (DOT 940-949)	2085	79	611	20	39	0
Production & distribution of utilities (DOT 950-959)	4472	182	674	10	58	2
Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)	234	19	16	0	10	0
Graphic art work (DOT 970-979)	1875	1022	178	109	40	0
SPECIAL MODIFICATIONS TO DOT (by SSA)	113343	40145	22551	7055	1912	609
Special modifications to DOT (by SSA)	16192	6381	1174	738	143	58
Odd jobs (classified by SSA)	21006	3712	7091	723	586	88
Occupations unknown	76145	30052	14286	5594	1183	463

TABLE 6: Estimated percentages of workers in U.S. receiving SSA disability benefits by occupation, sex, and race\*: Social Security Disability Allowances, 1975-1976

Occupation/DOT	Estimated Percentage Disabled Workers*					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
All	100.00	100.00	100.00	100.00	100.00	100.00
PROFESSIONAL, TECHNICAL, & MANAGERIAL OCCUPATIONS (DOT 001-199)	12.50	12.90	4.39	7.31	6.99	7.43
Architecture & engineering (DOT 001-019)	1.49	0.26	0.29	0.11	0.93	0.05
Mathematics & physical sciences (DOT 020-029)	0.26	0.26	0.09	0.15	0.02	0.14
Life sciences (DOT 040-049)	0.09	0.13	0.05	0.05	0.16	0.16
Social sciences (DOT 050-059)	0.02	0.02	0.01	0.02	0.04	0.0
Medicine & health (DOT 070-079)	0.63	4.29	0.40	2.85	0.48	3.39
Education (DOT 090-099)	0.57	1.90	0.46	1.46	0.56	1.22
Museum, library & archival sciences (DOT 100-102,109)	0.02	0.19	0.0	0.05	0.05	0.0
Law & jurisprudence (DOT 110, 111,119)	0.12	0.03	0.01	0.02	0.0	0.02
Religion & theology (DOT 120-129)	0.17	0.02	0.06	0.0	0.11	0.0
Writing (DOT 130-139)	0.09	0.10	0.0	0.03	0.0	0.0
Art work (DOT 141-149)	0.20	0.28	0.04	0.08	0.03	0.46
Entertainment & recreation (DOT 150-159)	0.20	0.19	0.14	0.03	0.08	0.16
Administrative specialties (DOT 160-169)	1.86	1.79	0.34	0.35	0.78	0.32
Managerial work, n.e.c. (DOT 180-189)	6.34	3.12	2.38	1.62	3.30	1.10
Miscellaneous professional, technical, & managerial (DOT 191-199)	0.44	0.32	0.11	0.50	0.44	0.41
CLERICAL & SALES OCCUPATIONS (DOT 200-299)	8.92	26.26	4.33	8.17	5.78	15.59
Stenography, typing, filing, & related work (DOT 201-209)	0.92	10.36	0.59	3.32	0.61	6.35
Computing & account recording (DOT 210-219)	0.65	5.95	0.28	1.67	0.86	2.73
Material & production recording (DOT 221-229)	1.65	1.09	1.74	0.74	1.05	1.15
Information & message distribution (DOT 230-239)	0.48	1.99	0.41	0.69	0.35	1.44

\*Does not include workers of unknown race.

TABLE 6 (Cont'd.): Estimated percentages of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976

Occupation/DOT	Estimated Percentage Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Miscellaneous clerical work (DOT 240-249)	0.26	0.70	0.09	0.25	0.37	0.76
Saleswork, services (DOT 250-259)	0.80	0.37	0.11	0.15	0.16	0.05
Saleswork, commodities (DOT 260-289)	2.75	4.24	0.57	0.98	1.04	2.50
Miscellaneous merchandising work (DOT 290-299)	1.41	1.56	0.54	0.38	1.34	0.62
SERVICE OCCUPATIONS (DOT 300-399)	8.38	21.79	14.44	53.52	14.32	28.91
Domestic services (DOT 300-309)	0.16	1.99	0.57	21.25	0.27	4.10
Food & beverage preparation & services (DOT 310-319)	2.66	9.68	3.67	10.48	6.61	11.03
Lodging & related services (DOT 320-329)	0.15	1.22	0.34	4.08	0.05	2.52
Barbering, cosmetology, & related services (DOT 330-339)	0.42	1.39	0.34	0.81	0.42	1.49
Amusement & recreation services (DOT 340-349)	0.07	0.05	0.05	0.03	0.29	0.05
Miscellaneous personal services (DOT 350-359)	0.48	4.51	1.02	7.82	0.61	4.93
Apparel & furnishing services (DOT 361-369)	0.36	1.39	1.18	5.62	0.72	2.75
Protective services (DOT 371-379)	2.42	0.35	1.78	0.37	2.75	0.09
Building & related services (DOT 381-389)	1.67	1.21	5.50	3.05	2.60	1.95
FARMING, FISHERY, FORESTRY, & RELATED OCCUPATIONS (DOT 400-499)	4.95	1.02	5.45	1.73	12.82	3.55
Plant farming (DOT 401-409)	0.81	0.20	1.66	0.50	2.81	1.51
Animal farming (DOT 411-419)	0.56	0.13	0.18	0.13	0.60	0.28
Miscellaneous farming & related work (DOT 421-429)	3.43	0.67	3.50	1.10	8.97	1.77
Fishery & related work (DOT 431-439)	0.10	0.0	0.06	0.01	0.40	0.0
Forestry (DOT 441-449)	0.02	0.02	0.01	0.0	0.02	0.0
Hunting, trapping, & related services (DOT 451-452)	0.0	0.0	0.0	0.0	0.02	0.0
Agricultural services (DOT 461-469)	0.03	0.0	0.04	0.0	0.02	0.0

TABLE 6 (Cont'd.): Estimated percentages of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976

Occupation/DOT	Estimated Percentage Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
PROCESSING OCCUPATIONS (DOT 500-599)	3.01	2.09	4.63	2.30	2.70	4.38
Metal processing (DOT 500-509)	0.46	0.09	0.96	0.03	0.26	0.0
Ore refining & foundry work (DOT 510-519)	0.50	0.08	1.10	0.06	0.58	0.23
Processing, food & related products (DOT 520-529)	0.79	1.11	1.24	1.69	1.05	3.55
Processing, paper & related materials (DOT 530-539)	0.13	0.04	0.09	0.03	0.0	0.0
Processing, petroleum & related products (DOT 540-549)	0.13	0.02	0.08	0.02	0.05	0.0
Processing, chemicals & related products (DOT 550-559)	0.46	0.24	0.54	0.12	0.13	0.30
Processing, wood & wood products (DOT 560-569)	0.04	0.01	0.07	0.03	0.0	0.0
Processing, nonmetallic minerals & related products (DOT 570-579)	0.18	0.09	0.16	0.08	0.26	0.0
Processing, leather & textiles (DOT 580-589)	0.21	0.37	0.26	0.20	0.26	0.25
Processing, n.e.c. (DOT 590-599)	0.12	0.04	0.13	0.04	0.10	0.05
MACHINES TRADES OCCUPATIONS (DOT 600-699)	10.67	5.15	6.82	3.39	7.12	5.20
Metal machining (DOT 600-609)	2.33	0.38	0.55	0.18	0.98	0.46
Metalworking, n.e.c. (DOT 610-619)	2.16	2.34	2.38	1.97	1.72	4.10
Mechanical repairing (DOT 620-639)	4.43	0.29	2.47	0.33	3.13	0.0
Paperworking (DOT 640-649)	0.08	0.15	0.14	0.09	0.10	0.0
Printing (DOT 650-659)	0.42	0.14	0.15	0.15	0.17	0.0
Wood machining (DOT 660-669)	0.47	0.10	0.53	0.11	0.58	0.11
Machining, nonmetallic minerals & related materials (DOT 670-679)	0.03	0.01	0.02	0.0	0.0	0.0
Textile machine work (DOT 680-687,689)	0.46	1.39	0.28	0.44	0.22	0.30
Machine work, n.e.c. (DOT 690-699)	0.29	0.36	0.30	0.12	0.22	0.23
BENCH WORK OCCUPATIONS (DOT 700-799)	3.56	11.03	2.96	6.77	3.73	14.90

TABLE 6 (Cont'd.): Estimated percentages of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976

Occupation/DOT	Estimated Percentage Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
Fabrication, assembly, & repair of metal products, n.e.c. (DOT 700-709)	1.09	2.17	1.03	1.38	0.97	0.96
Assembly and repair of electrical equipment (DOT 720-729)	0.57	1.08	0.21	0.58	0.38	1.28
Fabrication & repair of products made from assorted materials (DOT 730-739)	0.11	0.18	0.08	0.15	0.05	0.39
Painting, decorating, & related work (DOT 740-749)	0.16	0.07	0.18	0.09	0.0	0.0
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	0.14	0.09	0.25	0.07	0.26	0.0
Fabrication & repair of wood products (DOT 760-769)	0.22	0.12	0.16	0.17	0.29	0.71
Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)	0.10	0.09	0.05	0.05	0.0	0.0
Fabrication & repair of textile, leather, & related products (DOT 780-789)	0.76	6.61	0.65	3.89	1.19	10.98
Bench work, n.e.c. (DOT 790-799)	0.21	0.44	0.27	0.39	0.31	0.57
STRUCTURAL WORK OCCUPATIONS (DOT 800-899)	17.89	2.08	19.08	1.62	17.93	1.74
Metal fabricating, n.e.c. (DOT 800-809)	1.82	0.41	1.38	0.30	1.58	0.89
Welding, flame cutting, & related work (DOT 810-819)	1.43	0.30	1.02	0.17	0.99	0.23
Electrical assembly, installing, & repairing (DOT 820-829)	1.86	0.33	0.73	0.12	0.86	0.0
Painting, plastering, water-proofing, cementing, & related work (DOT 840-849)	1.61	0.15	1.50	0.11	1.08	0.0
Excavating, grading, paving, & related work (DOT 850-859)	1.52	0.13	1.08	0.04	1.99	0.16
Construction, n.e.c. (DOT 860-869)	7.56	0.53	11.11	0.57	9.26	0.41
Structural work, n.e.c. (DOT 891-899)	2.08	0.22	2.26	0.31	2.17	0.05

TABLE 6 (Cont'd.): Estimated percentages of workers in U.S. receiving SSA disability benefits by occupation, sex, and race: Social Security Disability Allowances, 1975-1976

Occupation/DOT	Estimated Percentage Disabled Workers					
	White		Black		Other	
	Male	Female	Male	Female	Male	Female
MISCELLANEOUS OCCUPATIONS (DOT 900-999)	13.34	4.03	17.16	3.0	12.09	4.33
Motor freight transportation (DOT 900-909)	5.56	0.46	6.62	0.64	3.66	0.34
Transportation work, n.e.c. (DOT 910-919)	2.38	0.50	3.23	0.33	3.26	0.32
Packaging & materials handling (DOT 920-929)	3.03	2.56	5.53	1.76	3.17	3.62
Extraction of minerals (DOT 930-939)	1.09	0.07	0.42	0.03	0.73	0.0
Logging (DOT 940-949)	0.31	0.03	0.56	0.03	0.34	0.0
Production & distribution of utilities (DOT 950-959)	0.66	0.06	0.62	0.02	0.50	0.05
Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)	0.03	0.01	0.01	0.0	0.09	0.0
Graphic art work (DOT 970-979)	0.28	0.35	0.16	0.19	0.35	0.0
SPECIAL MODIFICATIONS TO DOT (BY SSA)	16.78	13.64	20.74	12.19	16.53	13.96
Special modifications to DOT by (SSA)	2.40	2.17	1.08	1.27	1.24	1.33
Odd jobs (classified by SSA)	3.11	1.26	6.52	1.25	5.07	2.02
Occupations unknown	11.27	10.21	13.14	9.66	10.23	10.61

The occupational category with the most disabled workers is service occupations (DOT 300-399). Service occupations (DOT 300-399) account for 14.8 percent of the disabled workers with considerably more female workers (27.0 percent) than male workers (9.3 percent) in that occupational group. Considerably more black workers (28.0 percent) than either white (12.5 percent) or other race workers (18.3 percent) had been employed in service occupations. Almost all of these differences can be explained by the very large percentage (53.5) of black female workers in this occupational group. More than 21 percent of all black female workers had been employed in Domestic Services (DOT 301-309) which is far greater than the 4.1 percentage for other race female workers, the next most frequent group with that employment. Relatively sizable percentages of black females had been employed in food and beverage preparation (DOT 310-319) (10.5 percent) and miscellaneous personal services (DOT 350-359) (7.8 percent). White and other race female workers also had worked in those occupations with relatively high frequency. Male workers are concentrated in food and beverage preparation (DOT 310-319), protective services (DOT 371-379), and building and related services (DOT 381-389).

More male workers had been employed in structural work (DOT 800-899) (18 percent) than in Services (9.3 percent) but only 2 percent of female workers had been employed in the former. The great majority of male workers classified in the structural work occupations, 5.7 percent of all male workers, could not be assigned to a detailed occupation rubric within that general category.

Nearly 13 percent of the disabled workers had been employed in Clerical and Sales Occupations (DOT 200-299). This percentage is higher for female workers (23.2 percent) than for male workers (8.3 percent). Somewhat fewer black workers (5.7 percent) than white (14.2 percent) or other race (8.5 percent) had been employed in this industry.

About 11.5 percent of the disabled workers had worked in professional, technical, and managerial occupations (DOT 001-199). This percentage differs little between sexes but varies with race as more white workers (12.6%) than black workers (5.4%) or other race workers (7.11%) are classified in this major rubric. Within this major rubric 4.9 percent of the total are Managerial work, N.E.C.

## OCCUPATIONAL LOCI OF DISABILITY

Two objectives of surveillance are:

- (1) To monitor previously established or suggested patterns or associations of occupationally related disability to determine changes; and
- (2) To detect newly emergent patterns or associations of occupationally related disability.

The PMR's for each occupational group have been subjected to two analyses to accomplish these objectives.

### Monitor Relationships Characteristic of 1969-73

The occupations and the specific disabling conditions for each to be monitored were determined from data for 1969-73. These data have been previously described (1). The data for each race and sex group were analyzed independently to determine which occupations could be designated occupational loci of disability for the 1969 to 1973 period. An occupation is designated as an occupational locus of disability for a specific race and sex group if the distribution of disabilities by disease condition for that occupation differs from the distribution of disabilities by disease condition for all occupations as a group for that race and sex. The statistical criterion for determining a difference in the distribution of disabilities by disease condition is one or more age-adjusted disease-condition PMR's for the occupation which is statistically significantly greater than 100.0 using a 0.0005 level one-tailed student's t-test with 19 degrees of freedom (see page 155 concerning the degrees of freedom). Because there are 67 disease specific age-adjusted PMR's for each occupation, this ensures that the Type I error probability for any specific occupation is less than 0.05 (with appropriate probability distribution assumptions).

Occupational loci of disability are occupations for which there is evidence of high, at least disproportionately high, if not absolutely high, disability for the period 1969-73. Those occupations have been monitored with the 1975-76 SSA disability data as described next.

If rates of disability were available the monitoring objective would be to determine if a high rate of the 1969-73 period had changed, and if so, whether the rate had increased or decreased. A change in magnitude of a PMR does not necessarily imply the same change in risk as a change in a rate. Therefore, the analysis does not examine changes in PMR's. Instead, the monitoring objective is to determine if a race- and sex-specific occupation group which has a high PMR for a specific disabling condition in the 1969-73 period also has a high PMR for that disabling condition for 1975-1976. If so the previously identified pattern is confirmed and, if not, it is not confirmed. To be confirmed, the PMR must exceed 100 by an amount statistically

significant at the 0.05 level using a one-tail student's t-test. A higher significance level or less stringent statistical criterion, is used for monitoring than for detection because the occupation and disabling condition association examined had been selected by the prior analysis.

Occupations identified as loci of disability for the 1969-73 period which are confirmed high in the 1975-76 period are recommended for additional epidemiological study and monitoring in the future. These results are, however, insufficient to establish that such occupations have higher disability. The limitations of PMR analyses discussed previously apply.

#### Detecting Emergent Occupational Health Problems

The analysis for detecting emergent occupational loci of disability is more complex. Results from two alternative analyses are presented:

- (1) The 1975-76 data for each occupation are analyzed using a modification of the method described above to identify occupational loci of disability in the 1969-1973 period. An occupation is identified as an emergent occupational locus of disability 1975-76 period if its PMR for at least one of the 67 disabling conditions is significantly greater than 100 at the 0.0005 level using a one-tail student's t-test, providing the PMR satisfying the criterion does not confirm a relationship identified in the 1969-73 period.
- (2) The data are first adjusted (see Technical Note 3 in the Appendix) to remove those relationships identified for the 1969-73 period and confirmed for the 1975-76 period and then analyzed as described in (1) above. The adjustment attempts to remove distortions associated with PMR analyses in the presence of established relationships.

#### Results: Previously Established and Confirmed Relationships

Occupations which satisfy the criterion for designation as occupational loci of disabilities for the 1969-73 period for one or more disabling conditions which are confirmed high for the 1975-76 period are described below. These are noted in Tables 7 to 41 by entries with a "Y", for yes, under the column labeled "Confirm".

The following discussion identifies the occupational loci of occupation related disability and describes the disabling conditions achieving the criterion. The discussion also notes similarities occurring among race/sex groups. The occupations identified as loci of occupation related disability for at least one race-sex group are shown in Tables 7 to 59 which also present the estimated PMR, standard error, and number of disabled workers by race and sex for each disabling condition achieving the criterion. Tables 7 to 37 display those occupations which fulfill the criteria and describe the disease conditions with confirmed high PMR's. Tables 38 to 59 display these same results but by disease condition. In Tables 38 to 59 the occupations with confirmed high PMR's are shown for each disease condition. A PMR estimated as 0 occurs if the estimated number of disabled workers is 0 but the estimated expected number is greater than 0. If both the estimated and estimated expected numbers, respectively, are 0, then the PMR is listed as ---.

Results are presented for all 4 race and sex groups even when only one is significant to provide additional information on the pattern of the association across race and sex groups.

#### I. Professional, Technical, and Managerial Occupations (DOT 001-199)

Both white male and white female workers of this major occupational group are disproportionately disabled more often in both 1969-73 and 1975-76 because of neoplasms and malignant neoplasms. In addition, white male workers have high PMR's for malignant neoplasms of other and unspecified sites and for neoplasms of the lymphatic and hematopoietic tissue, and specifically leukemia. White male workers also experienced disproportionate disability from three conditions other than neoplasms, diseases of the nervous system and sense organs, multiple sclerosis and cerebrovascular disease. White female workers also had high PMR's for multiple sclerosis in both periods.

For white male workers the specific occupations within the major rubric for which the above patterns are also evident are education, administrative specialties, and managerial work, n.e.c. in the case of neoplasms. No specific occupations are identified as potentially high risk for multiple sclerosis.

Disproportionate disability for cerebrovascular disease is found for the specific occupations of administrative specialties and managerial work, n.e.c. Both of these occupations may be at high risk for other circulatory system diseases as described below.

The disproportionate neoplastic disability for white females is specifically evident in the occupation groups of education--which exhibits high relative disability for breast cancer in particular--and administrative specialties.

A. Education (DOT 090-099)

White male and white female workers have confirmed disproportionate disability for this occupation for 1969-73 and 1975-76. White male workers have had disproportionately high disabilities from mental disorders and, in particular, schizophrenia. For white female workers there has been higher than expected numbers of disabilities from neoplasms, in general, but also malignant neoplasms and specifically breast cancer. In addition, diseases of the nervous system and sense organs have caused disproportionately large numbers of disabilities for white female education workers.

B. Law and Jurisprudence (DOT 110, 111, 119)

Diseases of the circulatory system cause a high proportion of the disabilities for black males for 1969-73 and 1975-76. This is so relative to other disabling conditions for black men and relative to the proportion of disabilities caused by circulatory system disease for male workers of all other race groups. However, this occupation is only one of two for which black male workers have experienced disproportionately high numbers of disabilities in both the 1969-1973 and 1975-1976 periods. However, the PMR's are based on fewer than 25 expected disabled black men for both periods (see Table 9). Thus, the assumptions for the statistical tests used may be less realistic for these cases.

D. Art Work (DOT 141-149)

Diseases of the musculoskeletal system and connective tissue caused disproportionately high disabilities for black female workers in both 1969-73 and 1975-76.

E. Administrative Specialties (DOT 160-169)

The relative risk of disability is potentially high in this occupation for white workers, regardless of sex, for 1969-73 and 1975-76. For white women, the causes of disproportionate disability are neoplasms and also malignant neoplasms. White men have experienced disproportionate disabilities from six conditions including neoplasms, diseases of the nervous system and sense organs, and four conditions both including and within the general rubric of diseases of the circulatory system. The latter include heart and hypertensive disease, and, specifically, ischemic heart disease, and cerebrovascular disease. For white men the pattern of disabilities for this occupation is almost the same as for managerial work, n.e.c.

TABLE 7: Professional, technical, and managerial occupations (DOT 001-199): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE	No.	PMR	Sign		SE	No.
Neoplasms	140-239	W	M	135	\$	4	10921	135	\$	3	10921	Y
		W	F	125	\$	3	9393	131	*	4	5999	Y
		B	M	142	*	15	538	129	*	12	455	
		B	F	132	*	13	525	154	#	17	519	
Malignant neoplasms	140-199	W	M	122	\$	2	15229	131	\$	3	8967	Y
		W	F	124	\$	3	8003	130	\$	4	5092	Y
		B	M	124		12	399	125		12	384	
		B	F	131		15	443	147	*	18	441	
Other & unspecified sites	190-199	W	M	146	\$	8	2653	177	\$	11	1798	Y
		W	F	144	\$	7	1373	133		14	975	N
		B	M	135		51	49	158		41	55	
		B	F	138		42	47	220		49	96	
Neoplasms of lymphatic & hematopoietic tissue	200-209	W	M	136	\$	6	2575	162	\$	11	1573	Y
		W	F	131	*	11	998	140	#	13	709	
		B	M	240		67	112	---			5	
		B	F	184		45	67	---			53	
Leukemia	204-207	W	M	152	\$	8	720	138	*	17	396	Y
		W	F	120		16	222	159		25	200	
		B	M	315	*	92	44	---		4	5	
		B	F	176	*	55	25	---			26	
Diseases of nervous system & sense organs	320-389	W	M	122	\$	2	10730	124	\$	3	5894	Y
		W	F	115	*	5	5011	111		16	2995	
		B	M	113		17	377	107		21	322	
		B	F	93		12	254	98		28	100	
Multiple sclerosis	340	W	M	237	\$	10	1648	227	\$	31	566	Y
		W	F	170	\$	8	1367	170		20	676	Y
		B	M	462		204	52	---			5	
		B	F	141		91	59	---			66	
Cerebrovascular disease	430-438	W	M	134	\$	2	10078	146	#	5	4446	Y
		W	F	112		6	2489	113		9	1126	
		B	M	145	*	15	448	107		21	215	
		B	F	133		22	310	93		21	141	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

TABLE 8: Education occupations (DOT 090-099): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE	No.	PMR	Sign	
Neoplasms	140-239	W	M	127 *	10	709	151 #	17	533	
			F	150 \$	7	2016	162 \$	10	1061	Y
		B	M	111	43	44	137	69	50	
			F	122	24	145	159	59	106	
Malignant neoplasms	140-199	W	M	108	11	499	127	19	374	
			F	155 \$	7	1792	156 \$	12	860	Y
		B	M	62	33	21	157	81	50	
			F	119	26	115	144	46	85	
Breast	174	W	M	0	0	0	---		34	
			F	169 \$	15	620	201 *	28	334	Y
		B	M	0	0	0	0	0	0	
			F	123	38	37	---		20	
Mental disorders	290-315	W	M	180 \$	11	1120	150 *	18	627	Y
			F	108	7	1312	106	9	765	
		B	M	190	52	128	116	26	74	
			F	143	17	194	168 *	30	174	
Schizophrenia	295	W	M	195 \$	21	518	170 #	24	284	Y
			F	114	12	512	146	16	402	
		B	M	265 *	63	88	144	45	43	
			F	124	25	87	142	42	67	
Diseases of nervous system & sense organs	320-389	W	M	179 \$	17	654	122	22	288	N
			F	152 \$	11	1194	163 *	18	696	Y
		B	M	109	74	38	157	76	50	
			F	145	44	115	257	78	137	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

F. Managerial Work N.E.C. (DOT 180-189)

White male workers in this occupation have disproportionate disabilities for 1969-73 and 1975-76 from six conditions; five of these are the same as for white male workers in Administrative Specialties. The six conditions fall in two broad rubrics, neoplasms and diseases of the circulatory system. Both broad rubrics caused disproportionate numbers of disabilities. Within the neoplasm rubric, malignant neoplasms in general cause higher than expected disabilities. Within the circulatory disease rubric, heart and hypertensive disease, and specifically ischemic heart disease, and cerebrovascular disease have high PMR's in both 1969-73 and 1975-76.

II. Clerical and Sales Occupations (DOT 200-299)

White workers, regardless of sex, have high PMR's for this broad occupation rubric for 1969-73 and 1975-76. However, with two exceptions--diseases of the nervous system and sense organs, and, specifically, multiple sclerosis--the conditions causing the excessive disabilities differ by sex. Three other rubrics associated with disproportionate disabilities in both periods for white women are neoplasms, malignant neoplasms, and, specifically, breast cancer. The eight other causal rubrics with high relative disabilities for white men fall into and include three broad rubrics: (1) endocrine, nutritional, and metabolic diseases, and, specifically diabetes mellitus; (2) mental disorders, and specifically schizophrenia and neuroses; and (3) diseases of the circulatory system, and specifically, heart and hypertensive disease, in general, and ischemic heart disease, in particular.

TABLE 9: Law and jurisprudence occupations (DOT 110,111, 119): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
Diseases of circulatory system	390-458	W	M	106	10	725	110	15	303	
			F	61	22	17	---		14	
		B	M	195	# 17	23	295	\$ 13	15	Y
			F	100	0	0	---		0	

The PMR is statistically significantly higher than 100 at the 1-tail  
 \* .025 level.  
 # .005 level.  
 \$ .0005 level.

TABLE 10: Art work occupations (DOT 141-149): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
Disease of musculoskeletal system & connective tissue	710-738	W	M	77	13	348	91	16	193	
			F	84	14	216	112	29	210	
		B	M	139	51	16	30	4	2	
			F	289	\$ 33	37	234	# 22	20	Y

The PMR is statistically significantly higher than 100 at the 1-tail  
 \* .025 level.  
 # .005 level.  
 \$ .0005 level.

TABLE 11: Administrative specialties occupations (DOT 160-169): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE No.	PMR	Sign	SE No.			
Neoplasms	140-239	W	M	130	\$	5	3060	143	\$	7	1716	Y
		W	F	147	\$	9	1522	151	#	16	970	Y
		B	M	111		96	19	85		28	22	
		B	F	47		62	5	---			31	
Malignant neoplasms	140-199	W	M	123	#	6	2449	138	#	9	1413	
		W	F	150	\$	9	1335	148	#	16	821	Y
		B	M	125		108	18	54		29	12	
		B	F	44		40	4	---			31	
Diseases of nervous system & sense organs	320-389	W	M	134	\$	7	1842	132	*	10	919	Y
		W	F	115		13	660	121		15	434	
		B	M	91		37	15	118		166	30	
		B	F	26		33	2	---			30	
Diseases of circulatory system	390-458	W	M	119	\$	3	10120	126	\$	3	5234	Y
		W	F	102		5	2174	110		6	1364	
		B	M	144		31	111	132		27	132	
		B	F	113		41	41	135		32	82	
Heart & hypertensive disease	410-414	W	M	120	\$	3	7846	126	\$	4	4175	Y
		W	F	96		6	1533	112		8	1043	
		B	M	187		44	108	151		32	117	
		B	F	36		20	10	150		33	72	
Ischemic heart disease	410-414	W	M	121	\$	3	7040	128	\$	4	3715	Y
		W	F	104		6	1296	117		10	846	
		B	M	222		58	98	151		40	81	
		B	F	50		35	10	155		28	50	
Cerebrovascular disease	430-438	W	M	136	\$	7	1621	141	*	13	648	Y
		W	F	129		17	378	138		25	199	
		B	M	22		32	3	103		30	15	
		B	F	364		127	20	---			10	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

TABLE 12: Managerial work, n.e.c. occupations (DOT 180-189): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE No.	PMR	Sign	SE No.			
Neoplasms	140-239	W	M	119	\$	3	8802	130	\$	5	5421	Y
		W	F	106		7	1754	120	*	8	1355	
		B	M	155	*	20	354	118		27	239	
		B	F	150		51	99	81		26	61	
Malignant neoplasms	140-199	W	M	119	\$	3	7486	126	\$	5	4482	Y
		W	F	105		7	1505	121	*	9	1179	
		B	M	137		22	269	117		28	208	
		B	F	158		66	89	85		30	58	
Diseases of circulatory system	390-458	W	M	121	\$	1	33112	131	\$	2	18887	Y
		W	F	109	*	4	3967	117	#	5	2587	
		B	M	100		6	1101	116		10	934	
		B	F	107		16	305	133		15	420	
Heart & hypertensive disease	393-429	W	M	121	\$	1	25407	133	\$	2	15288	Y
		W	F	106		5	2894	124	#	7	2068	
		B	M	94		6	771	115		11	721	
		B	F	103		20	231	136		19	344	
Ischemic heart disease	410-414	W	M	123	\$	1	23035	137	\$	2	13847	Y
		W	F	113		6	2447	127	#	9	1647	
		B	M	97		7	634	117		14	518	
		B	F	96		21	163	149		22	260	
Cerebrovascular disease	430-438	W	M	127	\$	4	4919	138	\$	6	2228	Y
		W	F	119		14	591	104		16	268	
		B	M	132		17	255	112		26	130	
		B	F	112		46	45	182		59	64	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

White women in two specific occupations within the broad rubric of clerical and sales occupations have high PMR's for neoplastic disabilities in both periods. These include stenography, typing, filing and related work, and computing and account recording. Both occupations have disproportionately high disability for neoplasms and malignant neoplasms while the former also have high PMR's for breast cancer. The former occupation is also the only occupation with a pattern of disproportionately high disability for both diseases of the nervous system and sense organs and multiple sclerosis for white women.

Two sales related specific occupations exhibit patterns of disability for white men which are similar to the major occupational group. These are saleswork, services and saleswork, commodities. For these occupations white men have high circulatory system disease PMR's for disabilities for 1969-1973 and 1975-1976. Stenography, typing, filing, and related work, and information and message distribution both have high PMR's for mental disorders for white men. For white women, the occupation exhibiting a pattern most similar to the major clerical and sales rubric is stenography, typing, filing, and related work.

A. Stenography, Typing, Filing, and Related Work (DOT 201-209)

White workers of both sexes have disproportionately high numbers of disabilities for both 1969-73 and 1975-76. For white women the excessive proportions of disabilities occur for seven rubrics: neoplasms, malignant neoplasms, breast cancer, mental disorders, schizophrenia, diseases of the nervous system and sense organs, and multiple sclerosis. For white men the disproportionate disability is caused by mental disorders and schizophrenia which, as just stated, cause excessive relative disability for white women as well.

B. Computing and Account Recording (DOT 210-219)

White female workers experience high PMR's for 1969-73 and 1975-76 for disabilities caused by neoplasms and malignant neoplasms.

TABLE 13: Clerical and sales work occupations (DOT 200-299): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
Neoplasms	140-239	W	M	106 *	2	12033	118 \$	3	6666	
		W	F	115 \$	1	20405	125 \$	2	11560	Y
		B	M	91	11	441	133	17	435	
		B	F	127 *	10	562	128	16	464	
Malignant neoplasms	140-199	W	M	103	2	9747	116 #	4	5519	
		W	F	115 \$	1	17438	123 \$	2	9726	Y
		B	M	90	12	362	129	23	363	
		B	M	118	13	435	128	17	408	
Breast	174	W	M	154	50	39	306 #	60	148	
		W	F	123 \$	3	6019	137 \$	5	3329	Y
		B	M	0	0	0	544 #	114	25	
		B	F	107	27	127	155	28	142	
Endocrine, nutritional, & metabolic diseases	240-279	W	M	123 \$	4	4420	118 #	4	2199	Y
		W	F	84	3	5338	99	3	3083	
		B	M	156 *	23	402	93	20	154	
		B	F	64	16	230	50	10	164	
Diabetes mellitus	250	W	M	129 \$	5	3506	125 \$	5	1782	Y
		W	F	91	3	3483	97	4	1830	
		B	M	127	31	246	117	24	149	
		B	F	66	15	140	49	13	95	
Mental disorders	290-315	W	M	116 \$	2	13195	114 \$	2	6591	Y
		W	F	105 *	2	18778	107 *	2	9903	
		B	M	90	6	970	118 *	8	821	
		B	F	98	10	754	136 \$	8	978	
Schizophrenia	295	W	M	129 \$	4	5828	132 \$	6	2832	Y
		W	F	110 #	2	7992	119 \$	4	3975	
		B	M	113	10	674	154 #	16	539	
		B	F	104	13	483	184 #	20	641	
Neuroses	300	W	M	128 \$	6	2496	123 *	9	1379	Y
		W	F	115 #	4	5401	112 #	3	3028	
		B	M	93	34	52	202	72	115	
		B	F	93	29	90	164 *	27	215	

TABLE 13 (Cont'd.): Clerical and sales work occupations (DOT 200-299): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
Diseases of nervous system & sense organs	320-389	W	M	118 \$	3	8292	126 \$	5	4421	Y
			F	117 \$	2	12568	118 \$	3	6589	Y
		B	M	112	13	530	101	15	317	
			F	148 #	13	569	131 *	12	437	
Multiple sclerosis	340	W	M	195 \$	15	1197	186 *	27	361	Y
			F	148 \$	6	3288	179 \$	11	1500	Y
		B	M	172	69	34	200	92	15	
			F	204 #	32	166	209	97	90	
Diseases of circulatory system	390-458	W	M	110 \$	1	43456	116 \$	2	21898	Y
			F	97	1	34531	102	1	17574	
		B	M	108	6	2336	107	6	1363	
			F	90	6	1395	79	6	987	
Heart & hypertensive disease	393-429	W	M	110 \$	1	3335	117 \$	2	17633	Y
			F	96	1	25208	99	2	12867	
		B	M	105	8	1702	105	7	1039	
			F	90	8	1070	60	7	588	
Ischemic heart disease	410-414	W	M	110 \$	1	29630	118 \$	2	15533	Y
			F	92	1	18872	98	2	9788	
		B	M	102	10	1277	111	10	759	
			F	95	9	790	57	6	377	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

TABLE 14: Stenography, typing, filing, and related work occupations (DOT 201-209): age adjusted PMR's for 1975-76 for all disabling conditions which were high for 1969-73

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE No.	PMR	Sign	SE No.			
Neoplasms	140-239	W	M	93		7	914	120	12	677		
		W	F	118	\$	2	8264	138	\$	4	4980	Y
		B	M	87		129	38	127		34	44	
		B	F	133		21	222	148		30	218	
Malignant neoplasms	140-199	W	M	92		7	735	123		13	581	
		W	F	116	\$	2	6896	135	\$	4	4134	Y
		B	M	62		122	21	157		48	44	
		B	F	131		25	180	151		32	193	
Breast	174	W	M	1125		457	24	1681	#	394	82	
		W	F	128	\$	6	2440	177	\$	9	1660	Y
		B	M	0		0	0	1842	\$	81	10	
		B	F	93		37	41	213	*	46	79	
Mental disorders	290-315	W	M	173	\$	6	2064	137	#	11	953	Y
		W	F	121	\$	3	9440	121	\$	4	4683	Y
		B	M	118		16	180	189	*	39	271	
		B	F	100		15	359	164	*	20	507	
Schizophrenia	295	W	M	229	\$	15	1227	198	\$	22	562	Y
		W	F	141	\$	5	4738	153	\$	11	2230	Y
		B	M	152		24	147	256		74	213	
		B	F	122		19	280	240	\$	29	364	
Diseases of nervous system & sense organs	320-389	W	M	153	#	13	1025	155		24	591	
		W	F	124	\$	4	5697	119	#	5	2722	Y
		B	M	122		40	65	122		49	61	
		B	F	162	*	27	279	126		26	176	
Multiple sclerosis	340	W	M	278	*	69	183	373	*	110	86	
		W	F	164	\$	11	1706	214	\$	24	779	Y
		B	M	325		112	10	0		0	0	
		B	F	200		69	82	160		103	30	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

C. Information and Message Distribution (DOT 230-239)

White male workers have high PMR's for mental disorders for 1969-73 and 1975-76.

D. Saleswork, Services (DOT 250-259)

White male workers have high PMR's for 1969-73 and 1975-76 for diseases of the circulatory system, heart and hypertensive disease, and specifically, ischemic heart disease.

E. Saleswork, Commodities (DOT 260-289)

White male workers have high PMR's for 1969-73 and 1975-76 for five conditions falling in and including two major disability condition rubrics, neoplasms and diseases of the circulatory system. For the former, high PMR's are observed for neoplasms and malignant neoplasms. PMR's are also high for diseases of the circulatory system, heart and hypertensive disease, and ischemic heart disease.

TABLE 15: Other clerical and sales occupations with high PMR's for 1969-73 which are confirmed for 1975-76

Occupation/ Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
<b>COMPUTING &amp; ACCOUNT RECORDING (DOT 210-219)</b>										
Neoplasms	140-239	W	M	93	9	653	134 *	15	539	Y
		W	F	120	\$ 4	4764	134 #	8	2819	
		B	M	127	44	22	101	26	22	
		B	F	199	* 41	134	129	37	95	
Malignant neoplasms	140-199	W	M	93	10	535	119	17	042	Y
		W	F	121	\$ 5	4089	134 \$	7	2397	
		B	M	147	68	20	64	25	12	
		B	F	180	44	101	132	41	85	

TABLE 15 (Cont'd.): Other clerical and sales occupations with high PMR's for 1969-73 which are confirmed for 1975-76

Occupation/ Disabling Condition	ICDA	Race Sex		1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE	No.	PMR	Sign		SE	No.
INFORMATION & MESSAGE DISTRIBUTION (DOT 230-239)												
Mental disorders	290-315	W	M	154	\$	11	897	153	*	17	534	Y
		W	F	112		5	1573	132	*	11	923	
		B	M	160		30	202	76		23	51	
		B	F	105		29	79	140		46	101	
SALESWORK, SERVICES (DOT 250-259)												
Diseases of circulatory system	390-458	W	M	121	\$	4	4390	133	\$	5	2421	Y
		W	F	113		12	438	112		17	294	
		B	M	118		22	83	138		25	56	
		B	F	123		21	35	90		25	24	
Heart & hypertensive disease	393-429	W	M	121	\$	4	3385	137	\$	7	1985	Y
		W	F	106		15	307	119		20	236	
		B	M	149		29	78	114		21	36	
		B	F	155		32	35	66		29	14	
Ischemic heart disease	410-414	W	M	126	\$	5	3132	136	\$	6	1733	Y
		W	F	111		16	254	127		23	196	
		B	M	155		36	63	114		25	26	
		B	F	203		52	35	62		26	9	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

TABLE 15 (Cont'd.): Other clerical and sales occupations with high PMR's for 1969-73 which are confirmed for 1975-76

Occupation/ Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE No.	PMR	Sign	SE No.			
SALESWORK, COMMODITIES (DOT 260-289)												
Neoplasms	140-239	W	M	122	\$	4	4276	131	\$	5	2318	Y
				106		5	3089	113		6	1726	
				119		65	52	129		29	60	
				93		30	60	99		33	44	
Malignant neoplasms	140-199	W	M	118	\$	4	3463	132	\$	5	1972	Y
				106		5	2677	111		7	1463	
				133		46	48	124		34	50	
				69		30	38	85		37	33	
Diseases of circulatory system	390-458	W	M	116	\$	2	14348	119	\$	2	7186	Y
				102		3	6395	109	#	2	3246	
				135		17	260	119		15	216	
				123		14	297	87		21	140	
Heart & hypertensive disease	393-429	W	M	116	\$	2	11016	120	\$	2	5748	Y
				101		3	4741	111	#	3	2500	
				136		21	196	131		21	184	
				119		19	223	58		26	73	
Ischemic heart disease	410-414	W	M	117	\$	2	9892	121	\$	3	5090	Y
				99		4	3675	115	#	4	2015	
				135		23	148	131		25	129	
				137		22	189	62		27	53	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

### III. Service Occupations (DOT 300-399)

Excessive relative disability for 1969-73 and 1975-76 occurs for both white and black workers of both sexes for this major occupational category. Both white and black male workers have high PMR's for mental disorders and schizophrenia, in particular. White male workers have high PMR's for three conditions: mental disorders, schizophrenia, and diseases of the digestive system. White female workers have high PMR's for disabilities caused by five conditions: endocrine, nutritional, and metabolic diseases; diabetes mellitus; diseases of the musculoskeletal system and connective tissue; osteoarthritis; and accidents, poisonings, and violence. Black male workers have high PMR's for two conditions: mental disorders and schizophrenia. Black female workers have high PMR's for one condition, pregnancy, childbirth, and the puerperium.

For white men, two specific occupations have patterns of disability somewhat similar to the major group. Both food and beverage preparation and services, on the one hand, and building and related services exhibit high PMR's for mental disorders, in general, and schizophrenia, in particular. The PMR's for diseases of the digestive system for the former occupation are also high in both 1969-73 and 1975-76. For white women three specific occupations either had high PMR's for diseases of the musculoskeletal system and connective tissue or osteoarthritis or both. These are food and beverage preparation and services, miscellaneous personal services, and building and related services. In contrast to the findings for the major occupational rubric discussed in the previous paragraph, no disability patterns identified for black workers of either sex for 1969-1973 are confirmed for 1975-1976 for any specific service occupations.

#### A. Domestic Services (DOT 301-309)

White women have high PMR's for disabilities caused by mental disorders for 1969-73 and 1975-76.

#### B. Food and Beverage Preparation and Services (DOT 310-319)

White workers, both male and female, have high PMR's but for different disabling conditions. White male workers have high PMR's for 1969-73 and 1975-76 for four conditions falling into two broad rubrics, mental disorders and diseases of the digestive system. These include mental disorders, schizophrenia, diseases of the digestive system, and cirrhosis of the liver. White female workers have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

TABLE 16: Service occupations (DOT 300-399) with high PMR's for 1969-73 which are confirmed high for 1975-76

Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
Endocrine, nutritional & metabolic diseases	240-279	W	M	114 #	3	4111	121 *	6	2105	Y
		W	F	125 \$	3	6291	135 \$	5	3499	
		B	M	112	8	1426	146 #	12	836	
		B	F	106 *	2	5295	123 \$	4	3042	
Diabetes mellitus	250	W	M	115 *	5	3115	118 *	8	1566	Y
		W	F	121 \$	5	3676	135 #	8	2105	
		B	M	123 *	10	1187	140 *	14	616	
		B	F	104	2	3372	124 \$	4	1972	
Mental disorders	290-315	W	M	120 \$	2	16440	143 \$	4	8914	Y
		W	F	96	2	11928	101	2	7362	
		B	M	119 \$	4	4873	125 #	6	2514	
		B	F	89	3	3803	98	4	2797	
Schizophrenia	295	W	M	125 \$	3	7728	152 \$	7	3851	Y
		W	F	97	3	4396	109	4	2802	
		B	M	136 \$	6	2794	126 *	9	1192	
		B	F	85	5	1593	95	5	1137	
Diseases of digestive system	520-577	W	M	119 \$	4	4037	128 #	9	1988	Y
		W	F	99	3	2896	101	6	1760	
		B	M	107	10	952	120	15	503	
		B	F	105	5	956	89	11	492	
Pregnancy, childbirth, & the puerperium	630-678	W	M	100	0	0	0	0	0	N
		W	F	289 \$	31	24	100	0	0	
		B	M	100	0	0	100	0	0	
		B	F	219 \$	12	9	253 \$	6	12	
Diseases of musculoskeletal system & connective tissue	710-738	W	M	83	2	14524	99	3	8999	Y
		W	F	110 \$	1	25187	116 \$	2	16619	
		B	M	94	3	4461	91	5	2274	
		B	M	106 #	2	10071	109 \$	2	6358	
Osteoarthritis	713	W	M	87	3	4243	116 #	5	3232	Y
		W	F	121 \$	3	9718	134 \$	2	6797	
		B	M	98	5	1679	98	7	904	
		B	F	109 #	3	4702	115 \$	3	3053	

C. Miscellaneous Personal Services (DOT 350-359)

White female workers have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

D. Protective Services (DOT 371-379)

The disability pattern for this occupation, which involves an association with circulatory system disease, contrasts with other service occupations. White men have high PMR's for 1969-73 and 1975-76 for these conditions: diseases of the circulatory system, heart and hypertensive disease, and ischemic heart disease.

E. Building and Related Services (DOT 381-389)

White men have high PMR's for 1969-73 and 1975-76 for mental disorders and, specifically, schizophrenia. White women have high PMR's for 1969-73 and 1975-76 for osteoarthritis.

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TABLE 16 (Cont'd.): Service occupations (DOT 300-399) with high PMR's for 1969-73 which are confirmed high for 1975-76

Disabling Condition	ICDA	Race Sex		1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE	No.	PMR	Sign		SE	No.
Accidents, poisonings & violence	800-999	W	M	110	\$	2	12874	84	3	2994	N	
		W	F	114	\$	3	6788	113	*	5	2637	Y
		B	M	89		4	2651	79		7	748	
		B	F	99		3	1858	92		8	683	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

TABLE 17: Specific service occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/ Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
<b>DOMESTIC SERVICES (DOT 301-309)</b>										
Mental disorders	290-315	W	M	159	32	145	167	88	151	
		W	F	154	\$ 10	1530	165	# 15	1000	Y
		B	M	82	45	41	140	27	95	
		B	F	83	4	1256	89	7	882	
<b>FOOD &amp; BEVERAGE PREPARATION &amp; SERVICES (DOT 310-319)</b>										
Mental disorders	290-315	W	M	137	\$ 5	4578	144	\$ 6	2951	Y
		W	F	86	3	4823	93	3	3024	
		B	M	128	# 7	1266	137	* 15	821	
		B	F	81	6	709	103	10	636	
Schizophrenia	295	W	M	132	\$ 7	1799	139	# 12	1185	Y
		W	F	86	4	1810	94	7	1072	
		B	M	134	* 12	661	130	17	394	
		B	F	77	11	314	114	20	305	
Diseases of digestive system	520-577	W	M	162	\$ 10	1569	159	* 20	781	Y
		W	F	98	6	1277	122	10	949	
		B	M	109	20	237	158	33	166	
		B	F	120	16	208	109	27	121	
Cirrhosis of liver	571	W	M	218	\$ 18	1101	204	# 28	482	Y
		W	F	117	11	577	155	* 20	370	
		B	M	149	32	160	155	37	77	
		B	F	100	22	69	116	29	52	
Diseases of musculoskeletal system & connective tissue	710-738	W	M	85	4	4111	98	5	2804	
		W	F	107	\$ 2	10782	113	\$ 2	7147	Y
		B	M	84	7	958	70	9	431	
		B	F	102	6	1729	101	6	1132	

TABLE 17 (Cont'd.): Specific service occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/ Disabling Condition	ICDA	Race Sex	1969-1973			1975-1976			Con- firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
<b>MISCELLANEOUS PERSONAL SERVICES (DOT 350-359)</b>									
Diseases of musculoskeletal system & connective tissue	710-738	W M	95	10	588	107	17	555	
		W F	116 \$	2	5433	126 \$	5	3658	Y
		B M	97	13	243	75	19	131	
		B F	135 #	10	1307	134 \$	7	1068	
<b>PROTECTIVE SERVICES (DOT 371-379)</b>									
Diseases of circulatory system	390-458	W M	115 \$	2	11786	120 \$	4	5604	Y
		W F	120	11	370	153 *	24	330	
		B M	103	10	890	112	11	554	
		B F	99	18	78	124	34	83	
Heart & hypertensive disease	393-429	W M	119 \$	3	9395	124 \$	4	4625	Y
		W F	92	14	212	176	36	282	
		B M	105	14	685	117	11	447	
		B F	118	23	73	117	42	62	
Ischemic heart disease	410-414	W M	122 \$	3	8460	129 \$	5	4198	Y
		W F	102	17	181	186	44	227	
		B M	116	17	545	135	18	352	
		B F	132	23	62	146	77	52	

TABLE 17 (Cont'd.): Specific service occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/ Disabling Condition	ICDA	Race Sex	1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
BUILDING & RELATED SERVICES (DOT 381-389)											
Mental disorders	290-315	W M	187	\$	7	3567	188	\$	11	2192	Y
		W F	123		12	719	93		12	347	
		B M	117	*	7	1558	114		12	750	
		B F	113		20	284	105		28	162	
Schizophrenia	295	W M	174	\$	12	1265	179	#	18	822	Y
		W F	162	*	27	300	102		18	127	
		B M	119		13	670	92		18	264	
		B F	112		38	115	75		44	48	
Osteoarthritis	713	W M	99		6	992	148	#	12	870	Y
		W F	172	\$	14	857	154	*	23	453	
		B M	91		5	757	113		13	435	
		B F	108		15	313	120		27	190	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

#### IV. Farming, Fishery, Forestry, and Related Occupations (DOT 400-499)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system, in general, and osteoarthritis, in particular. The major occupation group pattern is manifest for white men in several occupations within the major group including plant farming, animal farming, miscellaneous farming and related work, and hunting, trapping, and related services. One other occupation, forestry, also has high PMR's for the same disabling condition, i.e. diseases of the musculoskeletal system and connective tissue, but for white women rather than white men.

##### A. Plant Farming (DOT 401-409)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

##### B. Animal Farming (DOT 411-419)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

##### C. Miscellaneous Farming and Related Work (DOT 421-429)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, and specifically, both rheumatoid arthritis and osteoarthritis.

##### D. Forestry (DOT 441-449)

White women have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

##### E. Hunting, Trapping, and Related Services (DOT 451-452)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

TABLE 18: Farming, fishery, and related occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race Sex	1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
<b>FARMING, FISHERY, FORESTRY, &amp; RELATED OCCUPATIONS (DOT 400-499)</b>											
Diseases of musculoskeletal system & connective tissue	710-738	W M	121	\$	2	14323	127	\$	3	6839	Y
		W F	126	*	8	1052	110		7	732	
		B M	92		4	1675	91		8	884	
		B F	95		16	218	85		19	157	
Osteoarthritis	713	W M	143	\$	5	5927	153	\$	6	2862	Y
		W F	156	#	16	484	147	*	20	336	
		B M	93		7	689	98		16	373	
		B F	118		27	125	97		27	76	
<b>PLANT FARMING (DOT 401-409)</b>											
Disease of musculoskeletal system & connective tissue	710-738	W M	127	\$	5	2066	133	#	9	1157	Y
		W F	117		18	199	82		20	105	
		B M	81		7	348	85		16	251	
		B F	97		28	68	67		16	36	
<b>ANIMAL FARMING (DOT 411-419)</b>											
Diseases of musculoskeletal system & connective tissue	710-738	W M	137	\$	8	1638	133	*	13	807	Y
		W F	111		24	130	107		32	92	
		B M	72		20	44	99		70	31	
		B F	96		41	9	0		0	0	
<b>MISCELLANEOUS FARMING &amp; RELATED WORK (DOT 421-429)</b>											
Diseases of musculoskeletal system & connective tissue	710-738	W M	1183	\$	2	10222	125	\$	4	4648	Y
		W F	128	*	10	690	115		9	500	
		B M	97		6	1243	91		10	571	
		B F	96		21	141	105		30	121	

TABLE 18 (Cont'd.): Farming, fishery, and related occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race	Sex	1969-1973		1975-1976			Con-	
				PMR	Sign SE No.	PMR	Sign SE	No.	firm	
<b>MISCELLANEOUS FARMING &amp; RELATED WORK (DOT 421-429) (Cont'd)</b>										
Rheumatoid arthritis	712	W	M	147	\$ 8	1674	145	* 17	475	Y
			F	122	27	140	65	30	42	
		B	M	121	19	135	194	62	73	
			F	75	31	18	153	61	20	
Osteoarthritis	713	W	M	140	\$ 5	4291	149	\$ 7	1987	Y
			F	161	# 18	321	167	* 27	247	
		B	M	101	9	530	105	24	259	
			F	111	35	75	82	28	40	
<b>FORESTRY (DOT 441-449)</b>										
Diseases of musculoskeletal system & connective tissue	710-738	W	M	102	36	48	35	37	9	
			F	334	\$ 31	24	339	\$ 37	35	Y
		B	M	0	0	0	0	0	0	
			F	100	0	0	100	0	0	
<b>HUNTING, TRAPPING, &amp; RELATED SERVICES (DOT 451-452)</b>										
Diseases of musculoskeletal system & connective tissue	710-738	W	M	248	\$ 33	24	181	* 33	5	Y
			F	0	0	0	100	0	0	
		B	M	0	0	0	100	0	0	
			F	100	0	0	100	0	0	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

V. Processing Occupations (DOT 500-599)

White male workers have a high PMR in the 1969-73 period for diseases of the respiratory system which is confirmed high for 1975-1976. This pattern is not manifest in any specific occupation within this major group.

A. Metal Processing (DOT 500-509)

Black women have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

B. Processing, Wood and Wood Products (DOT 560-569)

Black women have high PMR's for 1969-73 and 1975-76 for diseases of the circulatory system, and heart and hypertensive disease.

TABLE 19: Processing Occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE No.	PMR	Sign	SE No.			
PROCESSING OCCUPATIONS (DOT 500-599)												
Diseases of respiratory system	460-519	W	M	117	\$	3	4647	133	#	9	2047	Y
		W	F	112		13	515	121		13	375	
		B	M	122		12	632	151	*	18	364	
		B	F	117		40	58	103		42	46	
METAL PROCESSING (DOT 500-509)												
Diseases of musculoskeletal system & connective tissue	710-738	W	M	111		10	951	105		13	526	
		W	F	108		37	44	139		21	79	
		B	M	95		16	250	80		17	136	
		B	F	267	\$	30	15	238	#	33	7	Y

TABLE 19: Processing Occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race	Sex	1969-1973		1975-1976			Con- firm
				PMR	Sign SE No.	PMR	Sign	SE No.	
PROCESSING, WOOD & WOOD PRODUCTS (DOT 560-569)									
Diseases of circulatory system	390-458	W	M	82	11	216	135	23	104
			F	44	23	6	17	35	1
			M	128	19	113	191	\$ 19	38
			F	222	\$ 9	14	191	\$ 8	10 Y
Heart & hypertensive disease	393-429	W	M	92	13	186	161	29	99
			F	0	0	0	22	46	1
			M	124	24	82	179	* 25	27
			F	276	\$ 13	14	236	\$ 10	10 Y

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

VI. Machine Trades Occupations (DOT 600-699)

White male and female workers have similar patterns of disability. Both groups have high PMR's for 1969-73 and 1975-76 for ischemic heart disease and diseases of the musculoskeletal system and connective tissue. In addition, white men have high PMR's for two other circulatory system conditions, diseases of the circulatory system, in general, and heart and hypertensive disease, in particular. For one specific occupation--mechanical repair--the disability pattern for musculoskeletal system disease is similar to the major group for white men.

A. Mechanical Repairing (DOT 620-639)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, in general, and for two specific conditions within that group, osteoarthritis and displacement of the intervertebral disc.

B. Textile Machine Work (DOT 680-687, 689)

White male workers have high PMR's for 1969-73 and 1975-76 for diseases of the respiratory system, in general, and specifically, emphysema.

TABLE 20: Machine trades occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race	Sex	1969-1973 PMR Sign SE No.	1975-1976 PMR Sign SE No.	Con- firm
MACHINES TRADES OCCUPATIONS (DOT 600-699)						
Diseases of circulatory system	390-458	W	M	105 \$ 1 51298	110 \$ 1 25532	Y
		W	F	107 * 3 7298	118 # 4 4079	
		B	M	106 3 4281	111 * 5 2456	
		B	F	104 8 661	92 7 543	

TABLE 20 (Cont'd.): Machine trades occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race Sex	1969-1973		1975-1976			Con-
			PMR	Sign SE No.	PMR	Sign SE No.	firm	
<b>MACHINES TRADES</b>								
<b>OCCUPATIONS (DOT 600-699) (Cont'd)</b>								
Heart & hypertensive disease	393-429	W M	106 \$	1	39919	110 \$	2	20293 Y
		W F	111 #	3	5693	124 \$	5	3205
		B M	105	4	3177	114 *	6	1959
		B F	109	11	541	88	11	406
Ischemic heart disease	410-414	W M	107 \$	1	35872	111 \$	1	17931 Y
		W F	116 \$	3	4613	130 \$	6	2598 Y
		B M	108	4	2552	113	7	1371
		B F	113	14	416	86	14	271
Diseases of musculoskeletal system & connective tissue	710-738	W M	112 \$	2	23450	119 \$	2	13817 Y
		W F	116 \$	2	6322	115 #	4	3885 Y
		B M	114	8	1960	119	9	1424
		B F	89	14	263	99	17	341
<b>MECHANICAL REPAIRING (DOT 620-639)</b>								
Diseases of musculoskeletal system & connective tissue	710-738	W M	123 \$	3	10881	131 \$	4	6301 Y
		W F	109	25	171	115	23	213
		B M	128	12	779	122	15	534
		B F	79	20	5	222	62	79
Osteoarthritis	713	W M	125 \$	5	3373	122 #	6	1958 Y
		W F	133	70	63	60	16	37
		B M	106	21	230	131	33	218
		B F	0	0	0	19	110	3
Displacement of intervertebral disc	725	W M	133 \$	4	3254	161 \$	10	1867 Y
		W F	97	62	31	64	53	22
		B M	170 *	26	268	127	33	117
		B F	0	0	0	444	292	20

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

TABLE 20 (Cont'd.): Machine trades occupations with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race Sex	1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
<b>TEXTILE MACHINE WORK</b> (DOT 680-687,689)											
Diseases of respiratory system	460-519	W M	144	\$	8	1072	159	#	17	392	Y
		W F	123	*	9	554	143		29	301	
		B M	117		37	22	298		101	45	
		B F	152		154	10	122		61	10	
Emphysema	492	W M	171	\$	12	799	221	#	35	204	Y
		W F	90		15	186	126		51	72	
		B M	165		83	15	286		209	15	
		B F	0		0	0	872	\$	165	10	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

VII. Bench Work Occupations (DOT 700-799)

White female workers have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, and specifically, osteoarthritis. The same pattern is found for the specific occupation, fabrication and repair of textile, leather, and related products (DOT 780-789).

A. Fabrication and Repair of Plastics, Synthetics, Rubber, and Related Products (DOT 750-759)

Black female workers have high PMR's for 1969-73 and 1975-76 for diseases of the circulatory system.

B. Fabrication and Repair of Textile, Leather, and Related Products (DOT 780-789)

White female workers have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, and specifically, osteoarthritis.

C. Bench Work, N.E.C. (DOT 790-799)

This is the only occupation with high PMR's for 1969-73 and 1975-76 for three race-sex groups for the same condition. White men, white women, and black men have high PMR's for mental disorders. The observed PMR's for the black female workers for mental disorders are also more than 200 for both periods but do not fulfill the statistical criterion described above on pages 37 to 38.

TABLE 21: Bench work occupations with high PMR's for 1969-73 which are confirmed high for 1975-76.

Occupation/DOT Disabling Condition	ICDA	Race Sex	1969-1973		1975-1976			Con-
			PMR	Sign SE No.	PMR	Sign SE No.	firm	
<b>BENCH WORK OCCUPATIONS</b>								
<b>DOT 700-799)</b>								
Diseases of musculoskeletal system & connective tissue	710-738	W M	96	3	6256	101	5	3890
		W F	115 \$	2	13034	121 \$	3	8658 Y
		B M	92	10	753	127 *	11	639
		B F	93	11	691	111	10	776
Osteoarthritis	713	W M	87	6	1713	99	10	1199
		W F	128 \$	4	4733	135 \$	6	3305 Y
		B M	73	13	197	175 *	30	294
		B F	89	24	241	117	19	325

TABLE 21 (Cont'd.): Bench work occupations with high PMR's for 1969-73 which are confirmed high for 1975-76.

Occupation/DOT Disabling Condition	ICDA	Race	Sex	1969-1973		1975-1976			Con-	
				PMR	Sign SE	No.	PMR	Sign SE	No. firm	
FABRICATION & REPAIR OF PLASTICS, SYNTHETICS, RUBBER, & RELATED PRODUCTS (DOT 750-759)										
Diseases of circulatory system	390-458	W	M	103	7	610	109	12	320	
		W	F	96	17	136	164	32	101	
		B	M	96	19	114	130	43	116	
		B	F	203	\$ 19	44	171 #	16	24	Y
FABRICATION & REPAIR OF TEXTILE, LEATHER, & RELATED PRODUCTS (DOT 780-789)										
Diseases of musculoskeletal system & connective tissue	710-738	W	M	88	7	1154	115	8	944	
		W	F	116	\$ 2	8590	128 \$	3	5580	Y
		B	M	69	25	85	133	29	152	
		B	F	97	14	455	124	17	506	
Osteoarthritis	713	W	M	76	14	323	122	18	319	
		W	F	132	\$ 5	3355	149 \$	9	2265	Y
		B	M	45	18	17	186	57	78	
		B	F	95	28	175	138	28	235	
BENCH WORK, N.E.C (DOT 790-799)										
Mental disorders	290-315	W	M	266	\$ 12	1486	307 \$	11	1003	Y
		W	F	231	\$ 11	990	317 \$	14	899	Y
		B	M	208	\$ 19	225	251 *	49	176	Y
		B	F	283	# 47	98	206 *	41	88	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

## VIII. Structural Work Occupations (DOT 800-899)

Men, both white and black, have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, and for accidents, poisonings, and violence. For the former, both white and black men have high PMR's for the broad condition and for displacement of intervertebral disc, specifically. In addition, white men have high PMR's for osteoarthritis, and diseases of the respiratory system, and, specifically, emphysema. The observed PMR's for osteoarthritis for black men is greater than 100 for both periods, but the PMR for 1969-1973 does not fulfill the criterion although that for 1975-76 does fulfill the criterion for an emergent condition (see forward page 132).

For white men the specific occupations of: (1) metal fabricating, n.e.c.; (2) welding, flame cutting, and related work; (3) excavating, grading, paving, and related work; and (4) construction, n.e.c. also exhibit the same disability pattern as the major occupation rubric for both diseases of the musculoskeletal system and connective tissue and accidents, poisonings, and violence. PMR's for white men are also high for one or both the specific conditions, osteoarthritis and displacement of intervertebral disc, for all of these specific occupations except for welding, flame cutting, and related work, one of the longest titles to write. In addition, two other specific occupations--electrical assembly, installing, and repairing and painting, plastering, waterproofing, cementing, and related work--have high PMR's for white men for accidents, poisonings, and violence.

The pattern for black men apparent in the major occupation is also manifest for construction, n.e.c.

### A. Metal Fabricating, N.E.C. (DOT 800-809)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, displacement of intervertebral disc, and accidents, poisonings, and violence.

### B. Welding, Flame Cutting, and Related Work (DOT 810-819)

White men have high PMR's for 1969-73 and 1975-76 not only for diseases of the musculoskeletal system and connective tissue and accidents, poisonings, and violence--as is the case for the major occupation--but also for diseases of the respiratory system.

### C. Electrical, Assembly, Installing, and Repairing (DOT 820-829)

White men have high PMR's for 1969-73 and 1975-76 for accidents, poisonings, and violence.

TABLE 22: Structural work occupations (DOT 800-899) with high PMR's for 1969-73 which are confirmed high for 1975-76

Occupation/ Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm			
				PMR	Sign	SE No.	PMR	Sign	SE No.				
Diseases of respiratory system	460-519	W	M	106	\$	1	21815	117	\$	3	10537	Y	
		W	F	135		22	256	131		17	385		
		B	M	102		5	1771	100		9	967		
		B	F	179		144	21	158		76	46		
Emphysema	491	W	M	106	\$	1	13645	127	\$	5	4255	Y	
		W	F	144		33	124	181	*	36	142		
		B	M	99		10	864	108		18	350		
		B	F	618		244	21	68		33	3		
Diseases of musculoskeletal system & connective tissue	710-738	W	M	124	\$	1	41607	135	\$	1	26159	Y	
		W	F	134	#	9	1148	127	\$	5	1707		
		B	M	120	\$	3	5886	132	\$	3	4432		Y
		B	F	100		21	70	130		23	210		
Osteoarthritis	713	W	M	129	\$	2	13597	137	\$	3	8789	Y	
		W	F	133		16	363	136	*	13	614		
		B	M	115	*	5	2060	132	\$	6	1663		
		B	F	96		33	27	103		37	63		
Displacement of intervertebral disc	725	W	M	137	\$	2	12549	144	\$	4	6795	Y	
		W	F	138		23	230	160	#	18	404		
		B	M	133	\$	6	1654	136	#	9	969		Y
		B	F	146		112	13	245	*	61	65		
Accidents, poisonings & violence	800-999	W	M	138	\$	1	24453	155	\$	2	10264	Y	
		W	F	94		16	215	202	\$	18	463		
		B	M	125	\$	4	3499	125	#	7	1479		Y
		B	F	192		94	32	111		54	29		

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

D. Painting, Plastering, Waterproofing, Cementing, and Related Work (DOT 840-849)

White men have high PMR's for 1969-73 and 1975-76 for accidents, poisonings, and violence.

E. Excavating, Grading, Paving, and Related Work (DOT 850-859)

White male workers have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, displacement of intervertebral disc, and accidents, poisonings, and violence.

F. Construction, N.E.C. (DOT 860-869)

Both white and black men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue and accidents, poisonings, and violence. In addition, white men have high PMR's in both periods specifically for osteoarthritis and displacement of the intervertebral disc. Female black workers also have high PMR's in both periods for displacement of intervertebral disc.

TABLE 23: Structural work occupations with high PMR's for 1969-73 which are high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race Sex	1969-1973 PMR Sign SE No.		1975-1976 PMR Sign SE No.		Con- firm
<b>METAL FABRICATING, N.E.C (DOT 800-809)</b>							
Diseases of musculoskeletal system & connective tissue	710-738	W M	126	\$ 4	4457	143 \$ 6	2820 Y
		W F	131	17	298	128 16	346
		B M	141	24	418	123 18	289
		B F	89	35	16	167 78	47
Displacement of intervertebral disc	725	W M	152	\$ 11	1508	151 # 13	735 Y
		W F	112	29	50	202 48	102
		B M	232	* 50	182	167 44	90
		B F	189	676	5	469 210	25
Accidents, poisonings, & violence	800-999	W M	143	\$ 8	2803	172 \$ 10	1213 Y
		W F	104	28	62	57 39	25
		B M	76	16	147	96 21	93
		B F	306	187	16	273 137	14

TABLE 23 (Cont'd.): Structural work occupations with high PMR's for 1969-73 which are high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race Sex	1969-1973		1975-1976				Con-
			PMR	Sign SE No.	PMR	Sign	SE	No.	firm
<b>WELDING, FLAME CUTTING &amp; RELATED WORK (DOT 810-819)</b>									
Diseases of respiratory system	460-519	W M	122 \$	5	2076	151 #	14	1090	Y
		W F	144	52	73	149	51	62	
		B M	120	28	90	91	38	46	
		B F	691 \$	77	10	0	0	0	0
Diseases of musculoskeletal system & connective tissue	710-738	W M	129 \$	4	3751	126 #	7	1958	Y
		W F	130	19	301	145 *	18	279	
		B M	85	15	202	151	30	271	
		B F	42	31	4	116	36	20	
Accidents, poisonings & violence	800-999	W M	119 \$	3	1907	146 #	11	764	Y
		W F	101	48	63	244 *	47	82	
		B M	128	23	206	63	27	42	
		B F	0	0	0	0	0	0	0
<b>ELECTRICAL ASSEMBLY, INSTALLING, &amp; REPAIRING (DOT 820-829)</b>									
Accidents, poisonings & violence	800-999	W M	124 \$	5	2446	168 \$	13	1232	Y
		W F	36	27	39	41	27	15	
		B M	101	23	79	128	49	70	
		B F	0	0	0	257	86	5	
<b>PAINTING, PLASTERING, WATERPROOFING, CEMENTING, &amp; RELATED WORK (DOT 840-849)</b>									
Accidents, poisonings, & violence	800-999	W M	139 \$	5	2205	150 #	14	919	Y
		W F	137	109	18	507 #	100	86	
		B M	156 #	16	416	67	20	59	
		B F	0	0	0	0	0	0	0

TABLE 23 (Cont'd.): Structural work occupations with high PMR's for 1969-73 which are high for 1975-76

Occupation/DOT Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con-		
				PMR	Sign	SE	No.	PMR	Sign	SE	No.	firm
<b>EXCAVATING, GRADING, PAVING, &amp; RELATED WORK (DOT 850-859)</b>												
Diseases of musculoskeletal system & connective tissue	710-738	W	M	131	\$	5	3648	142	\$	5	2353	Y
		W	F	107		37	17	102		18	90	
		B	M	128		16	324	159	#	15	308	
		B	F	100		0	0	323		119	15	
Displacement of intervertebral disc	725	W	M	155	\$	9	1179	196	\$	18	782	Y
		W	F	86		96	3	120		49	20	
		B	M	141		38	95	169		38	68	
		B	F	100		0	0	0		0	0	
Accidents, poisonings & violence	800-999	W	M	142	\$	7	2038	135	*	12	722	Y
		W	F	135		99	6	317	\$	43	45	
		B	M	137		33	202	107		32	70	
		B	F	100		0	0	0		0	0	
<b>CONSTRUCTION, N.E.C (DOT 860-869)</b>												
Diseases of musculoskeletal system & connective tissue	710-738	W	M	131	\$	2	18732	142	\$	2	11679	Y
		W	F	135		29	69	130	#	8	438	
		B	M	124	\$	5	3727	135	\$	5	2637	Y
		B	F	58		11	4	79		8	44	
Osteoarthritis	713	W	M	142	\$	4	6353	154	\$	5	4153	Y
		W	F	196		47	35	185	#	22	208	
		B	M	127	#	7	1392	148	\$	9	1093	
		B	F	0		0	0	21		2	4	
Displacement of intervertebral disc	725	W	M	149	\$	3	5809	142	\$	6	2850	Y
		W	F	101		74	9	163	\$	14	103	
		B	M	127	#	8	960	131	*	11	543	
		B	F	422	\$	45	4	151	*	21	15	Y
Accidents, poisonings, & violence	800-999	W	M	149	\$	3	11330	162	\$	5	4551	Y
		W	F	60		77	8	253	\$	24	152	
		B	M	133	\$	5	2214	144	\$	8	979	Y
		B	F	334		128	5	0		0	0	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level. # .005 level. \$ .0005 level.

IX. Miscellaneous Occupations (DOT 900-999)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue - specifically, osteoarthritis and displacement of the intervertebral disc, and diseases of the respiratory system, in general, and specifically, emphysema, pneumoconiosis and related diseases, and particularly, pneumoconiosis due to silica and silicates. However, the occupations in this broad category are not similar so patterns of disability which are unique to each occupation might be expected.

The high relative disability caused by respiratory system diseases is primarily found in the specific occupation of extraction of minerals for which PMR's are high not only for white but also black men.

High PMR's for diseases of the musculoskeletal system and connective tissue for white men are also manifest in motor freight transportation, packaging and materials handling, and logging.

A. Motor Freight Transportation (DOT 900-909)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue, specifically displacement of intervertebral disc, and accidents, poisonings, and violence.

B. Packaging and Materials Handling (DOT 920-929)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue.

C. Extraction of Minerals (DOT 930-939)

White and black male miners have high PMR's for 1969-73 and 1975-76 for diseases of the respiratory system, in general, and specifically for emphysema and for pneumoconiosis due to silica and silicates. White men also have high PMR's for pneumoconiosis and related diseases generally, but all disabilities caused by this condition were caused by silica and silicates.

D. Logging (DOT 940-949)

White men have high PMR's for 1969-73 and 1975-76 for diseases of the musculoskeletal system and connective tissue and for accidents, poisonings, and violence.

TABLE 24: Miscellaneous occupations with high PMR's for 1969-73 which are confirmed high for 1975-76.

Occupation/DOT Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm		
				PMR	Sign	SE No.	PMR	Sign	SE No.			
MISCELLANEOUS OCCUPATIONS (DOT 900-999)												
Diseases of respiratory system	460-519	W	M	140	\$	2	22714	134	\$	3	\$ 8805	Y
				113		16	839	130	*	10	767	
				104		5	1931	105		6	902	
				233	*	55	126	129		51	71	
Emphysema	492	W	M	136	\$	3	13695	136	\$	7	3324	Y
				121		19	408	113		20	178	
				105		8	979	92		11	267	
				307		105	45	212		52	20	
Pneumoconiosis & related diseases	515-516	W	M	374	\$	15	2644	330	\$	19	931	Y
				179		136	4	514	*	146	20	
				207	#	31	123	257	*	55	59	
				0		0	0	0		0	0	
Pneumoconiosis due to silica & silicates	515	W	M	382	\$	14	2644	339	\$	19	929	Y
				241		136	4	530	*	139	20	
				214	#	32	123	279	*	56	59	
				0		0	0	0		0	0	
Diseases of musculoskeletal system & connective tissue	710-738	W	M	116	\$	1	31288	121	\$	1	17488	Y
				119	#	4	3966	117	\$	4	3098	
				105		3	5551	119	\$	3	3567	
				93		13	299	114		13	364	
Osteoarthritis	713	W	M	115	\$	3	9513	115	\$	3	5384	Y
				113		12	1226	119		9	1080	
				102		5	1936	113		6	1261	
				89		23	108	100		17	135	
Displacement of intervertebral disc	725	W	M	130	\$	2	9826	133	\$	5	4759	Y
				129	*	11	820	146	#	11	696	
				112		7	1528	129	*	10	834	
				121		42	55	231	*	54	104	
Accidents, poisonings & violence	800-999	W	M	118	\$	2	17316	127	\$	3	6478	Y
				119		9	1051	132	*	14	572	
				108		4	3301	119		11	1284	
				77		34	63	220	*	51	99	

Table 24 (Cont'd.): Miscellaneous operations with high PMR's for 1969-73 which are confirmed high for 1975-76.

Occupation/ Disabling Condition	ICDA	Race Sex	1969-1973				1975-1976				Con- firm
			PMR	Sign	SE	No.	PMR	Sign	SE	No.	
<b>MOTOR FREIGHT TRANSPORTATION (DOT 900-909)</b>											
Diseases of musculo- skeletal system & connective tissue	710-738	W M	127	\$	2	12556	129	\$	4	7823	Y
		W F	144		31	110	94		19	275	
		B M	105		6	1972	130	#	8	1500	
		B F	0		0	0	120		32	77	
Displacement of intervertebral disc	725	W M	157	\$	4	4506	147	\$	8	2226	Y
		W F	135		79	21	164		60	94	
		B M	126		14	636	156	*	19	400	
		W M	0		0	0	289	*	73	31	
Accidents, poisonings & violence	800-999	W M	125	\$	3	6915	137	\$	5	2905	Y
		W F	174		54	35	276	*	57	145	
		B M	101		7	1150	116		15	488	
		B F	0		0	0	420		230	40	
<b>PACKAGING &amp; MATERIALS HANDLING (DOT 920-929)</b>											
Diseases of musculo- skeletal system & connective tissue	710-738	W M	117	\$	3	7198	126	\$	4	4159	Y
		W F	120	#	5	3088	125	\$	5	2115	
		B M	107		5	2049	117	*	7	1140	
		B F	90		16	235	106		18	202	
<b>EXTRACTION OF MINERALS (DOT 930-939)</b>											
Diseases of respiratory system	460-519	W M	354	\$	6	7716	397	\$	16	2183	Y
		W F	512		474	23	400	*	120	42	
		B M	351	\$	26	233	628	\$	118	143	Y
		B F	0		0	0	0		0	0	

TABLE 24 (Cont'd.): Miscellaneous operations with high PMR's for 1969-73 which are confirmed high for 1975-76.

Occupation/ Disabling Condition	ICDA	Race	Sex	1969-1973			1975-1976			Con- firm
				PMR	Sign	SE No.	PMR	Sign	SE No.	
<b>EXTRACTION OF MINERALS</b> (DOT 930-939) (Cont'd)										
Emphysema	492	W	M	307	\$ 6	4194	289	\$ 27	592	Y
			F	485	208	10	0	0	0	0
			M	332	\$ 37	115	340	* 90	26	Y
			F	0	0	0	0	0	0	0
Pneumoconiosis & related diseases	515-516	W	M	2280	\$ 110	2180	3147	\$ 236	739	Y
			F	24824	* 8238	4	7251	\$ 1169	5	
			M	3202	# 735	73	6751	\$ 1241	44	
			F	0	0	0	100	0	0	
Pneumoconiosis due to silica & silicates	515	W	M	2327	\$ 108	2180	3240	\$ 238	739	Y
			F	32108	# 8238	4	8073	\$ 1169	5	
			M	3320	\$ 726	73	7240	\$ 1420	44	Y
			F	0	0	0	100	0	0	
<b>LOGGING (DOT 940-949)</b>										
Diseases of musculo- skeletal system & connective tissue	710-738	W	M	164	\$ 11	1006	191	\$ 20	637	Y
			F	185	* 33	13	165	38	29	
			M	113	18	193	137	43	134	
			F	572	\$ 21	5	0	0	0	N
Accidents, poisonings, & violence	800-999	W	M	250	\$ 21	849	217	\$ 21	266	Y
			F	184	225	3	690	* 190	20	
			M	192	* 39	179	200	59	70	
			F	0	0	0	1152	\$ 103	5	

The PMR is statistically significantly higher than 100 at the 1-tail  
 \* .025 level.  
 # .005 level.  
 \$ .0005 level.

## Summary of Conditions Achieving the Criterion

Restating the previous results by condition enhances the potential for detecting disability resulting from hazardous exposures or experiences common to several occupational groups. Each condition for which the criterion stated at the beginning of the previous section is fulfilled for at least one occupational group is described below. These results are also summarized in tables 25 to 45.

### I. Neoplasms (ICDA 140-239)

White workers, both male and female, have high PMR's for 1969-73 and 1975-76. For both sex groups this is also manifested in high PMR's for malignant neoplasms; men also have high PMR's for neoplasms of the lymphatic and hematopoietic tissues, and specifically, leukemia. For malignant neoplasms, the two sex groups differed in terms of the specific sites for which high PMR's are evident. For white women there are occupational associations with breast cancer while for men these patterns are with other and unspecified sites. However, most impressive is the fact that the occupational relationship to neoplastic and malignant neoplastic disability does not appear to be restricted to a few specific types or sites.

Another interesting fact is that the excessive relative neoplastic disability, both that caused by malignant neoplasms and that caused by neoplasms of the lymphatic and hematopoietic tissues, is related to two major occupational groups: professional, technical, and managerial occupations; and clerical and sales occupations. The specific occupations having high PMR's for white workers, however, differ by sex with one exception--administrative specialties, for which both men and women are affected. For men these occupations include administrative specialties, managerial work, n.e.c. and saleswork, commodities. For women, these include education, administrative specialties, stenography, typing, filing, and related work, and computing and account recording.

#### A. Malignant Neoplasms (ICDA 140-199)

The patterns for these disabilities are similar to those described above for neoplastic disability in general. White male and female workers have high PMR's for 1969-73 and 1975-76. The disability is specifically manifest for other and unspecified sites for white men and breast cancer for white women. For white men the occupations related to this disability are professional, technical, and managerial--specifically, managerial work--and saleswork, commodities. For white women, PMR's are high for the professional, technical, and managerial occupations--specifically, education and administrative specialties--and clerical and sales occupations--specifically, stenography, typing, filing, and related work and computing and account recording.

TABLE 25: Occupations with high PMR's for neoplasms (ICDA 140-239) for 1969-73 and 1975-76.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE			
Professional technical, & managerial occupations (DOT 001-199)	W	M	125	\$	2	18519	135	\$	3	10921	Y
	W	F	125	\$	3	9393	131	\$	4	5999	Y
	B	M	142	*	15	538	129	*	12	455	
	B	F	132	*	13	525	154	#	17	519	
Education (DOT 090-099)	W	M	127	*	10	709	151	#	17	533	
	W	F	150	\$	7	2016	162	\$	10	1061	Y
	B	M	111		43	44	137		69	50	
	B	F	122		24	145	159		59	106	
Administrative specialties (DOT 160-169)	W	M	130	\$	5	3060	143	\$	7	1716	Y
	W	F	147	\$	9	1522	151	\$	10	970	Y
	B	M	111		96	19	85		28	22	
	B	F	47		62	5	194		83	31	
Managerial work, N.E.C. (DOT 180-189)	W	M	119	\$	3	8802	130	\$	5	5421	Y
	W	F	106		7	1754	120	*	8	1355	
	B	M	155	*	20	354	118		27	239	
	B	F	150		51	99	81		26	61	
Clerical & sales occupations (DOT 200-299)	W	M	106	*	2	12033	118	\$	3	6666	
	W	F	115	\$	1	20405	125	\$	3	11560	Y
	B	M	91		11	441	133		17	435	
	B	F	127	*	10	562	128		16	464	
Stenography, typing, filing, & related work (DOT 201-209)	W	M	93		7	914	120		12	677	
	W	F	118	\$	2	8264	138	\$	4	4980	Y
	B	M	87		129	38	127		34	44	
	B	F	133		21	222	148		30	218	
Computing & account recording (DOT 210-219)	W	M	93		9	653	134	*	15	539	
	W	F	120	\$	4	4764	134	#	8	2819	Y
	B	M	127		44	22	101		26	22	
	B	F	199	*	41	134	129		37	95	
Saleswork, commodities (DOT 260-289)	W	M	122	\$	4	4276	131	\$	5	2318	Y
	W	F	106		5	3089	113		6	1726	
	B	M	119		65	52	129		29	60	
	B	F	93		30	60	99		33	44	

TABLE 26: Occupations with high PMR's for malignant neoplasms (ICDA 140-199) for 1969-73 and 1975-76

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
Professional, technical, & managerial occupations (DOT 001-199)	W	M	122	\$	2	15229	131	\$	3	8967	Y
	W	F	124	\$	3	8003	130	\$	4	5092	Y
	B	M	124		12	399	125		12	384	
	B	F	131		15	443	147	*	18	441	
Education (DOT 090-099)	W	M	108		11	499	127		19	374	
	W	F	155	\$	7	1792	156	\$	12	860	Y
	B	M	62		33	21	157		81	50	
	B	F	114		26	115	144		46	85	
Administrative specialties (DOT 160-169)	W	M	123	#	6	2449	138	#	9	1413	
	W	F	150	\$	9	1335	148	#	11	821	Y
	B	M	125		108	18	54		29	12	
	B	F	44		40	4	217		86	31	
Managerial work nec (DOT 180-189)	W	M	119	\$	3	7486	126	\$	5	4482	Y
	W	F	105		7	1505	121		9	1179	
	B	M	137		22	269	117		28	208	
	B	F	158		66	89	85		30	58	
Clerical & sales occupations (DOT 200-299)	W	M	103		2	9747	116	#	4	5519	
	W	F	115	\$	1	17438	123	\$	3	9726	Y
	B	M	90		12	362	129		23	363	
	B	F	118		13	435	128		17	408	
Stenography, typing, filing, & related work (DOT 210-209)	W	M	92		7	735	123		13	581	
	W	F	116	\$	2	6896	135	\$	4	4134	Y
	B	M	62		122	21	157		48	44	
	B	F	131		25	180	151		32	193	
Computing & account recording (DOT 210-219)	W	M	93		10	535	119		17	402	
	W	F	121	\$	5	4089	134	\$	7	2397	Y
	B	M	147		68	20	64		25	12	
	B	F	180		44	101	132		41	85	
Saleswork, commodities (DOT 260-289)	W	M	118	\$	4	3463	132	\$	5	1972	Y
	W	F	106		5	2677	111		7	1463	
	B	M	133		46	48	124		34	50	
	B	F	69		30	38	85		37	33	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

1. Malignant Neoplasms of the Breast (ICDA 174)

White women in education, clerical and sales occupations, and stenography, typing, filing, and related work have high PMR's for 1969-73 and 1975-76.

TABLE 27: Occupations with high PMR's for 1969-73 and 1975-76 for malignant neoplasms of the breast.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
Education (DOT 090-099)	W	M	0		0	---		34			
	W	F	169	\$	15	620	201	*	28	334	Y
	B	M	0		0	0	0	0	0		
	B	F	123		38	37	---		20		
Clerical & sales occupations (DOT 200-299)	W	M	154		50	39	306	#	60	148	
	W	F	123	\$	3	6019	137	\$	5	3329	Y
	B	M	0		0	0	544	#	114	25	
	B	F	107		27	127	155		28	142	
Stenography, typing, filing, & related work (DOT 201-209)	W	M	1125		457	24	1681	#	394	82	
	W	F	128	\$	6	2440	177	\$	9	1660	Y
	B	M	0		0	0	1842	\$	81	10	
	B	M	93		37	41	213	*	46	79	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

SE is the estimated standard error of the estimated PMR.

CONFIRM is Y if a PMR which was high for 1969-73 is also high for 1975-76.

2. Malignant Neoplasms of Other and Unspecified Sites (ICDA 190-199)

White men in professional, technical, and managerial occupations have high PMR's for 1969-73 and 1975-76.

TABLE 28: Occupations with high PMR's for 1969-73 and 1975-76 for malignant neoplasms of the other and unspecified sites.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
Professional, technical, & managerial occupations (DOT 001-199)	W	M	146	\$	8 2653	177	\$	11 1798	Y
	W	F	144	\$	7 1373	133		14 975	N
	B	M	135		51 49	158		41 55	
	B	F	138		42 47	220		49 96	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

B. Neoplasms of the Lymphatic and Hematopoietic Tissues (ICDA 200-209)

White men in the professional, technical, and managerial occupations have high PMR's for 1969-73 and 1975-76. This pattern is also specifically manifest for the condition, leukemia, for this same major occupational group.

1. Leukemia (ICDA 204-207)

White men have high PMR's for 1969-73 and 1975-76 for the professional, technical, and managerial occupations.

TABLE 29: Occupations with high PMR's for 1969-73 and 1975-76 for neoplasms of lymphatic and hematopoietic tissue.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE			
NEOPLASMS OF LYMPHATIC & HEMATOPOIETIC TISSUE (ICDA 200-209)											
Professional, technical, & managerial occupations (DOT 001-199)	W	M	136	\$	6	2575	162	\$	11	1573	Y
	W	F	1331	*	11	998	140	#	13	709	
	B	M	240		67	112	---			5	
	B	F	184		45	67	---			53	
LEUKEMIA (ICDA 204-207)											
Professional, technical, & managerial occupations (DOT 001-199)	W	M	152	\$	8	720	138	*	17	396	Y
	W	F	120		16	222	159	*	25	203	
	B	M	315	*	92	44	---			5	
	B	F	276	*	55	25	---			26	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

## II. Endocrine, Nutritional, and Metabolic Diseases (ICDA 240-279)

White men and white women have excessive relative disability for 1969-73 and 1975-76 associated with their occupations but for different occupational groups. For white men the association is with the clerical and sales occupations while for white female workers it is with service occupations. In each case the corresponding pattern is also specifically manifest for diabetes mellitus.

### A. Diabetes Mellitus (ICDA 250)

The pattern is quite similar to that for endocrine, nutritional, and metabolic diseases in general. White men in the clerical and sales occupations and white women in the service occupations have high PMR's for 1969-73 and 1975-76.

TABLE 30: Endocrine, nutritional, and metabolic diseases: occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex	1969-1973			1975-1976			Con- firm
		PMR	Sign	SE No.	PMR	Sign	SE No.	
<b>ENDOCRINE, NUTRITIONAL, &amp; METABOLIC DISEASES (ICDA 240-279)</b>								
Clerical & sales occupations (DOT 200-299)	W M	123 \$	4	4420	118 #	4	2199	Y
	W F	84	3	5338	99	3	3083	
	B M	156 *	23	402	93	20	154	
	B F	64	16	230	50	10	164	
Service occupations (DOT 300-399)	W M	114 #	3	4111	121 *	6	2105	Y
	W F	125 \$	3	6291	135 \$	5	3499	
	B M	112	8	1426	146 #	12	836	
	B F	106 *	2	5295	123 \$	4	3042	
<b>DIABETES MELLITUS (ICDA 250)</b>								
Clerical & sales occupations (DOT 200-299)	W M	129 \$	5	3506	125 \$	5	1782	Y
	W F	91	3	3483	97	4	1830	
	B M	127	31	246	117	24	149	
	B F	66	15	140	49	13	95	
Service occupations (DOT 300-399)	W M	115 \$	5	3115	118 *	8	1566	Y
	W F	121 \$	5	3676	135 #	8	2105	
	B M	123 *	10	1187	140 *	14	616	
	B F	104	2	3372	124 \$	4	1972	

III. Mental Disorders (ICDA 290-315)

Occupational associations for 1969-73 and 1975-76 for these disabilities are found for white men and women and black men. All three groups of workers have high PMR's in one occupation, benchwork, n.e.c. Both white men and white women have high PMR's in stenography, typing, filing, and related work while men, both white and black, have high PMR's in service occupations. These results are restated by race and sex group as follows:

High PMR's are found for white men in: education; clerical and sales occupations; stenography, typing, filing, and related work; information and message distribution occupations; service occupations; food and beverage preparation and services occupations; building and related services occupations; and bench work, n.e.c.

For white women, high PMR's occur for: stenography, typing, filing occupations, and related work; domestic services occupations; and bench work, n.e.c.

For black men, PMR's are high for service occupations and bench work, n.e.c.

The patterns found for the general condition rubric, mental disorders, are, to a large extent, specifically manifest for schizophrenia for all three groups, i.e. white men and women and black men. White men also have high PMR's for disabilities caused by the specific condition of neuroses.

TABLE 31: Occupations with high PMR's for 1969-73 and 1975-76 for mental disorders (ICDA 290-315).

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE			
Education (DOT 090-099)	W	M	180	\$	11	1120	150	#	18	627	Y
	W	F	108		7	1312	106		9	765	
	B	M	190		52	128	116		26	74	
	B	F	143	*	17	194	168		30	174	
Clerical & sales occupations (DOT 200-299)	W	M	116	\$	2	13195	114	\$	2	6591	Y
	W	F	105	*	2	18778	107	*	2	9903	
	B	M	90		6	970	118	*	8	821	
	B	F	98		10	754	136	\$	8	978	

TABLE 31 (Cont'd.): Occupations with high PMR's for 1969-73 and 1975-76 for mental disorders (ICDA 290-315).

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
Stenography, typing, filing, & related work (DOT 201-209)	W	M	173	\$	6	2064	137	#	11	953	Y
	W	F	121	\$	3	9440	121	\$	4	4683	Y
	B	M	118		16	180	189	*	39	271	
	B	F	100		15	359	164	*	20	507	
Information & message distribution (DOT 230-239)	W	M	154	\$	11	897	153	*	17	534	Y
	W	F	112		5	1573	132	*	11	923	
	B	M	160		30	202	76		23	51	
	B	F	105		29	79	140		46	101	
Service occupations (DOT 300-399)	W	M	120	\$	2	16440	143	\$	4	8914	Y
	W	F	96		2	11928	101		2	7362	
	B	M	119	\$	4	4873	125	#	6	2514	Y
	B	F	89		3	3803	98		4	2797	
Domestic services (DOT 301-309)	W	M	159		32	145	167		88	151	
	W	F	154	\$	10	1530	165	#	15	1000	Y
	B	M	82		45	41	140		27	95	
	B	F	83		4	1256	89		7	882	
Food & beverage preparation & services (DOT 310-319)	W	M	137	\$	5	4578	144	\$	6	2951	Y
	W	F	86		3	4823	93		3	3024	
	B	M	128	#	7	1266	137	*	15	821	
	B	F	81		6	709	103		10	636	
Building & related services (DOT 381-389)	W	M	187	\$	7	3567	188	\$	11	2192	Y
	W	F	123		12	719	93		12	347	
	B	M	117	*	7	1558	114		12	750	
	B	F	113		20	284	105		28	162	
Bench work, nec (DOT 790-799)	W	M	266	\$	12	1486	307	\$	11	1003	Y
	W	F	231	\$	11	990	317	\$	14	899	Y
	B	M	208	\$	19	225	251	*	49	176	Y
	B	F	283	#	47	98	206	*	41	88	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

A. Schizophrenia (ICDA 295)

The pattern is quite similar to that noted for mental disorders disabilities in general. Male workers, both white and black, and white female workers have high PMR's for 1969-73 and 1975-76. White men have high PMR's for education; clerical and sales occupations; stenography, typing, filing, and related work occupations; service occupations; food and beverage preparation services occupations; and building and related services occupations. For white women, high PMR's are found for stenography, typing, filing, and related work. Black men have high PMR's in the service occupations.

B. Neuroses (ICDA 300)

White men employed in the clerical and sales occupations have high PMR's for 1969-73 and 1975-76.

TABLE 32: Occupations with high PMR's for 1969-73 and 1975-76 for schizophrenia and neuroses.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
SCHIZOPHRENIA (ICDA 295)											
Education (DOT 090-099)	W	M	195	\$	21	518	170	#	24	284	Y
	W	F	114		12	512	146	#	16	402	
	B	M	265	*	63	88	144		42	43	
	B	F	124		25	87	142		92	67	
Clerical & sales occupations (DOT 200-299)	W	M	129	\$	4	5828	132	\$	6	2832	Y
	W	F	110	#	2	7992	119	\$	4	3975	
	B	M	113		10	674	154	#	16	539	
	B	F	104		13	483	184	#	20	641	
Stenography, typing, filing, & related work (DOT 201-209)	W	M	229	\$	15	1227	198	\$	22	562	Y
	W	F	141	\$	5	4738	153	\$	11	2230	Y
	B	M	152		24	147	256		74	213	
	B	F	122		19	280	240	\$	29	364	

TABLE 32 (Cont'd): Occupations with high PMR's for 1969-73 and 1975-76 for schizophrenia and neuroses.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
<b>SCHIZOPHRENIA</b>									
<b>(ICDA 295) (Cont'd)</b>									
Service occupations (DOT 300-399)	W	M	125	\$	3 7728	152	\$	7 3851	Y
	W	F	97		3 4396	109		4 2802	
	B	M	136	\$	6 2794	126	*	9 1192	Y
	B	F	85		5 1593	95		5 1137	
Food & beverage preparation & services (DOT 310-319)	W	M	132	\$	7 1799	139	#	12 1185	Y
	W	F	86		4 1810	94		7 1072	
	B	M	134	*	12 661	130		17 394	
	B	F	77		11 314	114		20 305	
Building & related services (DOT 381-389)	W	M	174	\$	12 1265	179	#	18 822	Y
	W	F	162	*	27 300	102		18 127	
	B	M	119		13 670	92		18 264	
	B	F	112		38 115	75		44 48	
<b>NEUROSES (ICDA 300)</b>									
Clerical & sales occupations (DOT 200-299)	W	M	128	\$	6 2496	123	*	9 1379	Y
	W	F	115	#	4 5401	112	#	3 3028	
	B	M	93		34 52	202		72 115	
	B	F	93		29 90	164	*	27 215	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

IV. Diseases of the Nervous System and Sense Organs (ICDA 320-389)

High PMR's for 1969-73 and 1975-76 are found for white workers, both men and women. White men have high PMR's for professional, technical, and managerial occupations; administrative specialties; and clerical and sales occupations while white women have high PMR's in the occupations of education; clerical and sales, and stenography, typing, filing, and related work.

Within the broad rubric, high PMR's are associated with disabilities caused by multiple sclerosis for both white men and white women.

A. Multiple Sclerosis (ICDA 340)

Both white male and white female workers have high PMR's for 1969-73 and 1975-76 caused by this condition. For white men these high PMR's are associated with the professional, technical, and managerial occupations and clerical and sales occupations. For white women PMR's are found in the clerical and sales occupations, and specifically, stenography, typing, filing, and related work.

TABLE 33: Occupations with high PMR's for 1969-73 and 1975-76 for diseases of the nervous system and sense organs.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
DISEASES OF NERVOUS SYSTEM & SENSE ORGANS (ICDA 320-389)											
Professional, technical, & managerial occupations (DOT 001-199)	W	M	122	\$	2	10730	124	\$	3	5894	Y
	W	F	115	*	5	5011	111		16	2995	
	B	M	113		17	377	107		21	322	
	B	F	93		12	254	98		28	100	
Education (DOT 090-099)	W	M	179	\$	17	654	122		21	288	N
	W	F	152	\$	11	1194	163	*	18	696	Y
	B	M	109		74	38	157		78	50	
	B	F	145		44	115	257	*	58	137	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

TABLE 33 (Cont'd.): Occupations with high PMR's for 1969-73 and 1975-76 for diseases of the nervous system and sense organs.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
<b>DISEASES OF NERVOUS SYSTEM &amp; SENSE ORGANS (ICDA 320-389) (Cont'd)</b>											
Administrative specialties (DOT 160-169)	W	M	134	\$	7	1842	132	*	10	919	Y
	W	F	115		13	660	121		15	434	
	B	M	91		37	15	118		166	30	
	B	F	26		33	2	238		83	30	
Clerical & sales occupations (DOT 200-299)	W	M	118	\$	3	8292	126	\$	5	4421	Y
	W	F	117	\$	2	12568	118	\$	3	6589	Y
	B	M	112		13	530	101		15	317	
	B	F	148	#	13	569	131	*	12	437	
Stenography, typing, filing, & related work (DOT	W	M	153	#	13	1025	155		24	591	
	W	F	124	\$	4	5697	119	#	5	2722	Y
	B	M	122		40	65	122		49	61	
	B	F	162	*	27	279	126		26	176	
<b>MULTIPLE SCLEROSIS (ICDA 340)</b>											
Professional, technical, & managerial occupations (DOT 001-199)	W	M	237	\$	10	1648	227	\$	31	566	Y
	W	F	170	\$	8	1367	170		20	676	Y
	B	M	462		204	52	---			5	
	B	F	141		91	59	---			66	
Clerical & sales occupations (DOT 200-299)	W	M	195	\$	15	1197	186	*	27	361	Y
	W	F	148	\$	6	3288	179	\$	11	1500	Y
	B	M	172		69	34	200		92	15	
	B	F	204	#	32	166	209		97	90	
Stenography, typing, filing, & related work (DOT 201-209)	W	M	278	*	69	183	373	*	110	86	
	W	F	164	\$	11	1706	214	\$	24	779	Y
	B	M	325		112	10	0		0	0	
	B	F	200		69	82	160		103	30	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

V. Diseases of the Circulatory System (ICDA 390-458)

These conditions caused excessive relative disabilities for 1969-73 and 1975-76 for all race and sex groups except for white women, although there are no occupations with high PMR's for these conditions for more than one race and sex group.

For white men high PMR's occur for occupations involved with administration, management, sales, and protection. The rubrics with high PMR's for white men are: administrative specialties; managerial work, n.e.c.; clerical and sales occupations; saleswork, services; saleswork, commodities; protective services; and machine trades occupations.

Black men have high PMR's for the professional occupation, law and jurisprudence. However, the PMR for 1975-76 period is based on a small expected number of disabilities which reduces the reliability of the statistical test. For law and jurisprudence the expected number of black male disabled workers is 5.08, which is barely above the minimum of 5 described on page 9. However, PMR is also high for the 1969-73 period for which the expected number of disabled black men is more than 10.

Black female workers in the occupations of processing, wood and wood products, and fabrication and repair of plastics, synthetics, rubber, and related products have high PMR's.

Within the general circulatory system disease rubric these patterns just described are also manifest for heart and hypertensive disease, and specifically, ischemic heart disease for white men and black men and women. White men also have high PMR's for cerebrovascular disease.

TABLE 34: Diseases of the circulatory system (ICDA 390-458): occupations with high PMR's for 1969-73 and 1975-76.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm
			PMR	Sign	SE No.	PMR	Sign	SE	
Law & jurisprudence (DOT 110,111,119)	W	M	106	10	725	110	14	303	
	W	F	61	22	17	74	26	14	
	B	M	195	\$ 17	23	295	\$ 13	15	Y
	B	F	100	0	0	0	0	0	
Administrative specialties (DOT 160-169)	W	M	119	\$ 3	10120	126	\$ 3	5234	Y
	W	F	102	5	2174	110	6	1364	
	B	M	144	31	111	132	27	132	
	B	F	113	41	41	135	26	82	

TABLE 34 (Cont'd.): Diseases of the circulatory system (ICDA 390-458):  
occupations with high PMR's for 1969-73 and 1975-76.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
Managerial work, nec (DOT	W	M	121	\$	1 33112	131	\$	2 18887	Y
	W	F	109	*	4 3967	117	*	6 2587	
	B	M	100		6 1101	116		10 934	
	B	F	107		16 305	133		15 420	
Clerical & sales occupations (DOT 200-299)	W	M	110	\$	1 43456	116	\$	2 21898	Y
	W	F	97		1 34531	102		1 17574	
	B	M	108		6 2336	107		6 1363	
	B	F	90		6 1395	79		6 987	
Saleswork, services (DOT 250-259)	W	M	121	\$	4 4390	133	\$	5 2421	Y
	W	F	113		12 438	112		17 294	
	B	M	118		22 83	138		25 56	
	B	F	123		21 35	90		25 24	
Saleswork, commodities (DOT 260-289)	W	M	116	\$	2 14348	119	\$	2 7186	Y
	W	F	102		3 6395	109	#	2 3246	
	B	M	135		17 260	119		15 216	
	B	F	123		14 297	87		21 140	
Protective services (DOT 371-379)	W	M	115	\$	2 11786	120	\$	4 5604	Y
	W	F	120		11 370	153	*	24 330	
	B	M	103		10 890	112		11 554	
	B	F	99		18 78	124		34 83	
Processing, wood & wood products (DOT 560-569)	W	M	82		11 216	135		23 104	Y
	W	F	44		23 6	17		35 1	
	B	M	128		19 113	191	\$	19 38	
	B	F	222	\$	9 14	191	\$	8 10	
Machines trades occupations (DOT 600-699)	W	M	105	\$	1 51298	110	\$	1 25532	Y
	W	F	107	*	3 7298	118	#	4 4079	
	B	M	106		3 4281	111	*	5 2456	
	B	F	104		8 661	92		7 543	
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	W	M	103		7 610	109		12 320	Y
	W	F	96		17 136	164		32 101	
	B	M	96		19 114	130		43 116	
	B	F	203	\$	19 44	171	#	16 24	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

A. Heart and Hypertensive Disease (ICDA 393-429)

White men and black women have occupationally associated disability patterns for this condition for 1969-73 and 1975-76.

For white men the occupations for which the PMR's are high are those described for diseases of the circulatory system -- administrative specialties; managerial work, n.e.c.; clerical and sales occupations; saleswork, services; saleswork, commodities; protective services; and machine trades occupations.

Black female workers in the processing, wood and wood products occupation have high PMR's. However, these PMR's are based on expected numbers of disabled black women of 5.07 for 1969-1973 and 4.24 for 1975-76.

It is interesting that no occupational associations have been discovered for black men, the group with the greatest overall proportional disability from this condition.

TABLE 35: Heart and hypertensive disease (ICDA 393-429) occupations with high PMR's for 1969-73 and 1975-76.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE	No.	PMR	Sign		SE	
Administrative specialties (DOT 160-169)	W	M	120	\$	3	7846	126	\$	4	4175	Y
	W	F	96		6	1533	112		8	1043	
	B	M	187		44	108	151		32	117	
	B	F	36		20	10	150		31	72	
Managerial work, N.E.C. (DOT 180-189)	W	M	121	\$	1	25407	133	\$	2	15288	Y
	W	F	106		5	2894	124	*	8	2068	
	B	M	94		6	771	115		11	721	
	B	F	103		20	231	136		19	344	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

TABLE 35 (Cont'd): Heart and hypertensive disease (ICDA 393-429) occupations with high PMR's for 1969-73 and 1975-76.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
Clerical & sales occupations (DOT 200-299)	W	M	110 \$	1	33335	117 \$	2	17633	Y
	W	F	96	1	25208	99	2	12867	
	B	M	105	8	1702	105	7	1039	
	B	F	90	8	1070	60	7	588	
Saleswork, services (DOT 250-259)	W	M	121 \$	4	3385	137 \$	7	1985	Y
	W	F	106	15	307	119	20	236	
	B	M	149	29	78	114	21	36	
	B	F	155	32	35	66	29	14	
Saleswork, commodities (DOT 260-289)	W	M	116 \$	2	11016	120 \$	2	5748	Y
	W	F	101	3	4741	111 #	3	2500	
	B	M	136	21	196	131	21	184	
	B	F	119	19	223	58	26	73	
Protective services (DOT 371-379)	W	M	119 \$	3	9395	124 \$	4	4625	Y
	W	F	92	14	212	176	36	282	
	B	M	105	14	685	117	11	447	
	B	F	118	23	73	117	42	62	
Processing, wood, & wood products (DOT 560-569)	W	M	92	13	186	161	29	99	
	W	F	0	0	0	22	46	1	
	B	M	124	24	82	179 *	25	27	
	B	F	276 \$	13	14	236 \$	10	10	
Machines trades occupations (DOT 600-699)	W	M	106 \$	1	39919	110 \$	2	20293	Y
	W	F	111 #	3	5693	124 \$	5	3205	
	B	M	105	4	3177	114 *	6	1959	
	B	F	109	11	541	88	11	406	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

1. Ischemic Heart Disease (ICDA 410-414)

PMR's are high for this condition for 1969-73 and 1975-76 for white workers, both men and women, and black men.

For white men, the pattern is quite similar to that for heart and hypertensive disease generally. White male workers have high PMR's for: administrative specialties; managerial work, n.e.c.; clerical and sales occupations; saleswork, services; saleswork, commodities; protective services; and machine trades occupations.

The last group, machine trades occupations, also has high PMR's for white women and is the only instance of an occupational association for any type of circulatory system disease for that group.

Black men have high PMR's for the writing occupation. However, the expected numbers of disabled black men are 6.13 for 1969-1973 and 0.32 for 1975-1976.

TABLE 36: Ischemic heart disease (ICDA 410-414): occupations with high PMR's for 1969-73 and 1975-76

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE			
Administrative specialties (DOT 160-169)	W	M	121	\$	3	7040	128	\$	4	3715	Y
	W	F	104		6	1296	117	*	7	846	
	B	M	222		58	98	151		40	81	
	B	F	50		35	10	155		28	50	
Managerial work, N.E.C. (DOT 180-189)	W	M	123	\$	1	23035	137	\$	2	13847	Y
	W	F	113		6	2447	127	*	9	1647	
	B	M	97		7	634	117		14	518	
	B	F	96		21	163	149		22	260	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

TABLE 36 (Cont'd): Ischemic heart disease (ICDA 410-414): occupations with high PMR's for 1969-73 and 1975-76

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE			
Clerical & sales occupations (DOT 200-299)	W	M	110	\$	1	29630	118	\$	2	15533	Y
	W	F	92		1	18872	98		2	9788	
	B	M	102		10	1277	111		10	759	
	B	F	95		9	790	57		6	377	
Saleswork, services (DOT 250-259)	W	M	126	\$	5	3132	136	\$	6	1733	Y
	W	F	111		16	254	127		23	196	
	B	M	155		36	63	114		25	26	
	B	F	203		52	35	62		26	9	
Saleswork, commodities (DOT 260-289)	W	M	117	\$	2	9892	121	\$	3	5090	Y
	W	F	99		4	3675	115	#	4	2015	
	B	M	135		23	148	131		25	129	
	B	F	137		22	189	62		27	53	
Protective services (DOT 371-379)	W	M	122	\$	3	8460	129	\$	5	4198	Y
	W	F	102		17	181	186		44	227	
	B	M	116		17	545	135		18	352	
	B	F	132		23	62	146		77	52	
Machines trades occupations (DOT 600-699)	W	M	107	\$	1	35872	111	\$	1	17931	Y
	W	F	116	\$	3	4613	130	\$	6	2598	
	B	M	108		4	2552	113		7	1371	
	B	F	113		14	416	86		14	271	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

B. Cerebrovascular Disease (ICDA 430-438)

White men in professional, technical, and managerial occupations, and specifically, administrative specialties and managerial work, n.e.c. have high PMR's for 1969-73 and 1975-76.

TABLE 37: Occupations with high PMR's for 1969-73 and 1975-76 for cerebrovascular disease.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE	No.	PMR	Sign		SE	
Professional, technical, & managerial occupations (DOT 001-199)	W	M	134	\$	2	10078	146	#	5	4446	Y
	W	F	112		6	2489	113		9	1126	
	B	M	145	*	15	448	107		21	215	
	B	F	133		22	310	93		21	141	
Administrative specialties (DOT 160-169)	W	M	136	\$	7	1621	141	*	13	647	Y
	W	F	129		17	378	138		30	199	
	B	M	22		32	3	103		30	15	
	B	F	364		127	20	146		142	10	
Managerial work, N.E.C. (DOT 180-189)	W	M	127	\$	4	4919	138	\$	6	2228	Y
	W	F	119		14	591	104		18	268	
	B	M	132		17	255	112		26	130	
	B	F	112		46	45	182		59	64	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

VI. Diseases of the Respiratory System (ICDA 460-519)

Men, white and black, have high PMR's for 1969-73 and 1975-76 for diseases of the respiratory system. For extraction of minerals, male workers of both races have very high PMR's, i.e. of 350 or more. White men in processing occupations, textile machine work occupations, welding, flame cutting and related work occupations, and miscellaneous occupations also have high PMR's.

The same race and sex pattern just described for the general rubric appears for emphysema for almost all the same occupational groups. White men in extraction of minerals have extremely high PMR's for pneumoconiosis and related diseases and specifically, pneumoconiosis due to silica and silicates for which the PMR's for these workers and also for black male workers are exceedingly high, i.e. more than 2300.

Two occupations stand out for disproportionately high respiratory system disease disability, miscellaneous occupations in general and extraction of minerals which is included in the former. For both, PMR's are high for white men not only for the broad rubric but also for emphysema, pneumoconiosis and related diseases, and specifically, pneumoconiosis due to silica and silicates. This is also true for black men for extraction of minerals.

A. Emphysema (ICDA 492)

White and black male workers have high PMR's for 1969-73 and 1975-76 for this condition. Both groups of workers in the extraction of minerals occupations have high PMR's. For white men this is also the case for textile machine work, structural work occupations, and miscellaneous occupations.

B. Pneumoconiosis and Related Diseases (ICDA 515-516)

White male workers have very high PMR's for 1969-73 and 1975-76. PMR's are exceedingly high for extraction of minerals for which the observed numbers of disabilities are more than 22 times the expected, i.e. the PMR's are greater than 2200. For miscellaneous occupations, which includes the former occupation, the PMR's for white men are more than 400. However, almost all white men disabled from these conditions were disabled from the specific condition which follows, pneumoconiosis due to silica and silicates.

1. Pneumoconiosis due to Silica and Silicates (ICDA 515)

White men have high PMR's for 1969-73 and 1975-76 for miscellaneous occupations, in general, and extraction of minerals, in particular, for which the PMR's for black men are also high. For extraction of minerals the PMR's are 2300 or more. These results are consistent with well known morbidity patterns for mining.

TABLE 38: Respiratory system disease: occupations with high PMR's in 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973		1975-1976			Con- No. firm	
			PMR	Sign SE No.	PMR	Sign SE			
DISEASES OF RESPIRATORY SYSTEM (ICDA 460-519)									
Processing occupations (DOT 500-599)	W	M	117	\$ 3	4647	133	# 9	2047	Y
	W	F	112	13	515	121	13	375	
	B	M	122	12	632	151	* 18	364	
	B	F	117	40	58	103	42	46	
Textile machine work (DOT 680-687, 689)	W	M	144	\$ 8	1072	159	# 17	392	Y
	W	F	123	* 9	554	143	29	301	
	B	M	117	37	22	298	101	45	
	B	F	152	154	10	122	61	10	
Structural work occupations (DOT 800-899)	W	M	106	\$ 1	21815	117	\$ 3	10537	Y
	W	F	135	22	256	131	17	385	
	B	M	102	5	1771	100	9	967	
	B	F	179	144	21	158	76	46	
Welding, flame cutting, & related work (DOT 810-819)	W	M	122	\$ 5	2076	151	# 14	1090	Y
	W	F	144	52	73	149	51	62	
	B	M	120	28	90	91	38	46	
	B	F	691	\$ 77	10	0	0	0	N
Miscellaneous occupations (DOT 900-999)	W	M	104	\$ 2	22714	134	\$ 3	8805	Y
	W	F	113	16	839	130	* 10	767	
	B	M	104	5	1931	105	6	902	
	B	F	233	* 55	126	129	51	71	
Extraction of minerals (DOT 930-939)	W	M	354	\$ 6	7716	397	\$ 16	2183	Y
	W	F	512	474	23	400	* 120	42	
	B	M	351	\$ 26	233	628	\$ 118	143	Y
	B	F	0	0	0	0	0	0	

TABLE 38 (Cont'd.): Respiratory system disease: occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE			
<b>EMPHYSEMA (ICDA 492)</b>											
Textile machine work (DOT 680-687,689)	W	M	171	\$	12	799	221	#	35	204	Y
	W	F	90		15	186	126		51	72	
	B	M	165		83	15	286		209	15	
	B	F	0		0	0	872	\$	165	10	
Structural work occupations (DOT 800-899)	W	M	106	\$	1	13645	127	\$	5	4255	Y
	W	F	144		33	124	181	*	36	142	
	B	M	99		10	864	108		18	350	
	B	F	618		244	21	68		33	3	
Miscellaneous occupations (DOT 900-999)	W	M	136	\$	3	13695	136	\$	7	3324	Y
	W	F	121		19	408	113		20	178	
	B	M	105		8	979	92		11	267	
	B	F	307		105	45	212		52	20	
Extraction of minerals (DOT 930-939)	W	M	307	\$	6	4194	289	\$	27	592	Y
	W	F	485		208	10	0		0	0	
	B	M	332	\$	37	115	340	*	90	26	Y
	B	F	0		0	0	0		0	0	
<b>PNEUMOCONIOSIS &amp; RELATED DISEASES (ICDA 515-516)</b>											
Miscellaneous occupations (DOT 900-999)	W	M	374	\$	15	2644	330	\$	19	931	Y
	W	F	179		136	4	514	*	146	20	
	B	M	207	#	31	123	257	*	55	59	
	B	F	0		0	0	0		0	0	
Extraction of minerals (DOT 930-939)	W	M	2280	\$	110	2180	3147	\$	236	739	Y
	W	F	24824	*	8238	4	7251	\$	1169	5	
	B	M	3202	#	735	73	6751	\$	1241	44	
	B	F	0		0	0	100		0	0	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

TABLE 38 (Cont'd.): Respiratory system disease: occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE No.	PMR	Sign	SE			
<b>PNEUMOCONIOSIS DUE TO SILICA &amp; SILICATES (ICDA 515)</b>											
Miscellaneous occupations (DOT 900-999)	W	M	382	\$	14	2644	339	\$	19	929	Y
	W	F	241		136	4	530	*	139	20	
	B	M	214	#	32	123	279	*	56	59	
	B	F	0		0	0	0		0	0	
Extraction of minerals (DOT 930-939)	W	M	2327	\$	108	2180	3240	\$	238	739	Y
	W	F	32108	#	8238	4	8073	\$	1169	5	
	B	M	3320	\$	726	73	7240	\$	1420	44	Y
	B	F	0		0	0	100		0	0	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

VII. Diseases of the Digestive System (ICDA 520-577)

White male workers in the service occupations, specifically the food and beverage preparation and services occupations, have high PMR's for 1969-73 and 1975-76. This same pattern is specifically manifest for white men for the specific condition, cirrhosis of the liver, for the food and beverage preparation and services occupations.

A. Cirrhosis of the Liver (ICDA 571)

As noted above, white men in the food and beverage preparation and services occupations have high PMR's for 1969-73 and 1975-76. The observed PMR's exceed 200 for both periods.

TABLE 39: Digestive system disease: occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- No. firm		
			PMR	Sign	SE	No.	PMR	Sign		SE	
DISEASES OF THE DIGESTIVE SYSTEM (ICDA 520-577)											
Service occupations (DOT 300-399)	W	M	119	\$	4	4037	128	#	9	1988	Y
	W	F	99		3	2896	101		6	1760	
	B	M	107		10	952	120		15	503	
	B	F	105		5	956	89		11	492	
Food & beverage preparation & services (DOT 310-319)	W	M	162	\$	10	1569	159	*	20	781	Y
	W	F	98		6	1277	122		10	949	
	B	M	109		20	237	158		33	166	
	B	F	120		16	208	109		27	121	
CIRRHOSIS OF LIVER (ICDA 571)											
Food & beverage preparation & services (DOT 310-319)	W	M	218	\$	18	1101	204	#	28	482	Y
	W	F	117		11	577	155	*	20	370	
	B	M	149		32	160	155		37	77	
	B	F	100		22	69	116		29	52	

The PMR is statistically significantly higher than 100 at the 1-tail  
 \* .025 level.      # .005 level.      \$ .0005 level.

VIII. Pregnancy, Childbirth, and the Puerperium (ICDA 630-678)

Black women in the services occupations have high PMR's for 1969-73 and 1975-76. The observed PMR's exceed 200 for both periods, however, the expected numbers of disabled black women are small, 4.1 for 1969-73 and 4.74 for 1975-1976. Nevertheless, the observed PMR of 253 for 1975-76 exceeds 200, by nearly nine times its estimated standard error. This implies that the observed cases were more than double the number expected.

TABLE 40: Pregnancy, childbirth, and the puerperium (ICDA 630-678): occupations with high PMR's for 1969-73 and 1975-76.

Occupation	Race Sex		1969-1973			1975-1976			Con- firm	
			PMR	Sign	SE	No.	PMR	Sign		SE
Service occupations (DOT 300-399)	W	M	---	-	0	---	-	0		
	W	F	289	\$	31	24	100	0	N	
	B	M	---	-	0	---	-	0		
	B	F	219	\$	12	9	253	\$	6	12

The PMR is statistically significantly higher than 100 at the 1-tail  
 \* .025 level.  
 # .005 level.  
 \$ .0005 level.

IX. Diseases of the Musculoskeletal system and Connective Tissue (ICDA 710-738)

Not only are these conditions a leading cause of disability, in fact the second leading cause in incidence, but the occupational association of disabilities caused by these conditions is most pronounced with these data. Of course, the limitations noted elsewhere must be noted; non-occupational causes have not been eliminated. However, the sheer number of occupational associations is striking.

Disproportional disability from these conditions affect all four race and sex groups considered and 24 occupational rubrics including six major occupational rubrics and 18 detailed occupational rubrics. Three occupational rubrics are associated with excessive disability for two race and sex groups.

For men, especially white men, the occupations requiring strenuous physical labor seem to be associated with high PMR's for 1969-73 and 1975-76. These occupations include: farming of all types; hunting and trapping; construction, i.e. structural work occupation rubrics; motor freight transportation; packaging and materials handling; and logging. Black men in the construction or structural work occupation rubrics also have high PMR's. White men and also white women also have high PMR's in the machine trades occupations, specifically--for white men--in mechanical repairing.

For white women the association also occurs for: service occupations, specifically food and beverage preparation and services and miscellaneous personal services; forestry; machine trades occupations; and bench work occupations, specifically, fabrication and repair of textile, leather, and related products.

PMR's are high for black women in two occupations, art work and metal processing. While the observed PMR's are greater than 200 in all four cases, the expected numbers of disabled black female workers are small, especially in the case of metal processing. In that case the expected numbers are 5.6 for 1969-73 and 2.9 for 1975-76. For art work the corresponding expected numbers of disabled black women are 12.8 and 8.5, respectively.

The specific conditions for which these patterns are manifest vary by race and sex group and by broad occupational group for particular race and sex groups. Some broad patterns are suggested by the data. For men, especially white men, occupational associations exist for both osteoarthritis and displacement of intervertebral disc. There is also one association for rheumatoid arthritis for white men. For women, with one exception for black women, the occupational associations exclusively involve osteoarthritis. The one exception for black women is displacement of intervertebral disc for the occupation rubric of construction, n.e.c. which involves small expected numbers of disabled black women.

For white men, occupational associations with osteoarthritis are found for farming of most types, mechanical repairing, and construction, i.e. structural work occupations. Occupational associations with displacement of intervertebral disc for white men are also found for most of those occupations--mechanical repairing and construction but not farming--and also motor freight transportation. An occupational association is also found for black men for displacement of intervertebral disc for structural work occupations.

TABLE 41: Diseases of the musculoskeletal system and connective tissue (ICDA 710-738): occupations with high PMR's for 1969-73 and 1975-76.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
Art work (DOT 141-149)	W	M	77		13 348	91		16 193	
	W	F	84		14 216	112		18 210	
	B	M	139		51 16	30		4 2	
	B	F	289	\$	33 37	234	#	38 20	Y
Service occupations (DOT 300-399)	W	M	83		2 14524	99		3 8999	
	W	F	110	\$	1 25187	116	\$	2 16619	Y
	B	M	94		3 4461	91		5 2274	
	B	F	106	#	2 10071	109	\$	2 6358	
Food & beverage preparation & services (DOT 310-319)	W	M	85		4 4111	98		5 2804	
	W	F	107	\$	2 10782	113	\$	2 7147	Y
	B	M	84		7 958	70		9 431	
	B	F	102		6 1729	101		6 1132	
Miscellaneous personal services (DOT 350-359)	W	M	95		10 588	107		17 555	
	W	F	116	\$	2 5433	126	\$	5 3658	Y
	B	M	97		13 243	75		19 131	
	B	F	135	#	10 1307	134	\$	7 1068	
Farming, fishery, forestry, & related occupations (DOT 400-499)	W	M	121	\$	2 14323	127	\$	3 6839	Y
	W	F	126	*	8 1052	110		7 732	
	B	M	92		4 1675	91		8 884	
	B	F	95		16 218	85		19 157	

TABLE 41 (Cont'd.): Diseases of the musculoskeletal system and connective tissue (ICDA 710-738): occupations with high PMR's in 1969-73 and 1975-76.

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
Plant farming (DOT 410-409)	W	M	127	\$	5	2066	133	#	9	1157	Y
	W	F	117		18	199	82		20	105	
	B	M	81		7	348	85		16	251	
	B	F	97		28	68	67		16	36	
Animal farming (411-419)	W	M	137	\$	8	1638	133	*	13	807	Y
	W	F	111		24	130	107		32	92	
	B	M	72		20	44	99		70	31	
	B	F	96		41	9	0		0	0	
Miscellaneous farming & related work (DOT 421-429)	W	M	118	\$	2	10222	125	\$	4	4648	Y
	W	F	128	*	10	690	115		9	500	
	B	M	97		6	1243	91		10	571	
	B	F	96		21	141	105		30	121	
Forestry (DOT 441-449)	W	M	102		36	48	35		37	9	
	W	F	334	\$	31	24	339	\$	37	35	Y
	B	M	0		0	0	0		0	0	
	B	F	100		0	0	100		0	0	
Hunting, trapping, & related services (DOT 451-452)	W	M	248	\$	33	24	181	*	33	5	Y
	W	F	0		0	0	100		0	0	
	B	M	0		0	0	100		0	0	
	B	F	100		0	0	100		0	0	
Metal processing (DOT 500-509)	W	M	111		10	951	105		13	526	
	W	F	108		37	44	139		21	79	
	B	M	95		16	250	80		17	136	
	B	F	267	\$	30	15	238	#	33	7	Y
Machines trades occupations (DOT 600-699)	W	M	112	\$	2	23450	119	\$	2	13817	Y
	W	F	116	\$	2	6322	115	#	4	3885	Y
	B	M	114		8	1960	119		9	1424	
	B	F	89		14	263	99		17	341	
Mechanical repairing (DOT 620-639)	W	M	123	\$	3	10881	131	\$	4	6301	Y
	W	F	109		25	171	115		23	213	
	B	M	128		12	779	122		15	534	
	B	F	79		20	5	222		62	79	

TABLE 41 (Cont'd.): Diseases of the musculoskeletal system and connective tissue (ICDA 710-738): occupations with high PMR's in 1969-73 and 1975-76

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
Bench work occupations (DOT 700-799)	W	M	96		3 6256	101		5 3890	
	W	F	115	\$	2 13034	121	\$	3 8658	Y
	B	M	92		10 753	127	*	11 639	
	B	F	93		11 691	111		10 776	
Fabrication & repair of textile, leather, & related products (DOT 780-789)	W	M	88		7 1154	115		8 944	
	W	F	116	\$	2 8590	128	\$	3 5580	Y
	B	M	69		25 85	133		29 152	
	B	F	97		14 455	124		17 506	
Structural work occupations (DOT 800-899)	W	M	124	\$	1 41607	135	\$	1 26159	Y
	W	F	134	#	9 1148	127	\$	5 1707	
	B	M	120	\$	3 5886	132	\$	3 4432	Y
	B	F	100		21 70	130		23 210	
Metal fabricating, N.E.C. (DOT 800-809)	W	M	126	\$	4 4457	143	\$	6 2820	Y
	W	F	131		17 298	128		16 346	
	B	M	141		24 418	123		18 289	
	B	F	89		35 16	167		78 47	
Welding, flame cutting, & related work (DOT 810-819)	W	M	129	\$	4 3751	126	#	7 1958	Y
	W	F	130		19 301	145	*	18 279	
	B	M	85		15 202	151		30 271	
	B	F	42		31 4	116		36 20	
Excavating, grading, paving, & related work (DOT 850-859)	W	M	131	\$	5 3648	142		5 2353	Y
	W	F	107		37 17	102		18 90	
	B	M	128		16 324	159	#	15 308	
	B	F	100		0 0	323		119 115	
Construction, N.E.C. (DOT 860-869)	W	M	131	\$	2 18732	142	\$	2 11679	Y
	W	F	135		29 69	130	#	8 438	
	B	M	124	\$	5 3727	135	\$	5 2637	Y
	B	F	58		11 4	79		8 44	

TABLE 41 (Cont'd.): Diseases of the musculoskeletal system and connective tissue (ICDA 710-738): occupations with high PMR's in 1969-73 and 1975-76

Occupation/DOT	Race Sex		1969-1973			1975-1976			Con- firm
			PMR	Sign	SE No.	PMR	Sign	SE No.	
Miscellaneous occupations (DOT 900-999)	W	M	116 \$	1	31288	121 \$	1	17488	Y
	W	F	119 #	4	3966	117 \$	4	3098	
	B	M	105	3	5551	119 \$	3	3567	
	B	F	93	13	299	114	13	364	
Motor freight transportation (DOT 900-909)	W	M	127 \$	2	12556	129 \$	4	7823	Y
	W	F	144	31	110	94	19	275	
	B	M	105	6	1972	130 #	8	1500	
	B	F	0	0	0	120	32	77	
Packaging & materials handling (DOT 920-929)	W	M	117 \$	3	7198	126 \$	4	4159	Y
	W	F	120 #	5	3088	125 \$	5	2115	
	B	M	107	5	2049	117 *	7	1140	
	B	F	90	16	235	106	18	202	
Logging (DOT 940-949)	W	M	164 \$	11	1006	191 \$	20	637	Y
	W	F	185 *	33	13	165	38	29	
	B	M	113	18	193	137	43	134	
	B	F	572 \$	21	5	0	0	0	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

A. Rheumatoid Arthritis (ICDA 712)

White male workers in the miscellaneous farming and related work occupations have high PMR's for 1969-73 and 1975-76.

TABLE 42: Rheumatoid Arthritis (ICDA 712): occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE	No.	PMR	Sign		SE	No.
RHEUMATOID ARTHRITIS (ICDA 712)											
Miscellaneous farming & related work (DOT 421-429)	W	M	147	\$	8	1674	145	*	17	475	Y
	W	F	122		27	140	65		30	42	
	B	M	121		19	135	194		62	73	
	B	F	75		31	18	153		61	20	

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

B. Osteoarthritis (ICDA 713)

White workers, both male and female, have high PMR's for 1969-73 and 1975-76 but in different occupations. For white men the high PMR's occur for farming, fishery, forestry, and related occupations; miscellaneous farming and related work; mechanical repairing; structural work occupations; construction, n.e.c.; and miscellaneous occupations. White women have high PMR's in the service occupations; building and related services; bench work occupations; and fabrication and repair of textile, leather, and related products.

TABLE 43 : Osteoarthritis (ICDA 713): occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm	
			PMR	Sign	SE No.	PMR	Sign	SE No.		
OSTEOARTHRITIS (ICDA 713)										
Service occupations (DOT 300-399)	W	M	87	3	4243	116	#	5	3232	Y
	W	F	121	\$	3 9718	134	\$	2	6797	
	B	M	98	5	1679	98	7	904		
	B	F	109	#	3 4702	115	\$	3	3053	
Building & related services (DOT 381-389)	W	M	99	6	992	148	#	12	870	Y
	W	F	172	\$	14 857	154	*	23	453	
	B	M	91	5	757	113	13	435		
	B	F	108	15	313	120	27	190		
Farming, fishery, forestry, & related occupations (DOT 400-499)	W	M	143	\$	5 5927	153	\$	6	2862	Y
	W	F	156	#	16 484	147	*	20	336	
	B	M	93	7	689	98	16	373		
	B	F	118	27	125	97	27	76		
Miscellaneous farming & related work (DOT 421-429)	W	M	140	\$	5 4291	149	\$	7	1987	Y
	W	F	161	#	18 321	167	*	27	247	
	B	M	101	9	530	105	24	259		
	B	F	111	35	75	82	28	40		

TABLE 43 (Cont'd): Osteoarthritis (ICDA 713): occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
Mechanical repairing (DOT 620-639)	W	M	125	\$	5	3373	122	#	6	1958	Y
	W	F	133		70	63	60		16	37	
	B	M	106		21	230	131		33	218	
	B	F	0		0	0	19		110	3	
Bench work occupations (DOT 700-799)	W	M	87		6	1713	99		10	1199	Y
	W	F	128	\$	4	4733	135	\$	6	3305	
	B	M	73		13	197	175	*	30	294	
	B	F	89		24	241	117		19	325	
Fabrication & repair of textile, leather, & related products (DOT 780-789)	W	M	76		14	323	122		18	319	Y
	W	F	132	\$	5	3335	149	\$	9	2265	
	B	M	45		18	17	186		57	78	
	B	F	95		28	175	138		28	235	
Structural work occupations (DOT 800-899)	W	M	129	\$	2	13597	137	\$	3	8789	Y
	W	F	133		16	363	136	*	13	614	
	B	M	115	*	5	2060	132	\$	6	1663	
	B	F	96		33	27	103		37	63	
Construction, N.E.C. (DOT 860-869)	W	M	142	\$	4	6353	154	\$	5	4153	Y
	W	F	196		47	35	185	#	22	208	
	B	M	127	#	7	1392	148	\$	9	1093	
	B	F	0		0	0	21		2	4	
Miscellaneous occupations (DOT 900-999)	W	M	115	\$	3	9513	115	\$	3	5384	Y
	W	F	113		12	1226	119		9	1080	
	B	M	102		5	1936	113		6	1261	
	B	F	89		23	108	100		17	135	

C. Displacement of Intervertebral Disc (ICDA 725)

With one exception all occupational associations for 1969-73 and 1975-76 involve men, white and black, for this condition. The exception occurs for black women in construction, n.e.c. but the expected numbers of disabled black women are small for both periods. For white men six occupations have high PMR's and four of these involve construction work: structural work occupations; metal fabricating, n.e.c.; excavating, grading, paving, and related work; and construction, n.e.c. The other two occupations are mechanical repairing and motor freight transportation. Black men also have high PMR's for the major rubric, structural work occupations.

TABLE 44 : Displacement of Intervertebral Disc (ICDA 725): occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
DISPLACEMENT OF INTERVERTEBRAL DISC (ICDA 725)											
Mechanical repairing (DOT 620-639)	W	M	133	\$	4	3254	161	\$	10	1867	Y
	W	F	97		62	31	64		53	22	
	B	M	170	*	26	268	127		33	117	
	B	F	0		0	0	444		292	20	
Structural work occupations (DOT 800-899)	W	M	137	\$	2	12549	144	\$	4	6795	Y
	W	F	138		23	230	160	#	18	404	
	B	M	133	\$	6	1654	136	#	9	969	
	B	F	146		112	13	245	*	61	65	
Metal fabricating, N.E.C. (DOT 800-809)	W	M	152	\$	11	1508	151	#	13	735	Y
	W	F	112		29	50	202		48	102	
	B	M	232	*	50	182	167		44	90	
	B	F	189		676	5	469		210	25	

TABLE 44 (Cont'd.): Displacement of Intervertebral Disc (ICDA 725):  
occupations with high PMR's for 1969-73 and 1975-76.

Condition/ Occupation	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE No.	PMR	Sign	SE No.			
DISPLACEMENT OF INTERVERTEBRAL DISC (ICDA 725) (Cont'd)											
Excavating, grading, paving, & related work (DOT	W	M	155	\$	9	1179	196	\$	18	782	Y
	W	F	86		96	3	120		49	20	
	B	M	141		38	95	169		38	68	
	B	F	100		0	0	0		0	0	
Construction, N.E.C. (DOT 860-869	W	M	149	\$	3	5809	142	\$	6	2850	Y
	W	F	101		74	9	163	\$	14	103	
	B	M	127	#	8	960	131	*	11	543	
	B	F	422	\$	45	4	151	*	21	15	Y
Miscellaneous occupations (DOT 900-999)	W	M	130	\$	2	9826	133	\$	5	4759	Y
	W	F	129	*	11	820	146	#	11	696	
	B	M	112		7	1528	129	*	10	834	
	B	F	121		42	55	231	*	54	104	
Motor freight transportation (DOT 900-909)	W	M	157	\$	4	4506	147	\$	8	2226	Y
	W	F	135		79	21	164		60	94	
	B	M	126		14	636	156	*	19	400	
	B	F	0		0	0	289	*	73	31	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

X. Accidents, Poisonings, and Violence (ICDA 800-999)

Workers in ten occupational groups have high PMR's for 1969-73 and 1975-76. The predominant patterns for occupational associations involve men (nine of the ten occupations) and construction occupations seven of the ten and both white and black men (two cases). For white women PMR's are high in the service occupations. For white men the high PMR's occur for structural work occupations--and specifically: metal fabricating, n.e.c.; welding, flame cutting, and related work; electrical assembly, installing, and repairing; painting, plastering, waterproofing, cementing, and related work; and construction, n.e.c.--and motor freight transportation, and logging. Black men in the structural work occupations and construction, n.e.c. also have high PMR's.

TABLE 45: Accidents, poisonings, and violence (ICDA 800-999): occupations with high PMR's for 1969-73 and 1975-76.

Occupation/ DOT	Race Sex		1969-1973			1975-1976			Con- firm	
			PMR	Sign	SE No.	PMR	Sign	SE No.		
Service occupations (DOT 300-399)	W	M	110	\$	2	12874	84	3	2994	N
	W	F	114	\$	3	6788	113	5	2637	Y
	B	M	89		4	2651	79	7	748	
	B	F	99		3	1858	92	8	683	
Structural work occupations (DOT 800-899)	W	M	138	\$	1	24453	155	2	10264	Y
	W	F	94		16	215	202	18	463	
	B	M	125	\$	4	3499	125	7	1479	Y
	B	F	192		94	32	111	54	29	
Metal fabricating, n.e.c. (DOT 800-809)	W	M	143	\$	8	2803	172	10	1213	Y
	W	F	104		28	62	57	39	25	
	B	M	76		16	147	96	21	93	
	B	F	306		187	16	273	137	14	
Welding, flame cutting, & related work (DOT 810-819)	W	M	119	\$	3	1907	146	11	764	Y
	W	F	101		48	63	244	47	82	
	B	M	128		23	206	63	27	42	
	B	F	0		0	0	0	0	0	

TABLE 45 (Cont'd.): Accidents, poisonings, and violence (ICDA 800-999):  
occupations with high PMR's for 1969-73 and 1975-76.

Occupation/ DOT	Race Sex		1969-1973			1975-1976			Con- firm		
			PMR	Sign	SE	No.	PMR	Sign		SE	No.
Electrical assembly, installing, & repairing (DOT 820-829)	W	M	124	\$	5	2446	1683	\$	13	1232	Y
	W	F	63		27	39	41		27	15	
	B	M	101		23	79	128		49	70	
	B	F	0		0	0	257		86	5	
Painting, plastering, waterproofing, cementing, & related work (DOT 840-849)	W	M	139	\$	5	2205	150	#	14	919	Y
	W	F	137		109	18	507	#	100	86	
	B	M	156	#	16	416	67		20	59	
	B	F	0		0	0	0		0	0	
Excavating, grading, paving, & related work (DOT 850-859)	W	M	142	\$	7	2038	135	*	12	722	Y
	W	F	135		99	6	317	\$	43	45	
	B	M	137		33	202	107		32	70	
	B	F	100		0	0	0		0	0	
Construction, n.e.c. (DOT 860-869)	W	M	149	\$	3	11330	162	\$	5	4551	Y
	W	F	60		77	8	253	\$	24	152	
	B	M	133	\$	5	2214	144	\$	8	979	
	B	F	334		128	5	0		0	0	
Miscellaneous occupations (DOT 900-999)	W	M	118	\$	2	17316	127	\$	3	6478	Y
	W	F	119		9	1051	132	*	14	572	
	B	M	108		4	3301	119		11	1284	
	B	F	77		34	63	220	*	51	99	
Motor freight transportation (DOT 900-909)	W	M	125	\$	3	6915	137	\$	5	2905	Y
	W	F	174		54	35	276	*	57	145	
	B	M	101		7	1150	116		15	488	
	B	F	0		0	0	420		230	40	
Logging (DOT 940-949)	W	M	250	\$	21	849	217	\$	21	266	Y
	W	F	184		225	3	690	*	190	20	
	B	M	192	*	39	179	200		59	70	
	B	F	0		0	0	1152	\$	103	5	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

## Summary: Conclusions, Discussion, And Questions

Occupational associations with specific disabling conditions may arise in many different but not mutually exclusive ways. First, an occupational hazard may increase the risk of certain types of diseases or injury. Second, the work required by an occupation may affect certain limitations more than others. For example, a construction worker must be capable of physical effort and men with osteoarthritis--whether induced by occupational exposures or not--may have limited capability for construction work. Factors such as age, previous experience, aptitude, etc. may reduce the ability of such displaced construction workers to find other work. Third, workers with certain chronic illnesses or impairments may leave some jobs and go to others which are their job when their conditions finally cause total disability. Workers in such occupations may have high rates of disability even though the onset of the illnesses producing the impairments occurred prior to employment in those occupations. Fourth, certain occupations may attract persons predisposed to certain types of illnesses or to certain life styles which produce certain types of illnesses. And finally, but not exhaustively, PMR's for certain occupations for certain conditions may be high simply because there is a mathematical dependency among PMR's, and PMR's for other occupations are high for other conditions. However, with 86 detailed occupational groups and 67 disabling conditions, the magnitude of the dependency is not great and the likelihood of that factor alone producing a relationship fulfilling the criteria for a confirmed pattern appears small. Nevertheless, that type of error may combine with statistical sampling error to produce false associations.

The data and methods of this report cannot determine which, if any, of the above possibilities explain any of the relationships found for the 1969-73 period and confirmed for the 1975-76 period. However, certain patterns seem impressive and can be recommended for additional study because they potentially represent health problems which may represent occupationally induced health problems.

Some relationships noted above confirm known actual or potential occupational health problems. These include:

1. Mining is related to respiratory system disease, especially coal miner's pneumoconiosis.
2. Construction work is related to musculoskeletal system disease and injuries.
3. Farming is related to musculoskeletal system disease.
4. Logging is related to injuries: this is the subject of a report by Frazier et al (20).

In all four of the above cases the evidence in this report suggests that any underlying occupational health risks either have been insufficiently reduced or else there has been insufficient time for improvements to be manifest. Of course, the data in this report do not permit quantitative comparisons of rates of disability incidence.

The empirical evidence noted above for certain other relationships seems striking and future study is recommended to ascertain the epidemiological significance of this evidence for the following relationships:

5. Managerial and sales work are related to circulatory disease especially cardiovascular disease for white men. The specific occupational groups involved are administrative specialties, managerial work, n.e.c., saleswork, services and saleswork, commodities. Patterns of disability are associated with circulatory disease, heart and hypertensive disease, and specifically ischemic heart disease. The role of stress in this and the next pattern seems important to investigate. The potential contribution of work stress to cardiovascular diseases has been noted for professional and managerial occupations (19).
6. Professional, technical, and managerial occupations, in general, and in particular, administrative and managerial work as well as sales work are related to non-specific neoplastic disease, both malignant and of the lymphatic and hematopoietic tissue for white men. One explanation for the consistently high PMR's for these occupations for neoplastic disease is that this reflects the mathematical dependency among PMR's and these are the inverses of the high PMR's for respiratory and musculoskeletal system disease for the manual occupations. This may be. However, there are many disabling conditions for which this effect might be diffused without causing any to have PMR's which fulfill the stringent criteria established for this analysis. It is also striking that for the most part no specific site or type of neoplastic disease causes disabilities which could suggest the operation of a factor which generally reduces natural defenses to all types of neoplasms rather than the action of some specific assault on the body. Finally, the occupations also have similar patterns of circulatory system disability for which a link to stress has been suggested. Could this not also diminish the general defenses of the body for neoplastic diseases as well?
7. Professional, technical, and managerial work and clerical and saleswork are related to neoplastic disease, particularly malignant neoplasms, and specifically breast cancer for white women. This relationship extends to specific occupations within each of the broad rubrics. Within the professional, technical, and managerial work group the specific groups are education and administrative specialties. Within the clerical and saleswork group the specific groups are computing and account recording and stenography, typing,

filing, and related work are related to neoplastic disease, particularly malignant neoplasms, and specifically breast cancer for white women. This may merely reflect the inverse of high PMR's for white women for other conditions in other occupations. The remarks made for relationship 6 above also apply here. However, the pronounced patterns of respiratory system and musculoskeletal system disease caused disability for manual occupations which exists for men are not nearly as strong for women. Hence, there is less "pressure" on the neoplastic diseases for "compensation" for women. And, in the case of education and secretarial work, why breast cancer? Of course, breast cancer is a leading type of neoplastic disease for women, but this would lead to large numbers of disabled women in all occupations--why are these two disproportionately affected? Is stress a factor? Is parity a factor? Does stress affect hormonal balances? Are secretarial and clerical workers exposed to some agent which increases the risk of breast cancer? This relationship may also reflect differences in socioeconomic status and/or parity between secretarial and clerical women and other female workers.

8. Bench work, n.e.c. is related to mental disorders for all four race and sex groups. This is the only case of the same pattern being manifest for three race and sex groups. For the fourth group, black women, the data just barely fails to fulfill the criterion for the 1969-1973 period. These workers are unskilled and the presence of the disabling condition can be subject to subjective interpretation. Thus, the pattern may merely reflect a bending of the disability benefit system to provide benefits to chronically unemployed workers who may have exhausted their unemployment system benefits. However, there is not sufficient evidence to reject the existence of an occupational health hazard.
9. Motor freight transportation and packaging and materials handling, respectively, are related to musculoskeletal system disease for white men.
10. Machine trades occupations and mechanical repairing are related to musculoskeletal system disease for white men. Unlike construction, farming, motor freight and package handling, these occupations do not appear to require strenuous physical labor, yet PMR's are high for musculoskeletal system disabilities and disabilities from osteoarthritis and displacement of intervertebral disc.
11. Protective service work is related to circulatory system disease for white men. The high PMR's may occur because men with circulatory system illness may gravitate to jobs as watchmen, etc. However, this occupation group also includes firemen, policemen, and sheriffs, although many such state and local public workers may not be covered by SSA insurance.

12. Food and beverage preparation and services is related to both mental disorders, specifically schizophrenia, and diseases of the digestive system, specifically cirrhosis of the liver. This occupation includes bartenders, chefs, and waiters so alcoholism may be involved.
13. The broad group, professional technical, and managerial occupations, and the broad group, clerical and sales occupations, specifically stenography, typing, filing, and related work, are related to diseases of the nervous system and sense organs, particularly multiple sclerosis. The pattern is found for white women in both the major and the specific occupation and for white men in the major occupation.
14. Service occupations and endocrine, nutritional, and metabolic diseases, particularly diabetes mellitus, for white women.

Emergent Patterns: Unadjusted Results for 1975-76

Each occupation has been analyzed to determine the existence of emergent patterns of excessive disability. The criterion is that the PMR for the period 1975-76 for at least one disabling condition is significant at the one-tail .001 level providing that disabling condition does not fulfill the same criterion for the 1969-1973 period. Data for each race and sex group have been analyzed separately. For each case fulfilling the criterion for 1975-76 the corresponding PMR for the 1969-1973 period has also been inspected to determine what the result would have been if it had been tested. If the one-tail test result is significant at least at the .05 level, it is noted in the following description.

The occupations found to have emergent patterns of excessive disability and the disabling conditions for which this is detected are as follows (see Tables 46 to 59):

I. Administrative Specialties (DOT 160-169)

White men have a high PMR for 1975-76 for malignant neoplasms of other and unspecified sites. This seems consistent with a confirmed pattern noted above on pages 40 and 41 to 47 concerning administrative, managerial, and sales workers. The PMR for the 1969-73 period is also significantly high.

Black female workers in this occupation also have a high PMR for the same condition.

## II. Clerical and Sales Occupations (DOT 200-299)

For white men the PMR for neoplasms for 1975-76 is high. This seems related to previously noted patterns for sales workers, see above pages 43 to 53. The 1969-73 PMR is also statistically high.

For white women the PMR for schizophrenia is high while for black women the PMR for mental disorders in general is high. For 1969-73 the PMR for schizophrenia for white women is significantly high. This finding may be related to the confirmed high PMR's for white men for mental disorders and schizophrenia. In addition, white women have a high PMR for rheumatoid arthritis. The 1969-73 PMR is also significantly high. Finally, white women have a high PMR for neoplasms of the lymphatic and hematopoietic tissue. This PMR is also significantly high for 1969-73.

TABLE 46: Professional, clerical, and sales occupations with high PMR's for 1975-76 which do not fulfill the criterion for high PMR's for 1969-73.

Occupation/ Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
<b>ADMINISTRATIVE SPECIALTIES</b> (DOT 160-169)									
Other & unspecified sites (ICDA 190-199)	W	242	\$	31	362	121	36	90	
	B	0		0	0	453	\$	60	10
<b>CLERICAL &amp; SALES OCCUPATIONS</b> (DOT 200-299)									
Neoplasms (ICDA 140-239)	W	118	\$	3	6666	125	\$	3	11560
	B	133		17	435	128		16	464
Mental disorders (ICDA 290-315)	W	114	\$	2	6591	107	*	2	9903
	B	118	*	8	821	136	\$	8	978
Schizophrenia (ICDA 295)	W	132	\$	6	2832	119	\$	4	3975
	B	154	#	16	539	184	#	20	641
Rheumatoid arthritis (ICDA (712)	W	132	*	10	1114	131	\$	4	3338
	B	104		35	45	138		33	128

A. Stenography, typing, filing, and related work (DOT 201-209)

The PMR for black women for schizophrenia is high for 1975-76. This finding for black women may be related to a confirmed pattern involving consistently high PMR's for this condition for both male and female white workers in this occupation for both periods.

Perhaps consistent with a confirmed pattern involving musculoskeletal diseases in general and the major occupations of clerical and sales, the PMR for rheumatoid arthritis for white women is high.

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TABLE 47 : Stenography, typing, filing, and related work (DOT 201-209) occupations with high PMR's for 1975-76 which do not fulfill the criterion for high PMR's for 1969-73.

Occupation/ Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
STENOGRAPHY, TYPING, FILING, & RELATED WORK (DOT 201-209)									
Schizophrenia (ICDA 295)	W	198	\$	22	562	563	\$	11	2230
	B	256		74	213	240	\$	29	364
Rheumatoid arthritis (ICDA 712)	W	142		31	121	150	\$	9	1491
	B	0		0	0	133		38	50

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

### III. Service Occupations (DOT 300-399)

Black women have high PMR's for 1975-76 for endocrine, nutritional, and metabolic diseases, and in particular, diabetes mellitus. The PMR for the general condition is statistically significantly high for 1969-73 while that for diabetes mellitus is not, although the observed PMR is greater than 100. This 1975-76 pattern is consistent with a confirmed pattern found for white women, see pages 54 and 55 above. A high PMR for endocrine, nutritional, and metabolic diseases also is found for black female workers in the specific rubric of domestic services.

Black women also have a high PMR for diseases of the musculoskeletal system and connective tissue, and particularly, osteoarthritis which is similar to the confirmed pattern for white women for both periods. The 1969-73 PMR's for black female workers is also statistically significantly high for both disabling conditions. This emergent pattern holds also for black women in domestic service and miscellaneous personal services.

Finally, black women have high PMR's for circulatory system disease including diseases of the circulatory system, in general, heart and hypertensive disease, hypertensive disease, and ischemic heart disease. The PMR's for 1969-73 for diseases of the circulatory system and ischemic heart disease are also statistically significantly high. In general, this pattern appears for black female domestic service workers as well.

#### A. Domestic services (DOT 301-309)

Black women have a high PMR for 1975-76 for endocrine, nutritional, and metabolic diseases. Black women also have high PMR's for various circulatory system disease including diseases of the circulatory system, heart and hypertensive disease, and ischemic heart disease.

Finally, black female workers have a high PMR for osteoarthritis which is similar to the confirmed pattern found for white female workers for both periods. The PMR for black women for 1969-73 is also statistically significantly high.

#### B. Food and beverage preparation and services (DOT 310-319)

White women have a high PMR for osteoarthritis which is consistent with the confirmed high PMR's for diseases of the musculoskeletal system and connective tissue found for this occupation for both periods.

C. Miscellaneous personal services (DOT 350-359)

The PMR for black women for 1975-76 is high for diseases of the musculoskeletal system and connective tissue. The same PMR is also statistically significantly high for 1969-73. This pattern is consistent with a confirmed pattern for both periods for white women.

D. Protective service workers (DOT 371-379)

White men have a high PMR for schizophrenia for 1975-76.

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TABLE 48 : Service occupations with high PMR's for 1975-76 which do not fulfill the criterion for high PMR's for 1969-73.

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Occupation/ Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
SERVICE OCCUPATIONS (DOT 300-399)									
Endocrine, nutritional, & metabolic diseases (ICDA 240-279)	W	121 *		6	2105	135 \$		5	3499
	B	146 #		12	836	123 \$		4	3042
Diabetes mellitus (ICDA 250)	W	118 *		8	1566	135 #		8	2105
	B	140 *		14	616	124 \$		4	1972
Diseases of musculoskeletal system & connective tissue (ICDA 710-738)	W	99		3	8999	116 \$		2	16619
	B	91		5	2274	109 \$		2	6358
Osteoarthritis (ICDA 713)	W	116 #		5	3232	134 \$		2	6797
	B	98		7	904	115 \$		3	3053

TABLE 48 (Cont'd.): Service occupations with high PMR's for 1975-76 which do not fulfill the criterion for high PMR's for 1969-73.

Occupation/ Condition	Race	Male			Female			
		PMR	Sign	SE	No.	PMR	Sign	SE
<b>DOMESTIC SERVICES (DOT 301-309)</b>								
Endocrine, nutritional, & metabolic diseases (ICDA 240-279)	W	194	123	65	163	*	21	383
	B	348	124	80	139	#	7	1392
Diseases of circulatory system (ICDA 390-458)	W	87	14	305	90		6	1264
	B	95	19	179	113	#	2	4814
Heart & hypertensive disease (ICDA 393-429)	W	94	17	263	87		8	929
	B	102	22	149	117	#	3	3955
Ischemic heart disease (ICDA 410-414)	W	95	18	234	84		8	695
	B	87	26	89	117	#	3	2751
<b>FOOD &amp; BEVERAGE PREPARATION &amp; SERVICES (DOT 310-319)</b>								
Diseases of musculoskeletal system & connective tissue (ICDA 710-738)	W	98	5	2804	113	#	2	7147
	B	70	9	431	101		6	1132
<b>MISCELLANEOUS PERSONAL SERVICES (DOT 350-359)</b>								
Diseases of musculoskeletal system & connective tissue (ICDA 710-738)	W	107	17	555	126	#	5	3658
	B	75	19	131	134	#	7	1068
<b>PROTECTIVE SERVICES (DOT 371-379)</b>								
Schizophrenia (ICDA 295)	W	154	#	12	1231	116	41	58
	B	214	*	40	351	161	78	16

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

III. Farming, Fishery, Forestry, and Related Occupations (DOT 400-499)

White men have a high PMR for 1975-76 for diseases of the respiratory system. The PMR for the same condition is statistically significantly high for 1969-73.

A. Plant farming (DOT 401-409)

White men have a high PMR for mental disorders for 1975-76.

TABLE 49 : Agricultural occupations with high PMR's for 1975-76 which do not fulfill the criterion for high PMR's for 1969-73.

Occupation/ Condition	Race	Male		Female			
		PMR	Sign SE	No.	PMR	Sign	SE
<b>FARMING, FISHERY, FORESTRY, &amp; RELATED OCCUPATIONS (DOT 400-499)</b>							
Diseases of respiratory system (ICDA 460-519)	W	123	# 4	3173	155	30	226
	B	123	16	354	190	76	61
<b>PLANT FARMING (DOT 401-409)</b>							
Mental disorders (ICDA 290-315)	W	147	# 10	863	111	26	77
	B	123	24	251	32	17	10

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

IV. Processing, Wood and Wood Products (DOT 560-569)

Black men have a high PMR for 1975-76 for diseases of the circulatory system. This is similar to a confirmed pattern found for black women for both periods.

TABLE 50: Processing occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
PROCESSING, PAPER & RELATED MATERIALS (DOT 530-539)									
Diseases of circulatory system (ICDA 390-458)	W	135		23	104	17		35	1
	B	191	#	19	38	191	#	8	10

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

## V. Machine Trades Occupations (DOT 600-699)

The PMR for white women for heart and hypertensive disease is high for 1975-76. The same PMR for 1969-73 is also statistically significantly high. This pattern is similar to the confirmed pattern for white men for diseases of the circulatory system and heart and hypertensive disease for both periods.

White men have a high PMR for diseases of the respiratory system.

White men also have high PMR's for rheumatoid arthritis and displacement of intervertebral disc. In both cases, the PMR for 1969-73 is statistically significantly high. This is consistent with confirmed patterns for white men and women white for diseases of the musculoskeletal system and connective tissue for both periods. It might also be noted that the PMR's for osteoarthritis for white men are statistically significantly high in both periods, while the PMR for white women is high at the criterion level for 1969-73 but is not confirmed high for the later period. This pattern is specifically manifest for mechanical repairing occupations for which there is a confirmed pattern for these conditions for white men.

### A. Metal Machining (DOT 600-609)

White men have high PMR's for 1975-76 for diseases of the circulatory system, and in particular, ischemic heart disease. The PMR for the general condition is statistically significantly high for 1969-73. This pattern is similar to a confirmed general pattern involving circulatory system diseases for the major occupation.

TABLE 51 : Machine trades occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
<b>MACHINES TRADES OCCUPATIONS</b> (DOT 600-699)									
Heart & hypertensive disease (ICDA 393-429)	W	110	\$	2	20293	124	\$	5	3205
	B	114	*	6	1959	88		11	406
Diseases of respiratory system (ICDA 460-519)	W	112	\$	2	6142	125		12	949
	B	122		16	423	160		46	101
Rheumatoid arthritis (ICDA 712)	W	132	\$	7	1348	106		12	538
	B	76		29	55	101		30	40
Displacement of intervertebral disc (ICDA 725)	W	132	\$	5	3641	120		10	733
	B	153	*	23	389	46		32	25
<b>METAL MACHINING (DOT 600-609)</b>									
Diseases of circulatory system (ICDA 390-458)	W	114	\$	3	5934	129		15	341
	B	103		16	178	126		49	41
Ischemic heart disease (ICDA 410-414)	W	113	\$	3	4108	146		21	225
	B	131		31	124	56		36	10

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

B. Mechanical repairing (DOT 620-639)

White men have high PMR's for 1975-76 for diseases of the circulatory system, heart and hypertensive disease, and specifically, ischemic heart disease. PMR's for the latter two conditions are statistically significantly high for 1969-73 as well.

For white women the PMR for accidents, poisonings, and violence is high which is similar to confirmed patterns for both white and black men for this occupation.

TABLE 52 : Mechanical repairing (DOT 620-639) occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
MECHANICAL REPAIRING (DOT 620-639)									
Diseases of circulatory system (ICDA 390-458)	W	110	\$	2	10503	130	19	240	
	B	124	*	10	1013	106	37	63	
Heart & hypertensive disease (ICDA 393-429)	W	113	\$	2	8574	132	24	183	
	B	126		13	802	112	33	53	
Ischemic heart disease (ICDA 410-414)	W	113	\$	2	7558	172	*	30	183
	B	125		15	561	149	31	48	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

VI. Bench Work Occupations (DOT 700-799)

White men have a high PMR for 1975-76 for mental disorders which may be related to the confirmed pattern for both periods found for bench work, n.e.c. for not only white men, but also white women and black men. The PMR for mental disorders for white men is also statistically significantly high for 1969-73. White men also have a high PMR for diseases of the nervous system and sense organs. The PMR for the same condition is also statistically significantly high for 1969-73.

TABLE 53 : Bench work occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
BENCH WORK OCCUPATIONS (DOT 700-799)									
Mental disorders (ICDA 290-315)	W	135	\$	5	3484	117	#	4	4556
	B	117		15	549	103		14	492
Diseases of nervous system & sense organs (ICDA 320-389)	W	127	\$	6	1850	113	*	5	2621
	B	155	*	23	331	161	*	20	395

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

VII. Structural Work Occupations (DOT 800-899)

White women have a high PMR for 1975-76 for diseases of the musculoskeletal system and connective tissue. The PMR for the same condition is significant for 1969-73. This emergent pattern is consistent with the confirmed pattern for men, both white and black.

Also technically emergent, but consistent with a confirmed pattern, is the high PMR for black men for osteoarthritis. The same PMR is statistically significantly high for 1969-73. A confirmed pattern for white men was described on pages 70 and 71 for this condition. This is also specifically manifest for construction, n.e.c.

Finally, white women have a high PMR for accidents, poisonings, and violence which is consistent with confirmed patterns for men both white and black (see pages 70 and 71). White female workers in construction, n.e.c. also have a high PMR for this condition.

TABLE 54 : Structural work occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
STRUCTURAL WORK OCCUPATIONS (DOT 800-899)									
Diseases of musculoskeletal system & connective tissue (ICDA 710-738)	W	135	\$	1	26159	127	\$	5	1707
	B	132	\$	3	4432	130		23	210
Osteoarthritis (ICDA 713)	W	137	\$	3	8789	136	*	13	614
	B	132	\$	6	1663	103		37	63
Accidents, poisonings, & violence (ICDA 800-999)	W	155	\$	2	10264	202	\$	18	463
	B	125	#	7	1479	111		54	29

A. Painting, plastering, waterproofing, cementing, and related work (DOT 840-849)

White men have a high PMR for 1975-76 for diseases of the musculoskeletal system and connective tissue. The same PMR is statistically significant for 1969-73.

TABLE 55 : Painting, plastering, waterproofing, cementing, and related work (DOT 840-849) occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female			
		PMR	Sign	SE	No.	PMR	Sign	SE
Diseases of musculoskeletal system & connective tissue (ICDA 710-738)	W	132	\$	7	2318	91	15	84
	B	141	*	17	377	89	45	10

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

SE is the estimated standard error of the PMR estimate.

No. is the estimated number of disability allowances for 1975-76.

B. Construction, n.e.c. (DOT 860-869)

White men have a high PMR for 1975-76 for diseases of the respiratory system and a high PMR for other and unspecified arthritis. The results for other and unspecified arthritis may be related to confirmed patterns for both white and black men involving diseases of the musculoskeletal system and connective tissue generally, as well as several specific conditions within that rubric. Also consistent with this pattern is the high PMR for black men for osteoarthritis, a PMR that is also statistically significantly high for 1969-73. Finally, the PMR for white women for displacement of intervertebral disc is high.

For white women the PMR for accidents, poisonings, and violence is also high which conforms to confirmed patterns for both white and black men.

TABLE 56 : Construction, n.e.c. (DOT 860-869) occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
Diseases of respiratory system (ICDA 460-519)	W	117	\$	3	4449	135	34	96	
	B	103		14	585	125	33	13	
Osteoarthritis (ICDA 713)	W	154	\$	5	4153	185	#	22	208
	B	148	\$	9	1093	21	2	4	
Other & unspecified arthritis (ICDA 710-711,714-715)	W	150	\$	11	511	0	0	0	
	B	113		24	107	163	83	5	
Displacement of intervertebral disc (ICDA 725)	W	142	\$	6	2850	163	\$	14	103
	B	131	*	11	543	151	*	21	15
Accidents, poisonings, & violence (ICDA 800-999)	W	162	\$	5	4551	253	\$	24	152
	B	144	\$	8	979	0	0	0	

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

VIII. Miscellaneous Occupations (DOT 900-999)

Black men have high PMR's for 1975-76 for diseases of the circulatory system and heart and hypertensive disease. Both PMR's are statistically significantly high for 1969-73.

Both white women and black men have high PMR's for diseases of the musculoskeletal system and connective tissue. The PMR for 1969-73 for white women is statistically significantly high. These results are consistent with confirmed patterns for white men for the general disability condition and several more specific conditions within it.

TABLE 57 : Miscellaneous occupations (DOT 900-999) with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female				
		PMR	Sign	SE	No.	PMR	Sign	SE	No.
Diseases of circulatory system (ICDA 390-458)	W	103		1	28726	115	#	4	3099
	B	111	\$	2	6124	106		9	580
Heart & hypertensive disease (ICDA 393-429)	W	105	#	1	23434	118	*	6	2383
	B	113	\$	3	4881	105		9	454
Diseases of musculoskeletal system & connective tissue (ICDA 710-738)	W	121	\$	1	17488	117	\$	4	3098
	B	119	\$	3	3567	114		13	364

The PMR is statistically significantly higher than 100 at the 1-tail

- \* .025 level.
- # .005 level.
- \$ .0005 level.

A. Motor freight transportation (DOT 900-909)

White men have a high PMR for 1975-76 for endocrine, nutritional, and metabolic diseases.

B. Packaging and materials handling (DOT 920-929)

White women have a high PMR for 1975-76 for diseases of the musculoskeletal system and connective tissue and white men have a high PMR for osteoarthritis. In both cases the corresponding PMR for 1969-73 is statistically significantly high. These results are consistent with a confirmed pattern for white men for the general condition rubric.

TABLE 58 : Specific miscellaneous occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male PMR	Sign	SE	No.	Female PMR	Sign	SE	No.
<b>MOTOR FREIGHT TRANSPORTATION (DOT 900-909)</b>									
Endocrine, nutritional, & meta- bolic diseases (ICDA 240-279)	W	129	\$	6	1505	50	26		27
	B	89		13	237	35	17		10
<b>PACKAGING &amp; MATERIALS HANDLING (DOT 920-929)</b>									
Diseases of musculoskeletal system & connective tissue (ICDA 710-738)	W	126	\$	4	4159	125	\$	5	2115
	B	117	*	7	1140	106		18	202
Osteoarthritis (ICDA 713)	W	134	\$	8	1418	121		13	720
	B	132		17	490	135		27	114

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

C. Production and distribution of utilities (DOT 950-959)

White men have a high PMR for 1975-76 for diseases of the circulatory system.

TABLE 59 : Production and distribution of utilities (DOT 950-959) occupations with high PMR's for 1975-76.

Occupation Disabling Condition	Race	Male			Female			
		PMR	Sign	SE	No.	PMR	Sign	SE
PRODUCTION & DISTRIBUTION OF UTILITIES (DOT 950-959)								
Diseases of circulatory system (ICDA 390-458)	W	127	\$	6	1853	135	46	59
	B	105		17	213	0	0	0

The PMR is statistically significantly higher than 100 at the 1-tail

\* .025 level.

# .005 level.

\$ .0005 level.

SE is the estimated standard error of the PMR estimate.

No. is the estimated number of disability allowances for 1975-76.

In addition to the emergent patterns just described there are numerous cases technically fulfilling the criterion but which were not reported because the PMR is based on less than 25 disabled workers. These are listed for completeness:

I. White Men for 1975-76

1. Miscellaneous clerical work (DOT 240-249) - blindness
2. Structural work occupations (DOT 800-899) - silicotuberculosis
3. Structural work occupations (DOT 800-899) - other pneumoconioses and related diseases

II. White Women for 1975-76

1. Excavating, grading, paving, and related work (DOT 850-859)
  - accidents, poisonings, and violence
2. Construction, n.e.c. (DOT 860-869)
  - cirrhosis of the liver

III. Black Men for 1975-76

1. Service occupations (DOT 300-399)
  - bronchiectasis
2. Fishery and related work (DOT 431-439)
  - ischemic heart disease
3. Agricultural services (DOT 461-469)
  - diseases of musculoskeletal system and connective tissue
4. Processing, paper and related materials (DOT 530-539)
  - diseases of the nervous system and sense organs
5. Processing, wood and wood products (DOT 560-569)
  - diseases of the circulatory system
6. Structural work occupations (DOT 800-899)
  - diseases of the male genital organs

#### IV. Black Women for 1975-76

1. Architecture and engineering (DOT 001-019)
  - symptoms and ill-defined conditions
2. Mathematics and physical sciences (DOT 020-029)
  - mental disorders
3. Administrative specialties (DOT 160-169)
  - malignant neoplasms of other and unspecified sites
4. Stenography, typing, filing, and related work (DOT 201-209)
  - benign neoplasms
5. Food and beverage preparation and services (DOT 310-319)
  - malignant neoplasms of the urinary organs
6. Fishery and related work (DOT 431-439)
  - ischemic heart disease\*
7. Processing, paper and related materials (DOT 530-539)
  - diseases of the circulatory system
8. Processing, wood and wood products (DOT 560-569)
  - diseases of the circulatory system\*
9. Processing, nonmetallic minerals and related products (DOT 579-579)
  - diseases of the musculoskeletal system and connective tissue\*
10. Processing, n.e.c. (DOT 590-599)
  - ischemic heart disease
11. Paperworking (DOT 640-649)
  - diseases of the circulatory system
12. Fabrication and repair of sand, stone, clay, and glass products (DOT 770-779)
  - heart and hypertensive disease

\*The corresponding PMR is statistically significantly high for 1969-73.

13. Electrical assembly, installing, and repairing (DOT 820-829)
  - diseases of the musculoskeletal system and connective tissue
14. Construction, n.e.c. (DOT 860-869)
  - diseases of the digestive system
15. Logging (DOT 940-949)
  - heart and hypertensive disease
16. Graphic art work (DOT 970-979)
  - diabetes mellitus

#### Summary and Questions

Many of the above findings, while technically fulfilling the criterion for emergent patterns, actually appear to reinforce the evidence for patterns previously identified as confirmed. These include the following patterns:

1. Neoplastic disease for white men in administrative, managerial, and sales work (pp. 40-43 and 51-53).
2. Stenography, typing, filing, and related work and mental disorders for white male and female and black female workers (pp. 47-50).
3. Service occupations and domestic service specifically and endocrine, nutritional, and metabolic diseases, and diabetes mellitus in particular, for women, both white and black (pp. 54-57).
4. Service occupations, specifically food and beverage preparation and miscellaneous personal services, and musculoskeletal system disease, and osteoarthritis in particular, for women, both white and black (pp. 54-58).
5. Machine trades occupations, and specifically, metal machining and mechanical repairing and circulatory system disease, particularly ischemic heart disease, for white men and women (pp. 56, 58, and 59).
6. Machine trades occupations, specifically mechanical repairing, and musculoskeletal system disease, particularly osteoarthritis, for white men and women (pp. 65-66).
7. Bench work, and especially bench work, n.e.c., and mental disorders for all workers regardless of race or sex (pp. 68-69).

8. Construction or structural work occupations of most types and musculoskeletal system, particularly osteoarthritis and displacement of intervertebral disc for most workers (pp. 70-74).
9. Construction or structural work and accidents for most workers (pp. 70-74).
10. Packaging and materials handling and musculoskeletal system diseases, particularly osteoarthritis, for white workers (pp. 75 and 77).

There are also some emergent patterns for 1975-76 which appear noteworthy:

1. Specific types of musculoskeletal system disease and clerical work for white women (pp. 121 - 122).
2. Circulatory system disease, particularly heart and hypertensive disease, and especially ischemic heart disease for black women in service occupations, and specifically, domestic service work (pp. 123-125).
3. Farming, fishery, forestry, and related occupations and respiratory disease for white men (p. 126). Future research may help pinpoint the specific occupational locus of this, if any.
4. Bench work occupations and diseases of the nervous system and sense organs for white men (p. 131). The specific occupational locus, if any, is not evident but may be found in future research.
5. Circulatory system disease, particularly heart and hypertensive disease, for black men in the diverse group included under the rubric of miscellaneous occupations and particularly production and distribution of utilities (pp. 135 and 136). Again, the precise occupational locus, if any, of this may be revealed by future research.

#### Analysis of Adjusted Data for Emergent Trends for 1975-76

Elevated risks compete with each other for identification when PMR analyses are used. This can be understood by noting that as the proportion of disabilities occurring for one disabling condition for an occupation become higher, the proportion for the remaining disabling conditions must be lower. An example is found in the results for Extraction of Minerals shown in Illustration 1. The PMR's for diseases of the respiratory system, and especially for pneumoconiosis due to silica and silicates, are very high. The PMR's for most other conditions are low. The elevated risk of respiratory disease for miners is well known. Detection of any other elevated risk, for example, for diseases of the musculoskeletal system and connective tissue, with PMR analyses would be difficult in the presence of the established one for respiratory disease. The large proportion of miners disabled from respiratory disease also tends to reduce PMR's for that condition in other occupations.

Thus, the excess disabilities associated with previously established and confirmed patterns of high risks tend to decrease the chances for detection of

other emergent patterns with PMR analyses. It is also possible that the presence of confirmed patterns may induce high PMR's involving occupations and conditions not involved in the confirmed patterns. If one occupation has a relative excess for one condition, then other occupations must, collectively, have a relative deficit for that condition. But, this relative deficiency is "made up" by relative excesses in other conditions.

These distortions can be reduced by an adjustment for known or confirmed relationships. This adjustment is accomplished by reducing the apparent number of disabled workers in the established and confirmed relationships so that the resulting PMR's are close to 100 without affecting the numbers of disabled workers in other cases. The method for accomplishing this is described in Technical Note 3 of the Appendix.

The data on disabled workers were "adjusted" to remove the effects of confirmed patterns which were discussed in the preceding paragraphs. Only those relationships not reported above as emergent patterns are included below. These results are included to suggest additional leads. The relationships detected are:

1. Education (DOT 090-099) and multiple sclerosis for white women. This further specifies a confirmed pattern involving education and diseases of the nervous system and sense organs. This PMR is statistically significantly high for 1969-73.
2. Administrative specialties (DOT 160-169) and malignant neoplasms, particularly of other and unspecified sites, for white men. This adds to the evidence for a confirmed pattern for white men in administrative, managerial, and sales occupations. The corresponding PMR is statistically significantly high for 1969-73.
3. Managerial work, n.e.c. (DOT 180-189) and malignant neoplasms of the respiratory system for white men. This may be related to the confirmed pattern noted in #2, but it may also suggest an effect of lifestyle, specifically tobacco usage.
4. Clerical and sales occupations (DOT 200-299):

Cerebrovascular disease for white men and women which may be related to a confirmed pattern for white men for saleswork. Both corresponding PMR's are statistically significantly high for 1969-73.

Malignant neoplasms of other and unspecified sites for white women which may be related to a confirmed pattern for neoplasms and malignant neoplasms.

Schizophrenia for black women which seems consistent with a confirmed pattern for black women involving mental disorders.

Diseases of the digestive system, particularly chronic enteritis and ulcerative colitis for white women. This has not appeared in any other analysis. See also the results for the next occupational group in paragraph 5. Both PMR's are statistically significantly high for 1969-73.

5. Stenography, typing, filing, and related work (DOT 201-209):

Malignant neoplasms of other and unspecified sites and neoplasms of lymphatic and hematopoietic tissue for white women. These appear related to a confirmed pattern.

Diseases of digestive system, particularly chronic enteritis and ulcerative colitis, for white women. This could be a previously undetected pattern. Both PMR's are statistically significantly high for 1969-73.

Diseases of the nervous system and sense organs for white men. This is similar to a confirmed pattern for white women.

6. Saleswork, commodities (DOT 160-289) and mental disorders and rheumatoid arthritis for white men. These are previously undetected potential patterns.
7. Services occupations (DOT 300-399) and diseases of the musculoskeletal system and connective tissue, particularly osteoarthritis for white men. This is similar to a confirmed pattern (of high PMR's) for white women.
8. Lodging and related services (DOT 320-329) and ischemic heart disease for black women. Similar confirmed patterns exist for other service occupations.
9. Miscellaneous personal services (DOT 350-359) and osteoarthritis for white women. This appears related to a confirmed pattern for women, see pages 56 and 58, and an emergent pattern for black women, see page 124, for diseases of the musculoskeletal system and connective tissue.
10. Protective services (DOT 371-379):
- Mental disorders for white men. This seems consistent with a previously reported emergent pattern for schizophrenia. See also the next result. Schizophrenia for white women. This is similar to emergent patterns for white men.
11. Farming, fishery, forestry, and related occupations (DOT 400-499) and mental disorders for white men. An emergent pattern for this condition was reported for plant farming on page 126.
12. Miscellaneous farming and related work (DOT 421-429) and diseases of the respiratory system for white men. An emergent pattern was reported for the major occupation of farming, fishery, forestry, and related occupations on page 126.

13. Processing occupations (DOT 500-599) and diseases of the musculoskeletal system and connective tissue for white men. The PMR for osteoarthritis for white men is statistically significantly high for 1969-73. See the next two results for similar findings for specific occupations within this large rubric.
14. Metal processing (DOT 500-509) and diseases of the musculoskeletal system and connective tissue for white men. This is similar to a confirmed pattern for black women but based on small expected numbers of disabled women.
15. Metal machining (DOT 600-609) and heart and hypertensive disease for white men. This seems related to a previously reported emergent pattern for circulatory system and ischemic heart disease, see pages 128 and 129.
16. Mechanical repairing (DOT 620-639) and accidents, poisonings, and violence for white men. This is an apparent new pattern. This PMR is statistically significantly high for 1969-73.
17. Paperworking (DOT 640-649) and heart and hypertensive disease, particularly ischemic heart disease, for black men. These are previously undetected potential patterns.
18. Bench work occupations (DOT 700-799) and diseases of the nervous system and sense organs for white women. This has not been detected previously.
19. Fabrication, assembly, and repair of metal products, n.e.c. (DOT 700-709) and diseases of the musculoskeletal system and connective tissue for white women. This may be related to confirmed patterns for the major occupation. The PMR for this is statistically significantly high for 1969-73.
20. Fabrication and repair of textile, leather, and related products (DOT 780-789) and heart and hypertensive disease and particularly ischemic heart disease, for white women. These are previously undetected potential patterns. Both PMR's are statistically significantly high for 1969-73.
21. Structural work occupations (DOT 800-899) and:

Diseases of the circulatory system, particularly heart and hypertensive disease, and especially ischemic heart disease, for white men. The 1975-76 high PMR's are previously undetected. See the results for the next occupation and also for excavators, graders, pavers, etc., and construction, n.e.c.

Osteoarthritis for white women. This appears related to confirmed patterns for white men and women and black men.

22. Metal fabricating, n.e.c. (DOT 800-809) and:

Diseases of the circulatory system for white men. This previously undetected potential pattern is similar to the ones reported above for the major occupation.

Osteoarthritis for white men. This appears similar to confirmed patterns for the major occupation, this specific occupation and several other detailed occupations within the major group. This PMR is statistically significantly high for 1969-73.

23. Welding, flame cutting, and related work (DOT 810-819) and displacement of intervertebral disc for white men. This is similar to confirmed patterns, for this and other structural work occupations. This PMR is statistically significantly high for 1969-73.

24. Electrical assembly, installing, and repairing (DOT 820-829) and diseases of the musculoskeletal system and connective tissue for white men. This seems consistent with confirmed patterns for most structural work occupations.

25. Painting, plastering, waterproofing, cementing, and related work (DOT 840-849) and:

Diseases of the respiratory system for white men. This is similar to a confirmed pattern for the major occupation and for welders and flame cutters.

Osteoarthritis for white men. This is consistent with confirmed patterns for this and other structural work occupations.

26. Excavating, grading, paving, and related work (DOT 850-859) and:

Diseases of the circulatory system, particularly heart and hypertensive disease, especially ischemic heart disease, for white men. These appear previously undetected and may be another specific manifestation of similar previously undetected patterns for the major occupation.

Diseases of the respiratory system for white men. This is similar to confirmed patterns for other structural work occupations.

27. Construction, n.e.c. (DOT 860-869) and:

Diseases of the circulatory system, particularly heart and hypertensive disease, and especially ischemic heart disease, for white men. These are previously undetected and may be another specific manifestation of a similar pattern for the major occupation.

Emphysema for white men. This is consistent with confirmed patterns for this and other structural work occupations for respiratory disease. How important is smoking frequency as a cause for the respiratory and circulatory systems diseases for structural work occupations?

Diseases of the digestive system for white men. This appears previously undetected.

Osteoarthritis for white women. This is consistent with confirmed patterns for this and other structural work occupations for several race and sex groups.

28. Structural work, n.e.c. (DOT 891-899) and diseases of the musculoskeletal system and connective tissue for white men. This is consistent with confirmed patterns for many structural work occupations. This PMR is statistically significantly high for 1969-73.
29. Miscellaneous occupations (DOT 900-999) and diseases of the circulatory system, particularly heart and hypertensive disease, especially ischemic heart disease, for white men. This is similar to emergent patterns for black men reported on page 135. See the next occupation.
30. Motor freight transportation (DOT 900-909) and diseases of the circulatory system, particularly heart and hypertensive disease, especially ischemic heart disease, for white men. This appears to be previously undetected but seems similar to emergent patterns for the major occupation although that is a very diverse group. The PMR for ischemic heart disease is statistically significantly high for 1969-73.
31. Packaging and materials handling (DOT 920-929) and:  
  
Displacement of intervertebral disc for white men. This appears related to confirmed musculoskeletal system disease for white men, and technically emergent patterns for white women and for osteoarthritis for white men. See pages 75 to 77. This PMR is statistically significantly high for 1969-73.  
  
Accidents, poisonings, and violence for white men. This is previously undetected for this occupation. This PMR is statistically significantly high for 1969-73.
32. Extraction of minerals (DOT 930-939) and diseases of the musculoskeletal system and connective tissue, particularly osteoarthritis, for white men. This pattern is previously undetected and would be difficult to detect without adjustment because of the extremely large PMR's for respiratory system diseases for miners. The PMR for osteoarthritis is statistically significantly high for 1969-73.
33. Production and distribution of utilities (DOT 950-959) and heart and hypertensive disease, particularly ischemic heart disease, for white men. These appear related to an emergent circulatory system pattern.

## Summary

Many of the relationships found by analysis using the adjustment technique appear to reinforce patterns previously detected.

However, there are several notable exceptions which include:

1. Clerical work, specifically stenography, typing, filing, and related work, and diseases of the digestive system, particularly chronic enteritis and ulcerative colitus for white women.
2. Mechanical repairing and accidents, poisonings, and violence for white men.
3. Fabrication and repair of textile, leather, and related products and heart and hypertensive disease, particularly ischemic heart disease, for white women.
4. Structural work, i.e. construction work of several types, and diseases of the circulatory system, particularly heart and hypertensive disease, especially ischemic heart disease, for white men.
5. Packaging and materials handling and accidents, poisonings, and violence for white men. Could this reflect injuries from slips and falls?
6. Extraction of minerals, i.e. mining, and musculoskeletal system disease, especially osteoarthritis, for white men.

## GUIDE TO REFERENCE TABLES

The reference tables are presented on microfiche in a pocket on the inside of the back cover to reduce the bulk of this report\*. An index to these appears on pages xii to xix. The index presents the location of the tables for each occupation rubric or for each disabling condition, respectively, for each race and sex group.

Tables 1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1, and 4-2 present the distribution of disabled workers for the years 1975-1976 by disabling condition, age, sex, and race. The first digit designates race with 1 for white, 2 for black, 3 for other, and 4 for unknown race. The second digit indicates sex with 1 for male and 2 for female.

Tables 5-1 to 8-2 present estimates of age-adjusted PMR's and standard errors and estimates of numbers of disabled workers by age by occupation group and disabling condition for each race-sex group. The first digit designates the race group with 5 for white, 6 for black, 7 for other, and 8 for unknown race. Sex is designated with the second digit with 1 for male and 2 for female. There is one table for each occupation rubric for each race and sex group. Disabling conditions are the rows of these tables.

Tables 9-1 to 12-2 present estimates of age-adjusted PMR's and standard errors and estimates of numbers of disabled workers by age by disabling condition and occupation group for each race-sex group. The first digit designates the race group with 9 for white, 10 for black, 11 for other, and 12 for unknown race. Sex is designated with the second digit with 1 for male and 2 for female. There is one table for each disabling condition for each race and sex group. Occupation rubrics are the rows of these tables.

\* Copies of these tables can be obtained by request from NIOSH.

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## APPENDIX I

### TECHNICAL NOTES ON METHODS

#### 1. ESTIMATION OF PROPORTIONAL MORBIDITY RATIOS AND STANDARD ERRORS

##### Definition of the PMR

The proportional morbidity ratio (PMR) is the measure used in this report to study associations between particular occupations and specific disabling conditions. This ratio of an observed number to a number expected if no association existed is multiplied by 100 for more convenient scaling. The observed number in the PMR ratio is the number of workers granted disability benefit allowances for a specific disabling condition. The denominator is the number expected if the proportion of all disability benefit allowances for a specific disabling condition within one particular occupation is the same as for all occupations combined. Because the age distributions of different occupational groups vary and because the disability condition may be related to age, the PMR is age-adjusted by calculating the expected number of disability allowances for each age group. The denominator is obtained by multiplying the proportion of all disability cases involving a specific disabling condition by the number of disabled workers in the specific occupational group. These are summed to get the total number of expected benefit allowances.

In this study, PMR's are calculated for each sex and race. For the  $i$ th occupational group and  $k$ th disability group, the proportional morbidity ratio,  $PMR_{ik}$ , is mathematically defined as:

$$PMR_{ik} = (O_{ik}/E_{i,k}) \times (100)$$

for  $i = 1, 2, \dots, 86$  occupational groups and  $k = 1, 2, \dots, 67$  disabling conditions,

where

$O_{ik}$  is the observed number of allowances for occupation  $i$  and disabling condition  $k$ ; and  $E_{i,k}$  is the expected number of allowances for occupation  $i$  and disabling condition  $k$ .

The terms in equation (1) are defined as follows:

$$(2) O_{ik} = \sum_{j=1}^7 \sum_{l=1}^{55} \sum_{y=1975}^{1976} D_{ijkl y}$$

where

$D_{ijkl y}$  is the number of disability allowances for

occupation  $i$ , with  $i = 1, 2, \dots, 86$  occupations;  
age group of the allowance  $j$ , with  $j = 1, 2, \dots, 7$ , where

$j=1$  represents those younger than 40 years of age,

$j=2, 3, \dots, 6$  represents respective 5-year age intervals  
for those 40 to 64 years of age, and

$j=7$  represents those older than 64 year of age;

disabling condition  $k$ , with  $k = 1, 2, \dots, 67$  disabling  
conditions;

state or territory,  $l$ , in which the allowance is granted, with  
 $l = 1, 2, \dots, 55$ ;

and year,  $y$ , in which the allowance is granted, with  $y = 1975$  and 1976.

$$(3) E_{i.k} = \sum_{j=1}^7 E_{ijk}$$

where

$E_{ijk}$  is the expected number of disability allowances for

occupation  $i$ , age group  $j$  and for disability  $k$  (the ranges  
of subscripts are the same as in equation 2 and are not  
repeated unless there is a change).

The value of  $E_{ijk}$  in equation (3) is defined as:

$$(4) E_{ijk} = D_{ij...} \times D_{.jk..} / D_{.j...}$$

where

"." is used to denote a summation over the detailed categories in the  
range of the subscript it replaces; thus:

$D_{ij...}$  is the total number of allowances for occupation  $i$ ,  
for age group  $j$ , for all 67 disabling conditions,  
for all 55 states and territories, and for the entire  
period from 1975 to 1976;

$D_{jk}...$  is the total allowances for all 86 occupations for age group  $j$ , for the  $k$ th disabling condition, for all 55 states and territories, and for the entire period; and

$D_{j}....$  is the total allowances for all 86 occupations for age group  $j$ , for all 67 disabling conditions, for all 55 states and territories, and for the entire period.

$PMR_{ik}$  is the measure of the degree to which workers in occupation  $i$  tend to receive allowances for disabling condition  $k$  in greater proportion, if  $PMR_{ik} > 100$ , or in lesser proportion, if  $PMR_{ik} < 100$ , or in the same proportion, if  $PMR_{ik} = 100$ , than workers in all occupations, after adjustment for differences in age distributions. The age adjustment used, however, assumes that the association between an occupation and a disabling condition does not vary across age groups. If that is not the case, then no single measure is appropriate and each age group should be studied separately.

#### Estimation of the PMR

The above stated definitions apply to the entire population of disability allowances for the 1975 to 1976 period. Information about the PMR's under study is obtained from a statistically selected sample, as described in Technical Note 2. This required methods for estimating the PMR and its standard error from the sample. The PMR is estimated by a straight-forward application of equations (1) to (3) to the sample data and the use of estimators to replace population values; the standard error of the estimator of the PMR is estimated by a sample replicate procedure.

The estimator of  $PMR_{ik}$  is denoted by  $\widehat{PMR}_{ik}$  and is given by:

$$(5) \widehat{PMR}_{ik} = (\widehat{O}_{ik} / \widehat{E}_{1.k}) \times (100),$$

where

$\widehat{O}_{ik}$  and  $\widehat{E}_{1.k}$  correspond to estimators of the observed and expected, respectively, numbers of disability benefit allowances for occupation  $i$  and disabling condition  $k$  for all age groups, for all states and territories, and for the entire period from 1975 to 1976.

The basic "building blocks" for the estimators,  $\widehat{O}_{ik}$  and  $\widehat{E}_{1.k}$ , are the estimators for the  $D_{ijkly}$ 's, hereafter designated by  $\widehat{D}_{ijkly}$ 's.

$\widehat{D}_{ijkly}$  is defined as:

$$(6) \widehat{D}_{ijkly} = d_{ijkly} \times W_{ly}$$

where

$d_{ijkly}$  is the number of allowances observed in the sample for occupation  $i$ , for age group  $j$ , for disabling condition  $k$ , for state or territory  $l$ , and for year  $y$ ; and  $W_{ly}$  is an inflation factor equal to the reciprocal of the sampling fraction multiplied by a ratio estimator adjustment factor. (See Technical Note 2, page 157)

The  $\hat{O}_{ik}$ 's are obtained by replacing each  $D_{ijkly}$  in equation (2) by its estimator,  $\hat{D}_{ijkly}$ . Similarly, the  $\hat{E}_{i.k}$ 's are obtained by replacing each term, factor, or divisor in equations (3) and (4) with its estimator. Each factor in equation (4) is a particular sum of some of the  $D_{ijkly}$ 's and the estimator of such a sum is simply the sum of the estimators of the  $D_{ijkly}$ 's in that sum, e.g.,

$$(7) \hat{D}_{ij\dots} = \sum_{k=1}^{67} \sum_{l=1}^{55} \sum_{y=1975}^{1976} \hat{D}_{ijkly}.$$

#### Estimation of the Standard Error of PMR: The Sample Replicate Procedure

It is difficult to obtain an estimator of the standard error of  $\hat{PMR}_{ik}$ .  $\hat{PMR}_{ik}$  is a ratio, and both the numerator and denominator are sums of ratios of the product of two factors to another quantity, and all are subject to sampling errors. Because of these complexities, there is no known expression for the variance of  $\hat{PMR}_{ik}$  involving parameters that are easily estimated. The application of the large sample theory to approximate an estimator of the standard error would be difficult, and the rate of convergence of such estimators to their asymptotic limits is not known. The sample replicate approach (see, for example, Kish, 9) is chosen because it is practical, efficient, and statistically sound. As applied to this study, the sample is randomly divided into R mutually exclusive subsamples that have the same stratification and other design characteristics of the total sample except that the sampling fractions are (1/R)th that of the total sample. A PMR is estimated for each of the R subsamples. These are equivalent to a simple random sample of size R from the total population of PMR estimates from such subsamples. The estimate of standard error is obtained from the "sample" variance of this "sample" by application of the usual formulas.

In this study R is 20. The total sample is randomly divided into 20 subsamples within each stratum so that every possible sample could occur with equal probability. The population is stratified by state and/or territory and by year, which produced 110 strata. Random division into subsamples is done independently in each stratum except any that had been sampled 100%. The strata with 100% samples are included in their entirety in all 20 subsamples.

The estimation procedure described previously is then applied to obtain an estimate of  $\hat{PMR}_{ik}$  in each subsample. For the rth subsample the estimator  ${}_r\hat{PMR}_{ik}$  is given by:

$$(8) {}_r\hat{PMR}_{ik} = ({}_r\hat{O}_{ik}/{}_r\hat{E}_{i.k}) \times 100$$

where

${}_r\hat{O}_{ik}$  and  ${}_r\hat{E}_{i.k}$  are, respectively, the estimators of  $O_{ik}$  and  $E_{i.k}$  from the rth subsample.

Both  $r_{0ik}$  and  $r_{Ei.k}$  are obtained by applying equations (6) and (7) to the  $r$ th subsample, except that the weight or inflation factor,  $r^{Wly}$  is now:

$$(9) \quad r^{Wly} = 20 Wly$$

because the sampling fraction for any subsample is  $(1/R)$ th or  $(1/20)$ th that of the total sample. The sample mean of the  $r^{PMR_{ik}}$ 's is obtained as follows:

$$(10) \quad \overline{PMR_{ik}} = \sum_{r=1}^{20} r^{PMR_{ik}} / 20.$$

The estimator of the variance of  $\widehat{PMR_{ik}}$  is obtained by use of the fact that the  $R = 20$  values of  $r^{PMR_{ik}}$  represent a randomly selected sample of size 20 from the population of values of  $r^{PMR_{ik}}$  that would be generated by repeated random sampling, without replacement from the population of disability benefit allowances for the period, with samples of the same size and sampling design as the subsamples. The estimator of the variance of  $\widehat{PMR_{ik}}$  for this study is given by

$$(11) \quad V(\overline{PMR_{ik}}) = \sum_{r=1}^{20} \frac{(r^{PMR_{ik}} - \overline{PMR_{ik}})^2}{19 \times 20}$$

This is slightly biased, on the high side because it ignores the finite population correction, which cannot be applied because  $r^{PMR_{ik}}$  cannot be expressed as a sum of statistics from the individual strata and the finite population correction factors vary by strata. An estimator for the standard error  $\widehat{PMR_{ik}}$  is given by

$$(12) \quad S(\overline{PMR_{ik}}) = \sqrt{V(\overline{PMR_{ik}})}$$

This is used as the estimator of the standard error of  $\widehat{PMR_{ik}}$  in this report and appears in the tables under the entries labeled  $SE(PMR)$ . (Note that  $\widehat{PMR_{ik}}$  is not identical to  $\overline{PMR_{ik}}$ .) Confidence intervals constructed with  $S(\overline{PMR_{ik}})$  tend to be somewhat too wide, and Type I error probabilities for statistical test may be actually somewhat lower than the nominal ones.

#### Confidence Interval Estimation

Because of the large sample size, it is assumed that the sampling distribution of  $\widehat{PMR_{ik}}$  is normal. Consequently,

$$(13) \quad (\widehat{PMR_{ik}} - \overline{PMR_{ik}}) / S(\overline{PMR_{ik}}) = T_{ik}$$

has, approximately a t distribution with 19 degrees of freedom. Thus, a 95 percent confidence interval for  $PMR_{ik}$  is given approximately by:

$$(14) \hat{PMR}_{ik} \pm 2.09 S(\overline{PMR}_{ik})$$

where

2.09 is the 97.5th percentile of the t distribution with 19 degrees of freedom.

To use equation (14) for 95% confidence interval estimate for a particular occupation and a selected disability condition, one would find the estimate of  $PMR_{ik}$  in Tables 4-1, 4-2, 5-1, 5-2, 6-1, or 6-2 under the entry labeled PMR. The corresponding value for  $S(\overline{PMR}_{ik})$  would be found in the same Tables under the entry labeled SE(PMR). These intervals provide approximate information on the value of  $PMR_{ik}$ .

### Hypothesis Testing

Testing the hypothesis that  $PMR_{ik} = 100$  as opposed to the alternative that  $PMR_{ik} \neq 100$  may be of interest. An approximate test, ignoring any possible bias in  $\hat{PMR}_{ik}$ , is obtained from the statistic F where:

$$(15) F = ((\hat{PMR}_{ik} - 100) / S(\overline{PMR}_{ik}))^2$$

which approximates an F distribution with 1 and 19 degrees of freedom under the hypothesis that  $PMR_{ik} = 100$ .

Values for using equation (15) can be obtained in the same manner as described for confidence interval estimation.

## 2. CONTINUOUS DISABILITY HISTORY SAMPLE (CDHS)

The Continuous Disability History Sample (CDHS) is a data file that is longitudinal in nature to support various studies of the disability applicant population. This has been described in detail by SSA (10). Data on new applications for disability insurance benefits that meet the selection criteria are added to the file each year at the time such claims are processed. The file is updated annually to accumulate new earnings and entitlement data for each applicant. The CDHS contains data from the several files on disabled workers. The data for this report are obtained from the Disabled Person Record (DPR). This record contains data on allowances and denials from 1967 through the latest update.

The DDR's or DPR's for the CDHS represents a statistically selected sample from the Disabled Data Record File of the Bureau of Disability Insurance, which contains all records of workers granted disability benefit

allowances. These records are stratified by state, territory, or foreign country and by year. One stratum per year is designated for each state and each territory and one for all foreign territories combined. A sample is selected from each stratum independently by simple random sampling at a rate varying from 10 to 100 percent. Individual stratum rates varied from year to year and depended on the total number of disabled benefit allowances granted the previous year. The sample rate is made inversely proportional to the total allowances for the previous year. Additionally, individual stratum rates are selected so that the overall sampling rate is approximately 20 percent.

#### Estimation of Numbers of Disabled Workers

The procedure for estimation of national number of cases from the sample required determination of inflation weights to be applied to the sample data. These are termed  $W_{ly}$ 's in Technical Note 1 and are developed by a two-step procedure. The reciprocals of the sampling rates are used as initial weights to obtain estimated total numbers of disabled benefit allowances for all types of disabilities, all occupations, all races, and both sexes for each stratum. Because these totals are known exactly, the initial weights could be adjusted so that the inflation procedure estimates for the totals would agree with the known totals. The adjusted weights are the one used. Estimates produced are, therefore, ratio estimates.

#### Sampling Errors of Estimates

Estimates based on samples can be expected to differ from figures that would have been obtained if the entire population had been measured. The particular sample selected for this study is one of many similar probability samples of the same size that might have been selected by chance under the same specifications. Each of the possible samples would yield somewhat different sets of results. The deviation of a sample estimate from the value that would have been obtained if the entire population had been studied is called the sampling error. The standard error of an estimate is a measure of the variation among the estimates from the possible samples and thus is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. It is a measure of one component of sampling error. The standard error may be used to define confidence intervals or ranges that would include the average result of all possible samples, as follows with a specified probability:

- a. Approximately 68 percent of the intervals from one standard error below to one standard error above the derived estimate would include the average value of all possible samples.
- b. Approximately 95 percent of the intervals from two standard errors below to two standard errors above the derived estimate would include the average value of all possible samples.

- c. Approximately 99 percent of the intervals from two and one-half standard errors below to two and one-half standard errors above the derived estimate would include the average value of all possible samples.

Standard errors for PMR's are provided in the report tables under the SE(PMR) entries.

### 3. ADJUSTMENT OF PMR'S

The objective of the "adjusted" analysis of the data is to enhance the capability to detect relationships between occupations and increased incidence of disability caused by particular disabling conditions in the presence of other relationships suspected apriori and confirmed by the data subjected to analysis. An example which illustrates the motivation for this analysis is the high PMR for pneumoconiosis due to silica for white male miners (the DOT rubric is an extraction of minerals). This PMR is 2327 for the 1969-1973 period and is statistically significantly high at the .0005 level, and is 3240 for the 1975-1976 period which is statistically significantly high at the .05 level. Thus, it satisfies the criterion (see pages 37 and 38) for a relationship detected with the 1969-1973 data and confirmed by the 1975-1976 data. These results provide additional confirmation for a well known occupational health problem for miners (see, for example, reference 12). One important implication is that pneumoconiosis due to silica remains a substantial health problem for miners, which is valuable information for occupational health surveillance. Other, not desirable, implications are: (1) other occupational health problems of miners would be more difficult to detect with PMR analyses; (2) it would be more difficult to detect high incidence of pneumoconiosis for other occupations with PMR analyses; and (3) PMR's for other occupations for conditions other than pneumoconiosis tend to be spuriously high. The objective of the adjustment analysis is to adjust the 1975-1976 disability data for the relationship for pneumoconiosis and mining as well as other relationships detected with 1969-1973 disability data and confirmed with 1975-1976 data (see pages 37 and 38 for the methods) to negate these undesirable implications. The methods for accomplishing this will be described after the three undesirable implications listed above are demonstrated.

Some relationships which will aid the subsequent demonstration are as follows:

Let  $r_{ij}$  denote the incidence rate for the  $i$ th occupation for the  $j$ th cause. Assume that  $r_{ij} > 0$  for  $i$  and all  $j$ . For simplicity, suppose there are only three cause rubrics. Let  $r_{.j}$  denote the rate for workers in all occupations on cause  $j$ . Suppose that for the  $i$ th occupation the following relationships hold:

(1)  $r_{i1} = r_{.1}$ , i.e. the rate for  $i$ th occupation on the first cause is equal to the corresponding rate for all workers.

(2)  $r_{i2} = ar_{.2}$  for  $a > 0$ , i.e. the rate for the  $i$ th occupation for cause 2 is less than, equal to, or greater than the corresponding rate for all workers as, respectively,  $a < 1$ ,  $a = 1$ , or  $a > 1$ .

(3)  $r_{i3} = br_{.3}$  for  $b > 0$ , see the interpretation for  $r_{i2}$ .

Let  $PMR_{ij}$  denote the PMR for occupation  $i$  on cause  $j$ . Then,

$$(4) \quad PMR_{i3} = \frac{br_{.3} / (r_{.1} + ar_{.2} + br_{.3})}{r_{.3} / (r_{.1} + r_{.2} + r_{.3})}$$

This implies that  $PMR_{i3}$  is increased (decreased) as  $a$  is greater (less) than 1 for any value of  $b$ .

Returning to mining, the example, the three implications of a high PMR for pneumoconiosis for mining can be demonstrated as follows:

- (1) Other health problems of miners are more difficult to detect with PMR analyses.

In this case let cause 2 be pneumoconiosis due to silica and cause 3 be any other cause for which there is a high incidence for miners. Both  $a$  and  $b$  are greater than 1; in fact,  $a$  is sufficiently greater than 1 so that the PMR for cause 1 is greater than 1 even though  $b$  is greater than 1. Relationship (6) applies to the PMR for cause 3, which is that this PMR is less than it would be if  $a$ , and hence the PMR for pneumoconiosis, were smaller.

- (2) It is more difficult to detect high incidence of pneumoconiosis due to silica in other occupations with PMR analyses.

A rate of pneumoconiosis due to silica for mining which is sufficiently high to result in a high PMR elevates  $r_3$ , say the pneumoconiosis rate for all workers. From (4) it follows that for any occupation, say the  $i$ th,  $PMR_{i3}$  is proportional to  $b$  which is the ratio of  $r_{i3}$ , the pneumoconiosis rate for the  $i$ th occupation, to  $r_3$ . For any particular occupation  $b$  is a decreasing function of  $r_3$ . Thus,  $PMR_{i3}$  is a decreasing function of  $PMR_{i3}$ , for  $k=1$ ; or, the pneumoconiosis PMR's for non-mining occupations are decreasing functions of that for mining.

- (3) PMR's for other occupations with conditions other than pneumoconiosis tend to be spuriously high. This follows from implication (2) and relation (7) alone.

The adjustment process has been designed to negate these undesirable implications after the confirmation of the previously established relationship has occurred. The adjustment process assumes that the various causes of disability act independently. The adjustment is accomplished by reducing the number of observed disabilities for the confirmed relationship sufficiently to reduce the PMR to 1.0. This is equivalent to finding a value  $e_{ij}$  such that:

$$PMR_{ij}^A = 1.0 \text{ where}$$

$$(8) \quad PMR_{ij}^A = \frac{(O_{ij} - e_{ij}) (O_{..} - e_{ij})}{(O_{ij} - e_{ij}) (O_{i.} - e_{ij})}$$

where  $PMR_{ij}^A$  is the adjusted PMR, and  $O_{ij}$  is the observed number of disabled workers for the  $i$ th occupation and  $j$ th disabling condition.

(The "dot" notation denotes summation over the dotted subscript.)

The solution is:

$$(9) \quad e_{ij} = (O_{ij} O_{..} - O_{i.} O_{.j}) / (O_{..} + O_{ij} - O_{i.} - O_{.j})$$

or

$$O_{ij}^A = O_{ij} - e_{ij}$$

where  $O_{ij}^A$  is the adjusted number of disabled workers for the  $i$ th occupation and  $j$ th disabling condition.

It is easily proven that  $e_{ij}$  is positive (negative) if  $PMR_{ij}$  is greater (less) than 1.0 and is 0 if  $PMR_{ij} = 1.0$ . In this application, adjustment is done only for PMR's which are greater than 1.0.

If  $O_{ij}$  is replaced by  $O_{ij}^A$  and the data is reanalyzed, every sum involving the  $ij$ th value is reduced by  $e_{ij}$ .

This has three effects for the adjusted data. First, for the  $i$ th occupation, i.e. any occupation with a confirmed high PMR for a particular condition denoted by  $j$ , PMR's for other conditions are increased, e.g. the PMR for miners for musculoskeletal system diseases - or any condition except pneumoconiosis - is increased. This occurs because the numbers of disabled workers for such conditions are unchanged but the total number disabled miners is decreased proportionately much more than the total of disabled workers of all occupations. The adjusted PMR, say  $PMR_{ik}^A$  (where  $k = j$ ) is

$$\begin{aligned}
 PMR_{ik}^A &= O_{ik} (O_{..} - e_{ij}) / O_{.k} (O_{i.} - e_{ij}) \\
 &= PMR_{ik} \times (O_{..} - e_{ij}) / O_{..} \times O_{.k} / (O_{i.} - e_{ij}) \\
 &> PMR_{ik} \text{ as } e_{ij} > 0 \text{ and } O_{..} > O_{.k}.
 \end{aligned}$$

$PMR_{ik}^A$  would be higher (lower) if  $e_{ij}$  were to be selected as larger (smaller) than the value obtained from the solution of (9). The  $PMR_{ik}^A$  resulting from the  $e_{ij}$  which solves (9) is the PMR for occupation  $i$  for condition  $k$  which would have been observed if the incidence for condition  $j$  for occupation  $i$  had been proportionally equal to the incidence for condition  $j$  for all occupations.  $PMR_{ik}^A$  measures the relation between occupation  $i$  and condition  $k$  after statistical adjustment for the relation between occupation  $i$  and condition  $j$ .

It is not difficult to show that the adjustment also tends to offset the other two spurious ramifications resulting from the functional dependencies among PMR's, i.e., when  $PMR_{ij} > 1$ , that  $PMR_{ik}$  ( $k \neq j$ ) tends to be lower,  $PMR_{lj}$  ( $l \neq i$ ) tends to be lower, and  $PMR_{lk}$  ( $l \neq i$  and  $j \neq k$ ) tends to be higher.

The starting point for the adjustment process is the identification of those PMR's which are statistically significantly high for the 1969-1973 period which is confirmed for the 1975-1976 period. The adjustment to remove the spurious effects of the dependencies of other PMR's on these requires an iterative process for each race and sex group because of interdependence among the confirmed high PMR's. In each iteration the  $e_{ij}$  for each of the confirmed high PMR's was computed using relation (9). The sum,  $e_{..}$ , was computed and the process was continued until  $e_{..}$  was less than 10. This usually occurred within 10 iterations. No adjustment is possible for PMR's corresponding to major occupational rubrics; that is, those for which the numbers of disabled workers are the sums of numbers for more detailed rubrics within the major one. Similarly, no adjustment is possible for PMR's corresponding to major rubrics of disabling conditions.

Table A-1: Guide for Standard Errors of Numbers of Disabled Workers\* Estimated from the Continuous Disability History Sample by Magnitude of the Estimate of Numbers of Disabled Workers

<u>Magnitude of Estimate of Number of Disabled Workers*</u>	<u>Standard Error of the Estimate</u>
1-999	**
1,000	30
2,500	47
5,000	67
7,500	82
10,000	95
25,000	149
50,000	210
75,000	255
100,000	292
250,000	440
500,000	567
750,000	618

\*Disabled Workers means workers granted SSA benefit allowances for disabilities.

\*\*For estimated numbers smaller than 1,000, an approximation for the standard error is the square root of the estimate.

Table A-2: Guide for Standard Errors of Percentages of Disabled Workers \* Estimated from the Continuous Disability History Sample by Magnitude of the Estimated Percentage and the Base of the Percentage.

Base of Percent	ESTIMATED PERCENTAGE											
	1 or 99	2 or 98	5 or 95	8 or 92	10 or 90	15 or 85	20 or 80	25 or 75	30 or 70	35 or 65	40 or 60	50
2,500	0.19	0.27	0.42	0.52	0.57	0.68	0.76	0.83	0.87	0.91	0.93	0.95
5,000	0.13	0.19	0.29	0.37	0.40	0.48	0.54	0.58	0.62	0.64	0.66	0.67
7,500	0.11	0.15	0.24	0.30	0.33	0.39	0.44	0.48	0.50	0.53	0.54	0.55
10,000	0.09	0.13	0.21	0.26	0.29	0.34	0.38	0.41	0.44	0.46	0.47	0.48
25,000	0.06	0.08	0.13	0.16	0.18	0.22	0.24	0.26	0.28	0.29	0.30	0.30
50,000	0.04	0.06	0.09	0.12	0.13	0.15	0.17	0.18	0.20	0.20	0.21	0.21
75,000	0.03	0.05	0.08	0.09	0.10	0.12	0.14	0.15	0.16	0.17	0.17	0.17
100,000	0.03	0.04	0.07	0.08	0.09	0.11	0.12	0.13	0.14	0.14	0.15	0.15
250,000	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.08	0.09	0.09	0.09	0.10
500,000	0.01	0.02	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.07
750,000	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05	0.06

\*Disabled Workers means workers granted SSA benefit allowances for disabilities.

TABLE A-3: Estimated number of workers receiving SSA disability benefits  
by disabling condition and sex:  
Social Security Disability Allowances, 1975-1976.

Disabling Condition	ICDA	Estimated Number Disabled Workers		
		Total	Male	Female
All disabling conditions		1158439	799488	358951
Infective & parasitic diseases	000-136	13045	9617	3428
Tuberculosis	010-019	6732	5415	1317
Silicotuberculosis	010	78	78	0
Pulmonary tuberculosis	011	5351	4500	851
Neoplasms	140-239	112709	71988	40721
Malignant neoplasms	140-199	95631	60716	34915
Buccal cavity & pharynx	140-149	3967	3205	762
Digestive organs & peritoneum	150-159	19793	13914	5879
Respiratory system	160-163	27251	22228	5023
Bone, connective tissue, & skin	170-173	4787	3208	1579
Breast	174	11250	668	10582
Genital organs	180-187	10315	4946	5369
Urinary organs	188-189	4377	3505	872
Other & unspecified sites	190-199	13846	9032	4814
Neoplasms of lymphatic & hematopoietic tissue	200-209	13243	8867	4376
Sarcoma (lympho-,reticulo-), other lymphomas	200,202	4116	2547	1569
Leukemia	204-207	3769	2600	1169
Benign neoplasms	210-228	2428	1456	972
Neoplasms of unspecified nature	230-239	1407	949	458
Endocrine, nutritional, & metabolic diseases	240-279	42324	25547	16777
Diabetes mellitus	250	29932	19618	10314
Diseases of blood & blood-forming organs	280-289	2915	1645	1270
Mental disorders	290-315	125132	82847	42285
Schizophrenia	295	48722	32881	15841
Neuroses	300	26078	14269	11809
Alcoholism	303	5628	5008	620
Diseases of nervous system & sense organs	320-389	72689	47750	24939
Meningitis	320	99	80	19
Multiple sclerosis	340	5998	2446	3552
Cataract	374	2427	1553	874
Glaucoma	375	2697	1838	859
Blindness	379	3644	2427	1217
Diseases of circulatory system	390-458	330135	244589	85546
Heart & hypertensive disease	393-429	259385	194458	64927

TABLE A-3 (Cont'd.)

Disabling Condition	ICDA	Total	Male	Female
Hypertensive disease	400-404	22299	13446	8853
Ischemic heart disease	410-414	214252	165627	48625
Cerebrovascular disease	430-438	37974	28094	9880
Cerebral hemorrhage	431	1376	969	407
Cerebral thrombosis & embolism	433-434	6456	4888	1568
Arteriosclerosis	440	9070	7310	1760
Diseases of respiratory system	460-519	71492	55011	16481
Bronchitis & asthma	490-491,493	11250	6640	4610
Emphysema	492	24424	20225	4199
Pneumoconiosis & related diseases	515-516	2382	2283	99
Pneumoconiosis due to silica & silicates	515	2305	2211	94
Other pneumoconioses & related diseases	516	77	72	5
Bronchiectasis	518	745	402	343
Diseases of digestive system	520-577	31268	21917	9351
Peptic ulcer	531-533	4300	3053	1247
Chronic enteritis & ulcerative colitis	563	3212	1583	1629
Cirrhosis of liver	571	13651	10729	2922
Diseases of genitourinary system	580-629	10159	6422	3737
Nephritis & nephrosis	580-584	4530	3231	1299
Chronic nephritis	582	4091	2923	1168
Other diseases of urinary system	590-599	4018	2548	1470
Diseases of male genital organs	600-607	488	477	11
Diseases of female genital organs	620-629	520	60	460
Pregnancy, childbirth, & the puerperium	630-678	17	5	12
Diseases of skin & subcutaneous tissue	680-709	4510	2652	1858
Diseases of musculoskeletal system & connective tissue	710-738	205339	128448	76891
Rheumatoid arthritis	712	21764	10662	11102
Osteoarthritis	713	69913	42608	27305
Other & unspecified arthritis	710-711,714-715	9159	5392	3767
Displacement of intervertebral disc	725	44440	30955	13485
Congenital anomalies	740-759	11694	7796	3898
Symptoms & ill-defined conditions	780-796	2590	1656	934
Accidents, poisonings, & violence	800-999	58797	46155	12642
Unknown or not classifiable		63624	45443	18181

TABLE A-4: Estimated percentages of workers receiving SSA disability benefits by disabling condition and sex:  
Social Security Disability Allowances, 1975-1976.

Disabling Condition	ICDA	Estimated Percentage Disabled Workers		
		Total	Male	Female
All disabling conditions		100.00	100.00	100.00
Infective & parasitic diseases	000-136	1.13	1.20	0.96
Tuberculosis	010-019	0.58	0.68	0.37
Silicotuberculosis	010	0.01	0.01	0.0
Pulmonary tuberculosis	011	0.46	0.56	0.24
Neoplasms	140-239	9.73	9.00	11.34
Malignant neoplasms	140-199	8.26	7.59	9.73
Buccal cavity & pharynx	140-149	0.34	0.40	0.21
Digestive organs & peritoneum	150-159	1.71	1.74	1.64
Respiratory system	160-163	2.35	2.78	1.40
Bone, connective tissue, & skin	170-173	0.41	0.40	0.44
Breast	174	0.97	0.08	2.95
Genital organs	180-187	0.89	0.62	1.50
Urinary organs	188-189	0.38	0.44	0.24
Other & unspecified sites	190-199	1.20	1.13	1.34
Neoplasms of lymphatic & hematopoietic tissue	200-209	1.14	1.11	1.22
Sarcoma (lympho-,reticulo-), other lymphomas	200,202	0.36	0.32	0.44
Leukemia	204-207	0.33	0.33	0.33
Benign neoplasms	210-228	0.21	0.18	0.27
Neoplasms of unspecified nature	230-239	0.12	0.12	0.13
Endocrine, nutritional, & metabolic diseases	240-279	3.65	3.20	4.67
Diabetes mellitus	250	2.58	2.45	2.87
Diseases of blood & blood-forming organs	280-289	0.25	0.21	0.35
Mental disorders	290-315	10.80	10.36	11.78
Schizophrenia	295	4.21	4.11	4.41
Neuroses	300	2.25	1.78	3.29
Alcoholism	303	0.49	0.63	0.17
Diseases of nervous system & sense organs	320-389	6.27	5.97	6.95
Meningitis	320	0.01	0.01	0.01
Multiple sclerosis	340	0.52	0.31	0.99
Cataract	374	0.21	0.19	0.24
Glaucoma	375	0.23	0.23	0.24
Blindness	379	0.31	0.30	0.34
Diseases of circulatory system	390-458	28.50	30.59	23.83
Heart & hypertensive disease	393-429	22.39	24.32	18.09

TABLE A-4 (Cont'd.):

Disabling Condition	ICDA	Estimated Percentage Disabled Workers		
		Total	Male	Female
Hypertensive disease	400-404	1.92	1.68	2.47
Ischemic heart disease	410-414	18.49	20.72	13.55
Cerebrovascular disease	430-438	3.28	3.51	2.75
Cerebral hemorrhage	431	0.12	0.12	0.11
Cerebral thrombosis & embolism	433-434	0.56	0.61	0.44
Arteriosclerosis	440	0.78	0.91	0.49
Diseases of respiratory system	460-519	6.17	6.88	4.59
Bronchitis & asthma	490-491,493	0.97	0.83	1.28
Emphysema	492	2.11	2.53	1.17
Pneumoconiosis & related diseases	515-516	0.21	0.29	0.03
Pneumoconiosis due to silica & silicates	515	0.20	0.28	0.03
Other pneumoconioses & related diseases	516	0.01	0.01	0.0
Bronchiectasis	518	0.06	0.05	0.10
Diseases of digestive system	520-577	2.70	2.74	2.61
Peptic ulcer	531-533	0.37	0.38	0.35
Chronic enteritis & ulcerative colitis	563	0.28	0.20	0.45
Cirrhosis of liver	571	1.18	1.34	0.81
Diseases of genitourinary system	580-629	0.88	0.80	1.04
Nephritis & nephrosis	580-584	0.39	0.40	0.36
Chronic nephritis	582	0.35	0.37	0.33
Other diseases of urinary system	590-599	0.35	0.32	0.41
Diseases of male genital organs	600-607	0.04	0.06	0.0
Diseases of female genital organs	620-629	0.04	0.01	0.13
Pregnancy, childbirth, & the puerperium	630-678	0.0	0.0	0.0
Diseases of skin & subcutaneous tissue	680-709	0.39	0.33	0.52
Diseases of musculoskeletal system & connective tissue	710-738	17.73	16.07	21.42
Rheumatoid arthritis	712	1.88	1.33	3.09
Osteoarthritis	713	6.04	5.33	7.61
Other & unspecified arthritis	710-711,714-715	0.79	0.67	1.05
Displacement of intervertebral disc	725	3.84	3.87	3.76
Congenital anomalies	740-759	1.01	0.98	1.09
Symptoms & ill-defined conditions	780-796	0.22	0.21	0.26
Accidents, poisonings, & violence	800-999	5.08	5.77	3.52
Unknown or not classifiable		5.49	5.68	5.07

TABLE A-5: Estimated numbers of workers receiving SSA disability benefits  
by occupation and sex:  
Social Security Disability Allowances, 1975-1976.

Occupation	Estimated Number Disabled Workers		
	Total	Male	Female
All	1158439	799488	358951
PROFESSIONAL, TECHNICAL, & MANAGERIAL OCCUPATIONS (DOT 001-199)			
Architecture & engineering (DOT 001-019)	11339	10500	839
Mathematics & physical sciences (DOT 020-029)	2758	1884	874
Life sciences (DOT 040-049)	1110	677	433
Social sciences (DOT 050-059)	199	141	58
Medicine & health (DOT 070-079)	19338	4812	14526
Education (DOT 090-099)	11017	4480	6537
Museum, library & archival sciences (DOT 100-102,109)	764	168	596
Law & jurisprudence (DOT 110,111,119)	957	856	101
Religion & theology (DOT 120-129)	1302	1232	70
Writing (DOT 130-139)	934	611	323
Art work (DOT 141-149)	2284	1372	912
Entertainment & recreation (DOT 150-159)	2112	1515	597
Administrative specialties (DOT 160-169)	18586	13070	5516
Managerial work, n.e.c. (DOT 180-189)	56197	45978	10219
Miscellaneous professional, technical, & managerial (DOT 191-199)	4424	3188	1236
CLERICAL & SALES OCCUPATIONS (DOT 200-299)			
Stenography, typing, filing, & related work (DOT 201-209)	39882	6992	32890
Computing & account recording (DOT 210-219)	23590	4875	18715
Material & production recording (DOT 221-229)	16908	13209	3699
Information & message distribution (DOT 230-239)	10176	3775	6401
Miscellaneous clerical work (DOT 240-249)	4181	1942	2239
Saleswork, services (DOT 250-259)	6743	5542	1201
Saleswork, commodities (DOT 260-289)	32711	19438	13273
Miscellaneous merchandising work (DOT 290-299)	15157	10273	4884
SERVICE OCCUPATIONS (DOT 300-399)			
Domestic services (DOT 310-309)	20178	1726	18452
Food & beverage preparation & services (DOT 310-319)	58140	22861	35279
Lodging & related services (DOT 320-329)	7540	1432	6108
Barbering, cosmetology, & related services (DOT 330-339)	7885	3226	4659
Amusement & recreation services (DOT 340-349)	753	574	179
Miscellaneous personal services (DOT 350-359)	22612	4465	18147
Apparel & furnishing services (DOT 361-369)	11241	3774	7467

TABLE A-5 (Cont'd.)

Occupation	Estimated Number Disabled Workers		
	Total	Male	Female
Protective services (DOT 371-379)	19955	18711	1244
Building & related services (DOT 381-389)	23116	17691	5425
FARMING, FISHERY, FORESTRY, & RELATED OCCUPATIONS (DOT 400-499)	45197	40996	4201
Plant farming (DOT 401-409)	8514	7578	936
Animal farming (DOT 411-419)	4547	4069	478
Miscellaneous farming & related work (DOT 421-429)	30840	28119	2721
Fishery & related work (DOT 431-439)	817	809	8
Forestry (DOT 441-449)	228	180	48
Hunting, trapping, & related services (DOT 451-452)	19	19	0
Agricultural services (DOT 461-469)	232	222	10
PROCESSING OCCUPATIONS (DOT 500-599)	33520	25806	7714
Metal processing (DOT 500-509)	4458	4184	274
Ore refining & foundry work (DOT 510-519)	4947	4656	291
Processing, food & related products (DOT 520-529)	11267	6844	4423
Processing, paper & related materials (DOT 530-539)	1114	995	119
Processing, petroleum & related products (DOT 540-549)	1011	949	62
Processing, chemicals & related products (DOT 550-559)	4549	3757	792
Processing, wood & wood products (DOT 560-569)	359	317	42
Processing, nonmetallic minerals & related products (DOT 570-579)	1745	1418	327
Processing, leather & textiles (DOT 580-589)	2956	1727	1229
Processing, n.e.c. (DOT 590-599)	1114	959	155
MACHINES TRADES OCCUPATIONS (DOT 600-699)	98058	80652	17406
Metal machining (DOT 600-609)	17773	16530	1243
Metalworking, n.e.c. (DOT 610-619)	25696	17456	8240
Mechanical repairing (DOT 620-639)	34140	33108	1032
Paperworking (DOT 640-649)	1176	692	484
Printing (DOT 650-659)	3526	3018	508
Wood machining (DOT 660-669)	4224	3852	372
Machining, nonmetallic minerals & related materials (DOT 670-679)	233	212	21
Textile machine work (DOT 680-687,689)	7842	3470	4372
Machine work, n.e.c. (DOT 690-699)	3448	2314	1134
Bench work occupations (DOT 700-799)	65136	27895	37241
FABRICATION, ASSEMBLY, & REPAIR OF METAL PRODUCTS, N.E.C. (DOT 700-709)	15878	8647	7231
Assembly and repair of electrical equipment (DOT 720-729)	7755	4148	3607
Fabrication & repair of products made from assorted materials (DOT 730-739)	1447	810	637

TABLE A-5 (Cont'd.)

Occupation	Estimated Number Disabled Workers		
	Total	Male	Female
Painting, decorating, & related work (DOT 740-749)	1530	1273	257
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	1548	1240	308
Fabrication & repair of wood products (DOT 760-769)	2188	1700	488
Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)	1021	718	303
Fabrication & repair of textile, leather, & related products (DOT 780-789)	28300	6006	22294
Bench work, n.e.c. (DOT 790-799)	3410	1835	1575
STRUCTURAL WORK OCCUPATIONS (DOT 800-899)	151280	144087	7193
Metal fabricating, n.e.c. (DOT 800-809)	15452	14021	1431
Welding, flame cutting, & related work (DOT 810-819)	11935	10936	999
Electrical assembly, installing, & repairing (DOT 820-829)	14492	13440	1052
Painting, plastering, waterproofing, cementing, & related work (DOT 840-849)	13233	12730	503
Excavating, grading, paving, & related work (DOT 850-859)	12172	11743	429
Construction, n.e.c. (DOT 860-869)	66349	64427	1922
Structural work, n.e.c. (DOT 891-899)	17647	16790	857
MISCELLANEOUS OCCUPATIONS (DOT 900-999)	124403	110515	13888
Motor freight transportation (DOT 900-909)	47002	45254	1748
Transportation work, n.e.c. (DOT 910-919)	21725	20047	1678
Packaging & materials handling (DOT 920-929)	35770	26992	8778
Extraction of minerals (DOT 930-939)	8113	7882	231
Logging (DOT 940-949)	2844	2745	99
Production & distribution of utilities (DOT 950-959)	5422	5228	194
Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)	279	260	19
Graphic art work (DOT 970-979)	3248	2107	1141
SPECIAL MODIFICATIONS TO DOT (BY SSA)	186756	138547	48209
Special modifications to DOT (by SSA)	24772	17552	7220
Odds jobs (classified by SSA)	33380	28813	4567
Occupations unknown	128604	92182	36422

TABLE A-6: Estimated percentages of workers with SSA disability benefits  
by occupation and sex  
Social Security Disability Allowances, 1975-1976.

Occupation	Estimated Percentage Disabled Workers		
	Total	Male	Female
All	100.00	100.00	100.00
PROFESSIONAL, TECHNICAL, & MANAGERIAL OCCUPATIONS (DOT 001-199)	11.51	11.32	11.93
Architecture & engineering (DOT 001-019)	0.98	1.31	0.23
Mathematics & physical sciences (DOT 020-029)	0.24	0.24	0.24
Life sciences (DOT 040-049)	0.10	0.08	0.12
Social sciences (DOT 050-059)	0.02	0.02	0.02
Medicine & health (DOT 070-079)	1.67	0.60	4.05
Education (DOT 090-099)	0.95	0.56	1.82
Museum, library & archival sciences (DOT 100-102,109)	0.07	0.02	0.17
Law & jurisprudence (DOT 110,111,119)	0.08	0.11	0.03
Religion & theology (DOT 120-129)	0.11	0.15	0.02
Writing (DOT 130-139)	0.08	0.08	0.09
Art work (DOT 141-149)	0.20	0.17	0.25
Entertainment & recreation (DOT 150-159)	0.18	0.19	0.17
Administrative specialities (DOT 160-169)	1.60	1.63	1.54
Managerial work, n.e.c. (DOT 180-189)	4.85	5.75	2.85
Miscellaneous professional, technical, & managerial (DOT 191-199)	0.38	0.40	0.34
CLERICAL & SALES OCCUPATIONS (DOT 200-299)	12.89	8.26	23.21
Stenography, typing, filing, & related work (DOT 201-209)	3.44	0.87	9.16
Computing & account recording (DOT 210-219)	2.04	0.61	5.21
Material & production recording (DOT 221-229)	1.46	1.65	1.03
Information & message distribution (DOT 230-239)	0.88	0.47	1.78
Miscellaneous clerical work (DOT 240-249)	0.36	0.24	0.62
Saleswork, services (DOT 250-259)	0.58	0.69	0.33
Saleswork, commodities (DOT 260-289)	2.82	2.43	3.70
Miscellaneous merchandising work (DOT 290-299)	1.31	1.28	1.36
SERVICE OCCUPATIONS (DOT 300-399)	14.80	9.31	27.01
Domestic services (DOT 310-309)	1.74	0.22	5.14
Food & beverage preparation & services (DOT 310-319)	5.02	2.86	9.83
Lodging & related services (DOT 320-329)	0.65	0.18	1.70
Barbering, cosmetology, & related services (DOT 330-339)	0.68	0.40	1.30
Amusement & recreation services (DOT 340-349)	0.07	0.07	0.05
Miscellaneous personal services (DOT 350-359)	1.95	0.56	5.06
Apparel & furnishing services (DOT 361-369)	0.97	0.47	2.08
Protective services (DOT 371-379)	1.72	2.34	0.35
Building & related services (DOT 381-389)	2.00	2.21	1.51

TABLE A-6 (Cont'd)

Occupation	Estimated Percentage Disabled Workers		
	Total	Male	Female
<b>FARMING, FISHERY, FORESTRY, &amp; RELATED OCCUPATIONS</b> (DOT 400-499)	3.90	5.13	1.17
Plant farming (DOT 401-409)	0.73	0.95	0.26
Animal farming (DOT 411-419)	0.39	0.51	0.13
Miscellaneous farming & related work (DOT 421-429)	2.66	3.52	0.76
Fishery & related work (DOT 431-439)	0.07	0.10	0.00
Forestry (DOT 441-449)	0.02	0.02	0.01
Hunting, trapping, & related services (DOT 451-452)	0.00	0.00	0.00
Agricultural services (DOT 461-469)	0.02	0.03	0.00
<b>PROCESSING OCCUPATIONS (DOT 500-599)</b>	2.89	3.23	2.15
Metal processing (DOT 500-509)	0.38	0.52	0.08
Ore refining & foundry work (DOT 510-519)	0.43	0.58	0.08
Processing, food & related products (DOT 520-529)	0.97	0.86	1.23
Processing, paper & related materials (DOT 530-539)	0.10	0.12	0.03
Processing, petroleum & related products (DOT 540-549)	0.09	0.12	0.02
Processing, chemicals & related products (DOT 550-559)	0.39	0.47	0.22
Processing, wood & wood products (DOT 560-569)	0.03	0.04	0.01
Processing, nonmetallic minerals & related products (DOT 570-579)	0.15	0.18	0.09
Processing, leather & textiles (DOT 580-589)	0.26	0.22	0.34
Processing, n.e.c. (DOT 590-599)	0.10	0.12	0.04
<b>MACHINES TRADES OCCUPATIONS (DOT 600-699)</b>	8.46	10.09	4.85
Metal machining (DOT 600-609)	1.53	2.07	0.35
Metalworking, n.e.c. (DOT 610-619)	2.22	2.18	2.30
Mechanical repairing (DOT 620-639)	2.95	4.14	0.29
Paperworking (DOT 640-649)	0.10	0.09	0.13
Printing (DOT 650-659)	0.30	0.38	0.14
Wood machining (DOT 660-669)	0.36	0.48	0.10
Machining, nonmetallic minerals & related materials (DOT 670-679)	0.02	0.03	0.01
Textile machine work (DOT 680-687,689)	0.68	0.43	1.22
Machine work, n.e.c. (DOT 690-699)	0.30	0.29	0.32
<b>BENCH WORK OCCUPATIONS (DOT 700-799)</b>	5.62	3.49	10.37
Fabrication, assembly, & repair of metal products, n.e.c. (DOT 700-709)	1.37	1.08	2.01
Assembly and repair of electrical equipment (DOT 720-729)	0.67	0.52	1.00
Fabrication & repair of products made from assorted materials (DOT 730-739)	0.12	0.10	0.18
Painting, decorating, & related work (DOT 740-749)	0.13	0.16	0.07

TABLE A-6 (Cont'd.)

Occupation	Estimated Percentage Disabled Workers		
	Total	Male	Female
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	0.13	0.16	0.09
Fabrication & repair of wood products (DOT 760-769)	0.19	0.21	0.14
Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)	0.09	0.09	0.08
Fabrication & repair of textile, leather, & related products (DOT 780-789)	2.44	0.75	6.21
Bench work, n.e.c. (DOT 790-799)	0.29	0.23	0.44
STRUCTURAL WORK OCCUPATIONS (DOT 800-899)	13.06	18.02	2.00
Metal fabricating, n.e.c. (DOT 800-809)	1.33	1.75	0.40
Welding, flame cutting, & related work (DOT 810-819)	1.03	1.37	0.28
Electrical assembly, installing, & repairing (DOT 820-829)	1.25	1.68	0.29
Painting, plastering, waterproofing, cementing, & related work (DOT 840-849)	1.14	1.59	0.14
Excavating, grading, paving, & related work (DOT 850-859)	1.05	1.47	0.12
Construction, n.e.c. (DOT 860-869)	5.73	8.06	0.54
Structural work, n.e.c. (DOT 891-899)	1.52	2.10	0.24
MISCELLANEOUS OCCUPATIONS (DOT 900-999)	10.74	13.82	3.87
Motor freight transportation (DOT 900-909)	4.06	5.66	0.49
Transportation work, n.e.c. (DOT 910-919)	1.88	2.51	0.47
Packaging & materials handling (DOT 920-929)	3.09	3.38	2.45
Extraction of minerals (DOT 930-939)	0.70	0.99	0.06
Logging (DOT 940-949)	0.25	0.34	0.03
Production & distribution of utilities (DOT 950-959)	0.47	0.65	0.05
Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)	0.02	0.03	0.01
Graphic art work (DOT 970-979)	0.28	0.26	0.32
SPECIAL MODIFICATIONS TO DOT (BY SSA)	16.12	17.33	13.43
Special modifications to DOT (by SSA)	2.14	2.20	2.01
Odds jobs (classified by SSA)	2.88	3.60	1.27
Occupations unknown	11.10	11.53	10.15

TABLE A-7: Estimated number of workers receiving SSA disability benefits  
by disabling condition and race:  
Social Security Disability Allowances, 1975-1976.

Disabling Condition	ICDA	Estimated Number Disabled Workers				
		White	Black	Other	Unknown	Total
All disabling conditions		969894	166621	15929	5995	1158439
Infective & parasitic diseases	000-136	9191	3443	304	107	13045
Tuberculosis	010-019	4089	2379	204	60	6732
Silicotuberculosis	010	38	40	0	0	78
Pulmonary tuberculosis	011	3131	2000	171	49	5351
Neoplasms	140-239	98298	12615	1360	436	112709
Malignant neoplasms	140-199	83158	11093	1066	314	95631
Buccal cavity & pharynx	140-149	3445	443	62	17	3967
Digestive organs & peritoneum	150-159	16843	2582	324	44	19793
Respiratory system	160-163	23767	3180	222	82	27251
Bone, connective tissue, & skin	170-173	4295	391	81	20	4787
Breast	174	9845	1229	131	45	11250
Genital organs	180-187	8678	1473	121	43	10315
Urinary organs	188-189	3939	409	19	10	4377
Other & unspecified sites	190-199	12311	1376	106	53	13846
Neoplasms of lymphatic & hematopoietic tissue	200-209	11901	1029	231	82	13243
Sarcoma (lympho-, reticulo-), other lymphomas	200,202	3887	198	26	5	4116
Leukemia	204-207	3340	300	86	43	3769
Benign neoplasms	210-228	2016	340	32	40	2428
Neoplasms of unspecified nature	230-239	1223	153	31	0	1407
Endocrine, nutritional, & metabolic diseases	240-279	32724	8475	928	197	42324
Diabetes mellitus	250	23137	5913	728	154	29932
Diseases of blood & blood- forming organs	280-289	1836	1042	33	4	2915
Mental disorders	290-315	101636	19932	2293	1271	125132
Schizophrenia	295	37795	9109	1130	688	48722
Neuroses	300	23148	2443	361	126	26078
Alcoholism	303	4389	1131	87	21	5628
Diseases of nervous system & sense organs	320-389	60831	10292	1033	533	72689
Meningitis	320	95	4	0	0	99

TABLE A-7 (Cont'd.)

Disabling Condition	ICDA	Estimated Number Disabled Workers				
		White	Black	Other	Unknown	Total
Multiple sclerosis	340	5413	468	52	65	5998
Cataract	374	2099	300	28	0	2427
Glaucoma	375	1683	981	28	5	2697
Blindness	379	2888	641	72	43	3644
Diseases of circulatory system	390-458	275682	49895	3413	1145	330135
Heart & hypertensive disease	393-429	216857	39040	2672	816	259385
Hypertensive disease	400-404	13448	8408	337	106	22299
Ischemic heart disease	410-414	184404	27162	2045	641	214252
Cerebrovascular disease	430-438	30695	6692	412	175	37974
Cerebral hemorrhage	431	979	356	20	21	1376
Cerebral thrombosis & embolism	433-434	5053	1314	64	25	6456
Arteriosclerosis	440	7832	1178	46	14	9070
Diseases of respiratory system	460-519	63774	6773	616	329	71492
Bronchitis & asthma	490-491, 493	9432	1520	236	62	11250
Emphysema	492	22212	1965	138	109	24424
Pneumoconiosis & related diseases	515-516	2232	132	8	10	2382
Pneumoconiosis due to silica & silicates	515	2165	122	8	10	2305
Other pneumoconioses & related diseases	516	67	10	0	0	77
Bronchiectasis	518	668	73	4	0	745
Diseases of digestive system	520-577	26630	3991	504	143	31268
Peptic ulcer	531-533	3606	613	81	0	4300
Chronic enteritis & ulcerative colitis	563	2925	211	24	52	3212
Cirrhosis of liver	571	11507	1838	260	46	13651
Diseases of genitourinary system	580-629	7942	1958	170	89	10159
Nephritis & nephrosis	580-584	3388	983	104	55	4530
Chronic nephritis	582	3048	918	70	55	4091
Other diseases of urinary system	590-599	3186	752	46	34	4018
Diseases of male genital organs	600-607	409	66	13	0	488
Diseases of female genital organs	620-629	422	93	5	0	520

TABLE A-7 (Cont'd.)

Disabling Condition	ICDA	Estimated Number Disabled Workers				
		White	Black	Other	Unknown	Total
Pregnancy, childbirth, & the puerperium	630-678	5	12	0	0	17
Diseases of skin & subcutaneous tissue	680-709	3694	680	91	45	4510
Disease of musculoskeletal system & connective tissue	710-738	173417	28016	3061	845	205339
Rheumatoid arthritis	712	19165	2200	314	85	21764
Osteoarthritis	713	57731	10860	1077	245	69913
Other & unspecified arthritis	710-711, 714-715	7528	1488	112	31	9159
Displacement of intervertebral disc	725	38364	5285	627	164	44440
Congenital anomalies	740-759	10125	1281	204	84	11694
Symptoms & ill-defined conditions	780-796	2191	363	17	19	2590
Accidents, poisonings, & violence	800-999	49494	7974	929	400	58797
Unknown or not classifiable		52424	9879	973	348	63624

TABLE A-8: Estimated percentage of workers receiving SSA disability benefits by disabling condition and race: Social Security Disability Allowances, 1975-1976.

Disabling Condition	ICDA	Estimated Percentage Disabled Workers				
		White	Black	Other	Unknown	Total
All disabling conditions		100.00	100.00	100.00	100.00	100.00
Infective & parasitic diseases	000-136	0.95	2.07	1.91	1.78	1.13
Tuberculosis	010-019	0.42	1.43	1.28	1.00	0.58
Silicotuberculosis	010	0.00	0.02	0.00	0.00	0.01
Pulmonary tuberculosis	011	0.32	1.20	1.07	0.82	0.46
Neoplasms	140-239	10.13	7.57	8.54	7.27	9.73
Malignant neoplasms	140-199	8.57	6.66	6.69	5.24	8.26
Buccal cavity & pharynx	140-149	0.36	0.27	0.39	0.28	0.34
Digestive organs & peritoneum	150-159	1.74	1.55	2.03	0.73	1.71
Respiratory system	160-163	2.45	1.91	1.39	1.37	2.35
Bone, connective tissue, & skin	170-173	0.44	0.23	0.51	0.33	0.41
Breast	174	1.02	0.74	0.82	0.75	0.97
Genital organs	180-187	0.89	0.88	0.76	0.72	0.89
Urinary organs	188-189	0.41	0.25	0.12	0.17	0.38
Other & unspecified sites	190-199	1.27	0.83	0.67	0.88	1.20
Neoplasms of lymphatic & hematopoietic tissue	200-209	1.23	0.62	1.45	1.37	1.14
Sarcoma(lympho-,reticulo-), other lymphomas	200,202	0.40	0.12	0.16	0.08	0.36
Leukemia	20-2407	0.34	0.18	0.54	0.72	0.33
Benign neoplasms	210-228	0.21	0.20	0.20	0.67	0.21
Neoplasms of unspecified nature	230-239	0.13	0.09	0.19	0.00	0.12
Endocrine, nutritional, & metabolic diseases	240-279	3.37	5.09	5.83	3.29	3.65
Diabetes mellitus	250	2.39	3.55	4.57	2.57	2.58
Diseases of blood & blood-forming organs	280-289	0.19	0.63	0.21	0.07	0.25
Mental disorders	290-315	10.48	11.96	14.40	21.20	10.80
Schizophrenia	295	3.90	5.47	7.09	11.48	4.21
Neuroses	300	2.39	1.47	2.27	2.10	2.25
Alcoholism	303	0.45	0.68	0.55	0.35	0.49
Diseases of nervous system & sense organs	320-389	6.27	6.18	6.49	8.89	6.27
Meningitis	320	0.01	0.00	0.00	0.00	0.01

TABLE A-8 (Cont'd.)

Disabling Condition	ICDA	Estimated Percentage Disabled Workers				
		White	Black	Other	Unknown	Total
Multiple sclerosis	340	0.56	0.28	0.33	1.08	0.52
Cataract	374	0.22	0.18	0.18	0.00	0.21
Glaucoma	375	0.17	0.59	0.18	0.08	0.23
Blindness	379	0.30	0.38	0.45	0.72	0.31
Diseases of circulatory system						
	390-458	28.42	29.95	21.43	19.10	28.50
Heart & hypertensive disease	393-429	22.36	23.43	16.77	13.61	22.39
Hypertensive disease	400-404	1.39	5.05	2.12	1.77	1.92
Ischemic heart disease	410-414	19.01	16.30	12.84	10.69	18.49
Cerebrovascular disease	430-438	3.16	4.02	2.59	2.92	3.28
Cerebral hemorrhage	431	0.10	0.21	0.13	0.35	0.12
Cerebral thrombosis & embolism	433-434	0.52	0.79	0.40	0.42	0.56
Arteriosclerosis	440	0.81	0.71	0.29	0.23	0.78
Diseases of respiratory system						
	460-519	6.58	4.06	3.87	5.49	6.17
Bronchitis & asthma	490-491,493	0.97	0.91	1.48	1.03	0.97
Emphysema	492	2.29	1.18	0.87	1.82	2.11
Pneumoconiosis & related diseases	515-516	0.23	0.08	0.05	0.17	0.21
Pneumoconiosis due to silica & silicates	515	0.22	0.07	0.05	0.17	0.20
Other pneumoconioses & related diseases	516	0.01	0.01	0.00	0.00	0.01
Bronchiectasis	518	0.07	0.04	0.03	0.00	0.06
Diseases of digestive system						
	520-577	2.75	2.40	3.16	2.39	2.70
Peptic ulcer	531-533	0.37	0.37	0.51	0.00	0.37
Chronic enteritis & ulcerative colitis	563	0.30	0.13	0.15	0.87	0.28
Cirrhosis of liver	571	1.19	1.10	1.63	0.77	1.18
Diseases of genitourinary system						
	580-629	0.82	1.18	1.07	1.48	0.88
Nephritis & nephrosis	580-584	0.35	0.59	0.65	0.92	0.39
Chronic nephritis	582	0.31	0.55	0.44	0.92	0.35
Other diseases of urinary system	590-599	0.33	0.45	0.29	0.57	0.35
Diseases of male genital organs						
	600-607	0.04	0.04	0.08	0.00	0.04
Diseases of female genital organs						
	620-629	0.04	0.06	0.03	0.00	0.04

TABLE A-8 (Cont'd.)

Disabling Condition	ICDA	Estimated Percentage Disabled Workers				
		White	Black	Other	Unknown	Total
Pregnancy, childbirth, & the puerperium	630-678	0.00	0.01	0.00	0.00	0.00
Diseases of skin & subcutaneous tissue	680-709	0.38	0.41	0.57	0.75	0.39
Diseases of musculoskeletal system & connective tissue	710-738	17.88	16.81	19.22	14.10	17.73
Rheumatoid arthritis	712	1.98	1.32	1.97	1.42	1.88
Osteoarthritis	713	5.95	6.52	6.76	4.09	6.04
Other & unspecified arthritis	710-711, 714-715	0.78	0.89	0.70	0.52	0.79
Displacement of intervertebral disc	725	3.96	3.17	3.94	2.74	3.84
Congenital anomalies	740-759	1.04	0.77	1.28	1.40	1.01
Symptoms & ill-defined conditions	780-796	0.23	0.22	0.11	0.32	0.22
Accidents, poisonings, & violence	800-999	5.10	4.79	5.83	6.67	5.08
Unknown or not classifiable		5.41	5.93	6.11	5.80	5.49

TABLE A-9: Estimated numbers of workers receiving SSA disability benefits  
by occupation and race:  
Social Security Disability Allowances, 1975-1976.

Occupation	Estimated Number Disabled Workers in U.S.				
	White	Black	Other	Unknown	Total
All	969894	166621	15929	5995	1158439
Professional, technical, & managerial occupations (DOT 001-199)	122412	9006	1133	770	133321
Architecture & engineering (DOT 001-019)	10814	373	110	42	11339
Mathematics & physical sciences (DOT 020-029)	2552	181	8	17	2758
Life sciences (DOT 040-049)	988	82	25	15	1110
Social sciences (DOT 050-059)	174	20	5	0	199
Medicine & health (DOT 070-079)	16854	2085	204	195	19338
Education (DOT 090-099)	9459	1349	118	91	11017
Museum, library & archival sciences (DOT 100-102,109)	723	30	6	5	764
Law & jurisprudence (DOT 110,111,119)	931	25	1	0	957
Religion & theology (DOT 120-129)	1187	68	13	34	1302
Writing (DOT 130-139)	908	22	0	4	934
Art work (DOT 141-149)	2162	88	24	10	2284
Entertainment & recreation (DOT 150-159)	1909	172	16	15	2112
Administrative specialities (DOT 160-169)	17813	577	104	92	18586
Managerial work, n.e.c. (DOT 180-189)	52014	3523	430	230	56197
Miscellaneous professional, technical & managerial occupations (DOT 191-199)	3924	411	69	20	4424
Clerical & sales occupations (DOT 200-299)	137579	9435	1349	985	149348
Stenography, typing, filing, & related work (DOT 201-209)	36701	2559	347	275	39882
Computing & account recording (DOT 210-219)	21950	1275	219	146	23590
Material & production recording (DOT 221-229)	14343	2324	172	69	16908
Information & message distribution (DOT 230-239)	9109	843	103	121	10176
Miscellaneous clerical work (DOT 240-249)	3851	242	76	12	4181
Saleswork, services (DOT 250-259)	6465	206	21	51	6743

TABLE A-9 (Cont'd.)

Occupation	Estimated Number Disabled Workers in U.S.				
	White	Black	Other	Unknown	Total
Saleswork, commodities (DOT 260-289)	31072	1186	229	224	32711
Miscellaneous merchandising work (DOT 290-299)	14088	800	182	87	15157
Service occupations (DOT 300-399)	120765	46687	2917	1051	171420
Domestic services (DOT 310-309)	6921	12919	210	128	20178
Food & beverage preparation & services (DOT 310-319)	46456	10051	1246	387	58140
Lodging & related services (DOT 320-329)	4627	2737	116	60	7540
Barbering, cosmetology, & related services (DOT 330-339)	6901	840	114	30	7885
Amusement & recreation services (DOT 340-349)	637	76	35	5	753
Miscellaneous personal services (DOT 350-359)	16524	5636	285	167	22612
Apparel & furnishing services (DOT 361-369)	6496	4532	203	10	11241
Protective services (DOT 371-379)	17360	2147	322	126	19955
Building & related services (DOT 381-389)	14843	7749	386	138	23116
Farming, fishery, forestry, & related occupations (DOT 400-499)	36415	6934	1638	210	45197
Plant farming (DOT 401-409)	6023	2087	391	13	8514
Animal farming (DOT 411-419)	4158	274	81	34	4547
Miscellaneous farming & related work (DOT 421-429)	25128	4442	1114	156	30840
Fishery & related work (DOT 431-439)	697	69	46	5	817
Forestry (DOT 441-449)	209	15	2	2	228
Hunting, trapping, & related services (DOT 451-452)	17	0	2	0	19
Agricultural services (DOT 461-469)	183	47	2	0	232
Processing occupations (DOT 500-599)	26511	6359	503	147	33520
Metal processing (DOT 500-509)	3366	1057	30	5	4458
Ore refining & foundry work (DOT 510-519)	3606	1234	77	30	4947
Processing, food & related products (DOT 520-529)	8596	2333	277	61	11267
Processing, paper & related materials (DOT 530-539)	998	116	0	0	1114
Processing, petroleum & related products (DOT 540-549)	910	95	6	0	1011

TABLE A-9 (Cont'd.)

Occupation	Estimated Number Disabled Workers in U.S.				
	White	Black	Other	Unknown	Total
Processing, chemicals & related products (DOT 550-559)	3849	652	28	20	4549
Processing, wood & wood products (DOT 560-569)	270	89	0	0	359
Processing, nonmetallic minerals & related products (DOT 570-579)	1486	223	30	6	1745
Processing, leather & textiles (DOT 580-589)	2512	393	41	10	2956
Processing, n.e.c. (DOT 590-599)	918	167	14	15	1114
Machines trades occupations (DOT 600-699)	87256	9379	1050	373	98058
Metal machining (DOT 600-609)	16863	702	133	75	17773
Metalworking, n.e.c. (DOT 610-619)	21446	3733	378	139	25696
Mechanical repairing (DOT 620-639)	30789	2871	362	118	34140
Paperworking (DOT 640-649)	962	203	11	0	1176
Printing (DOT 650-659)	3254	247	20	5	3526
Wood machining (DOT 660-669)	3486	638	72	28	4224
Machining, nonmetallic minerals & related materials (DOT 670-679)	207	26	0	0	233
Textile machine work (DOT 680-687,689)	7235	563	38	6	7842
Machine work, n.e.c. (DOT 690-699)	3014	396	36	2	3448
Bench work occupations (DOT 700-799)	56540	7137	1081	378	65136
Fabrication, assembly, & repair of metal products, n.e.c. (DOT 700-709)	13753	1919	154	52	15878
Assembly and repair of electrical equipment (DOT 720-729)	7053	558	100	44	7755
Fabrication & repair of products made from assorted materials (DOT 730-739)	1247	177	23	0	1447
Painting, decorating, & related work (DOT 740-749)	1260	250	0	20	1530
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	1208	310	30	0	1548
Fabrication & repair of wood products (DOT 760-769)	1831	277	65	15	2188
Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)	941	80	0	0	1021
Fabrication & repair of textile, leather, & related products (DOT 780-789)	24595	2954	617	134	28300
Bench work, n.e.c. (DOT 790-799)	2736	521	61	92	3410

TABLE A-9 (Cont'd.)

Occupation	Estimated Number Disabled Workers in U.S.				
	White	Black	Other	Unknown	Total
Structural work occupations (DOT 800-899)	126960	21686	2150	484	151280
Metal fabricating, n.e.c. (DOT 800-809)	13512	1673	222	45	15452
Welding, flame cutting, & related work (DOT 810-819)	10566	1206	125	38	11935
Electrical assembly, installing, & repairing (DOT 820-829)	13514	864	99	15	14492
Painting, plastering, waterproofing, cementing, & related work (DOT 840-849)	11333	1693	125	82	13233
Excavating, grading, paving, & related work (DOT 850-859)	10687	1203	237	45	12172
Construction, n.e.c. (DOT 860-869)	52653	12413	1089	194	66349
Structural work, n.e.c. (DOT 891-899)	14695	2634	253	65	17647
Miscellaneous occupations (DOT 900-999)	101968	20392	1587	456	124403
Motor freight transportation (DOT 900-909)	38897	7562	438	105	47002
Transportation work, n.e.c. (DOT 910-919)	17529	3699	391	106	21725
Packaging & materials handling (DOT 920-929)	28033	7035	525	177	35770
Extraction of minerals (DOT 930-939)	7541	478	84	10	8113
Logging (DOT 940-949)	2164	631	39	10	2844
Production & distribution of utilities (DOT 950-959)	4654	684	60	24	5422
Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)	253	16	10	0	279
Graphic art work (DOT 970-979)	2897	287	40	24	3248
Special modifications to DOT (by SSA)	153488	29606	2521	1141	186756
Special modifications to DOT (by SSA)	22573	1912	201	86	24772
Odds jobs (classified by SSA)	24718	7814	674	174	33380
Occupations unknown	106197	19880	1646	881	128604

TABLE A-10: Estimated percentages of workers with SSA disability benefits  
by occupation and race:  
Social Security Disability Allowances, 1975-1976.

Occupation/DOT	Estimated Percentages of Disabled Workers				
	White	Black	Other	Unknown	Total
All	100.00	100.00	100.00	100.00	100.00
Professional, technical, & managerial occupations (DOT 001-199)	12.62	5.41	7.11	12.84	11.51
Architecture & engineering (DOT 001-019)	1.11	0.22	0.69	0.70	0.98
Mathematics & physical sciences (DOT 020-029)	0.26	0.11	0.05	0.28	0.24
Life sciences (DOT 040-049)	0.10	0.05	0.16	0.25	0.10
Social sciences (DOT 050-059)	0.02	0.01	0.03	0.00	0.02
Medicine & health (DOT 070-079)	1.74	1.25	1.28	3.25	1.67
Education (DOT 090-099)	0.98	0.81	0.74	1.52	0.95
Museum, library & archival sciences (DOT 100-102,109)	0.07	0.02	0.04	0.08	0.07
Law & jurisprudence (DOT 110,111,119)	0.10	0.02	0.01	0.00	0.08
Religion & theology (DOT 120-129)	0.12	0.04	0.08	0.57	0.11
Writing (DOT 130-139)	0.09	0.01	0.00	0.07	0.08
Art work (DOT 141-149)	0.22	0.05	0.15	0.17	0.20
Entertainment & recreation (DOT 150-159)	0.20	0.10	0.10	0.25	0.18
Administrative specialities (DOT 160-169)	1.84	0.35	0.65	1.53	1.60
Managerial work, n.e.c. (DOT 180-189)	5.36	2.11	2.70	3.84	4.85
Miscellaneous professional, technical, & managerial (DOT 191-199)	0.40	0.25	0.43	0.33	0.38
Clerical & sales occupations (DOT 200-299)	14.18	5.66	8.47	16.43	12.89
Stenography, typing, filing, & related work (DOT 201-209)	3.78	1.54	2.18	4.59	3.44
Computing & account recording (DOT 210-219)	2.26	0.77	1.37	2.44	2.04
Material & production recording (DOT 221-229)	1.48	1.39	1.08	1.15	1.46
Information & message distribution (DOT 230-239)	0.94	0.51	0.65	2.02	0.88
Miscellaneous clerical work (DOT 240-249)	0.40	0.15	0.48	0.20	0.36
Saleswork, services (DOT 250-259)	0.67	0.12	0.13	0.85	0.58
Saleswork, commodities (DOT 260-289)	3.20	0.71	1.44	3.74	2.82
Miscellaneous merchandising work (DOT 290-299)	1.45	0.48	1.14	1.45	1.31

TABLE A-10 (Cont'd.)

Occupation/DOT	Estimated Percentages of Disabled Workers				
	White	Black	Other	Unknown	Total
Service occupations (DOT 300-399)	12.45	28.02	18.31	17.53	14.80
Domestic services (DOT 310-309)	0.71	7.75	1.32	2.14	1.74
Food & beverage preparation & services (DOT 310-319)	4.79	6.03	7.82	6.46	5.02
Lodging & related services (DOT 320-329)	0.48	1.64	0.73	1.00	0.65
Barbering, cosmetology, & related services (DOT 330-339)	0.71	0.50	0.72	0.50	0.68
Amusement & recreation services (DOT 340-349)	0.07	0.05	0.22	0.08	0.07
Miscellaneous personal services (DOT 350-359)	1.70	3.38	1.79	2.79	1.95
Apparel & furnishing services (DOT 361-369)	0.67	2.72	1.27	0.17	0.97
Protective services (DOT 371-379)	1.79	1.29	2.02	2.10	1.72
Building & related services (DOT 381-389)	1.53	4.65	2.42	2.30	2.00
Farming, fishery, forestry, & related occupations (DOT 400-499)	3.75	4.16	10.28	3.50	3.90
Plant farming (DOT 401-409)	0.62	1.25	2.45	0.22	0.73
Animal farming (DOT 411-419)	0.43	0.16	0.51	0.57	0.39
Miscellaneous farming & related work (DOT 421-429)	2.59	2.67	6.99	2.60	2.66
Fishery & related work (DOT 431-439)	0.07	0.04	0.29	0.08	0.07
Forestry (DOT 441-449)	0.02	0.01	0.01	0.03	0.02
Hunting, trapping, & related services (DOT 451-452)	0.00	0.00	0.01	0.00	0.00
Agricultural services (DOT 461-469)	0.02	0.03	0.01	0.00	0.02
Processing occupations (DOT 500-599)	2.73	3.82	3.16	2.45	2.89
Metal processing (DOT 500-509)	0.35	0.63	0.19	0.08	0.38
Ore refining & foundry work (DOT 510-519)	0.37	0.74	0.48	0.50	0.43
Processing, food & related products (DOT 520-529)	0.89	1.40	1.74	1.02	0.97
Processing, paper & related materials (DOT 530-539)	0.10	0.07	0.00	0.00	0.10
Processing, petroleum & related products (DOT 540-549)	0.09	0.06	0.04	0.00	0.09
Processing, chemicals & related products (DOT 550-559)	0.40	0.39	0.18	0.33	0.39
Processing, wood & wood products (DOT 560-569)	0.03	0.05	0.00	0.00	0.03
Processing, nonmetallic minerals & related products (DOT 570-579)	0.15	0.13	0.19	0.10	0.15

TABLE A-10 (Cont'd.)

Occupation/DOT	Estimated Percentages of Disabled Workers				
	White	Black	Other	Unknown	Total
Processing, leather & textiles (DOT 580-589)	0.26	0.24	0.26	0.17	0.26
Processing, n.e.c. (DOT 590-599)	0.09	0.10	0.09	0.25	0.10
Machines trades occupations (DOT 600-699)	9.00	5.63	6.59	6.22	8.46
Metal machining (DOT 600-609)	1.74	0.42	0.83	1.25	1.53
Metalworking, n.e.c. (DOT 610-619)	2.21	2.24	2.37	2.32	2.22
Mechanical repairing (DOT 620-639)	3.17	1.72	2.27	1.97	2.95
Paperworking (DOT 640-649)	0.10	0.12	0.07	0.00	0.10
Printing (DOT 650-659)	0.34	0.15	0.13	0.08	0.30
Wood machining (DOT 660-669)	0.36	0.38	0.45	0.47	0.36
Machining, nonmetallic minerals & related materials (DOT 670-679)	0.02	0.02	0.00	0.00	0.02
Textile machine work (DOT 680-687,689)	0.75	0.34	0.24	0.10	0.68
Machine work, n.e.c. (DOT 690-699)	0.31	0.24	0.23	0.03	0.30
Bench work occupations (DOT 700-799)	5.83	4.28	6.79	6.31	5.62
Fabrication, assembly, & repair of metal products, n.e.c. (DOT 700-709)	1.42	1.15	0.97	0.87	1.37
Assembly and repair of electrical equipment (DOT 720-729)	0.73	0.33	0.63	0.73	0.67
Fabrication & repair of products made from assorted materials (DOT 730-739)	0.13	0.11	0.14	0.00	0.12
Painting, decorating, & related work (DOT 740-749)	0.13	0.15	0.00	0.33	0.13
Fabrication & repair of plastics, synthetics, rubber, & related products (DOT 750-759)	0.12	0.19	0.19	0.00	0.13
Fabrication & repair of wood products (DOT 760-769)	0.19	0.17	0.41	0.25	0.19
Fabrication & repair of sand, stone, clay, & glass products (DOT 770-779)	0.10	0.05	0.00	0.00	0.09
Fabrication & repair of textile, leather, & related products (DOT 780-789)	2.54	1.77	3.87	2.24	2.44
Bench work, n.e.c. (DOT 790-799)	0.28	0.31	0.38	1.53	0.29
Structural work occupations (DOT 800-899)	13.09	13.02	13.50	8.07	13.06
Metal fabricating, n.e.c. (DOT 800-809)	1.39	1.00	1.39	0.75	1.33
Welding, flame cutting, & related work (DOT 810-819)	1.09	0.72	0.78	0.63	1.03
Electrical assembly, installing, & repairing (DOT 820-829)	1.39	0.52	0.62	0.25	1.25
Painting, plastering, waterproofing, cementing, & related work (DOT 840-849)	1.17	1.02	0.78	1.37	1.14

TABLE A-10 (Cont'd.)

Occupation/DOT	Estimated Percentages of Disabled Workers				
	White	Black	Other	Unknown	Total
Excavating, grading, paving, & related work (DOT 850-859)	1.10	0.72	1.49	0.75	1.05
Construction, n.e.c. (DOT 860-869)	5.43	7.45	6.84	3.24	5.73
Structural work, n.e.c. (DOT 891-899)	1.52	1.58	1.59	1.08	1.52
Miscellaneous occupations (DOT 900-999)	10.51	12.24	9.96	7.61	10.74
Motor freight transportation (DOT 900-909)	4.01	4.54	2.75	1.75	4.06
Transportation work, n.e.c. (DOT 910-919)	1.81	2.22	2.45	1.77	1.88
Packaging & materials handling (DOT 920-929)	2.89	4.22	3.30	2.95	3.09
Extraction of minerals (DOT 930-939)	0.78	0.29	0.53	0.17	0.70
Logging (DOT 940-949)	0.22	0.38	0.24	0.17	0.25
Production & distribution of utilities (DOT 950-959)	0.48	0.41	0.38	0.40	0.47
Amusement, recreation, & motion picture work, n.e.c. (DOT 960-969)	0.03	0.01	0.06	0.00	0.02
Graphic art work (DOT 970-979)	0.30	0.17	0.25	0.40	0.28
Special modifications to DOT (by SSA)	15.83	17.77	15.83	19.03	16.12
Special modifications to DOT (by SSA)	2.33	1.15	1.26	1.43	2.14
Odds jobs (classified by SSA)	2.55	4.69	4.23	2.90	2.88
Occupations unknown	10.95	11.93	10.33	14.70	11.10

