

**Table A.2 Percent and Number of Vietnam and Non-Vietnam Veterans Reporting Medical Symptoms In the Past Year, and Odds Ratios, by Selected Medical History Items – Continued**

Symptom	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Bladder Full/Hard to Urinate	0.5	13	0.4	8	1.3	0.5-3.1
Blood in Urine	2.2	55	1.6	32	1.4	0.9-2.1
Penile Discharge	1.7	42	1.7	34	1.0	0.6-1.5
Sores/Growths/Warts on Penis	6.5	161	5.3	105	1.2	1.0-1.6
Swollen Testicles/Scrotum	2.4	59	1.8	36	1.3	0.9-2.0
Impotence, Erection Difficulty	3.4	84	2.1	41	1.6	1.1-2.4
Impotence, Ejaculation Difficulty	2.0	49	1.3	26	1.5	0.9-2.4
Unusually Frequent Headaches	17.0	422	12.5	246	1.4	1.2-1.7
Nausea/Vomiting and Headache	4.4	110	2.7	54	1.6	1.2-2.3
Difficulty Keeping Balance	4.4	110	3.8	74	1.2	0.9-1.6
Paralysis of Limb	0.3	7	0.5	9	0.6	0.2-1.7
Seizures/Convulsions	0.7	18	0.5	10	1.4	0.7-3.1
Memory Loss/Confusion	7.6	188	3.5	68	2.3	1.7-3.0
Numbness of Limbs	6.6	164	4.8	95	1.4	1.1-1.8
Numbness, saw doctor <sup>b</sup>	3.1	78	3.2	64	1.0	0.7-1.4
Tingling Sensation of Limbs	15.9	393	11.5	225	1.5	1.2-1.7
Tingling, saw doctor	8.1	201	6.4	126	1.3	1.0-1.6
Burning Sensation of Limbs	3.7	92	3.3	64	1.1	0.8-1.6
Burning, saw doctor	2.0	50	1.7	33	1.2	0.8-1.9
General Weakness	1.5	38	1.1	22	1.4	0.8-2.3
General weakness, saw doctor	1.0	24	0.9	18	1.1	0.6-2.0
Weakness in Hands/Fingers	4.9	122	3.8	74	1.3	1.0-1.8
Weakness, saw doctor	2.5	63	1.9	37	1.4	0.9-2.0
Twitching of Limbs	8.5	212	4.6	91	1.9	1.5-2.5
Twitching, saw doctor	2.1	52	1.3	26	1.6	1.0-2.6
Musculoskeletal Pain						
Neck, >2 weeks	9.4	234	7.8	153	1.2	1.0-1.5
Low back	27.0	673	24.4	481	1.1	1.0-1.3
Other, >2 weeks	12.5	310	10.6	209	1.2	1.0-1.4

<sup>a</sup> A dash (–) indicates the value was not computed. This occurs when there are fewer than 10 cases in both cohorts combined.

<sup>b</sup> Saw a doctor for symptom.

**Table A.3 Percent and Number of Vietnam and Non-Vietnam Veterans Reporting Allergies, and Odds Ratios, by Selected Medical History Items**

Allergy	Vietnam (N=2490)		Non-Vietnam (N=1972)		Crude Results	
	%	No.	%	No.	OR	95% CI
Ever Had Condition	32.7	794	35.8	694	0.9	0.8-1.0
Current						
Medication	7.7	187	8.8	169	0.9	0.7-1.1
Food	3.3	80	4.2	81	0.8	0.6-1.1
Pollen	16.9	407	19.1	368	0.9	0.7-1.0
House dust	5.3	127	5.8	111	0.9	0.7-1.2
Molds/bacteria	2.1	51	2.3	44	0.9	0.6-1.4
Pets	2.7	65	3.5	68	0.8	0.5-1.1
Other	5.8	139	6.2	118	0.9	0.7-1.2
Diagnosed by a Physician						
Medication	9.0	169	10.9	158	0.8	0.6-1.0
Food	2.7	47	3.9	53	0.7	0.5-1.0
Pollen	9.6	201	12.0	197	0.8	0.6-1.0
House dust	5.0	90	5.8	81	0.8	0.6-1.2
Molds/bacteria	2.4	42	2.8	37	0.9	0.6-1.4
Pets	2.6	46	3.7	50	0.7	0.5-1.1
Other	4.5	82	5.9	83	0.8	0.5-1.0

**Table A.4 Percent and Number of Vietnam and Non-Vietnam Veterans Reporting Medical Conditions Among Immediate Family Members, and Odds Ratios, by Selected Medical History Items**

Condition	Vietnam (N=2490)		Non-Vietnam (N=1972)		Crude Results	
	%	No.	%	No.	OR	95% CI
Diabetes	24.6	602	23.0	445	1.1	0.9-1.3
Hypertension	53.3	1257	51.9	964	1.1	0.9-1.2
Stomach/duodenal ulcer	21.2	507	20.8	395	1.0	0.9-1.2
Asthma	14.0	342	13.9	268	1.0	0.8-1.2
Heart attack before age 45	7.1	174	6.9	134	1.0	0.8-1.3
Alcoholism/alcohol problem	18.3	451	19.9	388	0.9	0.8-1.0

**Table A.5 Percent and Number of Vietnam and Non-Vietnam Veterans Reporting Reproductive Conditions and Problems, and Odds Ratios, by Selected Telephone Interview Items**

Interview Item	Vietnam (N=2490)		Non-Vietnam (N=1972)		Crude Results	
	%	No.	%	No.	OR	95% CI
Had a vasectomy	18.4	457	17.9	353	1.0	0.9-1.2
Failure conceive, 1 partner $\geq$ 1 yr <sup>a</sup>	21.9	544	15.7	309	1.5	1.3-1.8
Failure conceive, >1 partner $\geq$ 1 yr	1.8	046	1.1	021	1.8	1.0-2.9
Infertility condition/diagnosed	5.4	135	3.6	071	1.5	1.1-2.1

<sup>a</sup> Tried to conceive a child with one partner over a period of one or more years without success.



**APPENDIX B**

***Dermatologic Examination Results***



**Table B.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormal Dermatologic Findings, and Odds Ratios, by Selected Examination Items**

Abnormality	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Pigmentation	24.1	599	22.4	441	1.1	1.0-1.3
Hyperpigmentation	4.0	99	3.2	63	1.3	0.9-1.7
Hypopigmentation	3.0	74	2.9	58	1.0	0.7-1.4
Birthmarks	18.5	461	16.9	333	1.1	1.0-1.3
Other	0.3	8	0.7	13	0.5	0.2-1.2
Hair	42.7	1064	45.1	890	0.9	0.8-1.0
Male pattern alopecia	42.1	1047	44.3	874	0.9	0.8-1.0
Scarring alopecia	0.1	2	0.2	3	—	—
Nonscarring alopecia	0.3	8	0.5	9	0.7	0.3-1.8
Hirsutism	0.2	5	0.3	5	0.8	0.2-2.7
Other	0.2	5	0.3	5	0.8	0.2-2.7
Infections	59.1	1471	59.3	1169	1.0	0.9-1.1
Grade I acne	8.2	205	10.1	200	0.8	0.6-1.0
Grade II acne	5.3	133	5.1	100	1.1	0.8-1.4
Grade III acne	1.7	42	1.8	35	0.9	0.6-1.5
Grade IV acne	1.0	24	0.5	10	1.9	0.9-4.0
Atypical acne	0.1	3	0.1	2	—	—
Comedones only	4.3	107	4.6	91	0.9	0.7-1.2
Folliculitis	21.1	524	21.8	430	1.0	0.8-1.1
Hidradenitis suppurativa	0.1	3	0.2	4	—	—
Tinea of nails	15.2	379	14.7	290	1.0	0.9-1.2
Candida	0.5	12	0.4	7	1.4	0.5-3.5
Tinea versicolor	3.6	89	2.7	53	1.3	0.9-1.9
Other tinea	33.1	823	33.7	664	1.0	0.9-1.1
Other infections	0.9	23	0.8	15	1.2	0.6-2.3
Neoplastic	53.5	1331	51.4	1013	1.1	1.0-1.2
Acrochordon	19.2	478	20.4	403	0.9	0.8-1.1
Cancer of skin	0.6	15	0.7	14	0.8	0.4-1.8
Dermatofibromas	9.9	246	10.4	206	0.9	0.8-1.1
Epidermal inclusion cysts	9.4	235	7.2	142	1.3	1.1-1.7

**Table B.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormal Dermatologic Findings, and Odds Ratios, by Selected Examination Items – Continued**

Abnormality	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Neoplastic – continued						
Actinic keratosis	2.8	69	2.1	42	1.3	0.9-1.9
Seborrheic keratosis	10.4	258	10.5	208	1.0	0.8-1.2
Lentigenes	10.3	255	10.2	201	1.0	0.8-1.2
Lipomas	2.3	58	2.3	45	1.0	0.7-1.5
Milia	1.9	47	1.0	19	2.0	1.2-3.4
Atypical nevi	2.3	57	2.8	55	0.8	0.6- 2
Sebaceous hyperplasia	2.4	58	2.8	54	0.8	0.6- 2
Nongenital warts	6.6	163	5.9	116	1.1	0.9- 4
Other	2.4	60	1.7	33	1.5	0.9-2.2
Vascular						
Bruises	32.1	800	34.3	677	0.9	0.8- 0
Bruises	1.6	39	2.1	41	0.8	0.5- 2
Capillarities	0.4	11	0.8	15	0.6	0.3- 3
Hemangiomas	15.6	388	19.4	382	0.8	0.7-0.9
Palmar erythema	0.2	6	0.2	3	—	—
Poikiloderma of Civatte	3.0	74	1.9	38	1.6	1.0-2.3
Spider angiomas	3.2	79	3.7	73	0.9	0.6-1.2
Telangiectasias	10.1	251	8.9	175	1.1	0.9- 4
Vasculitis	0.4	9	0.4	8	0.9	0.3-2.3
Varicosities	5.8	145	5.4	107	1.1	0.8-1.4
Other	0.5	13	0.9	17	0.6	0.3-1.2
Sexually Transmitted Diseases						
Exanthems	2.7	68	2.3	45	1.2	0.8-1.8
Exanthems	—	0	—	0	—	—
Herpetiform lesions	0.8	20	0.7	13	1.2	0.6-2.5
Ulcers	0.1	2	—	0	—	—
Condylomata	1.7	43	1.5	29	1.2	0.7-1.9
Other	0.1	2	0.3	5	—	—
Trauma/Factitial						
Trauma/Factitial	81.6	2030	78.0	1539	1.2	1.1-1.1
Drug tracks	0.3	7	0.5	10	0.6	0.2-1.5
Postinflammatory scars	17.9	444	18.0	355	1.0	0.8-1.2

**Table B.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormal Dermatologic Findings, and Odds Ratios, by Selected Examination Items – Continued**

Abnormality	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Trauma/Factitial – continued						
Surgical scars	39.4	979	38.7	764	1.0	0.9-1.2
Traumatic scars	56.3	1400	54.1	1067	1.1	1.0-1.2
Tattoos	11.8	293	12.2	241	1.0	0.8-1.1
Other	0.4	9	0.2	3	2.4	0.6-8.8
Inflammatory	24.5	610	24.3	480	1.0	0.9-1.2
Aphthosis	0.0	1	0.1	1	–	–
Bullae	0.2	4	0.1	1	–	–
Vesicles	0.1	2	–	0	–	–
Eczematous dermatitis	6.7	167	7.0	137	1.0	0.8-1.2
Dyshidrosis	2.2	55	1.4	28	1.6	1.0-2.5
Lichen simplex chronicus	0.7	18	0.5	10	1.4	0.7-3.1
Lichen planus	0.1	2	0.1	2	–	–
Psoriasis	1.3	33	1.0	19	1.4	0.8-2.4
Excoriations	0.4	9	0.4	7	1.0	0.4-2.7
Rosacea	0.7	17	0.9	17	0.8	0.4-1.6
Seborrheic dermatitis	13.3	330	15.0	295	0.9	0.7-1.0
Angular stomatitis	0.0	1	0.1	1	–	–
Urticaria	0.2	4	0.1	2	–	–
Other	0.8	20	0.9	17	0.9	0.5-1.8
Miscellaneous	37.6	936	38.7	763	1.0	0.8-1.1
Asteatosis	20.2	189	18.8	143	1.1	0.9-1.4
Keratosis pilaris	10.9	270	11.9	234	0.9	0.8-1.1
Photodermatitis NOS <sup>b</sup>	0.1	2	0.1	1	–	–
Pityriasis alba	0.1	3	0.1	1	–	–
Striae	26.5	659	27.7	545	0.9	0.8-1.1
Sunburn	2.0	49	2.5	49	0.8	0.5-1.2
Other	1.7	43	1.4	27	1.3	0.8-2.1

<sup>a</sup> A dash (–) indicates the value was not computed. This occurs when there are fewer than 10 cases in both cohorts combined.

<sup>b</sup> NOS = not otherwise specified.





**APPENDIX C**

***General Physical Examination Results***



**Table C.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormal Findings From the General Physical Examination, and Odds Ratios, by Selected Findings**

Abnormality	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Irregular Pulse	2.9	72	3.0	60	0.9	0.7-1.3
Skull Condition	0.6	16	0.2	3	4.2	1.2-14.6
Eyes, Globe Missing	0.2	4	0.1	1	—	—
Eyes, Conjunctival Discharge	0.0	1	—	0	—	—
Eyes, Corneal Abnormality	1.0	25	0.6	12	1.7	0.8-3.3
Scarring	0.5	13	0.1	2	5.2	1.2-22.9
Cataract	0.3	8	0.3	5	1.3	0.4-3.9
Scleral icterus	0.1	3	0.1	2	—	—
Eyes, Retinal Abnormality	2.9	73	2.1	42	1.4	0.9-2.0
AV nicking <sup>b</sup>	1.8	44	1.3	26	1.3	0.8-2.2
Arteriolar spasm	0.7	18	0.4	8	1.8	0.8-4.1
Exudates	0.1	2	0.2	3	—	—
Papilledema	0.0	1	—	0	—	—
Cupping	0.3	7	0.3	5	1.1	0.4-3.5
Disc pallor	0.2	4	0.1	2	—	—
Hemorrhages	0.0	1	0.1	2	—	—
Ear						
Inflammation	0.5	13	0.7	14	0.7	0.3-1.6
Perforated drum	0.2	6	0.2	3	—	—
Retracted drum	0.9	22	0.9	17	1.0	0.5-1.9
Scarred drum	3.7	88	3.9	73	0.9	0.7-1.3
Bulging drum	0.1	3	0.1	2	—	—
Inflamed drum	0.8	20	1.0	19	0.8	0.4-1.6
Perforated Nasal Septum	0.1	3	—	0	—	—
Nasal Polyps	0.3	7	0.3	5	1.1	0.4-3.5
Nose, Ulceration	0.1	3	0.1	2	—	—
Nose, Bleeding	0.1	2	—	0	—	—
Pharyngitis	0.5	13	0.6	11	0.9	0.4-2.1
Tonsils	0.6	16	0.9	18	0.7	0.4-1.4
Mouth, Dental Status	37.5	934	35.6	702	1.1	1.0-1.2
Dentures	8.6	214	7.7	151	1.1	0.9-1.4
Ulcers	0.3	8	0.3	6	1.1	0.4-3.1
Plaques	0.9	22	0.5	10	1.7	0.8-3.7
Mass	0.2	6	—	0	—	—
Glossitis	0.2	5	0.2	3	—	—
Gums	12.7	316	11.7	231	1.1	0.9-1.3
Gingivitis	12.5	311	11.3	222	1.1	0.9-1.4
Hypertrophy/hyperplasia	0.6	16	0.8	16	0.8	0.4-1.6

**Table C.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormal Findings From the General Physical Examination, and Odds Ratios, by Selected Findings – Continued**

Abnormality	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Sinuses	1.4	34	0.7	14	1.9	1.0-3.6
Salivary Glands	0.3	7	0.4	8	0.7	0.3-1.9
Submental	0.1	2	0.2	4	—	—
Parotid	0.0	1	—	0	—	—
Sublingual	0.2	4	0.1	1	—	—
Deviated Trachea	0.0	1	—	0	—	—
Voice	0.1	2	0.1	1	—	—
Thyroid, Size	0.8	20	0.5	9	1.8	0.8-3.9
Thyroid, Tender	0.0	1	—	0	—	—
Thyroid, Nodules	0.0	1	0.1	2	—	—
Carotid Pulses	0.2	6	0.2	3	—	—
Masses Besides Lymph Nodes	0.9	22	0.3	6	2.9	1.2-7.2
Chest and Lungs						
Asymmetrical excursion	0.0	1	—	0	—	—
Abnormal shape	2.7	66	2.1	41	1.3	0.9-1.9
Decreased expansion	2.7	68	2.7	54	1.0	0.7-1.4
Hyperresonant	1.3	33	1.0	19	1.4	0.8-2.4
Dullness	0.1	3	0.3	6	—	—
Diminished breath sounds	2.5	63	2.6	51	1.0	0.7-1.4
Crackles	1.3	32	0.7	13	2.0	1.0-3.7
Wheezes	1.3	32	1.4	27	0.9	0.6-1.6
Pleural friction rub	0.0	1	0.1	2	—	—
Increased Precordial Impulse	2.2	55	2.1	41	1.1	0.7- 6
Displaced Precordial Impulse	0.4	11	0.3	6	1.5	0.5-3.9
Heart Thrill	0.0	1	0.1	1	—	—
Any Heart Murmurs	8.8	219	8.8	173	1.0	0.8- 2
Systolic	8.5	211	8.6	169	1.0	0.8- 2
Diastolic	0.5	12	0.3	6	1.6	0.6-4.2
Systolic click	2.2	55	2.0	39	1.1	0.7- 7
Gallop sounds	3.2	79	3.2	62	1.0	0.7-1.4
Pericardial Friction Rub	0.0	1	—	0	—	—
Gynecomastia	2.6	64	2.6	52	1.0	0.7-1.4
Nipple Discharge	0.0	1	—	0	—	—
Abdomen						
Ascites	0.0	1	0.1	1	—	—
Visible mass	0.2	4	—	0	—	—
Spider angioma	0.4	11	0.3	6	1.5	0.5-3.9

**Table C.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormal Findings From the General Physical Examination, and Odds Ratios, by Selected Findings – Continued**

Abnormality	Vietnam (N=2490)		Non-Vietnam (N=1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Abdomen – continued						
Palpable mass	0.4	9	0.2	4	1.8	0.5-5.8
Tenderness	1.9	48	1.4	28	1.4	0.9-2.2
Diffuse tenderness	0.2	5	0.1	2	–	–
Rebound tenderness	0.1	2	–	0	–	–
Percussion tenderness	0.2	4	0.1	2	–	–
Palpable Liver	4.8	119	3.7	73	1.3	1.0-1.8
Spleen Palpable	0.2	5	0.1	1	–	–
CVA Tenderness <sup>b</sup>	0.4	9	0.2	4	1.8	0.5-5.8
Bruit						
Abdominal aortic	0.0	1	0.1	1	–	–
Femoral, RT <sup>b</sup>	0.2	4	0.1	1	–	–
Femoral, LT <sup>b</sup>	0.2	4	0.1	1	–	–
Carotid, RT	0.2	4	0.2	4	–	–
Carotid, LT	0.0	1	0.1	1	–	–
Hernia						
Umbilical	0.8	20	1.1	22	0.7	0.4-1.3
Inguinal, RT	1.0	25	1.1	21	0.9	0.5-1.7
Inguinal, LT	0.8	20	1.1	22	0.7	0.4-1.3
Incisional	0.2	5	0.2	3	–	–
Pubic Hair	0.0	1	0.2	4	–	–
Penis, Phimosis	0.2	6	0.2	4	1.2	0.3-4.2
Epididymis, Thick/Tender	1.5	38	1.8	35	0.9	0.5-1.4
Varicocele	5.5	137	5.5	109	1.0	0.8-1.3
Scrotal Mass	2.8	69	2.9	58	0.9	0.7-1.3
Any Prostate	3.1	78	4.0	79	0.8	0.6-1.1
Enlarged	1.7	41	2.5	49	0.7	0.4-1.0
Atrophic	0.8	19	0.8	15	1.0	0.5-2.0
Nodule	0.4	11	0.3	5	1.7	0.6-5.0
Soft	0.2	5	0.4	8	0.5	0.2-1.5
Tender	0.2	6	0.2	4	1.2	0.3-4.2
Hemorrhoids	24.1	598	23.6	465	1.0	0.9-1.2
Anal Fissures	0.2	5	0.2	4	–	–
Rectal Mass	0.2	4	0.4	8	0.4	0.1-1.3
Anal Sphincter Tone	1.0	25	0.9	17	1.2	0.6-2.2

**Table C.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormal Findings From the General Physical Examination, and Odds Ratios, by Selected Findings – Continued**

Abnormality	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Absent Extremities	1.1	28	1.3	26	0.9	0.5-1.5
Finger	1.0	25	1.1	22	0.9	0.5-1.6
Toe	0.1	3	0.1	2	—	—
Arm	—	0	0.2	3	—	—
Leg	—	0	—	0	—	—
Clubbing of Fingers	1.8	44	1.0	19	1.8	1.1-3.2
Clubbing of Toes	0.4	9	0.3	5	1.4	0.5-4.3
Edema	1.5	38	1.3	25	1.2	0.7-2.0
Upper and Lower Extremity						
Acrocyanosis	0.8	19	0.8	15	1.0	0.5-2.0
Decreased range of motion	13.3	330	12.4	245	1.1	0.9-1.3
Joint swelling	1.3	33	1.2	23	1.1	0.7-1.9
Lower Extremity						
Soft tissue mass	1.6	41	1.0	20	1.6	1.0-2.8
Varicose veins	3.2	80	4.1	80	0.8	0.6-1.1
Inflamed veins	0.1	3	—	0	—	—
Spine						
Scoliosis	1.0	24	0.7	14	1.4	0.7-2.6
Kyphosis	0.4	11	0.6	11	0.8	0.3-1.8
Decreased range of motion	4.2	105	5.0	98	0.8	0.6-1.1
Tenderness	1.5	37	1.1	22	1.3	0.8-2.3
Pelvic tilt	0.4	11	0.6	11	0.8	0.3-1.3
Lymph Nodes	2.4	60	2.7	53	0.9	0.6-1.3
Cervical	0.5	13	0.5	9	1.1	0.5-2.7
Occipital	0.2	4	0.3	6	0.5	0.1-1.9
Supraclavicular	—	0	0.1	1	—	—
Axillary	1.2	30	1.2	24	1.0	0.6-1.7
Epitrochlear	0.0	—	0	—	—	—
Inguinal	1.0	26	1.1	22	0.9	0.5-1.7
Body Mass Index, <24kg/m <sup>2</sup> <sup>c</sup>	20.6	513	21.9	432	0.9	0.8-1.1
Body Mass Index, >28kg/m <sup>2</sup>	30.2	752	28.9	569	1.1	0.9-1.3

<sup>a</sup> A dash (—) indicates the value was not computed. This occurs when there are fewer than 10 cases in both cohorts combined.

<sup>b</sup> Abbreviations: AV = arteriovenous, CVA = Costovertebral angle, RT = right, LT = left.

<sup>c</sup> Computed as weight/height<sup>2</sup>.

**Table C.2 Summary Statistics of Measurements From the General Physical Examination:  
Measure – Weight**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>b</sup>												
30-48 yrs	Vietnam	2489	83.8	15.6	0.31	47	62	66	82	103	110	190
30-48 yrs	Non-Vietnam	1972	83.3	15.1	0.34	51	62	66	81	102	110	174
White												
30-39 yrs	Vietnam	1637	83.7	15.2	0.38	50	62	66	82	102	110	180
30-39 yrs	Non-Vietnam	1153	82.7	15.0	0.44	51	62	66	81	101	109	171
40-48 yrs	Vietnam	416	84.6	15.9	0.78	54	63	67	83	104	112	190
40-48 yrs	Non-Vietnam	447	84.9	14.9	0.71	54	65	68	83	104	112	174
Black												
30-39 yrs	Vietnam	211	83.7	17.9	1.23	53	60	64	82	105	114	176
30-39 yrs	Non-Vietnam	181	83.8	16.4	1.22	54	61	65	81	107	114	159
40-48 yrs	Vietnam	75	82.8	16.7	1.93	57	62	65	81	101	109	151
40-48 yrs	Non-Vietnam	58	87.4	16.5	2.17	59	63	68	88	108	123	154

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> All races include white, black, and other.



**Table C.3 Summary Statistics of Measurements From the General Physical Examination:  
Measure – Height**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>a</sup>												
30-48 yrs	Vietnam	2490	176.1	6.7	0.13	150	165	168	176	185	188	198
30-48 yrs	Non-Vietnam	1972	176.3	6.8	0.15	152	165	168	176	185	187	202
White												
30-39 yrs	Vietnam	1638	176.5	6.5	0.16	156	166	168	176	185	188	197
30-39 yrs	Non-Vietnam	1153	176.4	6.8	0.20	152	165	168	177	185	187	202
40-48 yrs	Vietnam	416	176.0	6.9	0.34	150	165	167	176	185	188	197
40-48 yrs	Non-Vietnam	447	177.2	6.2	0.29	155	167	169	177	185	187	194
Black												
30-39 yrs	Vietnam	211	176.7	7.2	0.50	156	165	167	176	186	189	198
30-39 yrs	Non-Vietnam	181	177.0	6.6	0.49	163	165	168	177	186	187	195
40-48 yrs	Vietnam	75	176.4	6.0	0.70	160	165	168	176	184	186	188
40-48 yrs	Non-Vietnam	58	174.9	8.2	1.08	155	160	164	176	185	189	196

<sup>a</sup> All races include white, black, and other.

**Table C.4 Summary Statistics of Measurements From the General Physical Examination:  
Measure – Body Mass Index**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>b</sup>												
30-48 yrs	Vietnam	2489	26.9	4.5	0.09	17	21	22	26	32	35	58
30-48 yrs	Non-Vietnam	1972	26.7	4.5	0.10	16	21	22	26	32	34	67
White												
30-39 yrs	Vietnam	1637	26.8	4.3	0.11	17	21	22	26	32	34	56
30-39 yrs	Non-Vietnam	1153	26.5	4.5	0.13	16	21	22	26	32	34	67
40-48 yrs	Vietnam	416	27.3	4.7	0.23	18	21	22	27	33	35	58
40-48 yrs	Non-Vietnam	447	27.0	4.2	0.20	18	21	22	26	32	34	57
Black												
30-39 yrs	Vietnam	211	26.7	4.9	0.34	18	20	21	26	32	35	49
30-39 yrs	Non-Vietnam	181	26.7	4.8	0.36	17	20	21	27	33	35	46
40-48 yrs	Vietnam	75	26.6	4.8	0.55	19	20	21	26	32	33	45
40-48 yrs	Non-Vietnam	58	28.6	5.5	0.72	20	22	22	28	35	37	53

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> All races include white, black, and other.

**Table C.5 Summary Statistics of Measurements From the General Physical Examination:  
Measure – Pulse Rate**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>b</sup>												
30-48 yrs	Vietnam	2488	81.5	12.3	0.25	44	60	64	80	96	100	130
30-48 yrs	Non-Vietnam	1972	81.2	12.1	0.27	42	60	64	80	96	100	120
White												
30-39 yrs	Vietnam	1637	81.7	12.0	0.30	44	62	66	80	96	100	130
30-39 yrs	Non-Vietnam	1153	81.5	12.1	0.36	44	62	64	80	96	100	120
40-48 yrs	Vietnam	415	82.1	12.2	0.60	44	62	64	82	99	104	120
40-48 yrs	Non-Vietnam	447	80.8	11.7	0.56	42	62	64	80	96	100	120
Black												
30-39 yrs	Vietnam	211	79.1	13.4	0.93	48	60	62	80	96	102	120
30-39 yrs	Non-Vietnam	181	79.8	13.2	0.98	52	60	60	80	96	102	120
40-48 yrs	Vietnam	75	82.6	14.4	1.66	52	60	64	82	100	107	128
40-48 yrs	Non-Vietnam	58	83.2	12.3	1.61	58	60	68	84	100	104	108

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> All races include white, black, and other.

**Table C.6 Summary Statistics of Measurements From the General Physical Examination:  
Measure – Respiratory Rate**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
(Per Minute)												
All Races <sup>b</sup>												
30-48 yrs	Vietnam	2486	18.7	3.4	0.07	8	14	16	20	24	24	78
30-48 yrs	Non-Vietnam	1968	18.6	3.0	0.07	8	15	16	18	24	24	32
White												
30-39 yrs	Vietnam	1636	18.5	3.4	0.08	8	14	16	18	24	24	78
30-39 yrs	Non-Vietnam	1150	18.4	3.0	0.09	10	14	16	18	24	24	32
40-48 yrs	Vietnam	415	18.9	3.0	0.15	12	16	16	20	24	24	32
40-48 yrs	Non-Vietnam	447	18.5	2.8	0.13	12	16	16	18	22	24	28
Black												
30-39 yrs	Vietnam	210	18.9	4.2	0.29	10	16	16	20	24	24	60
30-39 yrs	Non-Vietnam	181	19.3	3.5	0.26	12	16	16	20	24	24	32
40-48 yrs	Vietnam	75	19.3	3.2	0.36	16	16	16	20	24	24	32
40-48 yrs	Non-Vietnam	57	19.3	3.0	0.40	14	16	16	20	24	24	30

<sup>a</sup> Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

<sup>b</sup> All races include white, black, and other.

**Table C.7 Summary Statistics of Measurements From the General Physical Examination:  
Measure – General Palpable Liver – Distance Below Costal Margin**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>b</sup>												
30-48 yrs	Vietnam	119	2.1	1.38	0.13	1	1	1	2	4	5	10
30-48 yrs	Non-Vietnam	73	2.3	1.63	0.19	1	1	1	2	5	6	8
White												
30-39 yrs	Vietnam	75	2.0	1.44	0.17	1	1	1	2	3	4	10
30-39 yrs	Non-Vietnam	51	2.0	1.40	0.20	1	1	1	2	4	6	7
40-48 yrs	Vietnam	20	2.2	1.24	0.28	1	1	1	2	4	5	5
40-48 yrs	Non-Vietnam	9	3.2	2.17	0.72	1	1	1	2	8	8	8
Black												
30-39 yrs	Vietnam	17	2.4	1.50	0.36	1	1	1	2	5	6	6
30-39 yrs	Non-Vietnam	7	2.9	1.95	0.74	1	1	1	2	6	6	6
40-48 yrs	Vietnam	2	2.5	0.71	0.50	2	2	2	3	3	3	3
40-48 yrs	Non-Vietnam	0	—	—	—	—	—	—	—	—	—	—

<sup>a</sup> Numbers are limited to those veterans diagnosed during the physical examination as having palpable liver.

<sup>b</sup> All races include white, black, and other.

**Table C.8 Summary Statistics of Measurements From the General Physical Examination:  
Measure – Percussible Liver Size**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>b</sup>												
30-48 yrs	Vietnam	2489	8.3	1.71	0.03	1	6	6	8	10	11	20
30-48 yrs	Non-Vietnam	1970	8.2	1.72	0.04	1	6	6	8	10	11	16
White												
30-39 yrs	Vietnam	1638	8.3	1.78	0.04	1	6	6	8	10	11	20
30-39 yrs	Non-Vietnam	1153	8.3	1.75	0.05	1	6	6	8	10	11	16
40-48 yrs	Vietnam	416	8.4	1.51	0.07	5	6	7	8	10	11	15
40-48 yrs	Non-Vietnam	446	8.1	1.64	0.08	1	6	6	8	10	11	15
Black												
30-39 yrs	Vietnam	210	8.5	1.60	0.11	5	6	6	8	10	11	15
30-39 yrs	Non-Vietnam	180	8.3	1.70	0.13	1	6	6	8	10	11	13
40-48 yrs	Vietnam	75	8.1	1.67	0.19	1	6	6	8	10	10	12
40-48 yrs	Non-Vietnam	58	7.7	1.49	0.20	1	6	6	8	9	10	10

<sup>a</sup> Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

<sup>b</sup> All races include white, black, and other.

**Table C.9 Summary Statistics of Measurements From the General Physical Examination:  
Measurement by Calipers<sup>a</sup> – Right Testis Size**

Race and Age	Place of Service	N <sup>b</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>c</sup>												
30-48 yrs	Vietnam	1243	4.3	0.97	0.03	1	3	3	4	5	6	20
30-48 yrs	Non-Vietnam	921	4.4	0.87	0.03	1	3	3	4	5	6	10
White												
30-39 yrs	Vietnam	845	4.4	1.01	0.03	1	3	4	4	5	6	20
30-39 yrs	Non-Vietnam	556	4.4	0.81	0.03	2	3	4	4	5	6	8
40-48 yrs	Vietnam	174	4.3	0.89	0.07	2	3	3	4	5	6	8
40-48 yrs	Non-Vietnam	186	4.4	0.90	0.07	1	3	3	4	5	6	7
Black												
30-39 yrs	Vietnam	123	4.2	0.77	0.07	2	3	3	4	5	5	6
30-39 yrs	Non-Vietnam	91	4.3	1.02	0.11	3	3	3	4	5	6	10
40-48 yrs	Vietnam	31	4.0	0.80	0.14	2	3	3	4	5	5	5
40-48 yrs	Non-Vietnam	26	4.3	1.01	0.20	2	2	3	4	6	6	6

<sup>a</sup> Calipers or measuring tapes were used to measure the length of the testis for all those examined before January 1, 1986.

<sup>b</sup> The total numbers may be different for right and left testis size because, overall, 14 veterans were missing the right testis and 10 veterans were missing the left testis.

<sup>c</sup> All races include white, black, and other.

**Table C.10 Summary Statistics of Measurements From the General Physical Examination:  
Measurement by Orchidometers<sup>a</sup> – Right Testis Size**

Race and Age	Place of Service	N <sup>b</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>c</sup>												
30-48 yrs	Vietnam	1233	17.8	5.61	0.16	1	8	10	20	25	25	25
30-48 yrs	Non-Vietnam	1044	17.9	5.62	0.17	1	8	10	20	25	25	25
White												
30-39 yrs	Vietnam	785	18.1	5.53	0.20	1	10	12	20	25	25	25
30-39 yrs	Non-Vietnam	593	18.2	5.57	0.23	2	10	12	20	25	25	25
40-48 yrs	Vietnam	239	18.2	5.58	0.36	2	8	10	20	25	25	25
40-48 yrs	Non-Vietnam	259	18.1	5.67	0.35	1	8	10	20	25	25	25
Black												
30-39 yrs	Vietnam	87	16.0	5.23	0.56	1	8	10	15	25	25	25
30-39 yrs	Non-Vietnam	90	16.7	5.62	0.59	6	8	10	15	25	25	25
40-48 yrs	Vietnam	44	16.1	6.31	0.95	2	4	6	15	25	25	25
40-48 yrs	Non-Vietnam	31	17.2	5.18	0.93	8	8	10	15	25	25	25

<sup>a</sup> Orchidometers (wooden models) were used to estimate the volume of the testis for all those examined after January 1, 1986.

<sup>b</sup> The total numbers may be different for right and left testis size because, overall, 14 veterans were missing the right testis and 10 veterans were missing the left testis.

<sup>c</sup> All races include white, black, and other.



**Table C.11 Summary Statistics of Measurements From the General Physical Examination:  
Measurement by Calipers<sup>a</sup> – Left Testis Size**

Race and Age	Place of Service	N <sup>b</sup>	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>c</sup>												
30-48 yrs	Vietnam	1244	4.3	0.96	0.03	1	3	3	4	5	6	20
30-48 yrs	Non-Vietnam	917	4.3	0.83	0.03	1	3	3	4	5	6	10
White												
30-39 yrs	Vietnam	846	4.3	0.99	0.03	1	3	4	4	5	6	20
30-39 yrs	Non-Vietnam	556	4.3	0.78	0.03	1	3	3	4	5	6	8
40-48 yrs	Vietnam	174	4.3	0.94	0.07	2	3	3	4	5	6	8
40-48 yrs	Non-Vietnam	186	4.4	0.80	0.06	2	3	4	4	5	6	6
Black												
30-39 yrs	Vietnam	123	4.1	0.85	0.08	2	3	3	4	5	5	7
30-39 yrs	Non-Vietnam	89	4.3	1.03	0.11	3	3	3	4	5	6	10
40-48 yrs	Vietnam	31	4.1	0.67	0.12	3	3	3	4	5	5	5
40-48 yrs	Non-Vietnam	26	4.1	0.99	0.19	2	2	3	4	5	6	6

<sup>a</sup> Calipers or measuring tapes were used to measure the length of the testis for all those examined before January 1, 1986.

<sup>b</sup> The total numbers may be different for right and left testis size because, overall, 14 veterans were missing the right testis and 10 veterans were missing the left testis.

<sup>c</sup> All races include white, black, and other.

**Table C.12 Summary Statistics of Measurements From the General Physical Examination:  
Measurement by Orchidometers<sup>a</sup> – Left Testis Size**

Race and Age	Place of Service	<sup>b</sup> N	Mean	S.D.	S.E.	Percentile						
						Min	5th	10th	50th	90th	95th	Max
All Races <sup>c</sup>												
30-48 yrs	Vietnam	1235	16.0	5.60	0.16	1	8	10	15	25	25	25
30-48 yrs	Non-Vietnam	1044	16.3	5.58	0.17	1	8	10	15	25	25	25
White												
30-39 yrs	Vietnam	784	16.2	5.56	0.20	1	8	10	15	25	25	25
30-39 yrs	Non-Vietnam	593	16.5	5.53	0.23	1	8	10	15	25	25	25
40-48 yrs	Vietnam	240	16.5	5.60	0.36	2	8	10	15	25	25	25
40-48 yrs	Non-Vietnam	258	16.5	5.70	0.36	1	8	10	15	25	25	25
Black												
30-39 yrs	Vietnam	87	14.5	5.38	0.58	1	6	8	15	21	25	25
30-39 yrs	Non-Vietnam	90	15.0	5.34	0.56	4	8	8	15	25	25	25
40-48 yrs	Vietnam	44	14.7	5.77	0.87	2	4	9	15	25	25	25
40-48 yrs	Non-Vietnam	32	15.9	5.31	0.94	6	7	11	15	25	25	25

<sup>a</sup> Orchidometers (wooden models) were used to estimate the volume of the testis for all those examined after January 1, 1986.

<sup>b</sup> The total numbers may be different for right and left testis size because, overall, 14 veterans were missing the right testis and 10 veterans were missing the left testis.

<sup>c</sup> All races include white, black, and other.



**APPENDIX D**

***Hematologic and Immune Function Test Results***



**Table D.1 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormally High Values for Hematologic Tests (Upper Limits), and Odds Ratios, by Selected Tests**

Test	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Segmented neutrophils (relative) <sup>b</sup> , >70%	4.1	101	3.2	64	1.3	0.9-1.7
Band neutrophils (relative), >11%	1.1	28	1.1	21	1.1	0.6-1.9
Eosinophils (relative), >8%	0.9	22	1.2	23	0.8	0.4-1.4
Basophils (relative), >2%	0.1	2	0.2	3	—	—
Lymphocytes (relative), >48%	2.7	66	1.9	37	1.4	0.9-2.1
Monocytes (relative), >12%	1.1	27	1.3	25	0.9	0.5-1.5
White blood cells, >11,000/mm <sup>3</sup>	3.3	81	2.6	51	1.3	0.9-1.8
Red blood cells, >6 m/mm <sup>3</sup>	2.2	54	2.6	52	0.8	0.6-1.2
Hemoglobin, >18 g/dl	4.5	113	4.2	83	1.1	0.8-1.4
Hematocrit, >54 mg%	3.4	85	3.4	67	1.0	0.7-1.4
MCV, >101 fl	3.3	83	2.5	49	1.4	0.9-1.9
MCH, >34 pg	3.9	98	3.7	72	1.1	0.8-1.5
MCHC, >36%	0.2	6	0.1	1	—	—
Platelet count, >440 k/mm <sup>3</sup>	1.5	38	1.0	19	1.6	0.9-2.8
Prothrombin time, >14 sec	0.3	8	0.4	7	0.9	0.3-2.5

<sup>a</sup> A dash (—) indicates the value was not computed. This occurs when there are fewer than 10 cases in both cohorts combined.

<sup>b</sup> Percentage of cell type as determined by white blood cell count differential.

**Table D.2 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormally Low Values for Hematologic Tests (Lower Limits), and Odds Ratios, by Selected Tests**

Test	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Segmented neutrophils (relative) <sup>b</sup> , <40%	4.6	115	5.0	98	0.9	0.7-1.2
Lymphocytes (relative), <16%	3.4	84	2.1	42	1.6	1.1-2.3
Monocytes (relative), <2%	1.4	35	0.9	17	1.6	0.9-2.9
White blood cells, <4300/mm <sup>3</sup>	6.7	167	7.6	149	0.9	0.7-1.1
Red blood cells, <4.4 m/mm <sup>3</sup>	2.0	49	1.1	22	1.8	1.1-3.0
Hemoglobin, <14 g/dl	2.4	61	2.3	45	1.1	0.7-1.6
Hematocrit, <41 mg%	1.0	26	0.9	17	1.2	0.7-2.2
MCV, <82 fl	1.2	30	1.3	25	0.9	0.6-1.6
MCH, <27 pg	1.6	39	1.7	34	0.9	0.6-1.4
MCHC, <31.5%	1.3	33	1.6	32	0.8	0.5-1.3
Platelet count, <140 k/mm <sup>3</sup>	0.6	16	0.5	10	1.3	0.6-2.8
Prothrombin time, <10 sec	—	0	—	0	—	—

<sup>a</sup> A dash (—) indicates the value was not computed. This occurs when there are fewer than 10 cases in both cohorts combined.

<sup>b</sup> Percentage of cell type as determined by white blood cell count differential.

**Table D.3 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormally High Values for Hematologic Tests (Upper Limits)<sup>a</sup>, and Odds Ratios, by Selected Tests**

Test	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Segmented neutrophils (absolute) <sup>b</sup>	4.9	121	5.1	101	0.9	0.7 - 1.2
Band neutrophils (absolute)	4.9	123	5.0	98	1.0	0.8 - 1.3
Lymphocytes (absolute)	5.2	130	4.6	91	1.1	0.9 - 1.5
Monocytes (absolute)	5.4	134	4.5	88	1.2	0.9 - 1.6
Eosinophils (absolute)	5.3	133	4.6	90	1.2	0.9 - 1.6
Basophils (absolute)	5.0	125	4.9	96	1.0	0.8 - 1.4

<sup>a</sup> Abnormally high values are > 95th percentile.

<sup>b</sup> Computed by multiplying total white cell count times the percentage of cell type as determined by white blood cell count differential.

**Table D.4 Percent and Number of Vietnam and Non-Vietnam Veterans With Abnormally Low Values for Hematologic Tests (Lower Limits)<sup>a</sup>, and Odds Ratios, by Selected Tests**

Test	Vietnam (N = 2490)		Non-Vietnam (N = 1972)		Crude Results <sup>a</sup>	
	%	No.	%	No.	OR	95% CI
Segmented neutrophils (absolute) <sup>b</sup>	5.2	129	4.8	94	1.1	0.8 - 1.4
Lymphocytes (absolute)	4.8	119	5.3	104	0.9	0.7 - 1.2
Monocytes (absolute)	5.5	136	4.6	90	1.2	0.9 - 1.6

<sup>a</sup> Abnormally low values are < 5th percentile.

<sup>b</sup> Computed by multiplying total white cell count times the percentage of cell type as determined by white blood cell count differential.

**Table D.5 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Hemoglobin**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	16.2	1.14	0.02	9	14	15	16	18	18	21	2.4	4.5
30-48 yrs	Non-Vietnam	1972	16.1	1.12	0.03	10	14	15	16	18	18	20	2.3	4.2
White														
30-39 yrs	Vietnam	1638	16.3	1.06	0.03	11	15	15	16	18	18	21	1.3	4.6
30-39 yrs	Non-Vietnam	1153	16.3	1.07	0.03	11	15	15	16	18	18	20	1.6	4.9
40-48 yrs	Vietnam	416	16.2	1.10	0.05	13	14	15	16	18	18	20	1.4	4.1
40-48 yrs	Non-Vietnam	447	16.1	1.09	0.05	10	14	15	16	18	18	19	1.6	3.6
Black														
30-39 yrs	Vietnam	211	15.7	1.27	0.09	12	14	14	16	18	18	20	7.6	3.8
30-39 yrs	Non-Vietnam	181	15.6	1.10	0.08	12	14	14	16	17	17	19	5.0	2.2
40-48 yrs	Vietnam	75	15.4	1.54	0.18	11	12	14	16	17	18	19	14.7	2.7
40-48 yrs	Non-Vietnam	58	15.4	1.42	0.19	12	13	13	16	17	18	19	15.5	1.7

<sup>a</sup> The low reference value for hemoglobin is 14.0 grams per deciliter.

<sup>b</sup> The high reference value for hemoglobin is 18.0 grams per deciliter.

<sup>c</sup> All races include white, black, and other.



**Table D.6 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Hematocrit**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	48.5	3.18	0.06	33	44	45	49	53	54	62	1.0	3.4
30-48 yrs	Non-Vietnam	1972	48.4	3.09	0.07	33	44	45	48	52	53	60	0.9	3.4
White														
30-39 yrs	Vietnam	1638	48.7	3.04	0.08	35	44	45	49	53	54	62	0.5	3.2
30-39 yrs	Non-Vietnam	1153	48.6	3.03	0.09	37	44	45	49	52	54	60	0.6	4.2
40-48 yrs	Vietnam	416	48.4	3.14	0.15	39	43	45	48	53	54	59	1.4	3.4
40-48 yrs	Non-Vietnam	447	48.2	3.07	0.15	33	43	44	48	52	53	57	0.9	2.2
Black														
30-39 yrs	Vietnam	211	47.8	3.48	0.24	36	43	44	48	53	54	59	0.9	4.7
30-39 yrs	Non-Vietnam	181	47.5	3.00	0.22	38	43	44	47	51	52	59	1.1	1.7
40-48 yrs	Vietnam	75	47.1	4.15	0.48	37	38	42	47	52	54	57	6.7	4.0
40-48 yrs	Non-Vietnam	58	47.2	3.54	0.46	37	40	42	48	51	54	56	5.2	1.7

<sup>a</sup> The low reference value for hematocrit is 41%.

<sup>b</sup> The high reference value for hematocrit is 54%.

<sup>c</sup> All races include white, black, and other.

**Table D.7 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Mean Cell Volume (MCV)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	93.1	4.55	0.09	63	86	88	93	99	100	112	1.2	3.3
30-48 yrs	Non-Vietnam	1972	92.9	4.51	0.10	60	86	88	93	98	100	108	1.3	2.5
White														
30-39 yrs	Vietnam	1638	93.4	4.09	0.10	68	87	88	93	99	100	107	0.3	3.0
30-39 yrs	Non-Vietnam	1153	93.1	4.13	0.12	64	87	88	93	98	100	107	0.4	2.3
40-48 yrs	Vietnam	416	93.2	4.17	0.20	65	87	88	93	98	100	107	0.7	3.4
40-48 yrs	Non-Vietnam	447	92.9	4.42	0.21	65	86	88	93	98	99	108	0.7	2.5
Black														
30-39 yrs	Vietnam	211	91.9	6.53	0.45	64	80	86	92	99	101	112	5.7	5.7
30-39 yrs	Non-Vietnam	181	91.7	5.91	0.44	69	79	84	92	98	100	105	6.6	2.2
40-48 yrs	Vietnam	75	91.2	6.84	0.79	75	78	81	91	100	102	108	10.7	6.7
40-48 yrs	Non-Vietnam	58	91.2	7.12	0.94	60	78	83	93	99	101	103	8.6	5.2

<sup>a</sup> The low reference value for MCV is 82 femptoliters.

<sup>b</sup> The high reference value for MCV is 101 femptoliters.

<sup>c</sup> All races include white, black, and other.

**Table D.8 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Mean Corpuscular Hemoglobin (MCH)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile							% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>
						Min	5th	10th	50th	90th	95th	Max		
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	31.1	1.83	0.04	18	28	29	31	33	34	39	1.6	3.9
30-48 yrs	Non-Vietnam	1972	31.0	1.84	0.04	18	28	29	31	33	34	38	1.7	3.7
White														
30-39 yrs	Vietnam	1638	31.2	1.60	0.04	21	29	29	31	33	34	37	0.4	4.0
30-39 yrs	Non-Vietnam	1153	31.2	1.68	0.05	20	29	29	31	33	34	37	0.6	4.2
40-48 yrs	Vietnam	416	31.2	1.65	0.08	22	29	29	31	33	34	37	0.7	4.1
40-48 yrs	Non-Vietnam	447	31.0	1.75	0.08	20	28	29	31	33	34	38	1.1	2.9
Black														
30-39 yrs	Vietnam	211	30.3	2.63	0.18	19	25	28	31	33	34	39	7.1	4.7
30-39 yrs	Non-Vietnam	181	30.1	2.25	0.17	22	26	27	30	33	34	35	7.7	2.8
40-48 yrs	Vietnam	75	29.9	2.90	0.34	22	25	26	30	33	34	37	16.0	4.0
40-48 yrs	Non-Vietnam	58	29.8	2.82	0.37	18	25	26	30	33	34	34	12.1	3.4

<sup>a</sup> The low reference value for MCH is 27 picograms.

<sup>b</sup> The high reference value for MCH is 34 picograms.

<sup>c</sup> All races include white, black, and other.

**Table D.9 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Mean Corpuscular Hemoglobin Concentration (MCHC)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	33.4	0.95	0.02	28	32	32	33	35	35	37	1.3	0.2
30-48 yrs	Non-Vietnam	1972	33.4	0.94	0.02	29	32	32	33	35	35	36	1.6	0.1
White														
30-39 yrs	Vietnam	1638	33.5	0.91	0.02	31	32	32	33	35	35	37	0.4	0.4
30-39 yrs	Non-Vietnam	1153	33.5	0.88	0.03	29	32	32	33	35	35	36	0.7	0.1
40-48 yrs	Vietnam	416	33.4	0.91	0.04	31	32	32	33	35	35	36	0.2	–
40-48 yrs	Non-Vietnam	447	33.4	0.94	0.04	30	32	32	33	35	35	36	1.1	–
Black														
30-39 yrs	Vietnam	211	32.9	1.05	0.07	30	31	32	33	34	35	35	8.1	–
30-39 yrs	Non-Vietnam	181	32.8	0.97	0.07	31	31	32	33	34	34	36	6.6	–
40-48 yrs	Vietnam	75	32.8	1.13	0.13	29	31	31	33	34	35	36	8.0	–
40-48 yrs	Non-Vietnam	58	32.6	1.08	0.14	29	31	31	33	34	34	35	10.3	–

<sup>a</sup> The low reference value for MCHC is 31.5%.

<sup>b</sup> The high reference value for MCHC is 36.0%.

<sup>c</sup> All races include white, black, and other.

**Table D.10 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Prothrombin Time**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	12.4	0.46	0.01	11	12	12	12	13	13	21	0.3
30-48 yrs	Non-Vietnam	1972	12.4	0.44	0.01	10	12	12	12	13	13	19	0.4
White													
30-39 yrs	Vietnam	1638	12.4	0.45	0.01	11	12	12	12	13	13	21	0.1
30-39 yrs	Non-Vietnam	1153	12.4	0.45	0.01	11	12	12	12	13	13	19	0.3
40-48 yrs	Vietnam	416	12.4	0.41	0.02	11	12	12	12	13	13	16	0.2
40-48 yrs	Non-Vietnam	447	12.4	0.38	0.02	10	12	12	12	13	13	13	–
Black													
30-39 yrs	Vietnam	211	12.5	0.56	0.04	11	12	12	12	13	14	17	0.9
30-39 yrs	Non-Vietnam	181	12.6	0.50	0.04	11	12	12	13	13	13	15	1.7
40-48 yrs	Vietnam	75	12.5	0.59	0.07	11	12	12	12	13	13	15	2.7
40-48 yrs	Non-Vietnam	58	12.5	0.43	0.06	12	12	12	12	13	13	14	–

<sup>a</sup> Reference value for prothrombin time is 14 seconds.

<sup>b</sup> All races include white, black, and other.

**Table D.11 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test — Red Cell Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	5.2	0.40	0.01	4	5	5	5	6	6	7	2.0	2.2
30-48 yrs	Non-Vietnam	1972	5.2	0.38	0.01	4	5	5	5	6	6	7	1.1	2.6
White														
30-39 yrs	Vietnam	1638	5.2	0.37	0.01	4	5	5	5	6	6	7	1.5	1.5
30-39 yrs	Non-Vietnam	1153	5.2	0.36	0.01	4	5	5	5	6	6	6	0.8	2.3
40-48 yrs	Vietnam	416	5.2	0.40	0.02	4	5	5	5	6	6	7	1.9	2.9
40-48 yrs	Non-Vietnam	447	5.2	0.38	0.02	4	5	5	5	6	6	7	1.3	1.6
Black														
30-39 yrs	Vietnam	211	5.2	0.52	0.04	4	4	5	5	6	6	7	4.3	4.7
30-39 yrs	Non-Vietnam	181	5.2	0.45	0.03	4	5	5	5	6	6	7	2.2	5.0
40-48 yrs	Vietnam	75	5.2	0.49	0.06	4	4	5	5	6	6	6	4.0	4.0
40-48 yrs	Non-Vietnam	58	5.2	0.54	0.07	4	4	5	5	6	6	7	1.7	8.6

<sup>a</sup> The low reference value for red cell count is 4.4 millions per cubic millimeter.

<sup>b</sup> The high reference value for red cell count is 6.0 millions per cubic millimeter.

<sup>c</sup> All races include white, black, and other.

**Table D.12 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Platelet Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Thousands Per Cubic Millimeter)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	280	62.1	1.24	72	191	209	274	354	382	758	0.6	1.5
30-48 yrs	Non-Vietnam	1972	279	59.5	1.34	89	188	207	275	352	381	538	0.5	1.0
White														
30-39 yrs	Vietnam	1638	283	60.6	1.50	104	195	215	276	357	388	626	0.3	1.6
30-39 yrs	Non-Vietnam	1153	279	58.2	1.71	96	188	208	275	352	374	538	0.4	1.0
40-48 yrs	Vietnam	416	276	60.1	2.95	118	192	209	273	346	379	758	0.5	1.0
40-48 yrs	Non-Vietnam	447	277	58.9	2.79	102	192	208	274	350	387	491	0.4	1.1
Black														
30-39 yrs	Vietnam	211	273	67.7	4.66	72	178	193	269	350	382	523	2.4	2.4
30-39 yrs	Non-Vietnam	181	280	64.3	4.78	89	164	195	282	361	388	465	1.1	0.6
40-48 yrs	Vietnam	75	266	82.2	9.50	97	166	182	262	343	378	747	2.7	1.3
40-48 yrs	Non-Vietnam	58	264	68.8	9.03	116	177	192	251	356	433	439	1.7	–

<sup>a</sup> The low reference value for platelet count is 140 thousands per cubic millimeter.

<sup>b</sup> The high reference value for platelet count is 440 thousands per cubic millimeter.

<sup>c</sup> All races include white, black, and other.

**Table D.13 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Test – Leukocyte Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
<b>All Races<sup>c</sup></b>														
30-48 yrs	Vietnam	2490	6.7	1.98	0.04	2	4	5	6	9	10	17	6.7	3.3
30-48 yrs	Non-Vietnam	1972	6.5	1.90	0.04	2	4	4	6	9	10	17	7.6	2.6
<b>White</b>														
30-39 yrs	Vietnam	1638	6.8	1.94	0.05	3	4	5	7	10	10	17	4.3	3.2
30-39 yrs	Non-Vietnam	1153	6.7	1.91	0.06	2	4	5	6	9	10	16	6.1	2.7
40-48 yrs	Vietnam	416	6.8	2.06	0.10	3	4	5	6	10	11	16	5.8	5.0
40-48 yrs	Non-Vietnam	447	6.6	1.84	0.09	2	4	4	6	9	10	13	6.3	2.9
<b>Black</b>														
30-39 yrs	Vietnam	211	5.9	2.07	0.14	2	3	4	6	8	9	17	23.7	2.4
30-39 yrs	Non-Vietnam	181	6.0	1.89	0.14	2	3	4	6	9	10	13	16.0	0.6
40-48 yrs	Vietnam	75	6.0	1.82	0.21	3	3	4	6	8	10	13	17.3	1.3
40-48 yrs	Non-Vietnam	58	5.7	1.75	0.23	3	4	4	6	8	10	11	20.7	3.4

<sup>a</sup> The low reference value for leukocyte count is 4.3 thousands per cubic millimeter.

<sup>b</sup> The high reference value for leukocyte count is 11 thousands per cubic millimeter.

<sup>c</sup> All races include white, black, and other.



**Table D.14 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Segmented Neutrophils (Relative)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Percent)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	54.8	8.98	0.18	15	40	44	55	66	69	84	4.6	4.1
30-48 yrs	Non-Vietnam	1972	54.5	8.80	0.20	16	40	43	55	65	69	81	5.0	3.2
White														
30-39 yrs	Vietnam	1638	55.7	8.42	0.21	25	42	45	56	67	70	82	2.7	4.9
30-39 yrs	Non-Vietnam	1153	55.3	8.46	0.25	31	41	45	55	66	70	81	3.2	4.0
40-48 yrs	Vietnam	416	56.4	8.14	0.40	30	42	45	57	67	68	84	2.2	3.1
40-48 yrs	Non-Vietnam	447	55.6	7.98	0.38	29	43	45	55	66	69	80	2.0	3.8
Black														
30-39 yrs	Vietnam	211	47.7	11.08	0.76	15	27	33	48	61	66	80	21.3	1.4
30-39 yrs	Non-Vietnam	181	48.8	10.29	0.76	16	32	36	49	61	65	72	18.8	0.6
40-48 yrs	Vietnam	75	50.2	9.95	1.15	31	34	38	49	63	68	77	16.0	2.7
40-48 yrs	Non-Vietnam	58	47.8	8.89	1.17	30	34	36	48	61	63	68	20.7	—

<sup>a</sup> The low reference value for relative neutrophils is 40%.

<sup>b</sup> The high reference value for relative neutrophils is 70%.

<sup>c</sup> All races include white, black, and other.

**Table D.15 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Segmented Neutrophil Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Thousands Per Cubic Millimeter)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	3.8	1.51	0.03	0.7	1.8	2.1	3.5	5.7	6.6	13.7	5.2	4.9
30-48 yrs	Non-Vietnam	1972	3.6	1.45	0.03	0.7	1.9	2.1	3.4	5.5	6.6	11.5	4.8	5.1
White														
30-39 yrs	Vietnam	1638	3.9	1.49	0.04	0.9	2.0	2.3	3.6	5.8	6.7	12.6	3.2	5.4
30-39 yrs	Non-Vietnam	1153	3.7	1.46	0.04	0.9	2.0	2.2	3.4	5.6	6.8	10.9	2.9	5.7
40-48 yrs	Vietnam	416	3.9	1.55	0.08	1.1	2.1	2.3	3.6	5.9	7.0	12.6	3.1	5.8
40-48 yrs	Non-Vietnam	447	3.7	1.38	0.07	0.7	2.0	2.3	3.4	5.7	6.6	9.8	2.5	4.9
Black														
30-39 yrs	Vietnam	211	2.9	1.57	0.11	0.7	1.1	1.3	2.7	4.6	5.4	13.7	22.7	2.4
30-39 yrs	Non-Vietnam	181	3.0	1.42	0.11	0.7	1.2	1.5	2.7	5.0	5.8	9.1	18.2	3.3
40-48 yrs	Vietnam	75	3.1	1.42	0.16	1.0	1.4	1.5	2.9	5.0	5.6	9.7	17.3	1.3
40-48 yrs	Non-Vietnam	58	2.8	1.29	0.17	0.9	1.4	1.5	2.5	4.4	6.1	7.4	20.7	3.4

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table D.16 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Lymphocytes (Relative)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	30.4	8.53	0.17	5	17	20	30	41	45	75	3.4	2.7
30-48 yrs	Non-Vietnam	1972	30.5	8.14	0.18	8	18	20	30	41	44	71	2.1	1.9
White														
30-39 yrs	Vietnam	1638	29.5	7.84	0.19	5	17	19	29	39	43	62	4.1	0.9
30-39 yrs	Non-Vietnam	1153	29.6	7.63	0.22	8	18	20	29	40	43	56	2.6	1.0
40-48 yrs	Vietnam	416	29.1	7.40	0.36	8	18	20	29	39	41	60	2.6	1.0
40-48 yrs	Non-Vietnam	447	29.4	7.31	0.35	10	17	20	29	39	42	54	1.8	0.2
Black														
30-39 yrs	Vietnam	211	38.2	10.52	0.72	11	22	26	37	53	57	75	1.4	17.1
30-39 yrs	Non-Vietnam	181	36.6	9.59	0.71	13	21	24	36	48	52	71	0.6	8.8
40-48 yrs	Vietnam	75	35.7	9.84	1.14	13	20	22	36	48	54	56	1.3	9.3
40-48 yrs	Non-Vietnam	58	37.4	8.87	1.16	16	21	24	38	49	52	58	—	10.3

<sup>a</sup> The low reference value for relative lymphocytes is 16%.

<sup>b</sup> The high reference value for relative lymphocytes is 48%.

<sup>c</sup> All races include white, black, and other.

**Table D.17 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Lymphocyte Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Thousands Per Cubic Millimeter)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	2.0	0.63	0.01	0.5	1.1	1.3	1.9	2.8	3.1	7.9	4.8	5.2
30-48 yrs	Non-Vietnam	1972	1.9	0.59	0.01	0.4	1.1	1.2	1.9	2.7	3.0	5.0	5.3	4.6
White														
30-39 yrs	Vietnam	1638	1.9	0.59	0.01	0.5	1.1	1.3	1.9	2.7	3.0	5.1	5.0	4.3
30-39 yrs	Non-Vietnam	1153	1.9	0.58	0.02	0.4	1.1	1.2	1.8	2.7	3.0	4.8	5.6	4.2
40-48 yrs	Vietnam	416	1.9	0.61	0.03	0.5	1.1	1.2	1.8	2.8	3.0	6.1	5.5	4.6
40-48 yrs	Non-Vietnam	447	1.9	0.54	0.03	0.7	1.1	1.2	1.8	2.6	2.9	4.1	5.6	2.7
Black														
30-39 yrs	Vietnam	211	2.2	0.79	0.05	0.6	1.2	1.4	2.1	3.0	3.4	7.9	3.3	9.0
30-39 yrs	Non-Vietnam	181	2.1	0.66	0.05	0.7	1.2	1.3	2.1	3.1	3.5	4.5	3.9	11.0
40-48 yrs	Vietnam	75	2.1	0.66	0.08	1.1	1.2	1.3	2.0	3.0	3.2	4.6	2.7	6.7
40-48 yrs	Non-Vietnam	58	2.1	0.58	0.08	1.0	1.2	1.4	1.9	3.0	3.2	3.5	3.4	6.9

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table D.18 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Monocytes (Relative)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	6.0	2.44	0.05	0	2	3	6	9	10	17	1.4	1.1
30-48 yrs	Non-Vietnam	1972	6.2	2.44	0.05	0	3	3	6	9	10	20	0.9	1.3
White														
30-39 yrs	Vietnam	1638	6.1	2.41	0.06	0	3	3	6	9	10	16	1.3	1.0
30-39 yrs	Non-Vietnam	1153	6.2	2.42	0.07	1	3	3	6	9	11	17	0.7	1.4
40-48 yrs	Vietnam	416	6.2	2.43	0.12	1	3	3	6	9	11	15	1.2	1.0
40-48 yrs	Non-Vietnam	447	6.3	2.28	0.11	1	3	3	6	9	10	14	0.7	0.9
Black														
30-39 yrs	Vietnam	211	5.7	2.76	0.19	0	2	2	5	9	10	17	2.4	2.8
30-39 yrs	Non-Vietnam	181	6.1	2.90	0.22	0	2	3	6	10	11	20	1.7	2.2
40-48 yrs	Vietnam	75	5.7	2.61	0.30	2	2	3	5	9	11	12	—	—
40-48 yrs	Non-Vietnam	58	5.9	2.79	0.37	1	2	3	5	11	11	13	1.7	1.7

<sup>a</sup> The low reference value for relative monocytes is 2%.

<sup>b</sup> The high reference value for relative monocytes is 12%.

<sup>c</sup> All races include white, black, and other.

**Table D.19 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Monocyte Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Thousands Per Cubic Millimeter)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	0.39	0.17	0.003	0.00	0.15	0.20	0.37	0.61	0.70	1.47	5.5	5.4
30-48 yrs	Non-Vietnam	1972	0.39	0.17	0.004	0.00	0.16	0.20	0.37	0.61	0.67	1.41	4.6	4.5
White														
30-39 yrs	Vietnam	1638	0.40	0.17	0.004	0.00	0.16	0.21	0.38	0.62	0.71	1.47	4.3	5.9
30-39 yrs	Non-Vietnam	1153	0.40	0.16	0.005	0.06	0.17	0.21	0.38	0.61	0.67	1.41	3.4	4.0
40-48 yrs	Vietnam	416	0.41	0.18	0.009	0.07	0.15	0.21	0.39	0.64	0.73	1.44	5.3	6.2
40-48 yrs	Non-Vietnam	447	0.40	0.17	0.008	0.04	0.18	0.21	0.38	0.62	0.72	1.24	3.4	5.6
Black														
30-39 yrs	Vietnam	211	0.31	0.16	0.011	0.00	0.11	0.15	0.28	0.52	0.59	1.12	11.8	2.4
30-39 yrs	Non-Vietnam	181	0.36	0.18	0.014	0.00	0.12	0.16	0.32	0.62	0.71	1.06	8.8	6.1
40-48 yrs	Vietnam	75	0.33	0.17	0.020	0.08	0.11	0.16	0.28	0.54	0.71	1.00	9.3	5.3
40-48 yrs	Non-Vietnam	58	0.33	0.18	0.024	0.07	0.11	0.12	0.29	0.65	0.69	0.78	13.8	3.4

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table D.20 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Band Neutrophils (Relative)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Percent)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	2.4	2.41	0.05	0	0	0	2	5	7	20	1.1
30-48 yrs	Non-Vietnam	1972	2.5	2.52	0.06	0	0	0	2	6	7	35	1.1
White													
30-39 yrs	Vietnam	1638	2.5	2.37	0.06	0	0	0	2	5	7	19	0.9
30-39 yrs	Non-Vietnam	1153	2.7	2.57	0.08	0	0	0	2	6	8	20	1.2
40-48 yrs	Vietnam	416	2.6	2.58	0.13	0	0	0	2	5	7	20	1.7
40-48 yrs	Non-Vietnam	447	2.5	2.12	0.10	0	0	0	2	5	7	14	0.4
Black													
30-39 yrs	Vietnam	211	1.5	1.76	0.12	0	0	0	1	4	5	13	0.5
30-39 yrs	Non-Vietnam	181	1.9	2.26	0.17	0	0	0	1	4	5	18	1.1
40-48 yrs	Vietnam	75	1.7	2.06	0.24	0	0	0	1	4	5	14	1.3
40-48 yrs	Non-Vietnam	58	1.6	1.62	0.21	0	0	0	1	4	5	7	—

<sup>a</sup> Reference value for relative neutrophils is 11%.

<sup>b</sup> All races include white, black, and other.

**Table D.21 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Band Neutrophil Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						MIn	5th	10th	50th	90th	95th		Max
(In Thousands Per Cubic Millimeter)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	0.17	0.20	0.004	0.00	0.00	0.00	0.11	0.38	0.53	2.12	4.9
30-48 yrs	Non-Vietnam	1972	0.17	0.20	0.005	0.00	0.00	0.00	0.11	0.39	0.53	3.29	5.0
White													
30-39 yrs	Vietnam	1638	0.18	0.20	0.005	0.00	0.00	0.00	0.12	0.40	0.57	1.64	5.5
30-39 yrs	Non-Vietnam	1153	0.18	0.20	0.006	0.00	0.00	0.00	0.12	0.44	0.56	2.82	5.9
40-48 yrs	Vietnam	416	0.18	0.20	0.010	0.00	0.00	0.00	0.12	0.39	0.54	2.12	4.8
40-48 yrs	Non-Vietnam	447	0.17	0.17	0.008	0.00	0.00	0.00	0.12	0.38	0.51	1.25	4.0
Black													
30-39 yrs	Vietnam	211	0.09	0.15	0.010	0.00	0.00	0.00	0.05	0.25	0.34	1.66	0.9
30-39 yrs	Non-Vietnam	181	0.12	0.16	0.012	0.00	0.00	0.00	0.07	0.26	0.36	1.35	2.2
40-48 yrs	Vietnam	75	0.11	0.14	0.016	0.00	0.00	0.00	0.06	0.26	0.33	0.92	1.3
40-48 yrs	Non-Vietnam	58	0.09	0.11	0.014	0.00	0.00	0.00	0.06	0.29	0.36	0.45	—

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.



**Table D.22 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Eosinophils (Relative)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	2.1	1.83	0.04	0	0	0	2	4	6	17	0.9
30-48 yrs	Non-Vietnam	1972	2.1	1.87	0.04	0	0	0	2	4	5	22	1.2
White													
30-39 yrs	Vietnam	1638	2.2	1.81	0.04	0	0	0	2	5	6	14	0.7
30-39 yrs	Non-Vietnam	1153	2.1	1.80	0.05	0	0	0	2	4	5	16	1.2
40-48 yrs	Vietnam	416	2.0	1.92	0.09	0	0	0	2	4	6	12	1.7
40-48 yrs	Non-Vietnam	447	2.1	2.04	0.10	0	0	0	2	4	5	22	1.1
Black													
30-39 yrs	Vietnam	211	2.1	2.07	0.14	0	0	0	2	4	6	17	1.4
30-39 yrs	Non-Vietnam	181	2.2	1.95	0.15	0	0	0	2	5	6	12	1.7
40-48 yrs	Vietnam	75	2.0	1.46	0.17	0	0	0	2	4	5	6	–
40-48 yrs	Non-Vietnam	58	2.4	2.22	0.29	0	0	0	2	5	6	11	1.7

<sup>a</sup> Reference value for relative eosinophils is 8%.

<sup>b</sup> All races include white, black, and other.

**Table D.23 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Eosinophil Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Thousands Per Cubic Millimeter)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	0.14	0.13	0.003	0.00	0.00	0.00	0.10	0.30	0.38	1.20	5.3
30-48 yrs	Non-Vietnam	1972	0.14	0.13	0.003	0.00	0.00	0.00	0.11	0.28	0.37	1.25	4.6
White													
30-39 yrs	Vietnam	1638	0.15	0.13	0.003	0.00	0.00	0.00	0.11	0.31	0.39	1.20	5.6
30-39 yrs	Non-Vietnam	1153	0.14	0.13	0.004	0.00	0.00	0.00	0.11	0.28	0.37	1.18	4.9
40-48 yrs	Vietnam	416	0.13	0.13	0.006	0.00	0.00	0.00	0.10	0.30	0.41	0.87	6.2
40-48 yrs	Non-Vietnam	447	0.14	0.13	0.006	0.00	0.00	0.00	0.11	0.28	0.36	1.25	4.3
Black													
30-39 yrs	Vietnam	211	0.12	0.13	0.009	0.00	0.00	0.00	0.09	0.26	0.35	1.12	4.3
30-39 yrs	Non-Vietnam	181	0.13	0.12	0.009	0.00	0.00	0.00	0.09	0.28	0.36	0.96	3.9
40-48 yrs	Vietnam	75	0.12	0.09	0.010	0.00	0.00	0.00	0.09	0.25	0.28	0.37	—
40-48 yrs	Non-Vietnam	58	0.13	0.11	0.015	0.00	0.00	0.00	0.10	0.28	0.31	0.63	3.4

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table D.24 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Basophils (Relative)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Percent)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	0.4	0.52	0.01	0	0	0	0	1	1	3	0.1
30-48 yrs	Non-Vietnam	1972	0.4	0.52	0.01	0	0	0	0	1	1	3	0.2
White													
30-39 yrs	Vietnam	1638	0.4	0.51	0.01	0	0	0	0	1	1	2	–
30-39 yrs	Non-Vietnam	1153	0.4	0.52	0.02	0	0	0	0	1	1	3	0.2
40-48 yrs	Vietnam	416	0.4	0.52	0.03	0	0	0	0	1	1	3	0.2
40-48 yrs	Non-Vietnam	447	0.5	0.53	0.03	0	0	0	0	1	1	3	0.2
Black													
30-39 yrs	Vietnam	211	0.5	0.55	0.04	0	0	0	0	1	1	3	0.5
30-39 yrs	Non-Vietnam	181	0.4	0.53	0.04	0	0	0	0	1	1	2	–
40-48 yrs	Vietnam	75	0.5	0.58	0.07	0	0	0	0	1	1	2	–
40-48 yrs	Non-Vietnam	58	0.5	0.50	0.07	0	0	0	1	1	1	1	–

<sup>a</sup> Reference value for relative basophils is 2%.

<sup>b</sup> All races include white, black, and other.

**Table D.25 Summary Statistics for Laboratory Tests Associated With Hematologic Function:  
Cell Type – Basophil Count**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	0.029	0.036	0.001	0.000	0.000	0.000	0.000	0.080	0.093	0.202	5.0
30-48 yrs	Non-Vietnam	1972	0.028	0.036	0.001	0.000	0.000	0.000	0.000	0.078	0.092	0.210	4.9
White													
30-39 yrs	Vietnam	1638	0.029	0.036	0.001	0.000	0.000	0.000	0.000	0.080	0.092	0.202	4.8
30-39 yrs	Non-Vietnam	1153	0.029	0.036	0.001	0.000	0.000	0.000	0.000	0.080	0.093	0.210	5.1
40-48 yrs	Vietnam	416	0.028	0.037	0.002	0.000	0.000	0.000	0.000	0.078	0.097	0.194	6.2
40-48 yrs	Non-Vietnam	447	0.030	0.036	0.002	0.000	0.000	0.000	0.000	0.078	0.095	0.148	5.4
Black													
30-39 yrs	Vietnam	211	0.026	0.034	0.002	0.000	0.000	0.000	0.000	0.076	0.082	0.135	3.3
30-39 yrs	Non-Vietnam	181	0.021	0.031	0.002	0.000	0.000	0.000	0.000	0.068	0.084	0.114	3.3
40-48 yrs	Vietnam	75	0.029	0.035	0.004	0.000	0.000	0.000	0.000	0.078	0.089	0.134	4.0
40-48 yrs	Non-Vietnam	58	0.029	0.032	0.004	0.000	0.000	0.000	0.014	0.071	0.079	0.114	3.4

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table D.26 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Relative B-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	12.2	4.44	0.09	1	6	7	12	18	20	34	4.3	5.4
30-48 yrs	Non-Vietnam	1972	12.0	4.28	0.10	0	6	7	12	18	20	33	4.4	4.5
White														
30-39 yrs	Vietnam	1637	12.3	4.36	0.11	1	6	7	12	18	20	34	3.8	5.1
30-39 yrs	Non-Vietnam	1153	12.1	4.21	0.12	1	6	7	12	18	20	33	3.5	4.9
40-48 yrs	Vietnam	416	12.0	4.46	0.22	3	6	7	12	18	21	34	5.3	5.8
40-48 yrs	Non-Vietnam	447	11.8	4.22	0.20	3	6	6	11	18	19	28	5.6	3.6
Black														
30-39 yrs	Vietnam	211	11.7	4.16	0.29	2	6	7	11	17	20	29	4.7	4.3
30-39 yrs	Non-Vietnam	181	11.7	4.14	0.31	3	5	7	12	17	19	27	6.6	2.2
40-48 yrs	Vietnam	75	12.0	5.23	0.60	4	4	6	12	19	22	28	9.3	8.0
40-48 yrs	Non-Vietnam	58	12.2	4.60	0.60	0	5	7	12	18	20	26	5.2	3.4

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.27 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test — Absolute B-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In One Thousand Per Cubic Millimeter)														
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	0.27	0.15	0.003	0.03	0.10	0.13	0.24	0.46	0.55	1.34	4.4	5.2
30-48 yrs	Non-Vietnam	1972	0.26	0.13	0.003	0.01	0.10	0.12	0.24	0.45	0.52	1.10	4.2	4.1
White														
30-39 yrs	Vietnam	1637	0.27	0.15	0.004	0.03	0.10	0.13	0.24	0.47	0.55	1.29	4.1	5.3
30-39 yrs	Non-Vietnam	1153	0.27	0.14	0.004	0.02	0.10	0.12	0.24	0.45	0.53	1.10	4.2	4.2
40-48 yrs	Vietnam	416	0.26	0.14	0.007	0.05	0.09	0.12	0.24	0.42	0.50	1.29	5.5	3.1
40-48 yrs	Non-Vietnam	447	0.25	0.12	0.006	0.05	0.09	0.12	0.22	0.42	0.51	0.79	5.1	2.9
Black														
30-39 yrs	Vietnam	211	0.28	0.14	0.010	0.05	0.11	0.13	0.26	0.49	0.58	0.84	2.8	5.2
30-39 yrs	Non-Vietnam	181	0.28	0.14	0.011	0.06	0.10	0.13	0.25	0.48	0.54	0.79	4.4	4.4
40-48 yrs	Vietnam	75	0.29	0.19	0.022	0.04	0.09	0.11	0.26	0.53	0.65	1.18	8.0	8.0
40-48 yrs	Non-Vietnam	58	0.28	0.14	0.018	0.01	0.10	0.14	0.26	0.48	0.56	0.66	3.4	5.2

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.28 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Relative T-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th (In Percent)	10th	50th	90th	95th			Max
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	70.7	7.63	0.15	29	57	61	71	80	82	90	4.4	4.9
30-48 yrs	Non-Vietnam	1972	70.6	7.64	0.17	35	57	61	71	80	82	91	4.4	5.0
White														
30-39 yrs	Vietnam	1637	70.9	7.37	0.18	40	58	61	72	80	82	90	4.1	4.8
30-39 yrs	Non-Vietnam	1153	71.1	7.23	0.21	38	58	62	72	80	82	91	3.6	5.5
40-48 yrs	Vietnam	416	70.7	7.94	0.39	29	57	61	71	79	82	89	4.1	5.0
40-48 yrs	Non-Vietnam	447	70.4	7.98	0.38	36	57	60	71	80	82	88	4.3	4.7
Black														
30-39 yrs	Vietnam	211	70.1	7.85	0.54	44	56	59	71	80	81	86	4.7	4.3
30-39 yrs	Non-Vietnam	181	69.1	8.02	0.60	35	53	60	70	78	80	86	7.7	1.7
40-48 yrs	Vietnam	75	69.1	8.49	0.98	45	55	60	70	81	83	85	5.3	8.0
40-48 yrs	Non-Vietnam	58	69.0	8.34	1.09	41	51	59	69	80	81	83	5.2	1.7

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.29 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Absolute T-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In One Thousand Per Cubic Millimeter)														
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	1.6	0.53	0.01	0.3	0.8	1.0	1.5	2.2	2.5	5.8	4.8	5.2
30-48 yrs	Non-Vietnam	1972	1.5	0.50	0.01	0.3	0.8	1.0	1.5	2.2	2.4	3.8	5.1	4.7
White														
30-39 yrs	Vietnam	1637	1.6	0.51	0.01	0.3	0.8	1.0	1.5	2.2	2.5	4.7	4.8	4.8
30-39 yrs	Non-Vietnam	1153	1.5	0.50	0.01	0.3	0.8	1.0	1.5	2.2	2.4	3.8	5.4	4.6
40-48 yrs	Vietnam	416	1.5	0.54	0.03	0.4	0.8	0.9	1.4	2.2	2.5	5.4	6.0	5.0
40-48 yrs	Non-Vietnam	447	1.5	0.47	0.02	0.5	0.8	0.9	1.4	2.1	2.3	3.4	5.8	2.9
Black														
30-39 yrs	Vietnam	211	1.7	0.60	0.04	0.6	0.9	1.0	1.6	2.4	2.8	4.1	3.3	7.6
30-39 yrs	Non-Vietnam	181	1.6	0.51	0.04	0.5	0.9	1.0	1.6	2.4	2.6	3.6	3.3	7.7
40-48 yrs	Vietnam	75	1.6	0.50	0.06	0.6	0.9	1.0	1.5	2.3	2.4	3.1	4.0	4.0
40-48 yrs	Non-Vietnam	58	1.6	0.51	0.07	0.6	0.9	1.0	1.5	2.3	2.7	3.0	1.7	6.9

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.



**Table D.30 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Relative T4-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th (In Percent)	10th	50th	90th	95th			Max
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	48.8	7.90	0.16	5	36	39	49	59	62	75	4.2	5.6
30-48 yrs	Non-Vietnam	1972	48.5	7.95	0.18	13	36	38	49	59	61	76	4.8	4.3
White														
30-39 yrs	Vietnam	1637	49.1	7.68	0.19	25	37	39	49	59	62	75	3.7	6.1
30-39 yrs	Non-Vietnam	1153	48.9	7.74	0.23	13	36	39	49	59	61	73	3.9	4.2
40-48 yrs	Vietnam	416	49.5	8.62	0.42	5	37	39	50	60	62	74	3.8	7.2
40-48 yrs	Non-Vietnam	447	49.3	8.17	0.39	22	35	39	49	59	62	76	4.9	6.5
Black														
30-39 yrs	Vietnam	211	46.9	7.59	0.52	21	35	37	47	57	59	65	5.7	2.4
30-39 yrs	Non-Vietnam	181	46.4	7.91	0.59	17	33	37	46	57	59	63	6.6	2.2
40-48 yrs	Vietnam	75	46.9	7.74	0.89	29	32	38	47	57	59	67	8.0	1.3
40-48 yrs	Non-Vietnam	58	45.3	7.98	1.05	17	32	33	46	55	58	60	12.1	–

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.31 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Absolute T4-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile							% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>
						Min	5th	10th	50th	90th	95th	Max		
(In One Thousand Per Cubic Millimeter)														
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	1.1	0.37	0.01	0.0	0.6	0.6	1.0	1.6	1.8	2.8	4.5	5.5
30-48 yrs	Non-Vietnam	1972	1.1	0.35	0.01	0.3	0.5	0.6	1.0	1.5	1.7	2.7	5.0	3.9
White														
30-39 yrs	Vietnam	1637	1.1	0.36	0.01	0.3	0.6	0.7	1.0	1.5	1.7	2.5	4.2	4.9
30-39 yrs	Non-Vietnam	1153	1.1	0.36	0.01	0.3	0.6	0.6	1.0	1.5	1.7	2.7	4.9	4.4
40-48 yrs	Vietnam	416	1.1	0.38	0.02	0.0	0.5	0.6	1.0	1.6	1.8	2.7	6.0	5.8
40-48 yrs	Non-Vietnam	447	1.0	0.35	0.02	0.3	0.6	0.6	1.0	1.5	1.7	2.4	4.3	3.1
Black														
30-39 yrs	Vietnam	211	1.1	0.40	0.03	0.4	0.6	0.6	1.1	1.7	1.9	2.8	3.3	7.6
30-39 yrs	Non-Vietnam	181	1.1	0.36	0.03	0.4	0.5	0.6	1.1	1.6	1.7	2.7	6.6	3.3
40-48 yrs	Vietnam	75	1.1	0.38	0.04	0.4	0.6	0.6	1.0	1.6	1.8	2.2	4.0	6.7
40-48 yrs	Non-Vietnam	58	1.1	0.34	0.05	0.3	0.6	0.6	1.0	1.6	1.7	1.9	3.4	3.4

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.32 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Relative T8-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th (In Percent)	10th	50th	90th	95th			Max
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	27.4	6.84	0.14	10	17	19	27	36	39	76	4.5	4.7
30-48 yrs	Non-Vietnam	1972	27.6	6.99	0.16	11	17	19	27	37	40	63	4.6	5.3
White														
30-39 yrs	Vietnam	1637	27.1	6.62	0.16	10	17	19	27	36	39	61	4.5	4.0
30-39 yrs	Non-Vietnam	1153	27.4	6.90	0.20	11	17	19	27	36	40	63	4.7	4.9
40-48 yrs	Vietnam	416	27.1	7.09	0.35	13	17	19	26	36	39	66	4.6	4.6
40-48 yrs	Non-Vietnam	447	26.9	6.93	0.33	13	17	18	27	36	39	57	5.4	4.9
Black														
30-39 yrs	Vietnam	211	29.2	7.10	0.49	13	19	22	28	39	42	55	1.9	9.5
30-39 yrs	Non-Vietnam	181	28.7	6.93	0.51	15	19	21	28	37	41	51	2.8	7.2
40-48 yrs	Vietnam	75	28.0	6.89	0.80	13	15	17	29	37	40	42	9.3	5.3
40-48 yrs	Non-Vietnam	58	29.3	8.09	1.06	18	19	21	28	37	43	61	–	8.6

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.33 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test -- Absolute T8-Lymphocytes**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In One Thousand Per Cubic Millimeter)														
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	0.61	0.28	0.006	0.12	0.28	0.34	0.57	0.92	1.05	4.88	4.2	4.5
30-48 yrs	Non-Vietnam	1972	0.60	0.25	0.006	0.13	0.28	0.33	0.56	0.92	1.08	2.59	4.4	5.3
White														
30-39 yrs	Vietnam	1637	0.60	0.25	0.006	0.12	0.28	0.34	0.56	0.90	1.03	2.48	4.5	4.0
30-39 yrs	Non-Vietnam	1153	0.59	0.24	0.007	0.13	0.28	0.33	0.55	0.91	1.06	2.35	4.9	4.8
40-48 yrs	Vietnam	416	0.58	0.29	0.014	0.19	0.26	0.32	0.53	0.90	1.02	4.30	5.5	3.6
40-48 yrs	Non-Vietnam	447	0.57	0.23	0.011	0.19	0.27	0.32	0.53	0.87	0.97	1.71	5.6	2.9
Black														
30-39 yrs	Vietnam	211	0.71	0.32	0.022	0.23	0.34	0.38	0.66	1.06	1.28	2.71	1.9	9.5
30-39 yrs	Non-Vietnam	181	0.68	0.29	0.021	0.15	0.33	0.37	0.63	1.09	1.34	1.68	1.1	11.6
40-48 yrs	Vietnam	75	0.63	0.22	0.025	0.25	0.32	0.38	0.61	0.97	1.07	1.15	1.3	4.0
40-48 yrs	Non-Vietnam	58	0.69	0.30	0.039	0.24	0.29	0.36	0.62	1.03	1.31	1.96	1.7	6.9

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.34 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – T4/T8 Ratio**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2489	1.9	0.72	0.01	0.3	1.0	1.1	1.8	2.9	3.3	7.0	4.7	5.1
30-48 yrs	Non-Vietnam	1972	1.9	0.72	0.02	0.3	1.0	1.1	1.8	2.8	3.3	5.8	5.3	4.7
White														
30-39 yrs	Vietnam	1637	2.0	0.73	0.02	0.4	1.0	1.2	1.8	2.9	3.3	7.0	3.6	5.2
30-39 yrs	Non-Vietnam	1153	1.9	0.72	0.02	0.4	1.0	1.1	1.8	2.9	3.4	5.8	4.8	5.0
40-48 yrs	Vietnam	416	2.0	0.75	0.04	0.3	1.0	1.1	1.9	3.0	3.6	4.7	5.5	7.2
40-48 yrs	Non-Vietnam	447	2.0	0.76	0.04	0.5	1.0	1.1	1.9	3.0	3.4	5.1	4.7	5.8
Black														
30-39 yrs	Vietnam	211	1.7	0.60	0.04	0.4	0.9	1.0	1.7	2.5	2.8	4.4	9.0	1.4
30-39 yrs	Non-Vietnam	181	1.7	0.63	0.05	0.3	0.9	1.1	1.6	2.7	2.9	3.8	7.7	2.2
40-48 yrs	Vietnam	75	1.8	0.73	0.08	0.8	1.0	1.0	1.7	3.0	3.5	4.0	9.3	6.7
40-48 yrs	Non-Vietnam	58	1.7	0.51	0.07	0.5	0.9	1.0	1.7	2.5	2.8	2.8	10.3	—

<sup>a</sup> Numbers do not add to 2,490 for Vietnam veterans because of missing data.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table D.35 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Serum Immunoglobulin A (IgA)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	229	105.2	2.1	1	98	120	212	360	411	1340	4.4	5.0
30-48 yrs	Non-Vietnam	1972	224	97.8	2.2	1	91	114	211	351	407	850	5.6	4.8
White														
30-39 yrs	Vietnam	1638	220	96.4	2.4	1	94	114	205	345	394	756	5.1	3.9
30-39 yrs	Non-Vietnam	1153	218	94.0	2.8	1	89	114	206	332	384	850	6.2	3.3
40-48 yrs	Vietnam	416	220	97.1	4.8	11	99	117	207	339	403	647	4.1	4.1
40-48 yrs	Non-Vietnam	447	218	100.7	4.8	3	88	109	202	361	421	554	6.3	5.6
Black														
30-39 yrs	Vietnam	211	268	112.3	7.7	14	124	145	248	404	489	748	1.4	9.5
30-39 yrs	Non-Vietnam	181	243	100.0	7.4	21	100	125	232	406	422	606	3.9	8.3
40-48 yrs	Vietnam	75	282	151.3	17.5	87	112	138	255	502	634	849	4.0	13.3
40-48 yrs	Non-Vietnam	58	254	102.4	13.4	76	103	124	242	390	425	626	3.4	6.9

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table D.36 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Serum Immunoglobulin G (IgG)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	1110	286.6	5.7	440	734	801	1070	1455	1607	3570	5.0	4.8
30-48 yrs	Non-Vietnam	1972	1110	290.2	6.5	338	735	806	1070	1455	1617	4360	5.0	5.1
White														
30-39 yrs	Vietnam	1638	1062	234.0	5.8	454	720	787	1045	1360	1470	2650	6.0	2.2
30-39 yrs	Non-Vietnam	1153	1056	247.2	7.3	338	715	786	1030	1345	1468	3535	6.0	1.9
40-48 yrs	Vietnam	416	1044	243.3	11.9	440	710	779	1025	1321	1440	2780	6.0	1.4
40-48 yrs	Non-Vietnam	447	1052	234.4	11.1	474	702	780	1040	1315	1448	2365	6.5	2.5
Black														
30-39 yrs	Vietnam	211	1449	374.1	25.8	764	967	1082	1370	1879	2117	3570	–	24.2
30-39 yrs	Non-Vietnam	181	1437	390.0	29.0	802	958	1021	1385	1891	2032	4360	–	24.9
40-48 yrs	Vietnam	75	1413	344.2	39.7	475	906	1056	1405	1747	1905	3240	1.3	17.3
40-48 yrs	Non-Vietnam	58	1346	282.9	37.1	807	923	984	1320	1743	1903	2050	–	20.7

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table D.37 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Serum Immunoglobulin M (IgM)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	135	71.9	1.4	17	56	67	120	214	253	969	4.7	4.6
30-48 yrs	Non-Vietnam	1972	136	75.0	1.7	21	56	68	122	217	258	1115	4.7	5.1
White														
30-39 yrs	Vietnam	1638	132	68.0	1.7	34	55	66	120	208	240	969	5.0	3.5
30-39 yrs	Non-Vietnam	1153	136	74.7	2.2	31	56	68	122	215	256	1040	4.9	4.8
40-48 yrs	Vietnam	416	129	63.0	3.1	17	55	64	116	206	248	680	5.0	4.3
40-48 yrs	Non-Vietnam	447	129	59.4	2.8	40	58	68	117	203	230	586	4.3	3.1
Black														
30-39 yrs	Vietnam	211	152	85.1	5.9	42	56	68	128	273	324	452	4.3	12.3
30-39 yrs	Non-Vietnam	181	148	100.5	7.5	21	60	68	128	252	294	1115	3.3	9.4
40-48 yrs	Vietnam	75	134	87.7	10.1	47	57	67	120	211	273	720	4.0	5.3
40-48 yrs	Non-Vietnam	58	122	66.9	8.8	41	46	54	105	227	298	302	12.1	8.6

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.



**Table D.38 Summary Statistics for Laboratory Tests Associated With Immune System:  
Test – Hypersensitivity Skin Tests – Total Induration**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>c</sup>													
30-48 yrs	Vietnam	2479	17.0	11.02	0.22	0	3	5	15	32	39	78	3.8
30-48 yrs	Non-Vietnam	1963	16.3	10.68	0.24	0	3	5	14	31	37	73	4.5
White													
30-39 yrs	Vietnam	1631	16.7	10.70	0.26	0	4	5	15	31	38	78	3.2
30-39 yrs	Non-Vietnam	1147	15.7	10.39	0.31	0	3	5	14	30	36	73	4.5
40-48 yrs	Vietnam	415	15.4	10.35	0.51	0	2	4	14	29	37	56	6.0
40-48 yrs	Non-Vietnam	446	15.9	10.61	0.50	0	3	4	14	32	38	51	4.5
Black													
30-39 yrs	Vietnam	209	21.0	11.65	0.81	0	4	8	19	38	43	70	3.8
30-39 yrs	Non-Vietnam	179	19.7	10.55	0.79	0	6	8	18	34	41	58	2.2
40-48 yrs	Vietnam	75	22.3	15.12	1.75	0	3	6	21	46	55	73	4.0
40-48 yrs	Non-Vietnam	58	19.4	11.92	1.56	0	3	5	21	33	50	52	3.4

<sup>a</sup> Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

<sup>b</sup> Reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

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**APPENDIX E**

***Other Laboratory Test Results***



**Table E.1 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Alanine Aminotransferase**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile							% Above Reference <sup>a</sup>
						Min	5th	10th	50th	90th	95th	Max	
(In International Units Per Liter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	36.8	53.2	1.07	3	8	11	26	67	95	1322	5.3
30-48 yrs	Non-Vietnam	1972	34.0	32.7	0.74	3	8	11	25	63	86	502	4.4
White													
30-39 yrs	Vietnam	1638	35.8	56.6	-1.40	3	8	11	25	63	90	1322	4.5
30-39 yrs	Non-Vietnam	1153	33.2	34.5	1.01	3	8	10	24	58	80	502	3.7
40-48 yrs	Vietnam	416	33.0	39.4	1.93	3	7	10	24	62	84	592	3.8
40-48 yrs	Non-Vietnam	447	32.6	28.6	1.35	3	8	11	25	63	86	263	4.3
Black													
30-39 yrs	Vietnam	211	44.6	53.4	3.67	3	8	12	30	92	120	623	10.0
30-39 yrs	Non-Vietnam	181	36.8	32.0	2.38	4	8	10	26	82	95	231	5.5
40-48 yrs	Vietnam	75	33.9	39.7	4.59	3	5	8	24	57	133	248	6.7
40-48 yrs	Non-Vietnam	58	30.7	22.0	2.89	3	5	8	25	57	73	126	3.4

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.2 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Aspartate Aminotransferase**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	30.4	30.1	0.60	4	13	15	25	44	58	800	5.4
30-48 yrs	Non-Vietnam	1972	28.9	17.3	0.39	5	13	16	25	44	54	342	4.4
White													
30-39 yrs	Vietnam	1638	28.5	28.9	0.71	5	12	15	24	41	51	800	3.9
30-39 yrs	Non-Vietnam	1153	27.4	15.4	0.45	6	13	15	25	40	50	203	3.6
40-48 yrs	Vietnam	416	28.0	18.0	0.88	4	12	15	25	40	49	258	3.8
40-48 yrs	Non-Vietnam	447	27.2	13.6	0.64	5	13	15	25	42	48	132	2.2
Black													
30-39 yrs	Vietnam	211	41.3	41.9	2.88	11	16	18	31	65	98	406	13.7
30-39 yrs	Non-Vietnam	181	37.3	30.4	2.26	7	16	19	30	59	80	342	9.9
40-48 yrs	Vietnam	75	41.8	51.2	5.91	11	17	19	29	59	125	388	9.3
40-48 yrs	Non-Vietnam	58	32.1	15.2	2.00	13	17	19	27	57	72	83	10.3

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.3 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Gamma Glutamyl Transferase**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In International Units Per Liter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	60.6	118.7	2.38	10	20	23	37	99	150	3028	5.5
30-48 yrs	Non-Vietnam	1972	53.6	69.7	1.57	12	20	22	36	90	131	1181	4.4
White													
30-39 yrs	Vietnam	1638	50.1	56.1	1.39	10	20	22	36	88	120	868	3.3
30-39 yrs	Non-Vietnam	1153	47.4	49.2	1.45	12	19	22	34	81	117	764	3.2
40-48 yrs	Vietnam	416	47.4	44.0	2.16	13	20	23	36	81	99	523	2.4
40-48 yrs	Non-Vietnam	447	45.6	43.9	2.07	12	19	22	33	74	104	476	2.5
Black													
30-39 yrs	Vietnam	211	149.9	346.4	23.85	16	25	29	59	303	558	3028	21.3
30-39 yrs	Non-Vietnam	181	94.2	151.3	11.25	14	22	26	50	179	362	1181	12.2
40-48 yrs	Vietnam	75	95.2	124.1	14.33	23	28	31	50	233	410	675	16.0
40-48 yrs	Non-Vietnam	58	84.1	118.4	15.54	15	20	27	44	167	407	642	12.1

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.4 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – D-Glucuric Acid, Urine**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milligrams Per Gram of Creatinine)													
All Races <sup>c</sup>													
30-48 yrs	Vietnam	2489	13.0	11.1	0.22	2	4	5	11	23	29	197	5.1
30-48 yrs	Non-Vietnam	1970	12.5	10.2	0.23	2	4	5	10	22	29	195	4.9
White													
30-39 yrs	Vietnam	1637	13.1	10.1	0.25	2	4	5	11	23	30	187	5.2
30-39 yrs	Non-Vietnam	1152	12.4	10.0	0.30	2	4	5	10	22	28	195	4.3
40-48 yrs	Vietnam	416	13.0	10.9	0.54	2	4	5	10	24	30	127	6.0
40-48 yrs	Non-Vietnam	447	13.0	10.9	0.52	2	4	5	10	25	32	150	6.9
Black													
30-39 yrs	Vietnam	211	12.7	13.8	0.95	2	4	5	10	22	28	179	3.8
30-39 yrs	Non-Vietnam	181	11.5	7.6	0.56	2	4	4	9	21	27	41	3.9
40-48 yrs	Vietnam	75	10.7	6.7	0.77	3	4	4	9	19	24	38	2.7
40-48 yrs	Non-Vietnam	57	11.6	12.7	1.69	3	3	4	9	19	31	94	5.3

<sup>a</sup> Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

<sup>b</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.5 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Total Bilirubin**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milligrams Per Deciliter of Serum)													
All Races <sup>c</sup>													
30-48 yrs	Vietnam	1837	0.87	0.396	0.009	0.12	0.46	0.52	0.80	1.28	1.57	5.79	5.1
30-48 yrs	Non-Vietnam	1399	0.87	0.357	0.010	0.15	0.47	0.52	0.80	1.30	1.56	4.00	4.9
White													
30-39 yrs	Vietnam	1226	0.87	0.365	0.010	0.12	0.46	0.52	0.80	1.27	1.55	4.55	4.8
30-39 yrs	Non-Vietnam	828	0.87	0.357	0.012	0.28	0.45	0.52	0.80	1.30	1.59	3.05	5.2
40-48 yrs	Vietnam	287	0.87	0.390	0.023	0.36	0.46	0.50	0.80	1.27	1.59	3.42	4.9
40-48 yrs	Non-Vietnam	312	0.88	0.397	0.022	0.15	0.48	0.52	0.80	1.33	1.62	4.00	5.8
Black													
30-39 yrs	Vietnam	164	0.90	0.466	0.036	0.33	0.48	0.52	0.78	1.45	1.69	4.23	8.5
30-39 yrs	Non-Vietnam	125	0.86	0.285	0.026	0.38	0.48	0.54	0.80	1.31	1.48	1.57	0.8
40-48 yrs	Vietnam	53	0.88	0.481	0.066	0.37	0.41	0.47	0.71	1.48	2.01	2.84	7.5
40-48 yrs	Non-Vietnam	39	0.82	0.327	0.052	0.43	0.44	0.50	0.70	1.18	1.64	1.77	7.7

<sup>a</sup> Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

<sup>b</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.



**Table E.6 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Unconjugated Bilirubin**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	0.56	0.302	0.006	0.01	0.21	0.28	0.51	0.91	1.12	3.47	4.9
30-48 yrs	Non-Vietnam	1972	0.58	0.300	0.007	0.01	0.23	0.28	0.51	0.93	1.14	3.13	5.3
White													
30-39 yrs	Vietnam	1638	0.57	0.299	0.007	0.01	0.21	0.28	0.51	0.91	1.12	3.47	4.9
30-39 yrs	Non-Vietnam	1153	0.58	0.300	0.009	0.01	0.22	0.28	0.51	0.92	1.15	2.61	5.6
40-48 yrs	Vietnam	416	0.56	0.300	0.015	0.01	0.21	0.26	0.50	0.90	1.10	2.16	4.8
40-48 yrs	Non-Vietnam	447	0.59	0.318	0.015	0.05	0.23	0.29	0.54	0.95	1.22	3.13	6.0
Black													
30-39 yrs	Vietnam	211	0.56	0.310	0.021	0.01	0.23	0.28	0.48	0.96	1.20	2.01	5.7
30-39 yrs	Non-Vietnam	181	0.57	0.289	0.022	0.06	0.23	0.27	0.50	0.97	1.08	2.44	2.2
40-48 yrs	Vietnam	75	0.53	0.297	0.034	0.06	0.19	0.22	0.46	0.88	1.31	1.58	5.3
40-48 yrs	Non-Vietnam	58	0.50	0.264	0.035	0.11	0.18	0.23	0.42	0.90	1.13	1.40	5.2

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.7 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test — Lactic Dehydrogenase**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In International Units Per Liter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	420.3	87.6	1.76	187	320	339	410	507	544	1713	4.9
30-48 yrs	Non-Vietnam	1972	417.3	72.9	1.64	163	319	338	408	509	548	931	5.2
White													
30-39 yrs	Vietnam	1638	413.2	76.4	1.89	187	320	337	407	494	530	1713	3.5
30-39 yrs	Non-Vietnam	1153	409.5	68.9	2.03	192	316	333	402	496	533	832	3.7
40-48 yrs	Vietnam	416	418.2	71.3	3.50	201	313	334	414	507	547	686	5.0
40-48 yrs	Non-Vietnam	447	418.1	70.9	3.35	163	324	346	411	507	527	931	3.8
Black													
30-39 yrs	Vietnam	211	449.9	113.5	7.81	258	315	344	432	561	654	1272	11.8
30-39 yrs	Non-Vietnam	181	444.3	88.2	6.56	297	331	340	432	557	620	774	12.7
40-48 yrs	Vietnam	75	444.7	106.4	12.29	321	335	351	429	525	592	946	4.0
40-48 yrs	Non-Vietnam	58	444.1	84.8	11.14	281	298	335	438	562	576	699	17.2

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.8 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Total Porphyrin, Urine**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Micrograms Per Gram of Creatinine)													
All Races <sup>c</sup>													
30-48 yrs	Vietnam	1241	49.4	29.7	0.84	5	18	22	44	80	94	420	5.2
30-48 yrs	Non-Vietnam	1043	47.6	24.6	0.76	2	19	23	43	77	92	234	4.5
White													
30-39 yrs	Vietnam	790	50.7	27.2	0.97	6	19	23	47	81	94	326	5.2
30-39 yrs	Non-Vietnam	593	48.9	23.5	0.96	2	21	25	44	78	92	192	4.6
40-48 yrs	Vietnam	240	46.8	23.0	1.48	9	18	22	41	79	90	134	4.6
40-48 yrs	Non-Vietnam	257	48.4	28.7	1.79	8	18	22	43	81	96	234	5.4
Black													
30-39 yrs	Vietnam	87	44.1	46.0	4.93	11	14	17	35	74	86	420	3.4
30-39 yrs	Non-Vietnam	90	42.8	21.0	2.22	7	17	18	40	72	75	137	2.2
40-48 yrs	Vietnam	44	45.5	30.8	4.65	12	15	17	37	84	116	174	4.5
40-48 yrs	Non-Vietnam	32	39.8	20.2	3.56	12	15	21	36	64	85	121	3.1

<sup>a</sup> Restricted to those examined before January 1, 1986.

<sup>b</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.9 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Coproporphyrin, Urine**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Micrograms Per Gram of Creatinine)													
All Races <sup>c</sup>													
30-48 yrs	Vietnam	1241	41.9	22.3	0.63	5	15	19	38	69	80	266	4.8
30-48 yrs	Non-Vietnam	1043	41.2	22.1	0.68	2	16	19	37	69	80	234	4.8
White													
30-39 yrs	Vietnam	790	43.2	21.4	0.76	5	16	20	40	70	82	149	5.1
30-39 yrs	Non-Vietnam	593	42.2	21.0	0.86	2	17	21	39	69	79	179	4.4
40-48 yrs	Vietnam	240	40.0	20.5	1.32	8	15	18	35	66	79	132	3.7
40-48 yrs	Non-Vietnam	257	41.8	26.0	1.62	6	14	18	37	73	85	234	6.6
Black													
30-39 yrs	Vietnam	87	34.9	19.5	2.09	8	14	15	29	63	76	125	3.4
30-39 yrs	Non-Vietnam	90	37.1	18.5	1.95	7	13	16	33	64	72	99	2.2
40-48 yrs	Vietnam	44	38.8	24.8	3.73	12	14	17	33	66	86	148	4.5
40-48 yrs	Non-Vietnam	32	34.9	19.2	3.40	12	13	17	32	52	79	121	3.1

<sup>a</sup> Restricted to those examined after January 1, 1986.

<sup>b</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.10 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Uroporphyrin, Urine**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Micrograms Per Gram of Creatinine)													
All Races <sup>c</sup>													
30-48 yrs	Vietnam	736	12.4	19.5	0.72	1	4	5	10	19	23	353	5.4
30-48 yrs	Non-Vietnam	612	10.9	6.5	0.26	1	4	5	10	18	22	52	4.2
White													
30-39 yrs	Vietnam	475	12.3	15.2	0.70	1	4	5	10	19	23	281	5.7
30-39 yrs	Non-Vietnam	359	11.1	6.0	0.32	1	4	5	10	19	22	52	3.6
40-48 yrs	Vietnam	151	10.9	5.3	0.43	1	4	5	11	18	20	35	2.6
40-48 yrs	Non-Vietnam	156	10.8	7.4	0.59	1	4	5	10	17	21	51	4.5
Black													
30-39 yrs	Vietnam	47	16.1	50.5	7.36	2	3	5	7	16	27	353	4.3
30-39 yrs	Non-Vietnam	52	9.9	6.5	0.90	2	3	4	8	18	24	38	5.8
40-48 yrs	Vietnam	22	13.4	13.3	2.84	1	2	5	9	29	58	63	18.2
40-48 yrs	Non-Vietnam	17	9.2	6.4	1.54	2	2	3	9	20	28	28	5.9

<sup>a</sup> Restricted to those examined after January 1, 1986. There were an additional 936 veterans for whom uroporphyrins were not detected.

<sup>b</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.11 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Total Cholesterol**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
<i>(In Milligrams Per Deciliter of Serum)</i>													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	213.9	42.1	0.84	61	151	164	211	267	283	631	5.1
30-48 yrs	Non-Vietnam	1972	211.2	41.0	0.92	74	149	161	209	264	281	384	4.7
White													
30-39 yrs	Vietnam	1638	213.3	42.8	1.06	80	148	163	210	266	282	631	4.8
30-39 yrs	Non-Vietnam	1153	209.6	39.3	1.16	92	150	162	207	261	278	384	3.9
40-48 yrs	Vietnam	416	217.7	38.0	1.87	103	159	170	218	269	284	329	5.3
40-48 yrs	Non-Vietnam	447	215.6	40.0	1.89	104	152	165	216	269	282	355	4.7
Black													
30-39 yrs	Vietnam	211	208.7	39.7	2.74	61	152	164	208	260	277	320	3.3
30-39 yrs	Non-Vietnam	181	207.8	46.8	3.48	74	132	151	208	266	289	376	6.6
40-48 yrs	Vietnam	75	209.2	43.1	4.97	100	142	158	206	273	291	312	6.7
40-48 yrs	Non-Vietnam	58	217.6	45.2	5.93	121	148	156	214	279	293	336	6.9

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.12 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – High-Density Lipoprotein (HDL) Cholesterol**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milligrams Per Deciliter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	44.5	12.4	0.25	7	28	31	43	60	66	134	5.3
30-48 yrs	Non-Vietnam	1972	44.9	12.5	0.28	9	29	31	43	61	68	126	4.3
White													
30-39 yrs	Vietnam	1638	43.7	11.1	0.28	7	28	31	42	59	64	100	5.2
30-39 yrs	Non-Vietnam	1153	44.1	12.0	0.35	9	29	31	43	59	66	126	4.8
40-48 yrs	Vietnam	416	42.8	11.8	0.58	20	28	30	41	58	66	108	7.2
40-48 yrs	Non-Vietnam	447	44.2	11.6	0.55	14	29	32	43	59	65	109	4.3
Black													
30-39 yrs	Vietnam	211	52.0	17.7	1.22	15	28	35	49	73	87	134	4.7
30-39 yrs	Non-Vietnam	181	50.7	15.1	1.12	23	31	33	48	73	78	103	1.7
40-48 yrs	Vietnam	75	51.3	15.6	1.80	19	30	36	49	74	88	101	4.0
40-48 yrs	Non-Vietnam	58	50.6	15.5	2.03	27	32	33	50	69	82	112	1.7

<sup>a</sup> Reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.13 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Triglycerides**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milligrams Per Deciliter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	114.6	95.8	1.92	10	38	47	90	206	267	1678	4.7
30-48 yrs	Non-Vietnam	1972	116.1	125.6	2.83	15	36	44	89	209	280	3743	5.3
White													
30-39 yrs	Vietnam	1638	113.2	92.4	2.28	12	37	45	90	203	267	1443	4.6
30-39 yrs	Non-Vietnam	1153	115.2	97.9	2.88	19	36	45	91	208	272	1174	4.9
40-48 yrs	Vietnam	416	129.4	113.8	5.58	10	43	52	103	233	297	1678	6.0
40-48 yrs	Non-Vietnam	447	126.6	190.3	9.00	15	38	48	94	234	296	3743	7.2
Black													
30-39 yrs	Vietnam	211	87.8	54.6	3.76	16	32	40	77	140	176	404	1.9
30-39 yrs	Non-Vietnam	181	82.8	56.3	4.18	23	32	37	68	140	174	462	1.7
40-48 yrs	Vietnam	75	100.4	115.5	13.34	20	40	46	76	159	207	1002	2.7
40-48 yrs	Non-Vietnam	58	86.0	62.5	8.20	29	35	40	66	157	213	400	1.7

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.



**Table E.14 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test –  $\delta$ -Aminolevulinic Acid**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Micrograms Per Deciliter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	11.7	4.1	0.08	0	6	7	11	17	18	39	6.7
30-48 yrs	Non-Vietnam	1972	11.8	4.1	0.09	0	6	7	11	17	18	38	8.1
White													
30-39 yrs	Vietnam	1638	11.6	4.3	0.11	0	4	7	11	17	18	39	7.3
30-39 yrs	Non-Vietnam	1153	11.8	4.1	0.12	0	6	7	11	17	18	38	8.0
40-48 yrs	Vietnam	416	11.5	3.6	0.18	0	6	7	11	16	17	24	3.8
40-48 yrs	Non-Vietnam	447	11.5	3.9	0.19	0	6	7	11	17	18	27	6.7
Black													
30-39 yrs	Vietnam	211	12.1	3.9	0.27	0	6	7	13	17	18	24	7.6
30-39 yrs	Non-Vietnam	181	12.2	4.3	0.32	1	6	7	12	18	20	31	11.6
40-48 yrs	Vietnam	75	11.3	3.6	0.41	0	6	7	11	15	18	22	4.0
40-48 yrs	Non-Vietnam	58	12.4	4.4	0.58	3	6	8	12	18	20	27	12.1

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.15 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Alkaline Phosphatase**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile							% Above Reference <sup>a</sup>
						Min	5th	10th	50th	90th	95th	Max	
(In International Units Per Liter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	86.0	27.3	0.55	22	55	60	83	114	127	763	5.2
30-48 yrs	Non-Vietnam	1972	84.3	21.7	0.49	26	54	60	81	111	123	243	4.3
White													
30-39 yrs	Vietnam	1638	84.0	21.2	0.52	22	54	59	82	110	120	193	3.8
30-39 yrs	Non-Vietnam	1153	83.6	21.5	0.63	26	54	60	81	109	121	243	3.8
40-48 yrs	Vietnam	416	86.4	40.0	1.96	30	55	60	83	114	126	763	4.8
40-48 yrs	Non-Vietnam	447	82.1	20.1	0.95	39	51	58	80	108	118	173	2.9
Black													
30-39 yrs	Vietnam	211	94.4	35.4	2.43	42	59	64	87	131	154	369	12.8
30-39 yrs	Non-Vietnam	181	87.5	22.8	1.69	32	56	59	85	119	136	158	6.6
40-48 yrs	Vietnam	75	94.2	28.7	3.32	52	61	67	91	131	151	204	10.7
40-48 yrs	Non-Vietnam	58	87.9	22.6	2.97	42	58	63	87	126	134	157	8.6

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.16 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test — Total Protein**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	7.3	0.49	0.01	6	7	7	7	8	8	10	5.6
30-48 yrs	Non-Vietnam	1972	7.3	0.47	0.01	6	7	7	7	8	8	10	4.3
White													
30-39 yrs	Vietnam	1638	7.3	0.46	0.01	6	7	7	7	8	8	10	4.3
30-39 yrs	Non-Vietnam	1153	7.3	0.45	0.01	6	7	7	7	8	8	9	3.4
40-48 yrs	Vietnam	416	7.2	0.46	0.02	6	7	7	7	8	8	9	1.9
40-48 yrs	Non-Vietnam	447	7.2	0.41	0.02	6	7	7	7	8	8	8	1.1
Black													
30-39 yrs	Vietnam	211	7.6	0.58	0.04	7	7	7	8	8	9	10	18.0
30-39 yrs	Non-Vietnam	181	7.6	0.58	0.04	6	7	7	8	8	9	10	14.4
40-48 yrs	Vietnam	75	7.6	0.56	0.07	6	7	7	7	8	9	9	14.7
40-48 yrs	Non-Vietnam	58	7.5	0.49	0.06	7	7	7	7	8	8	9	5.2

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.17 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Porphobilinogen, Urine**

Race and Age	Place of Service	N <sup>a</sup>	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milligrams Per Gram of Creatinine)													
All Races <sup>c</sup>													
30-48 yrs	Vietnam	2472	0.05	0.093	0.002	0.00	0.00	0.00	0.00	0.16	0.24	1.13	5.3
30-48 yrs	Non-Vietnam	1953	0.06	0.344	0.008	0.00	0.00	0.00	0.00	0.16	0.23	14.30	5.1
White													
30-39 yrs	Vietnam	1629	0.05	0.088	0.002	0.00	0.00	0.00	0.00	0.16	0.24	0.79	5.5
30-39 yrs	Non-Vietnam	1143	0.06	0.430	0.013	0.00	0.00	0.00	0.00	0.15	0.23	14.30	5.1
40-48 yrs	Vietnam	412	0.04	0.107	0.005	0.00	0.00	0.00	0.00	0.15	0.21	1.13	4.4
40-48 yrs	Non-Vietnam	442	0.05	0.191	0.009	0.00	0.00	0.00	0.00	0.16	0.22	3.64	4.3
Black													
30-39 yrs	Vietnam	208	0.06	0.103	0.007	0.00	0.00	0.00	0.01	0.19	0.24	0.93	5.3
30-39 yrs	Non-Vietnam	180	0.07	0.127	0.009	0.00	0.00	0.00	0.01	0.22	0.32	1.09	7.8
40-48 yrs	Vietnam	75	0.05	0.085	0.010	0.00	0.00	0.00	0.00	0.18	0.25	0.45	5.3
40-48 yrs	Non-Vietnam	57	0.04	0.070	0.009	0.00	0.00	0.00	0.00	0.16	0.20	0.32	3.5

<sup>a</sup> Numbers do not add to 2,490 for Vietnam or 1,972 for non-Vietnam veterans because of missing data.

<sup>b</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.18 Summary Statistics for Laboratory Tests Associated With Liver Function:  
Test – Albumin**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	4.50	0.307	0.006	3.03	4.04	4.12	4.49	4.90	5.01	5.67	5.0
30-48 yrs	Non-Vietnam	1972	4.50	0.301	0.007	3.24	4.04	4.13	4.49	4.90	5.01	5.58	5.1
White													
30-39 yrs	Vietnam	1638	4.53	0.301	0.007	3.40	4.06	4.14	4.51	4.91	5.04	5.67	6.0
30-39 yrs	Non-Vietnam	1153	4.53	0.299	0.009	3.24	4.08	4.16	4.52	4.93	5.03	5.58	6.1
40-48 yrs	Vietnam	416	4.46	0.279	0.014	3.32	4.01	4.13	4.44	4.82	4.92	5.23	2.4
40-48 yrs	Non-Vietnam	447	4.47	0.281	0.013	3.53	4.02	4.11	4.45	4.84	4.96	5.34	3.4
Black													
30-39 yrs	Vietnam	211	4.46	0.340	0.023	3.03	3.96	4.05	4.49	4.87	4.93	5.56	2.8
30-39 yrs	Non-Vietnam	181	4.44	0.349	0.026	3.38	3.86	3.99	4.43	4.91	5.01	5.32	5.0
40-48 yrs	Vietnam	75	4.36	0.382	0.044	3.49	3.75	3.93	4.33	4.78	4.93	5.55	2.7
40-48 yrs	Non-Vietnam	58	4.39	0.266	0.035	3.70	3.99	4.06	4.41	4.78	4.81	5.01	1.7

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.19 Summary Statistics for Laboratory Tests Associated With Endocrine System:  
Test – Fasting Glucose**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milligrams Per Deciliter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	94.9	18.41	0.37	68	81	84	93	105	110	400	5.5
30-48 yrs	Non-Vietnam	1972	93.5	15.16	0.34	35	80	83	92	103	109	304	4.3
White													
30-39 yrs	Vietnam	1638	93.5	11.72	0.29	69	81	84	92	104	108	280	4.4
30-39 yrs	Non-Vietnam	1153	92.7	12.57	0.37	63	81	83	91	102	106	263	2.8
40-48 yrs	Vietnam	416	96.2	18.80	0.92	77	82	84	94	106	110	286	5.3
40-48 yrs	Non-Vietnam	447	93.8	13.91	0.66	35	81	84	92	103	110	228	5.1
Black													
30-39 yrs	Vietnam	211	96.1	27.10	1.87	68	80	82	92	106	114	384	6.2
30-39 yrs	Non-Vietnam	181	93.6	18.84	1.40	68	77	80	91	107	113	285	6.6
40-48 yrs	Vietnam	75	107.0	47.71	5.51	74	80	82	95	114	243	330	18.7
40-48 yrs	Non-Vietnam	58	97.9	27.39	3.60	74	78	83	91	112	150	268	13.8

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.20 Summary Statistics for Laboratory Tests Associated With Endocrine System:  
Test – Thyroid-Stimulating Hormone**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milli-International Units Per Liter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	2.4	9.29	0.19	0.5	0.5	0.7	1.6	3.0	3.8	308.4	5.1
30-48 yrs	Non-Vietnam	1972	1.9	2.18	0.05	0.5	0.5	0.7	1.6	3.0	3.7	46.3	4.5
White													
30-39 yrs	Vietnam	1638	2.5	8.42	0.21	0.5	0.5	0.7	1.6	3.1	4.0	178.5	5.7
30-39 yrs	Non-Vietnam	1153	1.9	1.95	0.06	0.5	0.5	0.8	1.6	3.0	3.6	46.3	4.4
40-48 yrs	Vietnam	416	2.0	1.53	0.07	0.5	0.5	0.8	1.7	2.9	3.8	21.3	5.0
40-48 yrs	Non-Vietnam	447	2.0	2.64	0.13	0.5	0.6	0.7	1.6	3.0	3.9	45.8	5.6
Black													
30-39 yrs	Vietnam	211	1.7	3.32	0.23	0.5	0.5	0.5	1.3	2.7	3.3	48.2	2.4
30-39 yrs	Non-Vietnam	181	1.7	2.88	0.21	0.5	0.5	0.7	1.3	2.2	2.9	32.6	2.8
40-48 yrs	Vietnam	75	2.0	4.82	0.56	0.5	0.5	0.7	1.3	2.3	3.8	42.2	4.0
40-48 yrs	Non-Vietnam	58	1.7	1.07	0.14	0.5	0.5	0.5	1.6	3.1	3.5	6.2	3.4

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.

**Table E.21 Summary Statistics for Laboratory Tests Associated With Endocrine System:  
Test — T3 Uptake**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th (In Percent)	10th	50th	90th	95th			Max
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	29.6	3.33	0.07	16	24	26	29	34	35	58	5.3	5.0
30-48 yrs	Non-Vietnam	1972	29.7	3.32	0.07	17	25	26	30	34	35	57	4.3	4.9
White														
30-39 yrs	Vietnam	1638	29.6	3.17	0.08	16	25	26	30	33	35	58	4.3	4.9
30-39 yrs	Non-Vietnam	1153	29.7	3.20	0.09	18	25	26	30	33	35	57	3.4	4.9
40-48 yrs	Vietnam	416	29.7	3.18	0.16	18	25	26	29	34	35	46	4.1	5.0
40-48 yrs	Non-Vietnam	447	29.8	3.19	0.15	20	25	26	30	34	35	51	3.4	4.0
Black														
30-39 yrs	Vietnam	211	28.8	4.30	0.30	17	21	24	29	34	35	45	15.6	5.7
30-39 yrs	Non-Vietnam	181	29.1	4.31	0.32	17	22	24	29	33	36	49	12.2	5.5
40-48 yrs	Vietnam	75	30.3	4.36	0.50	20	25	27	30	36	39	48	4.0	10.7
40-48 yrs	Non-Vietnam	58	29.9	3.06	0.40	25	26	26	29	35	37	38	—	8.6

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.



**Table E.22 Summary Statistics for Laboratory Tests Associated With Endocrine System:  
Test – Thyroxine-T4**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Micrograms Per Deciliter of Serum)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	7.6	1.51	0.03	1.0	5.4	5.8	7.5	9.4	10.1	18.0	4.7	5.2
30-48 yrs	Non-Vietnam	1972	7.6	1.44	0.03	2.9	5.5	5.9	7.5	9.3	9.9	15.3	3.7	4.4
White														
30-39 yrs	Vietnam	1638	7.6	1.48	0.04	1.4	5.4	5.9	7.5	9.4	10.1	18.0	4.3	5.1
30-39 yrs	Non-Vietnam	1153	7.6	1.41	0.04	2.9	5.6	5.9	7.5	9.3	9.9	15.1	3.2	4.2
40-48 yrs	Vietnam	416	7.5	1.39	0.07	4.2	5.4	5.9	7.4	9.2	9.9	14.9	3.8	3.8
40-48 yrs	Non-Vietnam	447	7.5	1.34	0.06	4.2	5.4	5.8	7.4	9.1	9.7	14.0	4.7	3.4
Black														
30-39 yrs	Vietnam	211	7.7	1.82	0.13	4.0	5.3	5.6	7.4	10.2	12.0	14.0	7.6	10.4
30-39 yrs	Non-Vietnam	181	7.7	1.86	0.14	3.4	5.2	5.8	7.5	9.7	11.8	15.3	5.0	8.3
40-48 yrs	Vietnam	75	7.1	1.54	0.18	3.4	4.5	5.3	7.1	9.2	10.3	11.9	10.7	5.3
40-48 yrs	Non-Vietnam	58	7.3	1.24	0.16	3.7	5.6	5.8	7.1	8.9	9.6	10.1	3.4	1.7

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.23 Summary Statistics for Laboratory Tests Associated With Endocrine System:  
Test – Free Thyroxine Index<sup>a</sup>**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>b</sup>	% Above Reference <sup>c</sup>	
						Min	5th	10th	50th	90th	95th			Max
All Races <sup>d</sup>														
30-48 yrs	Vietnam	2490	2.2	0.37	0.01	0.2	1.7	1.8	2.2	2.6	2.8	6.4	5.4	4.7
30-48 yrs	Non-Vietnam	1972	2.2	0.34	0.01	0.9	1.7	1.8	2.2	2.7	2.8	3.6	4.7	5.3
White														
30-39 yrs	Vietnam	1638	2.2	0.38	0.01	0.3	1.7	1.8	2.2	2.6	2.8	6.4	5.8	4.9
30-39 yrs	Non-Vietnam	1153	2.2	0.34	0.01	0.9	1.7	1.8	2.2	2.7	2.8	3.4	4.4	5.7
40-48 yrs	Vietnam	416	2.2	0.34	0.02	1.2	1.7	1.8	2.2	2.6	2.7	4.8	2.6	4.1
40-48 yrs	Non-Vietnam	447	2.2	0.33	0.02	1.3	1.7	1.8	2.2	2.6	2.7	3.3	5.4	3.4
Black														
30-39 yrs	Vietnam	211	2.2	0.42	0.03	1.2	1.6	1.7	2.1	2.6	2.8	4.7	7.1	4.7
30-39 yrs	Non-Vietnam	181	2.2	0.37	0.03	1.1	1.6	1.7	2.1	2.6	2.8	3.5	5.5	5.0
40-48 yrs	Vietnam	75	2.1	0.37	0.04	1.0	1.6	1.7	2.1	2.7	2.8	3.2	12.0	4.0
40-48 yrs	Non-Vietnam	58	2.2	0.37	0.05	1.3	1.5	1.7	2.1	2.6	2.7	3.6	8.6	3.4

<sup>a</sup> Computed as (T3 uptake x thyroxine-T4)/100.

<sup>b</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>d</sup> All races include white, black, and other.

**Table E.24 Summary Statistics for Laboratory Tests Associated With Endocrine System:  
Test — Dehydroepiandrosterone-SO<sub>4</sub>**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Micrograms Per Deciliter of Serum)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	239	99.9	2.0	12	106	130	224	367	416	1058	5.3	4.5
30-48 yrs	Non-Vietnam	1972	241	99.8	2.2	23	111	133	225	363	432	877	4.6	5.4
White														
30-39 yrs	Vietnam	1638	247	100.9	2.5	37	117	139	231	372	420	1058	3.9	4.9
30-39 yrs	Non-Vietnam	1153	250	101.4	3.0	29	117	141	234	377	445	877	3.5	6.1
40-48 yrs	Vietnam	416	224	93.0	4.6	29	96	123	214	339	402	549	7.0	3.6
40-48 yrs	Non-Vietnam	447	221	88.4	4.2	23	104	126	206	324	369	688	5.6	3.1
Black														
30-39 yrs	Vietnam	211	228	101.1	7.0	29	79	119	209	377	418	512	9.0	4.3
30-39 yrs	Non-Vietnam	181	239	117.2	8.7	29	104	118	221	374	448	705	7.2	7.7
40-48 yrs	Vietnam	75	204	104.8	12.1	12	66	89	182	371	445	474	12.0	6.7
40-48 yrs	Non-Vietnam	58	206	81.8	10.7	85	88	105	194	332	359	431	10.3	1.7

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.25 Summary Statistics for Laboratory Tests Associated With Endocrine System:  
Test – Cortisol (Morning)**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Below Reference <sup>a</sup>	% Above Reference <sup>b</sup>	
						Min	5th	10th	50th	90th	95th			Max
(In Micrograms Per Deciliter of Serum)														
All Races <sup>c</sup>														
30-48 yrs	Vietnam	2490	18.3	5.51	0.11	4	11	12	18	26	28	48	4.6	5.0
30-48 yrs	Non-Vietnam	1972	18.1	5.53	0.12	5	10	12	18	26	28	46	5.4	4.8
White														
30-39 yrs	Vietnam	1638	18.2	5.33	0.13	4	11	12	18	25	28	46	4.2	4.5
30-39 yrs	Non-Vietnam	1153	18.1	5.56	0.16	5	10	12	17	26	28	40	5.2	5.0
40-48 yrs	Vietnam	416	18.5	5.86	0.29	4	10	12	18	26	29	48	4.8	5.3
40-48 yrs	Non-Vietnam	447	18.3	5.55	0.26	7	11	12	18	26	28	46	4.3	5.1
Black														
30-39 yrs	Vietnam	211	17.7	5.46	0.38	7	10	11	17	25	28	34	6.6	5.7
30-39 yrs	Non-Vietnam	181	17.8	5.64	0.42	6	10	11	17	25	28	35	8.8	3.9
40-48 yrs	Vietnam	75	19.5	7.40	0.85	8	9	10	18	30	34	41	9.3	10.7
40-48 yrs	Non-Vietnam	58	16.7	4.88	0.64	9	9	11	16	23	27	30	6.9	1.7

<sup>a</sup> The low reference value is the 5th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> The high reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>c</sup> All races include white, black, and other.

**Table E.26 Summary Statistics for Laboratory Tests Associated With Renal Functions:  
Test – Blood Urea Nitrogen**

Race and Age	Place of Service	N	Mean	S.D.	S.E.	Percentile						% Above Reference <sup>a</sup>	
						Min	5th	10th	50th	90th	95th		Max
(In Milligrams Per Deciliter of Serum)													
All Races <sup>b</sup>													
30-48 yrs	Vietnam	2490	14.0	3.24	0.07	4	9	10	14	18	19	39	4.5
30-48 yrs	Non-Vietnam	1972	14.0	3.26	0.07	5	9	10	14	18	20	28	6.0
White													
30-39 yrs	Vietnam	1638	14.2	3.18	0.08	5	9	11	14	18	20	30	4.8
30-39 yrs	Non-Vietnam	1153	14.3	3.24	0.10	5	9	11	14	19	20	28	6.7
40-48 yrs	Vietnam	416	14.2	3.12	0.15	6	10	10	14	19	20	23	6.0
40-48 yrs	Non-Vietnam	447	14.5	3.33	0.16	6	9	11	14	19	21	25	7.6
Black													
30-39 yrs	Vietnam	211	12.6	3.11	0.21	4	8	9	12	17	18	22	0.5
30-39 yrs	Non-Vietnam	181	12.2	2.95	0.22	5	7	9	12	16	18	22	1.1
40-48 yrs	Vietnam	75	12.9	4.60	0.53	5	8	9	12	17	19	39	2.7
40-48 yrs	Non-Vietnam	58	12.5	3.21	0.42	7	7	8	12	17	19	19	–

<sup>a</sup> Reference value is the 95th percentile of the Vietnam and non-Vietnam cohorts combined.

<sup>b</sup> All races include white, black, and other.