

B

Air Force Health Study Data

Section 602(c) of Pub. L. 108-183 called for this committee to evaluate “[t]he scientific merit of retaining and maintaining the medical records, other study data, and laboratory specimens collected in the course of the Air Force Health Study after its currently scheduled termination date in 2006” and to determine “[w]hether or not any obstacles exist to retaining and maintaining the medical records, other study data, and laboratory specimens.”

Pursuant to this charge, the committee reviewed data and specimen collection as reported in the original study protocol (AFHS, 1982), official AFHS morbidity cycle reports (AFHS, 1984, 1987, 1990, 1995, 2000, 2005), the *Serum Dioxin Analysis of 1987 Examination Results* (AFHS, 1991), AFHS mortality (AFHS, 1983, 1984, 1985, 1986, 1989, 1991, 1993, 1994, 1996) and reproductive outcomes reports (AFHS, 1992, 1998), as well as various AFHS analyses reported in scientific journals as cited in preceding chapters. AFHS data dictionaries and clinical collection and laboratory processing protocols were also reviewed where available.

The purpose of this appendix is to provide a sense of the scope and magnitude of the data collected and analyzed throughout the course of the AFHS. The following tables are not intended to serve as an exhaustive accounting of data collected or archived. Data collected in the mortality arm of the study are not represented in this appendix. The information contained in Tables B-1 through B-13 was derived primarily from analyses reported in AFHS morbidity cycle reports (cited above). Hence, they generally represent those outcomes included in morbidity analyses for a particular cycle and not necessarily all outcomes re-

corded or measured in AFHS clinical and laboratory evaluations or those obtained from private medical and dental records or military records.

The myriad laboratory tests performed (by the Kelsey-Seybold Clinic for Cycle 1 and Scripps Clinic for Cycles 2–6) on subject blood, urine, and semen were provided by AFHS investigators by committee request and are listed in Table B-14. Dioxin assays are not included in this list as they were performed separately at the Centers for Disease Control and Prevention.

A summary of covariates used in various analyses throughout the AFHS is provided in Table B-15 to further characterize available subject data.

Table B-16 provides a brief overview of the types of data gathered through questionnaire administration as well as the major changes made to questionnaire (baseline and interval) content over time.

Additional details relating AFHS data resources and analyses are can be found in Chapters 2–4.

TABLE B-1 General Health Assessment

	Cycle	1	2	3	4	5	6
	Examination Year	1982	1985	1987	1992	1997	2002
Analyzed Endpoints							
Self-perception of health (Q)		X	X	X	X	X	X
Appearance of illness or distress as assessed by physician (PE)		X	X	X	X	X	X
Relative age appearance as assessed by physician (PE)		X	X	X	X	X	X
Calculated body fat (percentage) (PE)		X	X	X	X	X	
BMI (PE)							X
Erythrocyte sedimentation (mm/hour) (LAB)		X	X	X	X	X	X
Covariates							
Age (years) (MIL)		X	X	X	X	X	X
Race (MIL)		X	X	X	X		
Military occupation (MIL)		X	X	X	X	X	X
Current cigarette smoking (cigarettes/day) (Q)							
Lifetime cigarette smoking history (pack-years) (Q)							
Current alcohol use (2 weeks prior to physical exam) (drinks/day) (Q)							
Current alcohol use (drinks/day) (Q)							
Lifetime alcohol history (drink-years) (Q)							
Personality type (PE)			X	X	X	X	X
Caloric intake (Q)					X		

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

TABLE B-2 Neurological Assessment

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Inflammatory diseases (MVR)	X	X	X	X	X	X
Hereditary and degenerative diseases (MRV)	X	X	X	X	X	X
Peripheral disorders (MRV)	X	X	X	X	X	X
Disorders of eye (MRV)	X	X	X			
Disorders of ear (MRV)	X	X	X			
Other neurological disorders (MRV)		X	X	X	X	X
Smell (PE)	X	X	X	X	X	X
Visual fields (PE)	X	X	X	X	X	X
Light reaction (PE)	X	X	X	X	X	X
Ocular movement (PE)	X	X	X	X	X	X
Facial sensation (PE)	X	X	X	X	X	X
Corneal reflex (PE)	X	X	X	X	X	X
Jaw clench (PE)	X	X	X	X	X	X
Smile (PE)	X	X	X	X	X	X
Palpebral fissure (PE)	X	X	X	X	X	X
Balance/Romberg sign (PE)	X	X	X	X	X	X
Gag reflex (PE)	X	X	X	X	X	X
Speech (PE)	X	X	X	X	X	X
Tongue position relative to midline (PE)	X	X	X	X	X	X
Palate and uvula movement (PE)	X	X	X	X	X	X
Shoulder shrug (PE)						X
Cranial nerve index without range of motion (PE)		X	X	X	X	X
Cranial nerve index (PE)		X	X	X	X	X

TABLE B-2 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Neck range of motion (PE)	X	X	X	X	X	
Pinprick (PE)	X	X	X	X	X	X
Light touch (PE)	X	X	X	X	X	X
Muscle status (PE)	X	X	X	X	X	X
Vibratory sensation (PE)	X	X	X			
Patellar reflex (PE)	X	X	X	X	X	X
Achilles reflex (PE)	X	X	X	X	X	X
Biceps reflex (PE)	X	X	X	X	X	X
Babinski reflex (PE)	X	X	X	X	X	X
Any symmetrical peripheral abnormality (PE)						X
Possible peripheral neuropathy (PE)						X
Probable peripheral neuropathy (PE)						X
Polynuropathy severity index (PE)						X
Polynuropathy prevalence index (PE)					X	
Multiple polynuropathy index (PE)					X	
Confirmed polynuropathy index (PE)					X	
Vibrotactile threshold great toes (PE)				X		
Tremor (PE)	X	X	X	X	X	X
Coordination (PE)	X	X	X	X	X	X
Romberg sign (PE)	X	X	X	X	X	X
Gait (PE)	X	X	X	X	X	X
CNS index (PE)						X
Nerve conduction velocity (PE)	X					

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records. Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle.

TABLE B-3 Psychology Assessment

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Psychoses (MRV)	X	X	X	X	X	X
Alcohol dependence (MRV)	X	X	X	X	X	X
Drug dependence (MRV)			X	X	X	X
Anxiety (MRV)	X	X	X	X	X	X
Other neuroses (MRV)	X	X	X	X	X	X
Fatigue (Q)	X					
Depression (Q)	X					
Anxiety (Q)	X					
Erosion of skills (Q)	X					
Social isolation (Q)	X					
Aggressive or impulsive behavior (Q)	X					
Trouble falling asleep (Q)						
Waking up during the night (Q)			X			
Waking up too early and can't go back to sleep (Q)			X			
Waking up unrefreshed (Q)			X			
Involuntarily falling asleep during the day (Q)			X			
Great disabling fatigue during the day (Q)			X			
Frightening dreams (Q)			X			
Talking in sleep (Q)			X			
Sleepwalking (Q)			X			
Abnormal movement/activity during the night (Q)			X			
Sleep problems requiring medication (Q)			X			
Snore loudly in all sleeping positions (Q)			X			

continues

TABLE B-3 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Insomnia (Q)			X			
Overall sleep disorder index (Q)			X			
Average sleep each night (hours) (Q)			X			
SCL-90-R: Symptom Checklist-90—Revised (PE)			X	X	X	X
WMS-R: Wechsler Memory Scale—Revised (PE)						X
MCMII: Millon Clinical Multiaxial Inventory (PE)			X			
MMPI: Minnesota Multiphasic Personality Inventory (PE)	X	X				
CMI: Cornell Medical Index (PE)		X				
HRB: Halstead-Reitan Neuropsychological Test Battery (PE)	X	X				
CI: Cornell Index (PE)	X					
WAIS: Wechsler Adult Intelligence Scale (PE)	X					

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

TABLE B-4 Gastrointestinal Assessment

	1	2	3	4	5	6
Cycle	1982	1985	1987	1992	1997	2002
Examination Year						
Uncharacterized hepatitis (Q/MRV)	X	X	X ^a	X	X	X
Jaundice (unspecified) (Q/MRV)	X	X	X	X	X	X
Acute and subacute necrosis of the liver (Q/MRV)			X	X	X	X
Chronic liver disease and cirrhosis (alcohol related) (Q/MRV)	X	X	X	X	X	X
Chronic liver disease and cirrhosis (nonalcohol related) (Q/MRV)	X	X	X	X	X	X
Liver abscess and sequelae of chronic liver disease (Q/MRV)			X	X	X	X
Enlarged liver (hepatomegaly) (Q/MRV)		X	X	X	X	X
Skin bruises, patches, or sensitivity (Q/MRV)	X	X	X			
Reported/verified ulcer (Q/MRV)		X	X			
Other disorders of the liver (Q/MRV)	X ^b	X	X	X	X	X
Liver disease (lifetime history) (Q/MRV)		X		X		X
Current hepatomegaly (PE)	X	X	X	X	X	X
AST (U/L) (LAB)	X	X	X	X	X	X
ALT (U/L) (LAB)	X	X	X	X	X	X
GGT (U/L) (LAB)	X	X	X	X	X	X
Alkaline phosphatase (U/L) (LAB)	X	X	X	X	X	X
Total bilirubin (mg/dl) (LAB)	X	X	X	X	X	X
Direct bilirubin (mg/dl) (LAB)	X	X	X	X	X	X
LDH (U/L) (LAB)	X	X	X	X	X	X
Cholesterol (mg/dl) (LAB)	X	X	X	X	X	X
HDL cholesterol (mg/dl) (LAB)			X	X	X	X
Cholesterol-HDL ratio (LAB)			X	X	X	X
Triglycerides (mg/dl) (LAB)	X	X	X	X	X	X

TABLE B-4 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Creatine phosphokinase (U/L) (LAB)			X	X	X	X
Serum amylase (U/L) (LAB)				X	X	X
Evidence of prior hepatitis A (LAB)				X	X	X
Evidence of prior hepatitis B (LAB)				X	X	X
Current hepatitis B (LAB)				X	X	
Evidence of prior hepatitis C (LAB)				X	X	X
Evidence of prior hepatitis D (LAB)					X	
Stool occult blood test (LAB)				X	X	X
Protein profile: prealbumin (mg/dl) (LAB)				X	X	X
Protein profile: albumin (mg/dl) (LAB)				X	X	X
Protein profile: α -1-acid glycoprotein (mg/dl) (LAB)				X	X	X
Protein profile: α -1-antitrypsin (mg/dl) (LAB)				X	X	X
Protein profile: α -2-macroglobulin (mg/dl) (LAB)				X	X	X
Protein profile: apolipoprotein B (mg/dl) (LAB)				X	X	X
Protein profile: C3 complement (mg/dl) (LAB)				X	X	X
Protein profile: C4 complement (mg/dl) (LAB)				X	X	X
Protein profile: haptoglobin (mg/dl) (LAB)				X	X	X
Protein profile: transferrin (mg/dl) (LAB)				X	X	X
Prothrombin time (seconds) (LAB)						X
Fasting glucose (LAB)			X			
Uroporphyrin (LAB)	X	X				

Coproporphyrin (LAB)	X	X	X
Aminolevulinic acid (LAB)	X	X	X

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

^aIn Cycle 3 *viral hepatitis* is reported versus *uncharacterized hepatitis* in other cycles.

^bLiver necrosis and enzyme elevation included in the *other liver conditions* category.

TABLE B-5 Dermatological Assessment

	Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 ^a 1997	6 2002
Analyzed Endpoints							
Acne (lifetime) (Q/MRV)		X	X	X	X		X
Post-SEA acne (Q/MRV/MIL)		X	X	X	X		X
Post-SEA acne (no pre-SEA acne) (Q/MRV/MIL)		X	X	X	X		X
Post-SEA acne (with pre-SEA acne) (Q/MRV/MIL)		X	X	X	X		X
Location of post-SEA acne (pre-SEA acne cases excluded) (Q/MRV)			X	X	X		X
Location of post-SEA acne (all post-SEA occurrences) (Q/MRV)		X	X	X	X		X
Duration of post-SEA acne (pre-SEA acne cases excluded) (months) (Q)		X	X	X	X		X
Duration of post-SEA acne (all post-SEA occurrences) (months) (Q)		X	X	X	X		X
Acneiform lesions (PE)		X	X	X	X		X
Acneiform scars (PE)		X	X	X	X		X
Comedones (PE)		X	X	X	X		X
Depigmentation (PE)			X	X	X		X
Hyperpigmentation (PE)		X	X	X	X		X
Inclusion cysts (PE)		X	X	X	X		X
Dermatology index (PE) ^b		X	X	X	X		X
Other abnormalities (PE) ^c		X	X	X	X		X

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

^aDermatologic assessment not reported in the Cycle 5 follow-up examination results.

^bThe dermatology index comprised counts for comedones, acneiform lesions, acneiform scars, and inclusion cysts (AFHS, 1990).

^cConditions comprising the other abnormalities category were jaundice, spider angioma, palmar erythema, suspected melanoma, palmar keratosis, petechiae, ecchymoses, conjunctival abnormality, oral mucosal abnormality, fingernail abnormality, toenail abnormality, dermatographia, cutis rhomboidalis, suspected basal cell carcinoma, suspected squamous cell carcinoma, nevus, or other abnormalities (AFHS, 1990). Vitiligo was added to the list in Cycle 5 (AFHS, 1997).

TABLE B-6 Cardiovascular Assessment

	1	2	3	4	5	6
Cycle Examination Year	1982	1985	1987	1992	1997	2002
Analyzed Endpoints						
Essential hypertension (Q/MRV/PE)		X	X	X	X	X
Heart disease (excluding essential hypertension) (Q/MRV/PE)	X	X	X	X	X	X
Myocardial infarction (Q/MRV/PE)	X	X	X	X	X	X
Stroke or transient ischemic attack (MRV)						
Systolic blood pressure (mm Hg) (PE)	X	X	X	X	X	X
Diastolic blood pressure (mm Hg) (PE)	X	X	X	X	X	X
Heart sounds (PE)	X	X	X	X	X	X
Overall ECG (PE)	X	X	X	X	X	X
ECG: RBBB (PE)		X	X	X	X	X
ECG: LBBB (PE)		X	X	X	X	X
ECG: nonspecific ST- and T-wave changes (PE)		X	X	X	X	X
ECG: bradycardia (PE)		X	X	X	X	X
ECG: tachycardia (PE)		X	X	X	X	X
ECG: arrhythmia (PE)		X	X	X	X	X
ECG: evidence of prior myocardial infarction (PE)						
ECG: other diagnoses (PE)		X	X	X	X	X
Fundusoscopic examination (PE)	X	X	X	X	X	X
Carotid bruits (PE)	X	X	X	X	X	X
Radial pulses (PE)	X	X	X	X	X	X
Femoral pulses (PE)	X	X	X	X	X	X
Popliteal pulses (PE)	X	X	X	X	X	X
Dorsalis pedis pulses (PE)	X	X	X	X	X	X
Posterior tibial pulses (PE)	X	X	X	X	X	X

continues

TABLE B-6 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Leg pulses (PE)	X	X	X	X	X	X
Peripheral pulses (PE)	X	X	X	X	X	X
All pulses (PE)	X	X	X			
Resting pressure index (PE)						X
Hyperemic pressure index (1 minute postexercise) (PE)						X
Hyperemic pressure index (2 minutes postexercise) (PE)						X
Intermittent claudication and vascular insufficiency index (Q)				X	X	X
Kidney, urethra, and bladder (KUB) X ray excluding kidney stones (PE)				X		
Questionnaire-physical exam associations* (PE)			X			

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle.

*Measure was determined by analysis of central and peripheral PE findings and verified CVD endpoints to determine strength of correlation between PE findings and medical history (AFHS, 1990).

TABLE B-7 Hematological Assessment

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Analyzed Endpoints						
RBC count (million/mm ³) (LAB)	X	X	X	X	X	X
WBC count (thousand/mm ³) (LAB)	X	X	X	X	X	X
Hemoglobin (g/dl) (LAB)	X	X	X	X	X	X
Hematocrit (percent) (LAB)	X	X	X	X	X	X
Mean corpuscular volume (MVC) (cubic micra) (LAB)	X	X	X			
Mean corpuscular hemoglobin (MCH) (microgram) (LAB)	X	X	X			
Mean corpuscular hemoglobin concentration (MCHC) (mg/dl) (LAB)	X	X	X			
Platelet count (thousand/mm ³) (LAB)	X	X	X	X	X	X
Prothrombin time (seconds) (LAB)				X	X	
RBC morphology (LAB)				X	X	
Absolute neutrophils (segs) (thousand/mm ³) (LAB)				X	X	X
Absolute neutrophils (bands) (thousand/mm ³) (LAB)				X	X	X
Absolute lymphocytes (thousand/mm ³) (LAB)				X	X	X
Absolute monocytes (thousand/mm ³) (LAB)				X	X	X
Absolute eosinophils (thousand/mm ³) (LAB)				X	X	X
Absolute basophils (thousand/mm ³) (LAB)				X	X	X
Fibrinogen (mg/dl) (LAB)				X	X	X
Erythrocyte sedimentation rate (ESR) (mm/hour) (LAB)	X	X	X	X	X	X

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

When units are provided, they reflect the most recent cycle for which the measurement was taken.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

TABLE B-8 Renal Assessment

	1	2	3	4	5	6
Cycle	1982	1985	1987	1992	1997	2002
Examination Year						
Analyzed Endpoints						
History of kidney stones (MRV/PE)						X
Occurrence of past kidney disease (MRV)	X	X	X	X		X
Blood urea nitrogen (mg/dl) (LAB)	X	X	X			X
Serum creatinine (mg/dl) (LAB)				X		X
Creatinine clearance (calculated) (LAB/PE/MIL)	X					X
Urinary microalbumin to urinary creatinine ratio (µg/mg) (LAB)						X
Urine specific gravity (LAB)	X	X	X	X		X
Urinary occult blood (cells/HPF) (LAB)	X	X	X	X		X
Urinary WBC count (cells/HPF) (LAB)	X	X	X	X		X
Urinary protein (LAB)	X	X	X	X		X
Urinary RBC count (cells/HPF) (LAB)	X	X	X	X		X
Urine creatinine (LAB)	X					
Urine volume (24 Hour) (LAB)	X					
Kidney stones from KUB X ray (PE)				X		
Composite renal abnormalities (LAB)	X					

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

When units are provided, they reflect the most recent cycle for which the measurement was taken.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

TABLE B-9 Endocrine Assessment

	1	2	3	4	5	6
Cycle Examination Year	1982	1985	1987	1992	1997	2002
Past thyroid disease (MRV)		X	X	X	X	X
Current thyroid function (Q)		X	X			
Composite diabetes indicator (MRV/LAB)		X	X	X		
Composite diabetes indicator (2002 AFHS diabetes definition) (MRV/LAB)						X
Composite diabetes indicator (pre-2002 AFHS diabetes definition)(MRV/LAB)					X	X
Diabetic severity (MRV)				X		
Diabetic control (MRV/LAB)				X	X	X
Time to diabetes onset (years) (MRV/LAB/MIL)				X	X	X
Thyroid gland (PE)		X	X	X	X	X
Testicular examination (PE)		X	X		X	X
Testicular volume (PE)				X		
TSH (μ IU/ml) (LAB)		X	X	X	X	X
Free thyroxine index (μ g/dl) (LAB)	X					
Free T4 (ng/dl) (LAB)						X
T4 (μ g/dl) (LAB)	X			X	X	
T3 % uptake (LAB)	X	X	X			
Antithyroid antibodies (LAB)				X	X	X
Fasting glucose (mg/dl) (LAB)				X	X	X
2-hour postprandial glucose (mg/dl) (LAB)	X	X	X	X	X	X
Fasting urinary glucose (LAB)				X	X	
2-hour postprandial urinary glucose (LAB)			X	X	X	X
Insulin (μ IU/ml) (LAB)				X	X	X
2-hour postprandial insulin (μ IU/ml) (LAB)						X

continues

TABLE B-9 *Continued*

	1	2	3	4	5	6
Cycle Examination Year	1982	1985	1987	1992	1997	2002
Serum glucagon (pg/ml) (LAB)				X		
Hemoglobin A1c (percent) (LAB)				X	X	X
C-peptide (ng/ml) (LAB)				X		X
Proinsulin (pmol/l) (LAB)				X		X
GADA (LAB)						X
Total testosterone (ng/dl) (LAB)	X	X	X	X	X	X
Free testosterone (pg/ml) (LAB)				X	X	X
Estradiol (pg/ml) (LAB)				X	X	X
LH (mIU/ml) (LAB)				X	X	X
FSH (mIU/ml) (LAB)			X	X	X	X
Retinopathy results (diabetics only) (PE)				X		
Neuropathy results (diabetics only) (PE)				X		
Radial pulses (diabetics only) (PE)				X		
Femoral pulses (diabetics only) (PE)				X		
Popliteal pulses (diabetics only) (PE)				X		
Dorsalis pedis pulses (diabetics only) (PE)				X		
Posterior tibial pulses (diabetics only) (PE)				X		
Leg pulses (diabetics only) (PE)				X		
Peripheral pulses (diabetics only) (PE)				X		
Urine protein (diabetics only) (PE)				X		
Sex hormone-binding globulin (SHBG) (nmol/l) (LAB)				X		

Total testosterone to SHBG ratio (LAB) [Redacted] X
 Cortisol (µg/dl) (initial, 2 hour, and differential) (LAB) [Redacted] X

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records. When units are provided, they reflect the most recent cycle for which the measurement was taken.
 Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

TABLE B-10 Immunology Assessment

	1	2	3	4	5	6
Cycle	1982	1985	1987	1992	1997	2002
Examination Year						
Analyzed Endpoints						
Composite skin test (PE)		X	X	X		
CD2+ cells (total T cells) (cells/mm ³) (LAB)	X	X	X			
CD3 cells (total T cells) (cells/mm ³) (LAB)	X			X	X	X
CD4 cells (helper T cells) (cells/mm ³) (LAB)	X	X	X	X	X	X
CD5 cells (cells/mm ³) (LAB)				X		
CD8 cells (suppressor cells) (cells/mm ³) (LAB)	X	X	X	X	X	X
CD14 cells (monocytes) (cells/mm ³) (LAB)		X	X	X		
CD16+56 cells (natural killer cells) (cells/mm ³) (LAB)				X	X	X
CD20 cells (B cells) (cells/mm ³) (LAB)	X	X	X	X	X	X
CD25 cells (cells/mm ³) (LAB)			X	X		
CD4-CD8 ratio (LAB)	X	X	X	X		
HLA-DR cells (cells/mm ³) (LAB)		X	X			
CD3 with CD25 (cells/mm ³) (LAB)				X		
CD5 with CD20 (cells/mm ³) (LAB)				X		
CD4 with CD8 (cells/mm ³) (LAB)				X		
CD3 with CD16+56 (cells/mm ³) (LAB)				X		
CD3+CD4 cells (helper T cells) (cells/mm ³) (LAB)					X	X
Absolute lymphocytes (cells/mm ³) (LAB)	X		X	X	X	X
IgA (mg/dl) (LAB)			X	X	X	X
IgG (mg/dl) (LAB)			X	X	X	X
IgM (mg/dl) (LAB)			X	X	X	X
Lupus panel: ANA test (LAB)				X	X	X
Lupus panel: thyroid microsomal antibody (LAB)				X	X	X

Lupus panel: MSK antismooth muscle antibody (LAB)				X			X
Lupus panel: MSK antimitochondrial antibody (LAB)				X			X
Lupus panel: MSK antiparietal cell antibody (LAB)				X			X
Lupus panel: rheumatoid factor (LAB)				X			X
Lupus panel: B cell clones (LAB)				X			
Lupus panel: other antibodies (LAB)				X			
Lupus panel: summary index (LAB)				X			
PHA (unstimulated and net) response (LAB)			X				
MLC (unstimulated and net) response (LAB)			X				
NKCA 50:1 net response (LAB)						X	
NKCA 50:1 percent release (LAB)						X	
NKCI 50:1 net response (LAB)						X	
NKCI 50:1 percent release (LAB)						X	
PWN (pokeweed net response) (LAB)							X

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

When units are provided, they reflect the most recent cycle for which the measurement was taken.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Shaded boxes with an X indicate that the endpoint was measured but not included in section analyses.

TABLE B-11 Pulmonary Assessment

	1	2	3	4	5	6
Cycle	1982	1985	1987	1992	1997	2002
Examination Year						
Analyzed Endpoints						
Asthma (MRV#/Q)		X	X	X	X	X
Bronchitis (MRV#/Q)		X	X	X	X	X
Pneumonia (MRV#/Q)		X	X	X	X	X
Pleurisy (Q)		X	X			
Tuberculosis (Q)	X	X	X			
Neoplasia (Q)	X					
Chronic sinusitis and other upper respiratory disease (Q)	X					
Thorax and lung abnormality (PE)		X	X	X	X	X
X ray interpretation (LAB)		X	X	X	X	X
Asymmetric expansion (PE)		X	X			
Hyperresonance (PE)		X	X			
Wheezes (PE)		X	X			
Rales (PE)		X	X			
Dullness (PE)		X	X			
FVC (percent of predicted) (LAB)	X		X	X	X	X
FEV ₁ (percent of predicted) (LAB)	X		X	X	X	X
FEV ₂ (LAB)			X			
FEV ₃ (LAB)			X			
FEV MAX (LAB)			X			
Ratio of observed FEV ₁ to observed FVC (LAB)	X		X	X	X	X

Loss of vital capacity (LAB)								X	X
Obstructive abnormality (LAB)				X	X	X	X	X	X

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records. When units are provided, they reflect the most recent cycle for which the measurement was taken.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle.

*Medical records were not verified in Cycles 2–3.

TABLE B-12 Neoplasia Assessment

	Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Analyzed Endpoints							
Skin neoplasms (MRV/PE)							
Behavior (All Sites Combined)							
	All		X	X	X	X	X
	Malignant		X	X	X	X	X
	Benign		X	X	X	X	X
	Uncertain behavior or unspecified nature		X	X	X	X	X
Cell Type-Specific Analyses ^a							
	Basal cell carcinoma	X	X	X	X	X	X
	Squamous cell carcinoma	X	X	X	X	X	X
	Fibrosarcoma	X					
	Nonmelanoma				X	X	X
	Melanoma	X	X	X ^b	X	X	X
	Sun exposure-related malignancies		X	X			
Systemic neoplasms (MRV/PE)							
Behavior (All Sites Combined)							
	All		X	X	X	X	X
	Malignant		X	X	X	X	X
	Benign		X	X	X	X	X
	Uncertain behavior or unspecified nature		X	X	X	X	X
Site-Specific Analyses							
Malignant							
	Eye, ear, face, head, and neck		X	X	X	X	X
	Oral cavity, pharynx, and larynx	X	X	X	X	X	X
	Brain			X	X	X	X
	Digestive organs, peritoneum, and esophagus	X ^c	X		X	X	X ^d

Thymus, heart, and mediastinum			X				X	X
Thyroid gland	X	X	X	X	X	X	X	X
Bronchus and lung (includes trachea and pleura)	X	X	X	X	X	X	X	X
Liver	X	X	X	X	X	X	X	X
Colon and rectum (includes anus)	X	X	X	X	X	X	X	X
Urinary system	X ^e	X ^f	X ^f	X ^f	X ^f	X ^f	X ^f	X
Kidney and ureter	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X
Prostate	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X
Penis and other male genital organs	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X
Testicles	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X ^e	X
Bone and articular cartilage	X							X
Extrahepatic bile duct						X	X	X
III-defined sites						X	X	X
Connective and other soft tissues	X	X	X	X	X	X	X	X
Hodgkin's disease	X	X	X	X	X	X	X	X
Non-Hodgkin's lymphoma	X	X	X	X	X	X	X	X
Leukemia	X	X	X	X	X	X	X	X
Other malignant systemic neoplasms of lymphoid and histiocytic tissue	X					X	X	X
Lymphoreticular sarcoma								X
Multiple myeloma			X					X
Soft-tissue sarcoma								X
Premalignant								
Carcinoma <i>in situ</i> (breast, digestive organs, respiratory, prostate, penis and other male genitals, bladder and other, and nonspecified urinary)	X		X ^g	X	X	X ^h	X	X
Premalignant and Malignant								
Stomach (All)								X
Other and unspecified sites	X							

continues

TABLE B-12 Continued

	Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Skin and systemic neoplasms (MRV/PE)							
All							
Malignant			X	X	X	X	X
PSA (LAB)							
All sites combined					X	X	X

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle. Overlap in site-specific analyses occurs as in some cycles broad ICD-9 classes are used versus the specific site or organ codes used in other cycles.

^a Site-specific analyses were conducted in Cycles 1–3 for the majority of cell types (AFHS, 1982, 1987, 1990).

^b Sun exposure-related cases included (AFHS, 1990).

^c Digestive organ/peritoneum is one category (AFHS, 1994).

^d Esophagus only (AFHS, 2005).

^e *Genitourinary* is one category (ICD 9 codes 179-189—excludes carcinoma in situ) (AFHS, 1984).

^f *Kidney and Bladder* is the category reference (AFHS, 1987, 1990, 1995).

^g Carcinoma *in situ* of penis and other sites listed separately (AFHS, 1990).

^h The only site-specific reference for carcinoma in situ is penis (AFHS, 2000).

TABLE B-13 Reproductive Assessment

	Year of Report		
	1984 ^a	1992 ^b	1998
Analyzed Endpoints			
Number of marriages (Q)	X		X
Duration of marital and nonmarital relationships (Q)	X		X
Number of couples with the desired number of children (Q)	X		X
Sperm count (LAB)	X		X
Sperm morphology (LAB)	X		X
Number of conceptions (Q)	X	X	X
Conception outcomes: miscarriage (Q/MRV)	X	X	X
Conception outcomes: induced abortion (Q/MRV)	X	X	X
Conception outcomes: tubal pregnancy (QMRV)		X	
Conception outcomes: stillbirth (Q/MRV)	X	X	X
Conception outcomes: live birth (Q/MRV)	X	X	X
Live birth outcomes: learning disabilities (Q/MRV)	X		X
Live birth outcomes: physical handicaps (Q/MRV)	X		X
Live birth outcomes: neonatal mortality (Q/MRV)	X		X
Live birth outcomes: infant mortality (Q/MRV)	X		X
Live birth outcomes: birth defects ^c (ICD 9 coded) (Q/MRV)	X	X	X
CDC birth defect category: total congenital anomalies (Q/MRV)		X	
CDC birth defect category: nervous system anomalies (Q/MRV)		X	
CDC birth defect category: eye anomalies (Q/MRV)		X	
CDC birth defect category: ear, face, and neck anomalies (Q/MRV)		X	
CDC birth defect category: circulatory system and heart anomalies (Q/MRV)		X	
CDC birth defect category: respiratory anomalies (Q/MRV)		X	
CDC birth defect category: digestive system anomalies (Q/MRV)		X	
CDC birth defect category: genital anomalies (Q/MRV)		X	
Birth defects: urinary system anomalies (Q/MRV)		X	
CDC birth defect category: musculoskeletal deformities (Q/MRV)		X	
CDC birth defect category: anomalies of the skin (Q/MRV)		X	
CDC birth defect category: chromosomal anomalies (Q/MRV)		X	
CDC birth defect category: other and unspecified anomalies (Q/MRV)		X	
Birth defect severity (Q/MRV)	X	X	X
Birth weight (MRV)		X	

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified.

Analyzed endpoints in 1992 study were chosen for ease of comparison with the results from the 1989 CDC Vietnam Experience Study reproductive outcome results. Many of the outcomes in the 1992 report were included under broader variables analyzed for the 1984 and 1998 reports.

Areas in gray indicate that either an endpoint was not analyzed for a particular cycle or that it was unclear from the cycle report if an endpoint was analyzed. Gray areas do not indicate that an endpoint was not measured or recorded for a particular cycle.

^aData collected at Cycle 1 (1982). No outcomes verified.

^bData collected in 1982, 1985, and 1987.

^cBirth defect had to match description on predetermined list to be included in analyses at the baseline.

TABLE B-14 Laboratory Analyses

Cycle Examination Year		1 1982	2 1985	3 1987	4 1992	5 1997	6 2002	
Hematology								
Cell Count/Indices		X	X	X	X	X	X	
	WBC	X	X	X	X	X	X	
	RBC	X	X	X	X	X	X	
	RDW	X	X	X	X			
	HGB	X	X	X	X	X	X	
	Hematocrit	X	X	X	X	X	X	
	MCV	X	X	X	X	X	X	
	MCH	X	X	X	X	X	X	
	MCHC	X	X	X	X	X	X	
	PLT	X	X	X	X	X	X	
	Differential		X	X	X	X	X	X
		Neutrophils	X	X	X	X	X	X
		LYMPH	X	X	X	X	X	X
		MONO	X	X	X	X	X	X
EOS		X	X	X	X	X	X	
BANDS		X	X	X	X	X	X	
BASO		X	X	X	X	X	X	
BLAST		X	X	X	X	X	X	
RBC morphology			X	X	X	X	X	
Platelet observation			X	X	X	X	X	
Cells counted		X	X	X	X	X	X	
Absolute differential		ABS SEGS		X	X	X	X	X
		ABS BANDS		X	X	X	X	X
		ABS LYMPHS		X	X	X	X	X
	ABS MONOS		X	X	X	X	X	
	ABS EOS		X	X	X	X	X	
	ABS BASOS		X	X	X	X	X	
	RPR/VDRL/FTA	X	X	X	X	X	X	
	ESR	X	X	X	X	X	X	
	Glucose, 2HR PP	X	X	X	X	X	X	
	Prothrombin time	X	X	X	X	X	X	
Chemistry Routine								
BUN	X	X	X	X	X	X		
Glucose fasting	X	X	X	X	X	X		
Cholesterol	X	X	X	X	X	X		
HDL cholesterol	X	X	X	X	X	X		
Triglycerides	X	X	X	X	X	X		
SGOT/AST	X	X	X	X	X	X		
SGPT/ALT	X	X	X	X	X	X		

TABLE B-14 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Gamma GT	X	X	X	X	X	X
Alkaline phosphatase	X	X	X	X	X	X
Total LDH	X	X	X	X	X	X
Creatinine serum	X			X	X	X
Creatine kinase	X	X	X	X	X	X
Amylase		X	X	X	X	X
Total bilirubin	X	X	X	X	X	X
Direct bilirubin	X	X	X	X	X	X
Chemistry Miscellaneous						
FSH	X	X	X	X	X	X
LH	X	X	X	X	X	X
Testosterone, free				X	X	X
Testosterone, total	X	X	X	X	X	X
Sex hormone binding globulin				X		
Estradiol				X	X	X
T4, free						X
T4, RIA	X	X	X	X	X	
T3, free						X
T3, uptake	X	X	X			
TSH	X	X	X	X	X	X
FTI	X					
PSA				X	X	X
Insulin, fasting						X
Glucagon @ 2 hr				X		X
Insulin, serum @ 2 hr				X	X	X
Glycated hemoglobin				X	X	X
C Peptide, serum				X		X
ACTH, serum				X		
Uric acid						X
Urinalysis Routine						
Color	X	X	X	X	X	X
Character	X	X	X	X	X	X
Glucose	X	X	X	X	X	X
pH	X	X	X	X	X	X
Ketone	X	X	X	X	X	X
Protein	X	X	X	X	X	X
Bile	X	X	X	X	X	X
Occult blood	X					X
Urobilinogen	X	X	X	X	X	X
Specific gravity	X	X	X	X	X	X
Epithelial cells	X	X	X	X	X	X

continues

TABLE B-14 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Urinalysis Routine (continued)						
Bacteria	X	X	X	X	X	X
Mucus	X	X	X	X	X	X
WBC/HPF	X	X	X	X	X	X
Casts		X	X	X	X	X
Crystals		X	X	X	X	X
RBC		X	X	X	X	X
Nitrites		X	X	X	X	X
Leukocyte esterase					X	X
Other				X	X	X
Comments	X	X	X	X	X	X
Glucose, urine 2 hr	X	X	X	X	X	X
Urine 24 hr						
Coproporphyrin	X	X				
Uroporphyrin	X	X				
Porphobilinogen	X	X				
Heptacarboxyporphyrins		X				
Hexacarboxyporphyrins		X				
Pentacarboxyporphyrins		X				
Creatinine	X					
Aminolevulinic Acid	X					
Comments	X	X				
Cortisol Differential						
Cortisol 1	X	X				
Cortisol 2	X	X				
Protein Electrophoresis						
Total protein	X	X	X			
Prealbumin				X	X	X
Albumin	X	X	X	X	X	X
Alpha 1 globulin	X	X	X	X	X	X
Alpha 2 globulin	X	X	X	X	X	X
Beta globulin	X	X	X	X	X	X
Gamma globulin	X	X	X	X	X	X
IGA	X	X	X	X	X	X
IGG	X	X	X	X	X	X
IGM	X	X	X	X	X	X
Protein Profile						
Alpha 1 acid glycoprotein			X	X	X	X
Alpha 1 antitrypsin			X	X	X	X

TABLE B-14 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Alpha 2 macroglobulin			X	X	X	X
Apolipoprotein B			X	X	X	X
C3 complement			X	X	X	X
C4 complement			X	X	X	X
Haptoglobin			X	X	X	X
Transferrin			X	X	X	X
HI-RES Electrophoresis						
High-resolution bands						
IGG-Kappa				X		
IGG-Lambda				X		
IGG-No light chain				X		
IGA-Kappa				X		
IGA-Lambda				X		
IGA-No light chain				X		
IGM-Kappa				X		
IGM-Lambda				X		
IGM-No light chain				X		
KAPPA-No heavy chain				X		
LAMBDA-No heavy chain				X		
Hepatitis Panel						
HA Antibody	X		X	X	X	X
HBs Antigen	X	X	X	X	X	X
HBc Antibody	X		X	X	X	X
HBs Antibody	X	X	X	X	X	X
HC Antibody				X	X	X
HD Antibody					X	X
HIV-1 ELISA Screen						
			X	X	X	X
Semen Analysis						
Total count	X					
Volume	X					
Abnormal forms	X					
Immunology						
Mixed lymphocyte RX		X	X			
Cell surface markers		X	X			
Killer cell no interferon		X	X			
Killer cell interferon		X	X			
Mitogen PHA stimulate		X	X			
Mitogen pokweed stimulation		X	X			

continues

TABLE B-14 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Lymphocyte Phenotyping Panel						
WBC count				X	X	X
% Lymphocytes				X	X	X
Absolute lymphocytes				X	X	X
C45 total lymph (CD14-)				X	X	X
CD14 monocytes				X	X	X
Absolute CD14				X		
CD20 B cells				X		
Absolute CD20				X	X	X
CD5 T cells				X	X	X
Absolute CD5				X		
Absolute CD20 and CD5+				X		
CD4 helper T cells				X		
Absolute CD4				X	X	X
CD4+CD3				X	X	X
Absolute CD4+CD3					X	X
CD8 suppressor T cells					X	X
Absolute CD8				X	X	X
CD4+ & CD8+				X	X	X
Absolute CD4+ & CD8+				X		
Ratio CD4/CD8				X		
CD8+CD3				X		
Absolute CD8+CD3					X	X
CD3 T cells					X	X
Absolute CD3				X	X	X
CD16/56 NK cells				X	X	X
Absolute CD16/56				X	X	X
CD3+ & CD16/56+NK-like T cells				X	X	X
Absolute CD3+ & CD16/56+				X		
CD25 IL-2 receptor cells				X		
Absolute CD25				X		
CD25+ & CD3+ activated T cells				X		
Absolute CD25+ & CD3+				X		
(CD4 + CD8)/CD3				X		
(CD3 + CD20 + CD16)/CD45				X		
Occult Blood Panel—Fecal						
Occult blood 1				X		
Occult blood 2				X		
Occult blood 3				X		

TABLE B-14 *Continued*

Cycle Examination Year	1 1982	2 1985	3 1987	4 1992	5 1997	6 2002
Mouse Stomach/Kidney Lupus Panel						
Antinuclear AB					X	X
Antimitochondrial AB				X	X	X
Antismooth Muscle AB				X	X	X
Antiparietal Cell AB				X	X	X
MSK other				X		
Thyroid microsomal AB				X	X	X
Rheumatoid factor latex				X	X	X
ANA on HEP-2 Cells						
Hep-2 cells				X		
Speckled				X		
Homogenous				X		
Nucleolar				X		
Centromere				X		
ANA Hep-2 other				X		
DNA antibodies (IFA)				X		
Anti Sm				X		
Anti RNP				X		
SSA antibody				X		
SSB antibody				X		
Lymphocyte phenotyping panel				X	X	X
Islet cell antibody				X	X	X
T-Cell clone						X
Anti-thyroid antibody				X		X
Fibrinogen					X	X
Microalbumin						
Microalbumin screen						X
Urine creatinine						X
Microalbumin quantity						X
Ratio						X
Diabetes Panel						
Hemoglobin A1c						X
Islet Cell AB						X
GAD Ab						X
C-Peptide						X
Proinsulin						X

TABLE B-15 Covariate Data Collected (Nonexhaustive List)

Age (years) (MIL)	Eye color (PE)
Aminodiphenyl exposure (Q)	Family history of diabetes (Q)
Anthracene exposure (Q)	Family history of heart disease (Q)
Arsenic exposure (Q)	Family history of heart disease before age 45 (Q)
Asbestos exposure (Q)	
Average lifetime residential history (Q)	Hair color (PE)
Benzene exposure (Q)	Lifetime alcohol history (drink-years) (Q)
Benzidene exposure (Q)	Lifetime cigarette smoking history (pack-years) (Q)
Body fat (percentage) (PE)	Lifetime wine history (drink-years of wine) (Q)
Body mass index (kg/m ²) (PE)	
Chloromethylether exposure (Q)	Maternal age (refers to partner in reproductive evaluation) (Q)
Cholesterol (mg/dl) (LAB)	Maternal drinking habits (refers to partner in reproductive evaluation) (Q)
Chromate exposure (Q)	Maternal smoking (refers to partner in reproductive evaluation) (Q)
Coal tar exposure (Q)	Military occupation (MIL)
Combat service (MIL)	Mustard gas exposure (Q)
Compliance to dietary restrictions (PE)	Naphthylamine exposure (Q)
Composite carcinogen exposure (Q)	Nonmedical X ray (Q)
Composite exposure to heavy metals (Q)	
Composite skin-reaction index (Q)	Personality type (PE)
Creosote exposure (Q)	Physical activity index (kcal/kg/day) (Q)
Cumulative degreasing chemical exposure (Q)	Presence of pre-SEA acne (Q)
Cumulative herbicide exposure (Q)	Presence of PTSD (Q)
Cumulative industrial chemical exposure (Q)	
Cumulative insecticide exposure (Q)	Race (MIL)
Cumulative ionizing radiation exposure (Q)	Skin color (PE)
Current alcohol use (drinks/day) (Q)	Skin reaction to sun after first exposure (Q)
Current cigarette smoking (cigarettes/day) (Q)	Skin reaction to sun after repeated exposure (Q)
Current employment	
Current marital status (Q)	Taking blood pressure medication (Q)
Current occupation (Q)	Time of conception relative to SEA tour (refers to reproductive evaluation) (Q/MRV)
Current parental status (Q)	Trichloroethylene exposure (Q)
Current total household income (dollars) (Q)	
Current wine consumption (drinks of wine/day) (Q)	UV light exposure (nonsolar) (Q)
Cutting oil exposure (Q)	Vinyl chloride exposure (Q)
Diabetes status (Q/LAB/MRV)	Waist-to-hip ratio (PE)
Diabetic severity (MRV)	
Duration of diabetes (years) (LAB/MRV)	
Ethnic background (Q)	

NOTES: Data sources: (Q) questionnaires; (PE) physical examination; (LAB) laboratory tests; (MRV) medical records verified; (MIL) military records.

TABLE B-16 AFHS Questionnaire Data

Cycle	Subject Areas	Cycle	Subject Areas
1	Subject Demographic Employment history Marital/reproductive history Medical history Substance abuse history Psychological history Exposure to toxic substances Income Spouse Demographic Reproductive history Substance abuse history Next of Kin (Proxy) Demographic Employment history Marital/reproductive history Medical history Substance abuse history Leisure activities Mortality data	4	Subject Occupational exposures (heavy metals and vibrating power tools) Family health history (with particular reference to diabetes, heart trouble, and heart disease) Diabetes history (type, treatment received, and medications taken) Hepatitis B vaccination history Intermittent claudication and vascular insufficiency history Normal physical activity level Dietary survey ^b
	Additions to Interval Questionnaires	5	Subject Percentage of herbicide spraying missions flown Intentional herbicide ingestion
2	Subject Skin cancer Personality type Birth marks Smoking habits Drinking habits	6	Subject Drinking history 2 weeks prior to physical exam Current personal relationships Employment history 1 week prior to physical exam Children under 18 living at home (including children, grandchildren, stepchildren, foster or adopted children) History of mission volunteerism in SEA
3	Subject Detailed drinking history Sleep disorders Interviewer remarks section added ^a		

^aThis section was added to the baseline questionnaire.

^bThe dietary survey was developed by Walter Willett at Harvard University and administered at the Cycle 4 follow-up only.

REFERENCES

- AFHS. 1984. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. Baseline Morbidity Study Results*. Brooks AFB, TX: USAF School of Aerospace Medicine. NTIS AD-A-138-340.
- AFHS. 1987. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. First Follow-up Examination Results*. 2 vols. Brooks AFB, TX: USAF School of Aerospace Medicine. USAFSAM-TR-87-27.
- AFHS. 1990. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides*. 2 vols. Brooks AFB, TX: USAF School of Aerospace Medicine. USAFSAM-TR-90-2.
- AFHS. 1992. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. Reproductive Outcomes*. Brooks AFB, TX: Armstrong Laboratory. AL-TR-1992-0090.
- AFHS. 1993. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. Mortality Update: 1993*. Brooks AFB, TX: Armstrong Laboratory. AL/AO-TR-1993-0161.
- AFHS. 1995. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. 1992 Followup Examination Results*. Brooks AFB, TX: Epidemiologic Research Division. Armstrong Laboratory. AL-TR-920107.
- AFHS. 1998. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. Reproductive Outcome Update*. Brooks AFB, TX: Epidemiologic Research Division. Armstrong Laboratory. AFRL-HE-BR-TR-1998-0073.
- AFHS. 2000. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. 1997 Follow-up Examination Results*. Brooks AFB, TX: Human Systems Program Office. Armstrong Laboratory. AFRL-HE-BR-TR-2000-02.
- AFHS. 2005. *An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides. 2002 Followup Examination Results*. Brooks AFB, TX: Epidemiologic Research Division. Armstrong Laboratory. AFRL-HE-BR-SR-2005-0003.