NATIONAL HEART, LUNG, AND BLOOD INSTITUTE
DIVISION OF EPIDEMIOLOGY AND CLINICAL APPLICATIONS

The Honolulu Heart Program Public Use Data Sets

The Honolulu Heart Program began in 1965 with the first examination of a cohort of 8006 Japanese-American men residing on the island of Oahu, Hawaii who were born during the period 1900-1919. They were identified from a roster of more than 23,000 men on the selective service registry for the Hawaiian islands for the period 1940-42 (1). The first examination was completed in 1968 and was followed by the initiation of a second examination that same year. This second examination, completed in 1970, collected data on 7498 men of the original cohort. Three subsequent sub-examinations (Lipoprotein Exams I, II and III) were conducted between 1970 and 1982 to collect lipid measurements on a subset of those who participated in Exam 2. The first of these comprised a 30% random sample of the entire cohort which participated in Examination 2 plus individuals with levels of serum triglyceride or serum total cholesterol in the highest decile in Exam 1, or who had a history of definite coronary heart disease (CHD) or cardiovascular disease at Exam 2 (2). Participants in Lipoprotein Exam I were invited for reexamination in Lipoprotein Exams II and III. Subsets of Exam 2 participants also completed questionnaires in 1970 that elicited information on acculturation (4653 subjects) and Jenkins Activity Survey (3027 subjects). A third examination of 6860 men of the original cohort was made during 1971-75. The fourth examination of surviving members of the original cohort was conducted during 1991-93 and collected data on 3845 men. With the exception of the third examination, these data collection efforts were supported entirely by contracts between the National Heart, Lung, and Blood Institute and the Kuakini Medical Center of Honolulu. The National Cancer Institute provided partial funding for Examination 3.

The HHP Public Use Data Set comprises twelve data files: four cohort examinations, three Lipoprotein sub-examinations, three questionnaire data files, and two surveillance files of deaths and morbid events which occurred during 1965-1994. A coding manual for each file provides variable names, the unit of measurement for measured values, and the meanings of codes for categorical variables. An identification number for each cohort member provides linkage between files. Ranges of values for measured quantities are included in the coding manuals. For certain variables, categories have been collapsed to prevent extreme, or unusual (rare) values from being utilized to identify individual cohort members. In all such cases, the corresponding variable is marked with an asterisk (*) in the coding manual and the specific details on how the variable values were modified are described. Age has been grouped to protect confidentiality.

The following are brief summaries of the contents of each of the twelve data files:

<u>**Examination 1**</u> (1965-68, N=8,006 participants, average age 54.4)

Anthropometry values: weight, standing and sitting height, chest depth, bi-acromial diameter, bi-iliac diameter, upper left arm girth, grip strength each hand, left triceps skinfold, left subscapular skinfold. **Physical measures**: heart rate, blood pressure sitting, resting (13-lead) ECG, forced vital capacity (FVC) and forced expiratory volume in one second (FEV_1).

Chemistries: urine glucose and protein, hematocrit, casual serum total cholesterol, casual serum triglyceride, casual serum uric acid, one-hour postload serum glucose. **Medical History/Lifestyle**: medical history, history of CHD or stroke, Rose chest pain questionnaire, history of diabetes and medication for diabetes, physical activity index, cigarette smoking history, alcohol consumption history, occupation history. **Dietary**: ratio measure of Japanese food consumption to total food consumption, 24-hr. dietary recall, intake frequency of unusual foods. **Family history:** questionnaire responses.

Examination 2 (1967-70, N=7498 participants, average age 56.4)

Anthropometry and Physical Measures: same as for Exam 1. **Chemistries**: same as for Exam 1 except that casual serum glucose replaced 1-hr. postload serum glucose for a small subset. **Medical History/Lifestyle**: same as for Exam 1 except no questions on physical activity, alcohol consumption, or occupation. Questions on respiratory symptoms and disease. **Dietary**: a 7-day diet record.

Examination 3 (1971-74, N=6860 participants, average age 60.2)

Anthropometry: Weight and standing height. **Physical Measures**: Same as for Exams 1 and 2. **Chemistries**: Urine glucose and protein, hematocrit, casual serum total cholesterol. **Medical History/Lifestyle**: Same as for Exam 1 except no Rose questionnaire and no physical activity index. Questions on respiratory symptoms and disease and jogging.

Examination 4 (1991-93, N=3845 participants, average age 77.8)

Anthropometry: Weight, standing and sitting height, grip strength each hand, left triceps skinfold, left subscapular skinfold, waist circumference, hip circumference.
Physical measures: heart rate, blood pressure sitting/standing/supine, random zero blood pressure, ankle-arm blood pressure, resting electrocardiogram (ECG), FVC, FEV_1, hearing, vision. **Chemistries**: Hematocrit, fasting total plasma cholesterol, fasting HDL cholesterol, fasting LDL cholesterol, fasting VLDL cholesterol, fasting triglyceride, fasting serum glucose, fasting insulin, 2-hr glucose, 2-hr insulin, CBC, fibrinogen, stored WBC's (buffy coat for DNA).
Medical History/Lifestyle: Medical history, occurrence of CHD or stroke, Rose chest pain questionnaire, history of diabetes and medication for diabetes, respiratory symptoms and disease, physical activity index, hours per week of regular exercise, number of blocks walked per day, number of stair flights climbed per day, cigarette smoking, alcohol consumption, questions on sleep and sleep apnea, performance-based physical function, activities of daily living (ADL) and instrumental ADL, prescription and over-the-counter medications, cognitive function. **Family History**: questionnaire responses. **Psychosocial**: Questions on social support and social networks.

Lipoprotein Exam I (1970-72, N=2780 participants, average age 58.4)

Chemistries: Fasting serum total cholesterol, fasting serum triglyceride, fasting plasma total cholesterol, fasting plasma HDL cholesterol, fasting plasma LDL cholesterol, fasting plasma VLDL cholesterol, fasting plasma triglyceride, fasting lipoprotein electrophoresis. Subsample measurements on SGOT, PBI, BUN, fasting serum glucose. **Medical History/Lifestyle**: Medical history, occurrence of CHD and stroke, history of diabetes and medication for diabetes, alcohol consumption. **Dietary**: Intake of 33 specific food items during previous day and past week.

Lipoprotein Exam II (1975-78, N=2386 participants, average age 63.8)

Anthropometry values:Weight. **Physical measures**: Heart rate, sitting blood pressure, resting ECG. **Chemistries**: Urine glucose, urine protein, hematocrit. Subsample fasting measurements on serum total cholesterol, serum triglyceride, plasma total cholesterol, plasma HDL cholesterol, plasma LDL cholesterol, plasma VLDL cholesterol, plasma triglyceride. **Medical History/Lifestyle**: Medical history, occurrence of CHD and stroke, Rose chest pain questionnaire, history of diabetes and medication for diabetes.

Lipoprotein Exam III (1980-82, N=2112 participants, average age 67.7)

Anthropometry values: Weight, standing height, left triceps skinfold, left subscapular skinfold. **Physical measures:** Heart rate, sitting blood pressure, resting ECG. **Chemistries**: Urine glucose and protein, hematocrit, fasting plasma total cholesterol, fasting plasma HDL cholesterol, fasting plasma triglyceride, subsample measurements on fasting plasma LDL cholesterol and fasting plasma VLDL cholesterol. **Medical History/Lifestyle**: Medical history, incidence of CHD and stroke, Rose chest pain questionnaire, history of diabetes and medication for diabetes, physical activity index, jogging practice, number of blocks walked per day, number of stair flights climbed per day, number of hours of light exercises per month, number of hours of strenuous exercises per month, cigarette smoking, alcohol consumption. **Dietary**: Ratio measure of Japanese food consumption to total food consumption, 24-hr. dietary recall, subsample 3-day diet record, frequency of salty foods intake during past week, frequency of calcium-rich foods intake during past week.

Acculturation Questionnaire (1971, N=4653 respondents)

The questions solicit information about the **cultural assimilation** of the family which includes ethnicity of employer, childhood and present friends, participation in Japanese social organizations, fluency in spoken and written Japanese, degree of usage of Japanese to communicate with friends and family members, observance of certain Japanese customs, and the ethnicity of their doctor, dentist, and lawyer. There is also a series of thirty-eight questions measuring the degree of agreement of the participant on statements about Japanese cultural values. The respondents represent 61 percent of the men who were mailed the questionnaire in August of 1971 and who had returned them by December 1971 (3).

Jenkins Activity Survey (1970, N=3027 participants)

A fifty-seven item questionnaire for a self evaluation of the participant's past and present **response to stress**, his level of stress in his job, and its manifestation in family and social settings. The subjects in this file represent a non-random subset of the entire cohort which participated in Exam 2.

CASI (Cognitive Abilities Screening Instrument) (1991,N=3845 respondents and participants)

The questions test for **cross-cultural epidemiological studies of dementia**. They include birthday, birth location, age, time, direction, repeat simple words, numbers, basic math, date, day, season, current location, animals, body parts and easy problem solving.

Surveillance Files (Mortality - H98, 1994, N=3848)   (Morbidity - H20, N=12576)

Deaths and morbid events (initial and recurrent) which occurred through December, 1994 are recorded in these files. All cardiovascular events and all deaths have been coded by cause using the 8th ICD convention. Major morbid events which have been coded are: MI, angina, coronary insufficiency, thromboembolic and hemorrhagic stroke, sudden death within one hour. Criteria are published for coronary heart disease (4) and stroke (5). Other diagnostic (e.g. coronary angiography) and treatment (e.g. coronary artery bypass graft and angioplasty) information is also recorded.

Please note that the variable name in the documentation matches the label and is provided under a separate variable name. (For example H2004B - Enzyme evidence is coded as variable surv35 and labeled as mi by enzymes H2004b.)

References

1. Worth RM, Kagan A: Ascertainment of men of Japanese ancestry in Hawaii through World War II Selective Service registration. J Chronic Dis 1970;23:389-397.

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4. Kagan A, Popper JS, Rhoads GG: Factors related to stroke incidence in Hawaii Japanese men: The Honolulu Heart Study. Stroke 1980;11:14-21.

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